THE EFFECT OF LEARNING MANAGEMENT USING COOPERATIVE LEARNING TOGETHER WITH SUPERSTAR MOBILE LIBRARY APPLICATION TO ENHANCE THE SEARCHING FOR INFORMATION ABILITY OF UNIVERSITY STUDENTS

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF EDUCATION
IN CURRICULUM AND INSTRUCTION
GRADUATE SCHOOL
VALAYA ALONGKORN RAJABHAT UNIVERSITY
UNDER THE ROYAL PATRONAGE PATHUM THANI
2022

ผลของการจัดการเรียนรู้ด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์เพื่อส่งเสริมความสามารถในการสืบค้นข้อมูลของนักศึกษา

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตร

ปริญญาครุศาสตรมหาบัณฑิต

สาขาวิชาหลักสูตรและการสอน

บัณฑิตวิทยาลัย

มหาวิทยาลัยราชภัฏวไลยอลงกรณ์ ในพระบรมราชูปถัมภ์ จังหวัดปทุมธานี

พ.ศ. 2565

THESIS APPROVAL
GRADUATE SCHOOL
VALAYA ALONGKORN RAJABHAT UNIVERSITY
UNDER THE ROYAL PATRONAGE PATHUM THANI

Thesis Title	The Effect of Learning Management Using Cooperative Learning Together with Superstar Mobile Library Application to Enhance the Searching for Information Ability of University Students
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Yuan Liangzhi. (2565). ผลของการจัดการเรียนรู้ด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์เพื่อส่งเสริมความสามารถในการสืบค้นข้อมูลของนักศึกษา. ครุศาสตรมหาบัณฑิต สาขาวิชาหลักสูตรและการสอน. อาจารย์ที่ปรึกษา : ผศ.ดร.นิติกร อ่อนโยน รศ.ดร.ฐิติพร พิชญกุล

บทคัดย่อ

งานวิจัยนี้มีจุดมุ่งหมายเพื่อ 1) เปรียบเทียบความสามารถในการสืบค้นข้อมูลระหว่างก่อนและหลังเรียนด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์ 2) เปรียบเทียบความสามารถในการสืบค้นข้อมูลหลังเรียนด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์กับเกณฑ์ร้อยละ 70 และ 3) ประเมินความพึงพอใจต่อการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุเปอร์สตาร์ การวิจัยนี้ใช้แบบแผนการทดลองกลุ่มเดียววัดก่อนและหลังเรียน กลุ่มตัวอย่างที่ใช้การศึกษาครั้งนี้เป็นนักศึกษาจีน ชั้นปีที่ 1 สาขาวิชาศิลปะของ Zhoukou Normal University ประเทศสาธารณรัฐประชาชนจีน จำนวน 35 คน ซึ่งได้รับการสุ่มแบบกลุ่ม เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย 1) แบบประเมินความสามารถในการสืบค้นข้อมูลซึ่งมีค่าความตรงเท่ากับ 1.00 และค่าความเที่ยงเท่ากับ 0.71 2) แบบสอบถามความพึงพอใจต่อการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์ซึ่งมีค่าความตรงเท่ากับ 1.00 และค่าความเที่ยงเท่ากับ 0.72 และ 3) แผนการจัดการเรียนรู้ซึ่งผ่านการตรวจสอบคุณภาพจากผู้เชี่ยวชาญ โดยมีค่าเท่ากับ 4.37 และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.20

ผลการวิจัยพบว่า 1) คะแนนความสามารถในการสืบค้นข้อมูลหลังจากเรียนด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์สูงกว่าก่อนการเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 (t_{34}= 15.19, $p < 0.05$) 2) คะแนนความสามารถในการสืบค้นข้อมูลหลังจากเรียนด้วยการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์สูงกว่าเกณฑ์ร้อยละ 70 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 (t_{34} = 47.21, $p < 0.05$) และ 3) คะแนนเฉลี่ยความพึงพอใจต่อการเรียนรู้แบบร่วมมือร่วมกับแอพพลิเคชันซุปเปอร์สตาร์อยู่ในระดับสูง โดยมีค่าเท่ากับ 4.73 และส่วนเบี่ยงเบนมาตรฐานเท่ากับ 0.20

องค์ความรู้ที่ได้จากการวิจัยในครั้งนี้ คือ รูปแบบการจัดการเรียนรู้แนวใหม่ที่เกิดจากการผสมผสานระหว่างการเรียนรู้แบบร่วมมือและการใช้แอพพลิเคชันซุปเปอร์สตาร์ ซึ่งเป็นปัจจัยสำคัญที่ช่วยส่งเสริมประสิทธิภาพในการจัดการเรียนรู้ และช่วยพัฒนาความสามารถในการสืบค้นหรือค้นคว้าข้อมูลของผู้เรียนให้ดีขึ้น

คำสำคัญ : การเรียนรู้แบบร่วมมือ แอพพลิเคชันซุปเปอร์สตาร์ ความสามารถในการสืบค้นข้อมูล

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Yuan Liangzhi. (2022). The Effect of Learning Management Using Cooperative Learning Together with Superstar Mobile Library Application to Enhance the Searching for Information Ability of University Students. Master of Education (Curriculum and Instruction). Advisors: Asst. Prof. Dr.Nitikorn Onyon, Assoc. Prof. Dr.Thitiporn Pichayakul

ABSTRACT

The purposes of this study were 1) to compare students' searching for information ability before and after learning through cooperative learning together with the superstar mobile library application, 2) to compare students' searching for information ability after learning through cooperative learning together with the superstar mobile library application with the criterion established at 70%, and 3) to assess the students' satisfaction toward learning management using the cooperative learning together with the superstar mobile library application. The experimental design was one group pretest-posttest design. The sample included in this study was 35 Chinese freshmen of the school of Arts at Zhoukou Normal University, Republic of China, obtained by the cluster random sampling method. The research instruments were: 1) a searching for information ability evaluation form with the validity at 1.00 and reliability at 0.71, 2) students' satisfaction toward cooperative learning together with the superstar mobile library application questionnaire with the validity at 1.00 and reliability at 0.72, and 3) the lesson plans, which were assessed the quality by a group of experts and received a mean score of 4.73 and standard deviation of 0.20.

The results revealed that 1) after learning through cooperative learning together with the superstar mobile library application in the classroom, the posttest scores on students' searching for information ability was greater than pretest scores at .05 level of statistical significance ($t34 = 15.19$, $p < .05$). 2) Mean score on students' searching for information ability after learning through cooperative learning together with the superstar mobile library application was statistically higher than the criterion of 70% at .05 level of statistical significance ($t34 = 47.21$, $p < .05$). 3) Students' satisfaction toward cooperative learning together with the superstar mobile library application was at high level with a mean of 4.73 and standard deviation of 0.20.

The body of knowledge gained from this research was a new model of learning management in which cooperative learning and superstar mobile library application usage were integrated. This was an important factor promoting an effective learning management and improving students' information searching ability.

Keywords: Cooperative Learning, Superstar Mobile Library Application, Searching for Information Ability

ACKNOWLEDGEMENTS

At this point, when the paper is completed, I would like to thank all the teachers and students who have helped me: I sincerely thank my tutor (Dr.Nitikorn Onyon) for his careful guidance and help during the two years of study. The teacher's upright and upward personality charm, tireless teaching style and rigorous and responsible working attitude not only benefit me a lot, but also serve as a model for my future study and work. I sincerely thank the leaders and teachers of the school for their care and guidance for me in the past two years. In addition to knowledge itself, what I have learned from them are more ideas and methods to solve problems. I would also like to thank my fellow students for their care and help in my life. So that I can finish my study in a relaxed and happy atmosphere, their sincere friendship and hard work have a profound impact on me, and every bit of time with them has left me a good memory. Finally, I would like to thank all the teachers who have worked hard for the thesis evaluation and defense.

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CHAPTER 1
INTRODUCTION

1.1 Background of the study

With the increasing popularity and wide spread of information network technology, the service of university library must be integrated into the computer network application environment. According to the needs of university library technology, data query service and information retrieval, how to build an information library is the key to the construction of network information service in university libraries, and it has become a brand-new topic facing the majority of library managers.

With the development of information technology, the computer technology system has been widely promoted in the library, which not only realizes the automation of library material management, but also improves the service quality of the library to meet the reading needs of readers. Under the background of informationization, modern libraries attach more importance to the exchange, transmission and application of information, and enhance the rapidity, timeliness and richness of information. In order to promote the application of information technology in the library and improve the quality of library management service. As an important place for cultural inheritance and knowledge dissemination, library plays an important role in improving the quality of the whole people. Today, with the development of information technology, the library should keep pace with the Times, reform the management mode and service mode, provide convenient service mode for readers, meet the reading needs of contemporary readers, and then strengthen the management mode of the library. Under the background of informationization, the realization of informationization management mode and service mode is the need of library's future development.

The subject I am interested in is the application and innovation of library information technology development in classroom teaching. The purpose of my study is to learn advanced scientific and technological knowledge and use it to spread it to students, so that students can acquire knowledge to facilitate the application in daily life. Mainly in the classroom teaching to pass the library information technology to students, so that students can master this technology, and use it to help and improve their learning efficiency, academic performance.

From previous teaching experience, I should not only use my professional knowledge to teach, but also solve students' different learning problems. For example, students sometimes encounter the problem of low learning enthusiasm in the learning process, and at this time, teachers should use a variety of teaching methods to attract students' attention and improve their interest, such as using experimental method, which can let students participate in practical experience. The teaching method should

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not be too single, which will improve the teaching efficiency. Some students may be separated from the theory learning and the combination of practice. At this time, the teacher needs to guide the students correctly to dare to carry out practical operation and demonstrate to the students personally. Teachers can also lead students to the library field operation guidance study. There are some students in the actual operation of some different problems, will have doubts, students can timely feedback to the teacher, the teacher can be patient to students to answer.

Sometimes in the classroom will also reflect the problem of students' retrieval ability, such as students' individual learning and understanding ability are not the same, some strong, some weak. The ability to understand strong grasp of search is strong, so the search efficiency is very high, and some students search ability is slower. This is not only related to the individual intelligence of students, but also to the teacher's teaching methods. That is to say, an excellent student can not be separated from their own efforts and talents, but also can not be separated from the teacher's training

Super Star Mobile Library application is one of the significant tools for learning to solve the problem students' searching for information skill or students' retrieval practice ability mentioned above. It is very important for students to learn about book and literature retrieval and solve problems together with the Super Star Mobile Library application in their learning life. There are the following points of importance:

More effectively save the students to find books and materials of the time, improve the efficiency.

More effectively improve the accuracy of students to find books and materials, reduce the error rate.

Exercise and improve the students learn to find books and materials methods and skills, improve the academic performance.

More time is saved to a large extent, and students can make full use of this time to study, can increase more effective learning time.

To give a very simple example, in the classroom can let students use the traditional basic search method and the use of basic search methods at the same time combined with the Super Star mobile library APP collaboration method, let students personally go to such a practical operation, students will have different feelings. Students can think independently about what is different between using basic search methods and having a collaborative search with APP. Students can think through practice what the advantages are, whether it improves the efficiency of search and so on. This is a good learning process, through practice to form thinking, and then make a final summary. This learning process is very important throughout the classroom!

For the reasons mentioned above, researcher is interested in and has realized the necessity of application and innovation of library information technology development in the course of teaching through the implementation of cooperative

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techniques together with Super Star mobile library application in order to cultivate searching for information skill. The finding of this study will be the guideline for teaching in library information technology course.

1.2 Research questions

1.2.1 How does students' searching for information ability before and after learning through Cooperative Learning together with the Super Star mobile library application?

1.2.2 How does students' searching for information ability after learning through Cooperative Learning together with the Super Star mobile library application compare with the established 70% criterion?.

1.2.3 How does the satisfaction of the students on learning management using the Cooperative Learning together with the Super Star mobile library application ?

1.3 Research objectives

1.3.1 To compare students' searching for information skills before and after learning through Cooperative Learning together with the Super Star mobile library application.

1.3.2 To compare students' searching for information skills after learning through Cooperative Learning together with the Super Star mobile library application with the established 70% criterion.

1.3.4To assess the students' satisfaction with learning management using the Cooperative Learning together with the Super Star mobile library application.

1.4 Research hypothesis

The research hypothesis for statistical testing are;

1.4.1 The students' searching for information skills before learning through Cooperative Learning together with the Super Star mobile library application will be higher than after.

1.4.2 The students' searching for information skills after learning through Cooperative Learning together with the Super Star mobile library application will be higher than the established 70% criterion.

1.4.3 The students' satisfaction with learning management using the Cooperative Learning together with the Super Star mobile library application will be at a high level.

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1.5 Delimitation of study

1) Population and samples

The population in this study are 110 first-year students of the School of Arts at Zhoukou Normal University in the second semester of academic year 2021.

The samples in this study are 35 freshmen of the School of Arts at Zhoukou Normal University obtained by the cluster random sampling method.

2) Variable in this study

The independent variable is learning management using Cooperative Learning together with the Super Star mobile library application

The dependent variable are:

The students' searching for information ability

The students' satisfaction on Learning management using Cooperative Learning together with the Super Star mobile library application

3) Content in this study

Course: Book and document retrieval course

Content: The content that were incorporated into this study were the concepts of Book and document retrieval course which consisted of the following sub-topics;

Book: any printed matter of more than 49 pages, excluding the cover and back cover, with a specific title and author's name and an international standard book number (ISBN) published by a publisher (trade). A publication with a price and copyright protection is called a book. The book is to spread the culture for the purpose, with the text or other information symbols recorded in a certain form of material works, books are the product of human thought, is a specific and constantly developing knowledge dissemination tools.

Literature: is the record of human knowledge and information of all carriers. It consists of four elements: document content, carrier material, information symbol and recording mode.

Library education is a science that studies the occurrence, development, organization and management of library and the law of library work. Its purpose is to summarize the practical experience of library work and library undertaking, establish a scientific theoretical system of library science, so as to promote the development of library undertaking and improve the status and function of library in the progress of human society. Library science is a developing science.

(4) Literature retrieval: refers to the process of obtaining literature according to the needs of study and work. In modern times, literature refers to articles and books of historical value or important books and materials related to a certain discipline. With the development of modern network technology, literature retrieval is more completed by computer technology.

4) Time duration: September to December 2021

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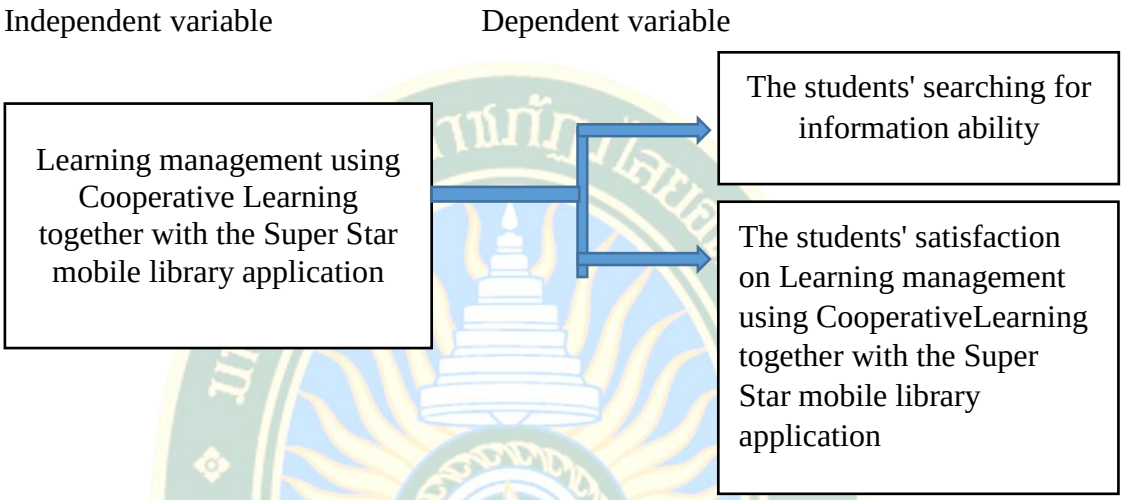
1.6 Conceptual framework



1.7 Operational definition

1.7.1 Cooperative learning refers to: Cooperative learning based on network communication refers to the use of modern computer network and multimedia technology to establish a cooperative learning environment, and then through groups and other forms to organize students and teachers and students to discuss, exchange and study, so as to learn the content of a more profound understanding and mastery. It is characterized by students' free choice of independent study, online group or team study, self-evaluation of their own academic performance, control of their own learning progress and the direction of continued efforts, not constrained by time and place.

1.7.2 Super Star mobile library application refers to new book retrieval and reading service platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature. In addition, there are featured resources such as videos, audiobooks, and open courses, as well as a variety of personalized reading options by adding subscriptions. This application provide users with a convenient mobile reading service and can improve students' learning efficiency. Students can enjoy the advantages of mobile library which can be directly read anytime and anywhere without leaving home, and can avoid the field library.

(Educational innovation is an innovative activity in the field of education to achieve a certain educational goal. Specific educational activities have specific educational goals. Generally speaking, the goal of education is to continuously improve national quality and cultivate talents to meet the needs of the constantly

developing society. Educational innovation activities should be carried out around this overall goal. Including education system, education place, education media, education structure, education concept, education method, education auxiliary means, curriculum materials, as well as education time and space, almost all aspects of education can be innovated.)

1.7.3 Learning management using Cooperative Learning model together with the Super Star mobile library application refers to learning in which students are arranged in small group and composed of 2 to 6 students of different abilities in a group. Group is made up of high-, average-, and low-achieving students. Group members are in cooperation and mutual assistance to engage in learning activities, to jointly complete the group learning objectives, improve the overall performance, and to obtain group rewards. In addition, teacher also uses Super Star mobile library application as tool for students learning during learning activity. The teaching procedures are listed as follows; 1) clarify goal and motivate students, 2) present information and materials, 3) organize students into learning teams, 4) assist with teamwork and study, and 5) presentation of group work.

1.7.4 Students' Searching for information skill (or Students' retrieval practice ability) refers to students inquire and obtain information, and it is the method and means to find information. Retrieval skill refers to the skill of purposefully seeking information from written materials. Ranging from basic vocabulary for words, find a specific page directory and understand vocabulary is used to determine whether the meaning and pronunciation, use of dictionaries, encyclopedias, reference books, such as documentary bibliography, index from the library for reading materials, use for reading techniques to find relevant information, as well as the thinking of looking for information and application.

1.7.5 The students' satisfaction on Learning management using Cooperative Learning together with the Super Star mobile library application refers to students' psychological feelings of satisfaction or dissatisfaction after using cooperative learning together with Super Star mobile library application for learning management in the whole process of teaching services involve teachers' teaching, quality of teaching service, and integrated teaching service. The students' satisfaction is obtained from questionnaire which is constructed by researcher.

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1.8 Significance of this study

1. Teachers can use as the guideline for developing the students' searching for information skills through combine modern computer information technology and Super Star mobile library application for teaching, effectively improve students' practical ability of books and literature retrieval, and help students improve their learning efficiency and performance. And in the course of research, we can constantly

discover and innovate teaching methods, so that the whole teaching process and results are more effective.

2. Students can apply the searching for information skills in their learning in any subject.

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CHAPTER 2
REVIEW OF LITERATURE

This study adopts the teaching method of cooperative techniques together with Super Star mobile library application to enhance the searching for information skill of of all previous freshmen in Zhoukou Normal University. The research site is located in Zhoukou Normal College, Chuanhui District, Zhoukou City, Henan Province

2.1 Basic information of college library literature retrieval course

2.1.1 Freshman library education and literature retrieval course:

The freshman library education and literature retrieval course is divided into two parts, the first is the freshmen library education, the second is the library literature retrieval.

Part one: Education of freshmen entering the library(Library education)

This course is a required course for first year college students. The first part mainly includes the following three aspects :

(1) library overview

our school library introduction

(2) to the library.

The first one is an overview of the library mainly by explaining the concept, nature, category, function and significance of the library. Let students fully understand the library, understand what is a library, know the role and significance of the library is what, so that students can pay attention to the importance of the library, for their future study to lay a good foundation. The second part is about the introduction of our school library. The purpose is to let students have a comprehensive understanding of their own school library. For example, to understand the facilities and equipment of the library, the layout of the internal stacks, etc. In this way, students will be familiar with the environment of the library after a understanding, will have a good feeling and affinity to the library, but also for their future study in the library to lay a good foundation. The third is to understand and abide by the library management system after entering the library. For example, students need to use a student card to enter the library. No noise, no eating, no occupying seats, no littering and a series of management measures are forbidden. These are the ones that students need to follow. Because to create a good and beautiful learning environment is not only by the manager to manage, but also by the management of mutual cooperation.The human brain understands, processes, refines, and turns it into systematic, theorized information.

Part two: Book literature retrieval

The retrieval of books and documents is mainly a service item of the library. Library services mainly include book borrowing service (book reading, book borrowing), information service (reference service, network information service), technical service (electronic reading room, wireless network service). In the book borrowing service, book reading refers to providing places for students to read books, which is to provide desks and chairs for learning and reading in the library. Book lending means that students can borrow books to read in the library, and can choose not to read in the library. It is also convenient for students to read books. The second information service in the reference service mainly refers to the students have some do not understand the place can look for the teacher to consult, answer. Teachers are obligated to provide students with necessary resource information. The Internet information service mainly means that students can read and learn on the Internet by using computers. In this way, students' reading learning style is no longer simple. The third technical service mainly refers to the electronic reading room provided by the library for students, which is actually the computer use reading room. Students can use the computer to study in this reading room. The library also provides free wireless Internet service, so students can use their mobile phone connection to access the Internet, and they can find and read books on the mobile Internet. These services are not single, they are diversified services, they can connect with each other, mutual cooperation, mutual transformation. The purpose is to serve the general school teachers and students.

Summary: Literature retrieval runs through the whole process of science learning, which is a necessary skill for university students to practice and a requirement for education facing modernization, the world and the future.

2.1.2 The importance of library education and literature retrieval course

The university library is the document information center of the school, the academic institution for teaching and scientific research service, and the necessary condition for the school to train talents and carry out scientific research. The nature of the university library: service and academic. Library is one of the three pillars of running a university . Library is the university's information center and learning research center. Library is the "heart" of the university.

The Importance of libraries to universities:

Library is "ocean of wisdom and knowledge" and "silent teacher" Library is the second classroom of college students, and it is the supplement and deepening of classroom knowledge structure Library is an important place to cultivate college students' self-study ability and comprehensive quality Library is the base for college students to build and renew their professional knowledge Library is the best way to train college students' scientific research and innovation ability Library is the only way to cultivate information quality and information ability.

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Because libraries not only play an important role in universities, but also in society and culture. For example, public libraries are built in every city, which shows their importance. Therefore, it is necessary and important to carry out literature retrieval course in university library education.

Summary: Through the above description, it can be seen that the importance of book literature retrieval, students can only keep pace with the times by seriously studying this course, keep up with the development and pace of book science and technology, and not be eliminated by scientific knowledge in the new era.

2.2 Cooperative learning together with Super Star mobile library application

2.2.1 Cooperative learning

Cooperative learning refers to mutual learning in which students have clear division of responsibilities in order to complete common tasks in groups or teams. It refers to guided group teaching to maximize learning for all students. Cooperative learning emphasizes the cooperation between students in the learning process, students can not only get knowledge from teachers, but also from their peers. Cooperative learning is a very good learning method, it can stimulate students' interest in learning, fully mobilize students' enthusiasm for learning, explore the potential of each student. At the same time, and can make students mutual respect and mutual learning, fair competition, and play the wisdom of the collective, so that each student can get from learning the fun of success and ability to improve. The five basic techniques used are:

1. Division of students' group scores

In students group division method, the students were divided into four study groups, requires members at grade level, gender, race, etc have heterogeneity, teaching program is taught by teachers, and students to study in their respective groups, so that all the students to master the teaching content, finally learned information in individual test on all of the students. At this time, don't allow them to help each other, the students' test scores used with their own past, compared to the average score of the test according to the students at or above the degree of their previous performance to score, then the team scores constitute a team scores, reach a certain standard of group can be recognised or other forms of reward.

2. Group game competition method

One of the earliest methods of cooperative learning used teacher instruction and group work in the same way that students worked in groups, except that it used weekly contests instead of tests. In competitions, students compete against members from other groups to win points for their own group. Students compete in teams of three against students with similar past records of academic achievement. This method has a "continuous adjustment" procedure, which adjusts the arrangement of

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the students' competition table once a week according to the results of each competition, so as to make the competition more fair.

3. Cutting splicing method

In this method, students are first arranged in groups of six to learn the learning material that has been divided into sections in advance. Then, students who learn the same content in each group form an expert group to discuss the part of the content they want to learn together until they master it. The students then return to their respective groups and take turns teaching what they have learned to their group members. The advantage of the piecing method is that in addition to the content that each student has already mastered, they can also gain more knowledge by listening to the explanation of the group members carefully, so they have the motivation to support each other and show interest in each other's work.

Slavin developed a modified version of it, the piece-slicing method. In this method, students work in groups of five or six, as in group games and division of achievement. Instead, each student is assigned a portion of the material, but each student has to become an expert in a certain area. Students studying the same subject meet in "expert groups" to discuss it, then return to their own groups and teach what they have learned to their group members. Then each to participate in the test, with the division of group results method of scoring method to calculate the group score, to achieve the predetermined standard of the group was recognized.

4. A total of learning type

Another approach to cooperative learning requires students to work in heterogeneous groups of four or five on assigned worksheets. Each group will hand in one assignment and receive praise and reward based on their achievement. The collective learning style emphasizes the group building activities and regular discussion of the activities of the members in the group before the students learn together.

5. Group investigation method

Group survey is a general classroom teaching organization plan. Students use cooperative inquiry, group discussion and cooperative design to conduct learning activities in small groups. In this method, study groups are usually composed of 2 to 6 people. After selecting a sub-project from the unit that the whole class learns, each group divides the sub-project into individual tasks and implements them on each student, and carries out the necessary activities to prepare the group report. Finally, each group makes presentations or exhibits to communicate their findings to the class.

Cooperative learning theory asserts that students learn best when they work together, when they encourage and tutor each other, and when they are held individually accountable for their work. As opposed to models that are more teacher-centered and that require teachers to expend a great deal of time keeping students motivated and in their seats, teachers in cooperative learning encourage students to move about and interact with each other. Research from both the cognitive and

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neurosciences supports this type of active involvement. Later in the chapter we discuss five different approaches to cooperative learning. You will find that each approach has its own features and specific procedures. However, there are some overall phases that are common to all cooperative learning approaches. We outline these phases in Figure 13.2, and then briefly discuss each below. More detailed descriptions are provided when we describe the different approaches to cooperative learning later in the chapter.

Cooperative learning begins with teachers clarifying the cooperative goals of the lesson and getting students ready to learn. This is an important phase of the lesson, particularly if students have had little experience with cooperative learning. Next, teachers provide students with information related to the lesson's topic. Sometimes this is accomplished with verbal presentation, but most often teachers provide students with printed learning materials. Students are then organized into learning teams and asked to study the learning materials provided for them. In some approaches these materials are be quite simple; in others, students are required to find materials in the library, on the Internet, or from community resources. Once students have completed their learning activities or investigations, they present what they have learned and the results of their work are recognized. In some approaches, they are tested on what they have learned. Finally, groups engage in reflection and debriefing.

Role of teacher and student in cooperative learning

The teacher's role in cooperative learning is one of facilitator, coach, and guide. Teachers prepare materials for students to use, intervene when groups need assistance,and ensure both individual and group accountability. A primary teaching responsibility is to build cooperative social environments and structures that will help students learn social and teamwork skills, as well as skills for problem solving and conflict resolution.

Students are active participants in cooperative learning and are required to engage fully in group work. Group skills for listening, discussing, and compromising are required if cooperative learning groups are to be successful. Reading, research, writing, and presentation skills are also required to complete many of the assigned tasks.

Connecting the cooperative learning to the context and science of learning

The roots of cooperative learning can be traced to the work of educational psychologists and pedagogical theorists at the beginning of the twentieth century, as well as to more recent cognitive and developmental theorists such as Jean Piaget and Lev Vygotsky.

Three theoretical perspectives provide the intellectual support for cooperative learning: the concept of democratic classrooms, theories of intergroup relations, and experiential learning. multiple senses, and that help students personalize knowledge. Two important educational implications stem from this knowledge about how the brain works and processes information. First, information that has personal meaning

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(connected to prior knowledge) goes through the limbic system and is stored in long-term memory more quickly. Two, learning is more expeditious when more than the memory system is stimulated by multiple senses. All forms of experiential learning, including cooperative learning, stimulate multiple senses and help students personalize information.

Planning for cooperative learning lessons

Cooperative learning requires a different approach to planning as compared to other forms of instruction such as presentation teaching or direct instruction. The roles for both the teacher and students are also different. In cooperative learning, teachers spend considerable time in preparing and gathering learning materials and creating cooperative learning environments. Students are expected to play active rather than passive roles.

Summary: Cooperative learning is an organizational form of student learning in teaching. It is a kind of mutual learning that students in a team carry out in accordance with clear division of responsibilities in order to complete the common learning tasks. Cooperative learning has far-reaching significance to promote the overall development of students.

2.2.2 Super Star mobile library application

Super Star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, to provide users with a convenient mobile reading service.

Super Star Mobile Library APP is like a handheld mobile APP. As long as the mobile phone is connected to the Internet, students can use this APP to find and read the books they need anytime and anywhere. This is a very convenient and efficient mobile library APP. This is a new technology product created based on the performance of students' demand for library and the development and innovation of library's own service. The purpose is to use for the school teachers and students of the library enquiries lending services. Combined with the service of this APP, the efficiency of book inquiry and borrowing has been greatly improved, which has brought benefits to teachers and students and won a good reputation from them.

Super Star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, To provide users with convenient and fast mobile reading services.

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Super Star mobile library teaching process

Super Star Mobile Library APP is a new book retrieval and reading service platform, which is researched and invented on the basis of traditional teaching methods and combined with the status quo of the university library service. This is a teaching innovation.

The main function of APP is to enable students to understand the benefits of traditional teaching methods, and to use innovative APP technology to improve their learning efficiency! Students can enjoy the advantages of mobile library which can be directly read anytime and anywhere without leaving home, and can avoid the field library.

There is a question of educational innovation involved here：

Among them, material means are mainly all the material conditions needed for education, which can be divided into three categories: educational venues and facilities, educational media and educational auxiliary means.

Educational activity places and facilities in schools mainly refer to the number of school buildings, classrooms, playgrounds, laboratories, school-run factories, farms, etc., and the internal equipment and devices.

Educational media is a tool for transmitting information between two types of subjects (educators and eductees) in educational activities. Therefore, educational media is the carrier of educational content, but also the carrier of other information in education. However, different media can be used for the same educational content. With the different media, the organizational form, method and effect of education will change.

Educational media come in many forms, from the simplest physical and spoken language to pictures, printed materials, audio tapes, video tapes, movies, television, computer programs, and so on. Their form is that with the development of human science and technology, educational activities are becoming more and more universal, individual and more colorful and integrated.

The role of teachers and learners in the teaching method and new technology product APP

In my opinion, first of all, teachers should be good at stimulating students' desire for knowledge in class. Not all textbooks are of interest to students. It is important for an experienced teacher to apply the textbooks flexibly and increase students' interest in the course materials from different aspects. Such as literature retrieval course, the teaching material in student's thought way, guides the student to enter the theme, let the student have fresh feeling at any time and place, to attract students, appropriate to use the knowledge, experience leads to a new topic (Super Star mobile library APP teaching), so as to constantly add new knowledge. The teacher should also actively guide the students to take the initiative to ask questions, so that students vivid learning, into active learning. Followed by the teacher in the classroom to teach timely correct learning methods, teachers should consciously

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taught study since the beginning of the teaching method, learning any subject, teacher don't directly open the door to let the students to come in, but the key to the door to them, students can open the doors of knowledge, positive thinking, independent exploration, solve the problem. The role of teachers is not only to impart knowledge, but also to develop students' intelligence and cultivate their creative ability. For example, in the classroom, students can think independently and put forward some ideas and ideas by learning existing knowledge (methods to make book and literature retrieval more efficient and innovative). In addition, teachers should pay attention to each student in class and teach students in accordance with their aptitude according to different situations, so that the teaching efficiency will be greatly improved. Finally, the teacher should let the students master the necessary knowledge. The learning of knowledge is never rote memorization, but through full thinking and interpretation or application of solving problems, and then form their own unique memory storage.

Students are learners, in learning must be fully involved in the teaching process, active and active, self-study, self-exploration, this is the active role of students. The leading role of teachers and the active role of students are interdependent. On the one hand, fully recognizing and highlighting the principal role of students is the premise for teachers to play the leading role. Without the active role of students, there is no guarantee of the leading role of teachers. As a result, this requests us in the teaching should take students as the subject, and to fully put inspiring the students' learning, only when the student's enthusiasm, fully mobilize the positive participation, active learning, arouse curiosity, cultivate interest in learning, the development of the students' ability is active, vivid, their individuality and creativity can be fully developed. In addition, students have their own subjective evaluation of teachers and their influence on education, and they have their own selective influence on teachers' education. For example, students can evaluate their own library and literature retrieval methods, how much they have learned and which methods they have mastered, so as to evaluate the teaching level of teachers. Students can also feedback what they have learned to the teacher, so that the teacher can timely know how the students have mastered the knowledge in class. In fact, teachers and students play a complementary role here.

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The teaching principles and theories of Super Star Mobile Library APP

Enable students to know that what they are learning is the operation of a computer APP system, which is an application system for searching books and materials. The name of this APP is called “Super Star mobile library” The teacher used this APP system to operate and show to the students, and taught the students to use this system to find books and materials. Enable students to operate skillfully the system to find books.

1) Super Star Mobile Library APP teaching method is adopted

I will use the courseware PDF made by myself to show and explain the contents of Super Star Mobile Library APP to students, including the downloading and using methods.

Usage:

1. WeChat pays attention to the public number Super Star Mobile Library
2. Download APP from "Client Download" in "Common Services" of the platform
3. Select "Zhoukou Normal University" and bind the ID card number.
4. Registration, user name and password are all card numbers.

2) The Importance of Adopting APP Teaching Method in Super Star Mobile Library

I will use the courseware PDF made by myself to show and explain the contents of Super Star Mobile Library APP to students, including the downloading and using methods. Through the application of Super Star Mobile Library APP teaching, students get a lot of help in books and literature retrieval, and improve their learning efficiency. Using APP teaching to enable students to fully grasp the relevant book information, enhance scientific selectivity. Can improve the efficiency of book information retrieval, shorten the time to obtain information, can let students in the shortest time to obtain the required resources. There are also full resources for students to access information. All the information you need can be retrieved in a single search. It has effectively promoted the progress and innovation of school library service.

3) Part of Super Star Mobile Library APP

Super Star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, to provide users with a convenient mobile reading service.

4) Develop and build Super Star mobile library APP

Super Star Mobile Library APP is researched and developed by the school in combination with the library service management and the resources needed by students.

5) The measurement and evaluation methods of Super Star Mobile Library APP are adopted

Let the students actually operate the APP, and the teacher will evaluate the students according to their proficiency and correctness. Teachers will judge students by failing, poor, good, excellent.

Super Star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete

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personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, to provide users with convenient and fast mobile reading services.

Super Star Mobile Library

Usage:

1. WeChat official account "Super Star Mobile Library"
2. Download APP from "Client Downloads" in "Common Services" of the platform.
3. Select "Zhoukou Normal University" and bind the ID card number.

Registration, user name and password are all card numbers

My collection

scan history

learning history

lending information

message center

Settings

Bookshelves

shake it up

academic resources

open lectures

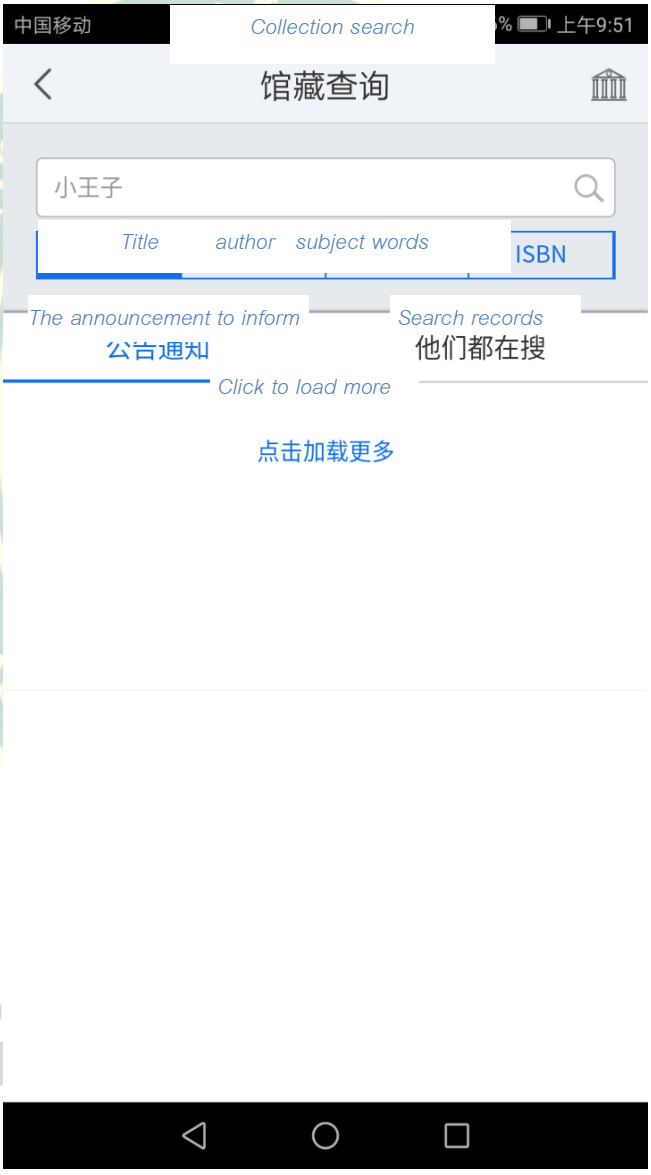
scan

When entering the APP page, you can see many columns, including: bookshelf, collection inquiry, academic resources, videos, audiobooks, public classes, newspapers and so on. The bottom taskbar has "scan" and "Subscribe" bars, and the small 1 in the middle allows you to scroll to the second page.

How to use APP:

"Shelf", if you have not downloaded the book, then this column is empty, there are downloaded books, will be arranged below, click into the book you want to see, you can set the brightness, paper, bookmarks, etc., personalized.

APP use guide: "Collection query" login your student ID, you can view the school collection resources anytime and anywhere, and make some records, you can directly borrow books from the library, avoid all kinds of queuing to search books.



APP use guide:

"Academic resources", with books, newspapers, periodicals and other sections to choose from, including the latest published books, free to view.

How to use APP:

Click "newspaper", there are a lot of newspapers to choose from, if the page newspaper can not satisfy your appetite, you can click on the top right corner of the add for further selection.

How to use APP:

In addition, there are videos, audiobooks, open classes and other featured resources, and there are many personalized readings to choose from when you add a subscription.

Use cooperative learning and the Super Star Mobile Library app to learn the steps of management together：

（1） Use cooperative learning to understand the theoretical knowledge of library education and literature retrieval.

（2） Use cooperative learning combined with Super Star mobile library APP to learn the theoretical knowledge of library literature retrieval

（3） When learning and mastering theoretical knowledge, then the cooperative learning combined with Super Star mobile library APP applied to the actual operation.

（4） In practice, after practical exercise to master the combination of Super Star mobile library APP to retrieve library materials operating skills.

Summary: Super Star Mobile Library APP has been widely used in colleges and universities, and its function and practicality have been recognized by teachers and students.

2.3 Searching for information skill or Students' retrieval practice ability

2.3.1 Definition of Searching for information skill or Students' retrieval practice ability

Searching information skill is the main way for users to search and obtain information, and is the method and means to find information. The narrow sense of information retrieval skills only refers to information query. That is, according to the needs of users, using a certain method, with the aid of retrieval tools, from the information set to find out the need for information search process. Generalized information retrieval refers to the process of processing, sorting, organizing and storing information in a certain way, and then finding out the relevant information accurately according to the specific needs of information users. Also known as information storage and retrieval. In general, information search skills refer to information retrieval in a broad sense.

Through the study of this course of literature information retrieval, we can cultivate our information awareness, self-study awareness and knowledge innovation ability, develop the habit of self-study and the ability to obtain information independently, and understand the importance and development trend of literature information retrieval and the basic knowledge of information retrieval in the information society. Let me understand the importance of studying scientific and technological literature retrieval, and let me know a broader and more scientific way to collect relevant information through learning, which is of great help to me in writing papers or conducting related research.

The course of literature information retrieval can help us find the literature information we need faster, thus avoiding repeated research or detours, and saving us a lot of time in learning to a certain extent. Studying literature information retrieval course makes us understand the broad charm of culture, realize the lack of our own knowledge, and urge us to acquire more knowledge and learn more new knowledge from it. Through information retrieval, you can quickly understand the basic knowledge of work, life, business, design, etc. You can inherit and learn from others' achievements, and avoid duplication or detours. On the other hand, it can open up ideas, improve efficiency, save time and reduce manpower or investment costs. You

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can establish the access channel and scope of industry dynamic information closely related to yourself, collect and master relevant information at any time, and cultivate the sensitivity of industry information. In addition, information retrieval can help identify information. The effective methods and measures are to listen to the teacher carefully in class, find ways to adapt to yourself, attend classes on time, take notes carefully, actively answer the teacher's questions, read more books, and conduct computer experiments according to the teacher's instructions.

Summary: The level of searching information skill is an important sign to test students' retrieval practice ability.

2.3.2 The measurement and evaluation of Searching for information skill or Students' retrieval practice ability

Since the cultivation of students' practical ability is a new requirement in the process of comprehensively promoting quality-oriented education in China, I refer to the research on the evaluation of students' ability and do the following exploration:

1. Content of evaluation

According to the goal of this study and the rules of the formation of students' practical ability, the content of the evaluation of students' practical ability includes three parts: cognitive basis, practical ability and practical quality.

(1) Cognitive basis. Students' social practice activities are to apply the theories, knowledge and skills they have learned to the actual social life, so they must take cognition as the basis, including theoretical knowledge and operational skills for practice. For example, students who want to go to the library to read books, first of all, they must understand the knowledge of books in real life, the search and retrieval knowledge of books must be used in the study and review, and the means to master the field search books, etc. Without these cognition as the basis, then it is very blind to enter the library to read and study.

(2) Practical ability. This evaluation content is divided into application ability and practical ability. Application ability refers to the ability to apply the theoretical knowledge learned to practice, which can be divided into the ability to apply theory to practice under the guidance of teachers and the ability to actively apply theory to practice. For example, students who read books in the library and apply what they learn in class to the real world fall into this category. The practical ability refers to the operational ability in practical activities, which can be divided into the practical practical ability and the active and conscious practical practical ability under the guidance of teachers.

(3) Practical quality. Good practical quality is the guarantee of improving practical ability. This evaluation is divided into initiative, cooperation and creativity. Initiative refers to the interest and initiative of participating in activities, cooperation refers to the spirit of participating in and organizing team cooperation in practical activities, and creativity refers to the consciousness and spirit of independent initiative in practical activities. Students' practical activities organized by schools and teachers

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are often carried out in groups. For example, some teachers organize students to conduct social investigations in groups. In the process of investigation, these practical qualities of individual students directly affect the effect of the investigation and the improvement of students' practical ability.

2. Evaluation method

The evaluation of students' practical ability adopts the method of combining various forms.

(1) Teacher evaluation. Teachers mainly use the method of observation to evaluate students' practical ability in practical activities. A "system of indicators"

can be used to score each item, resulting in an overall score. This quantitative evaluation method is beneficial to the horizontal comparison among students groups, and also beneficial to the vertical comparison of individual students to evaluate the development of their practical ability.

(2) Self-evaluation. Students evaluate their practical ability quantitatively or qualitatively according to the "index system". This method helps students understand themselves and see their progress and problems.

(3) Collective evaluation. Mainly in small groups. Through evaluation, students can communicate with each other, learn from each other, promote each other, see the results, find out the gap, make clear the direction of future efforts. Collective evaluation can also be based on the "index system" using a combination of quantitative and qualitative methods.

In the process of evaluation, we should follow the principles of development, democracy and incentive, combine quantitative evaluation with qualitative evaluation, and process evaluation with final evaluation, so that teachers can objectively and comprehensively understand the development of students' practical ability and make the next training plan. So that students can timely understand the status of self-development, so as to stimulate new needs, enhance the awareness of practice, and work toward new goals.

Summary: The measurement and evaluation table of students' practical ability of information retrieval is an important certificate to prove that students' practical ability of information retrieval is qualified.

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2.4 Students' satisfaction on teachers' teaching

2.4.1 Definition of students' satisfaction on teachers' teaching

It refers to the activity of judging the value of the teaching process and results according to the teaching objectives and serving for the teaching decision-making. It is the process of judging the actual or potential value of teaching activities. It is the process of studying the value of teachers' teaching and students' learning. The degree of satisfaction generally includes the evaluation of teachers, students, teaching contents, teaching methods, teaching environment, teaching management and other

factors in the teaching process, but mainly includes the evaluation of students' learning effect and the evaluation of teachers' teaching process.

2.4.2 Components of students' satisfaction on teachers' teaching

Satisfaction is the impact of the processes which have taken place during the teaching and learning sessions participated by the students. There are two core links of satisfaction: the evaluation of teachers' teaching work (teaching design, organization, implementation, etc.) -- teacher's teaching evaluation (classroom and extracurricular), and the evaluation of students' learning effect -- examination and test. In this part, we focus on satisfaction of teachers' teaching work which can be divided into the following points:

1) Classroom climate
2) Teaching process
3) Teaching material, especially integrated application in class
4) Assessment

2.4.3 Example of Students' satisfaction survey:

Table 1 Student Satisfaction survey

No	**The survey**	**Investigation Details**	**satisfaction**		
			Not satisfied with	**Basic satisfaction**	**Very satisfied with**
1	Teacher's teaching level	The level of professional knowledge of teachers			✓
		The way a teacher gives a lecture			✓
		The image of teachers			✓
		Knowledge gained by a teacher in a lecture		✓	
		Teachers summarize and harvest after class			✓
2	Quality of teaching service	Whether the teacher attends class on time			✓
		Whether teachers are serious and professional in class		✓	

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Table 1 (cont.)

No	The survey	Investigation Details	satisfaction		
			Not satisfied with	Basic satisfaction	Very satisfied with
		Whether the exam content reflects the course content			✓
		Whether the teacher is willing to answer and help the students in and out of class			✓
3	Integrated teaching service	Whether the students are proficient in the theory and skills of literature retrieval		✓	
		Is the efficiency of students' application combined with Super Star mobile library APP improved in practice			✓
		Students' inner feelings in practice			✓

Summary: The evaluation table of students' satisfaction with teachers' teaching reflects the fairness in the teaching process and the importance of teachers in the teaching process.

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2.5 Related research：

Related domestic literature:

1. Dong Shou kai (2020) conduct a research on the Public Space of University Library Based on the Theory of Environmental Behavior. The sample group were Architecture student of Hebei Institute of Civil Engineering andArchitecture. Research methodology were literature reading and analysis, field research, behavioral mapping, comparative analysis. Research finding revealed that by using the relevant theoretical knowledge of environmental behavior, this paper sorts out the types of public spaces in university libraries, explores the spatial factors that cause students'

behavior, finds the corresponding relationship between public space environment and students' behavior psychology, and verifies the scientificity of the corresponding relationship between space environment and students' behavior psychology through on-the-spot investigation. On this basis, it puts forward design principles and strategies aiming at four aspects of the characteristics of public spaces, and applies them to practice to create library public spaces with more spatial vitality and satisfying students' behavior psychology needs, and provides theoretical basis for future library public space design.

2. Shen Ling yun (2020) conduct a research on Library Borrowing Recommendation Method Based on Deep Learning. The sample group were Student of School of Information Management and Engineering, Shanghai University of Finance and Economics. Research methodology were Data processing method，Analytical statistical method，Model construction method，Effect evaluation method. Research finding revealed that in the field of book reading, it is more and more difficult for each reader to find the books he is interested in in the vast sea of people because of the different knowledge and cultural level of each reader. Therefore, the bibliographic recommendation service mode for personalized reading is the demand of personalized reading, and it is necessary to fully analyze the user's own attributes and behavior data in order to achieve the effect that varies from person to person.

3. Chen zheng si (2011) conduct a construction of a unified search platform for literature resources based on TRS information retrieval technology. The sample group were Students in the School of Software Engineering, Zhongnan University. Research methodology were Literature reading and analysis, field research, behavioral mapping, comparative analysis. Research finding revealed that In view of the inconvenience of the diversity and heterogeneity of the electronic literature resources of the digital library to the readers, this study mainly solves the problem of the unified search of the digital literature resources of the library, and studies how to improve the retrieval efficiency. The theory of searching word segmentation, correlation sorting, retrieval cluster and other key search techniques is studied and applied to the unified search engineering practice of electronic literature resources in libraries. According to the unified search theory and the actual situation of the library of Zhongnan University, the structure of different types of document resource metadata is designed, and the metadata specification of electronic literature resources is established. The metadata in the library's multi-electronic literature resource library is integrated and data combined, and the metadata storage system of the digital library is constructed. Based on metadata storage and full-text retrieval technology, the application platform of electronic resources is realized. We make full use of the relevant techniques such as word segmentation, real-time prompt of search terms, filtering of search terms, related search, classification statistics, etc. of the search platform, and improve the detection rate and accuracy rate of literature examination.

Practice has proved that the unified search platform of literature resources based on this idea and way has some practical value for the utilization and service of literature ralized service of follow-up disciplines.

4. Yu xiao sheng (2004) conduct a research on personalized Information Retrieval in digital Library. The sample group were Student, School of Computer Application Technology, Central China Normal University. Research methodology were Literature reading and analysis, field research, behavioral mapping, comparative analysis. Research finding revealed that with the development of Intemet, people become from the times of information shortage into the era of information abundance step by step, however the contradiction of supply and demand on information faced by people doesn't lysis. Possible solutions to the contradiction are provided by personalized information retrieval in digital library. Developed countries invested a lot of money in research and development on the aspect and attained amazing achievement, however research on the aspect in our country is on the beginning stage. The author tries to refer to advanced foreign experience on design, integrate it with concrete conditions in our country and apply the technologies of Agent, Filtering and Push to digital library. And then establish the model of personalized information retrieval in digital library according to user model in order to provide reference value to construction of it.

5. Ren Hao ran (2018) conduct a research on Image Resource Retrieval Technology of Digital Library Based on non sampling Contourlet transform. The sample group were Student, School of Information Management, Shanxi University of Finance and Economics. Research methodology were Literature survey method, literature measurement method, experimental simulation method, comparative analysis method. Research finding revealed that in the era of big data, users' information literacy is getting higher and higher, and the quality requirement of information is also improving. As the main provider of information, library is responsible for the accurate and fast transmission of high-quality information service. With the continuous maturation of image retrieval technology, the application and development of digital library image retrieval technology has come to a turning point. In order to improve the quality of library information service and meet the needs of information age, based on in-depth study of the theory and development of image retrieval, this paper constructs an efficient image resource retrieval model framework for digital library. The model is composed of five parts: information 3 acquisition module, image preprocessing module, feature extraction module, relevance feedback module and similarity measurement module. In the specific implementation process, the author adopts the method based on non sampling Contourlet transform (NSCT) texture feature extraction algorithm, this method compared with other extraction methods of texture feature can obtain more multi band coefficient information, while the cancellation of the down sampling operation, the implementation of digital library image retrieval. The experimental results show that the method has good retrieval

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performance, high precision and recall. The digital library image retrieval framework proposed in this paper is feasible, and it can provide users with high quality search service, providing a reference value for the development of Digital Library's retrieval technology.

Based on the above academic views, the teaching stage of traditional collaboration technology combined with Super Star Mobile library APP mainly adopts the idea of combining theory and practice. The idea is that the first is the theory, which believes that the Super Star mobile library APP teaching can be divided into three stages: "before class, during class and after class". In the "pre-class" stage, teachers mainly complete the preparation of curriculum resources and the guidance of students' independent learning. In the "in-class" stage, students have discussion, exploration, cooperation, practice and other learning activities, teachers give active guidance. In the "after class" stage, students mainly consolidate knowledge and improve practical operation retrieval ability. The second is the practical stage in real life, mainly to study whether students' personal book retrieval ability is really improved and whether it is more efficient after using Super Star mobile Library APP. What are the differences between before and after the combination. In the classroom teaching stage, the main emphasis is on the "pre-class" stage of resource preparation and effective teaching design. In this study, the online combined Super Star Library APP needs to be designed in detail in the "pre-class" stage, so the teaching mode of pre-class design course PPT needs to be adopted to highlight the preparation and design of online learning space.

In order to fully understand the research status of the practical ability of library literature retrieval and determine the rationality of this paper's topic selection, through the CNKI, with "book literature retrieval" as the key word, the attention to this study was statistically analyzed. The results show that universities and local libraries pay more attention to book and document retrieval (51.5% of all research fields), which is consistent with the characteristics of library education and document retrieval courses and interactive links. In this paper, the research on literature retrieval methods in university libraries accounts for 5.0% of the total research results. Combined with the research of Super Star mobile library APP, we can see its own good effect, is very suitable for the development of university libraries.

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CHAPTER 3
RESEARCH METHODOLOGY

The research methodology implemented in the study was discussed in this chapter. The study began with research process, followed by population and samples experimental design, research instruments, data collection, and data analysis.

3.1 Research process

This study consisted 3 stages included preparation stage, development stage, evaluation the effectiveness stage. By the details of each stage was summarized in the following figure.

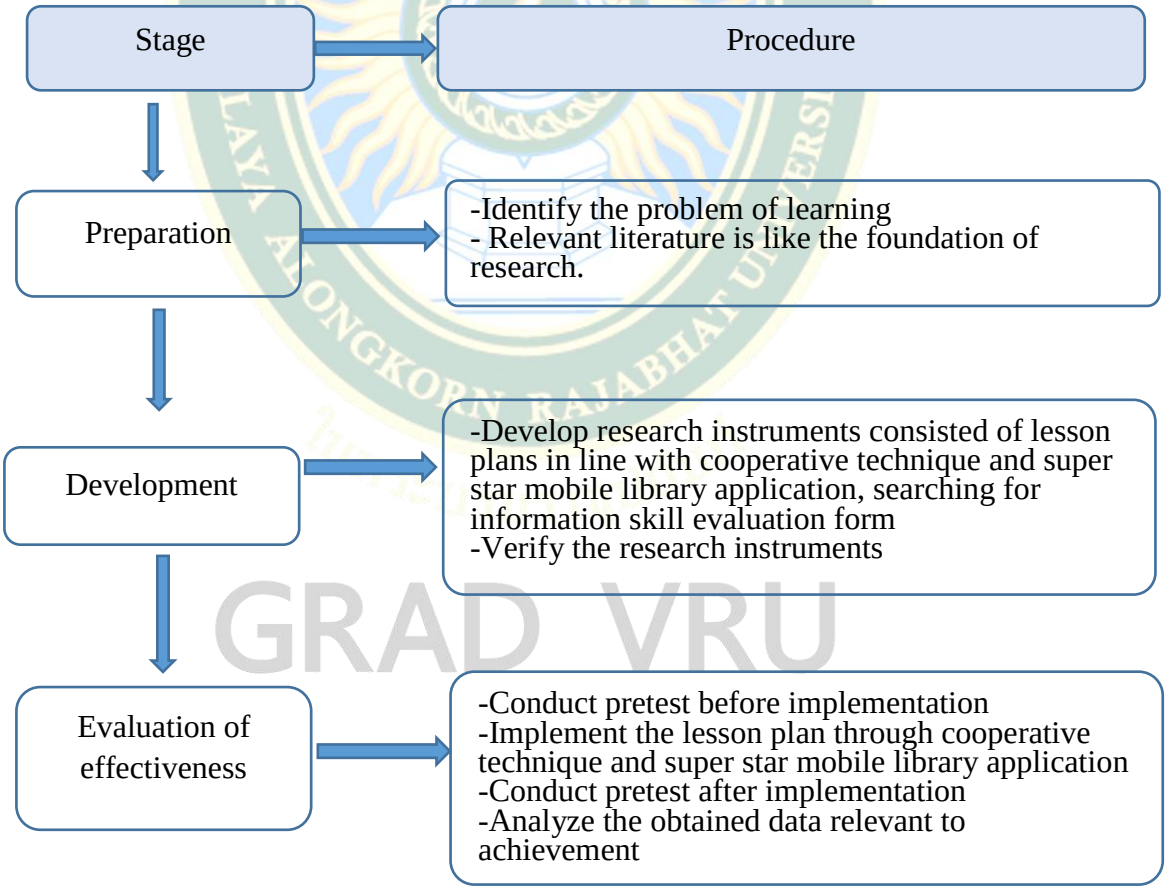

Figure 1 Overview of research process in this study

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3.2 Population and samples

3.2.1 The population in this study 110 first-year students of School of Arts at Zhoukou Normal University in the semester of academic year 2021.

3.2.2 The sample of this study was ~~51~~ 35 freshmen, School of Arts at Zhoukou Normal University who were selected through cluster random sampling technique.

3.3 Experimental design

This study employed pre-experimental design with one group pretest-posttest design shown in the figure below. Pretest-posttest were used to investigate the searching for information skill before and after learning through cooperative techniques together with Super Star mobile library application

Group	Pretest	Treatment	Posttest
Experimental group	O_1	X	O_2

O_1 was measurement of the searching for information skill before an experiment

X was a treatment of cooperative techniques together with Super Star mobile library application

O_2 was measurement of the searching for information skill after an experiment

3.4 Research instruments

Research instruments were the tools for conducting the research to collect data. The research instruments which were used in this study were Survey questionnaire

3.4.1 Instruments for experiment

Lesson plan were designed based on cooperative techniques together with Super Star mobile library application. There were altogether eight lessons, 45 minutes long in each lesson.

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Lesson	Topic of teaching	Time (Hours)
1	Understanding of library services and management system	1.30
2	Understanding of library services and management system	1.30
3	Understand the service and function of electronic reading room, use network service.	1.30
4	Super Star Mobile Library APP application	1.30
5	Understanding of library services and management system	1.30
6	Understanding of library services and management system	1.30
7	Understand the service and function of electronic reading room, use network service.	1.30
8	Super Star Mobile Library APP application	1.30

The draft lesson plans the mentioned earlier were assessed by 3 experts regarding an appropriateness in terms of learning objectives, content, learning activity, materials, and assessment. The instrument which used for evaluating of appropriateness evaluation was five-point rating scale which ranged the level of appropriateness from very high level, high level, moderate level, low level, and very low level.

The appropriateness data which collected from evaluation form was analyzed by calculating mean scores and assigned the interpretation of appropriateness level as follow;

Mean scores	Interpretation of appropriateness level
4.51 – 5.00	Very high level
3.51 – 4.50	High level
2.51 – 3.50	Moderate level
1.51 – 2.50	Low level
1.00 – 1.50	Very low level

If the mean scores of the appropriateness which evaluated by a group of experts was higher than 3.51, meaning an instructional was appropriate. In addition, Experts recommendations were used to revise the lesson plans. The quality of teaching plans was found, with a mean score of 4.37 and a standard deviation of 0.20.

3.4.2 Instruments for collecting data

There were 2 instruments for collecting data which consisted of 1) the searching for information skill evaluation form and 2) Questionnaire for students' satisfaction.

3.4.2.1 The searching for information skill evaluation form

The purpose of using the searching for information skill evaluation form was to collect data regarding the students' skill involve retrieval or searching for information. The following were the steps of constructing the evaluation form:

Step 1: Studying the construction of the skill or performance evaluation and the relevant documents. Consideration was focus on the components of searching for information. The construction of the test involving validity, reliability, and item discrimination.

Step 2: Constructing the searching for information skill evaluation form. The evaluation form which was the five-point rating scale ranged from never, rarely, sometimes, mostly, and always.

Step 3: The draft searching for information skill evaluation form was presented to thesis advisors for their advice on the appropriateness, precision, accuracy, ambiguity and wording. Then, researcher revised the draft evaluation form according to the thesis advisors' suggestions. The searching for information skill evaluation form and the validated form were offered to the three experts for the content validity determination and suggestions such as the alignment between the each item and operational definition, wording appropriateness. The quality of the searching for information skill evaluation form in term of content validity was considered from Index of Item-Objective Congruence (IOC) obtained from the validated form.

Step 4: Analyzing the IOC index of the searching for information skill evaluation form. The formula used to calculate the IOC index is:

$$IOC = \Sigma R / N$$

Where IOC means Index of Item-Objective Congruence
ΣR means Summation of experts' opinion marks
N means A number of experts

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If the Index of Item-Objective Congruence (IOC) of each item is greater than 0.5 that means it can be used in the evaluation form. The quality of the searching for information skill evaluation form in term of validity was found that validity was at 1.00.

Step 5: Revising the test according to the experts' comments and suggestions.

Step 6: Analyzed each item of the draft of evaluation form to find out the reliability index. The reliability of the evaluation form was computed using the formula of Cronbach's alpha and should be greater than 0.7. The draft of evaluation

form was preliminary study or pilot study and explored the reliability, it was found that this draft of evaluation form had a reliability at 0.71 that means the evaluation form had the quality and can be used to collect data.

3.4.2.2 Students' satisfaction questionnaire

The purpose of using the students' satisfaction questionnaire was to collect data regarding the students' opinion or satisfaction toward the instruction. The following were the steps of constructing the questionnaires:

Step 1: Reviewed the documents related to constructing the questionnaire.

Step 2: Constructed the questionnaire. The questionnaire consisted of three sections: Section 1 recorded the students' personal information. Section 2 was the five-point Likert's rating scale questionnaire which ranged from very satisfied, mostly satisfied, average, dissatisfied, and very dissatisfied. This section of the questionnaire which was asked about students' opinions toward the instruction including teaching and learning, learning materials, and evaluation methods. Section 3 was open-ended questions asking students' opinions toward instruction.

Step 3: The draft questionnaire was presented to thesis advisors for their advice on the appropriateness, precision, accuracy, ambiguity and wording of the questionnaire. After that the draft questionnaire was revised according to the thesis advisors' suggestions the evaluation form were offered to the three experts for the content validity check and suggestions. The quality of the questionnaire was considered from Index of Item-Objective Congruence (IOC) obtained from the evaluation form.

Step 4: Analyzed the IOC index of the questionnaire items. The formula used to calculate the IOC index was:

$$IOC = \Sigma R / N$$

Where IOC means Index of Item-Objective Congruence
ΣR means Summation of experts' opinion marks
N means A number of experts

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If the Index of Item-Objective Congruence (IOC) of each item of the questionnaire was greater than 0.5 that means it can be used in the questionnaire. The quality of the students' satisfaction questionnaire in term of validity was found that validity was at 1.00.

Step 5: Revised the questionnaire according to the experts' comments and suggestions.

Step 6: Analyzed each item of the draft questionnaire to find out the reliability index. The reliability of the questionnaire was computed using the formula of Cronbach's alpha and should be greater than 0.7. item discrimination index should be greater than 0.2. The draft questionnaire was preliminary study or pilot study and

explored the reliability, it was found that this draft questionnaire had a reliability at 0.72 that means the draft questionnaire had the appropriateness to collect data.

The student's satisfaction toward learning through cooperative techniques together with Super Star mobile library application was analyzed by calculating mean scores and assigned the interpretation of satisfied level as follow;

Mean scores	Interpretation of satisfied level
4.51 – 5.00	Very high satisfied level
3.51 – 4.50	High satisfied level
2.51 – 3.50	Moderate satisfied level
1.51 – 2.50	Low satisfied level
1.00 – 1.50	Very low satisfied level

3.5 Data collection

The procedures of data collection were as follows:

1. The samples were given the pretest by measuring the searching for information skill with constructed instrument.

2. The samples were taught by using cooperative techniques together with Super Star mobile library application

3. After finishing the instruction, the samples received the posttest by using the same instrument which were used in the pretest.

4. The samples were given the students' satisfaction questionnaire.

3.6 Data analysis

In this study, data were analyzed by using the statistical program according to the research objectives

1. Compare the searching for information skill before and after learning through cooperative techniques together with Super Star mobile library application by using t-test for dependent sample.

2. Compare the searching for information skill with the determined criteria set at 70 percent by using t-test for one sample.

3. Assess the student's satisfaction on learning through cooperative techniques together with Super Star mobile library application by using arithmetic mean and standard deviation.

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CHAPTER 4
RESULT

This chapter presents the findings related to the objectives of the research. The objectives of this research were as follows: 1) to compare students' searching for information skills before and after learning through cooperative Learning together with the Super Star mobile library application 2) to compare students' searching for information skills after learning through cooperative Learning together with the Super Star mobile library application with the established 70% criterion and 3) to assess the students' satisfaction with learning management using the cooperative Learning together with the Super Star mobile library. The findings of this research were analyzed through descriptive statistics and t-test by using statistical package program to answer the progress of participants after its implementation. The findings were described as follows.

The description of statistical symbols

Statistical symbols	Description
	Mean scores
S.D.	Standard deviation
t	t-statistics
p	Significance level

4.1 The results of the first research objective

The result of comparing the different scores of students' searching for information skills before and after learning through cooperative learning together with the Super Star mobile library application. The below table showed descriptive statistics and t-test as analyzed by statistical package program. This table aimed to answer the research objective about whether cooperative Learning together with the Super Star mobile library application was able to enhance students' searching for information skills before and after learning through cooperative learning together with the Super Star mobile library application.

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Table 1 The result of comparing the different scores of students' searching for information skills before and after learning through cooperative learning together with the Super Star mobile library application.

Group	N	Pretest scores		Posttest scores		t	p
			S.D.		S.D.		
Experimental group	35	83.54	3.06	94.43	3.06	15.19*	0.000

* mean statistical significant difference at 0.05 level

As presented in Table 4-1, the mean scores of pretest of students' searching for information skills was 83.54 (S.D. = 3.06) and posttest of students' students' searching for information skills was 94.43, (S.D. = 3.06).

Moreover, it aimed to examine the different scores of before-and-after using cooperative learning together with the Super Star mobile library application to enhance students' searching for information skills. The result of this table showed that after learning through cooperative Learning together with the Super Star mobile library application in the classroom, posttest scores of students' searching for information skills was greater than pretest scores at .05 level of statistical significance (t_{34}= 15.19, p < .05). The average scores of the study developed increasingly higher than pretest.

4.2 The results of the second research objective

The result of comparing the different scores of students' searching for information skills after learning through cooperative Learning together with the Super Star mobile library application with the criteria set at 70 percent. The below table showed descriptive statistics and t-test as analyzed by statistical package program. This table aimed to answer the research objective about whether cooperative Learning together with the Super Star mobile library application was able to enhance students' searching for information skills

Table 2 The result of comparing the different scores of students' searching for information skills after learning through cooperative learning together with the Super Star mobile library application with the criteria set at 70 percent

Group	N	Full score	Criteria score		S.D.	t	p
Experimental group	35	100	70	94.43	3.06	47.21*	0.000

* mean statistical significant difference at 0.05 level

As presented in Table 4-2, the mean scores of students' searching for information skills after learning through cooperative learning together with the Super Star mobile library application was 94.43 from a possible full marks of 100 and the standard deviation was 3.06 which was statistically higher than the criterion of 70% at .05 level of statistical significance (t 34= 47.21, $p < .05$).

4.3 The results of the third research objective

The below table showed descriptive statistics of students' satisfaction toward learning through cooperative Learning together with the Superstar mobile library application as analyzed by statistical package program. This table aimed to answer the research objective about whether after receiving cooperative learning together with the Super Star mobile library application was able to enhance students' satisfaction toward instruction.

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Table 3 The result of students' satisfaction toward learning through cooperative learning together with the Super Star mobile library application

No.	Item/question		S.D.
1	I am satisfied with Super Star mobile application which teacher use in classroom	4.97	0.17
2	I am satisfied with the working in group	5.00	0.00
3	The teacher's summary at the end of the class gave me materials to review and store knowledge.	4.60	0.69
4	I think the teacher is very patient in listening to our questions and answering our questions	4.71	0.46
5	Through learning the classroom with using Super Star mobile application, I feel that my retrieval practice ability has been improved.	4.71	0.46
6	I am satisfied with my teacher's expertise.	4.60	0.50
7	I am very satisfied with the retrieval methods and techniques taught by my teacher.	4.80	0.41
8	In the team, each student respects and understands each other, which makes me very satisfied.	4.66	0.48
9	I am very satisfied when I respected others without discrimination	4.71	0.46
10	I am very satisfied when group members help, support, and encourage each other	4.83	0.38
11	I am very satisfied when group members work together to achieve a common goal	4.60	0.50
12	I am very satisfied when group members can communicate, solve problems, and resolve conflict effectively	4.71	0.46
13	I think it is a waste of time to working in a team	4.74	0.44
14	When finishing a study project, I find it gratifying to see high-fives among my classmates.	4.69	0.47
15	I am satisfied that there will be majority rule in the team.	4.71	0.46
16	When each study team completes the task, the teacher will give the reward, I am very satisfied.	4.69	0.47
	Total	**4.73**	**0.20**

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As presented in Table 4-3, the result of students' satisfaction toward instruction revealed that total mean score of students' satisfaction toward instruction was 4.73 and standard deviation was 0.20 which interpreted that students satisfied with the cooperative learning together with the Super Star mobile library application at high level.

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CHAPTER 5
DISCUSSION

This research aims to 1) compare students' searching for information skills before and after learning through Cooperative Learning together with the Super Star mobile library application. 2) Compare students' searching for information skills after learning through Cooperative Learning together with the Super Star mobile library application with the established 70% criterion. 3) Assess the students' satisfaction with learning management using the Cooperative Learning together with the Super Star mobile library application. The samples in this study are 35 freshmen of the School of Arts at Zhoukou Normal University obtained by the cluster random sampling method. The experimental design employed was pre-experimental design with one group pretest-posttest design shown in the figure below. The research instruments for this study which consisted of 1) lesson plans 2) the searching for information skill evaluation form 3) students' satisfaction questionnaire. In this study, data were analyzed through using the statistical package program according to the research objectives: 1) compare the searching for information skill before and after learning through cooperative techniques together with super star mobile library application by using t-test for dependent sample. 2) Compare the searching for information skill with the determined criteria set at 70 percent by using t-test for one sample. 3) Assess the students' satisfaction with learning management using the Cooperative Learning together with the Super Star mobile library application by descriptive statistics with mean and standard deviation.

5.1 Research conclusion

The findings of this research were analyzed through descriptive statistics and t-test by using statistical package program to answer the progress of participants after its implementation. The findings were described as follows.

5.1.1 After learning through cooperative learning together with the Super Star mobile library application in the classroom, posttest scores of students' searching for information skills was greater than pretest scores at .05 level of statistical significance ($t34= 15.19$, $p < .05$). The average scores of the study developed increasingly higher than pretest.

5.1.2. The posttest mean scores of students' searching for information skills after learning through cooperative learning together with the Super Star mobile library application was statistically higher than the criterion of 70% at .05 level of statistical significance ($t34 = 47.21$, $p < .05$)

5.1.3 The total mean score of students' satisfaction toward cooperative learning together with the Super Star mobile library application was 4.73 and standard

deviation was 0.20 which interpreted that students satisfied with instruction at high level.

5.2 Research discussion

5.2.1 Students can enhance their retrieval skills by collaborating with the Super Star Mobile Library application.

First of all, Super Star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, to provide users with a convenient mobile reading service. This shows that there are many rich book resources on this APP, which can fully meet the needs of students. In this way, students can exclusively search and read on this APP, with a clearer and more accurate query target. (Beijing Century Super Star Information Technology, 2019)

Second reasons, Super Star Mobile Library APP is like a handheld mobile APP. As long as the mobile phone is connected to the Internet, students can use this APP to find and read the books they need anytime and anywhere. This is a very convenient and efficient mobile library APP. This is a new technology product created based on the performance of students' demand for library and the development and innovation of library's own service. The purpose is to use for the school teachers and students of the library enquiries lending services. Combined with the service of this APP, the efficiency of book inquiry and borrowing has been greatly improved, which has brought benefits to teachers and students and won a good reputation from them. In this way, students can carry their mobile phones to query book information, and do not need to go to the library to manually query information, which saves the retrieval time, greatly increases the retrieval efficiency, and thus improves the retrieval skills of students. (Talja, 2002)

Third reasons, Based on the above academic views, the teaching stage of traditional collaboration technology combined with Super Star Mobile library APP mainly adopts the idea of combining theory and practice. The idea is that the first is the theory, which believes that the Super Star mobile library APP teaching can be divided into three stages: "before class, during class and after class". In the "pre-class" stage, teachers mainly complete the preparation of curriculum resources and the guidance of students' independent learning. In the "in-class" stage, students have discussion, exploration, cooperation, practice and other learning activities, teachers give active guidance. In the "after class" stage, students mainly consolidate knowledge and improve practical operation retrieval ability. The second is the practical stage in real life, mainly to study whether students' personal book retrieval

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ability is really improved and whether it is more efficient after using Super Star mobile Library APP. What are the differences between before and after the combination. In the classroom teaching stage, the main emphasis is on the "pre-class" stage of resource preparation and effective teaching design. In this study, the online combined Super Star Library APP needs to be designed in detail in the "pre-class" stage, so the teaching mode of pre-class design course PPT needs to be adopted to highlight the preparation and design of online learning space. (Sun jing yu, Chen jun jie, yu xue li, et al., 2012)

In order to fully understand the research status of the practical ability of library literature retrieval and determine the rationality of this paper's topic selection, through the CNKI, with "book literature retrieval" as the key word, the attention to this study was statistically analyzed. The results show that universities and local libraries pay more attention to book and document retrieval (51.5% of all research fields), which is consistent with the characteristics of library education and document retrieval courses and interactive links. In this paper, the research on literature retrieval methods in university libraries accounts for 5.0% of the total research results. Combined with the research of Super Star mobile library APP, we can see its own good effect, is very suitable for the development of university libraries. (Wu Dan & Qiu Jin, 2012)

5.2.2 Students satisfy with cooperative learning together with the Super Star mobile library application.

First of all, Super Star Mobile Library APP is specialized in providing services for university library students. It is very aware of the needs of students in all aspects, so the functions in the APP can basically meet all the needs of students. Secondly, students through cooperative learning and the use of Super Star mobile library APP, do some feedback survey of students, the results show that not only enrich students' campus life, but also enrich students' retrieval skills, and improve the efficiency of book retrieval. Finally, the method of download and use of this APP is simple, easy to learn, and easy to master. It is mainly used in personal mobile phones, and it is also convenient to carry. You can use this APP anytime and anywhere, so it is very convenient for students. All in all, students were satisfied with working with the Super Star Mobile Library application.

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5.3 Recommendation

5.3.1 Recommendation for implication

1) This study can change the innovation model of book and document retrieval curriculum.

2) Combining modern computer information technology with Super Star mobile library teaching application, effectively improve students' practical ability of document and certificate retrieval, and help students improve their learning efficiency and grades.

3) In the process of research, we can constantly discover and innovate teaching methods to make the whole teaching process and results more effective.

5.3.2 Recommendation for further research

1) It can be combined with other learning software similar to the Super Star Mobile Library APP for research and comparison.

2) Through research and comparison, the results can be obtained, and the advantages and disadvantages between each other can be found.

3) When understanding the advantages and disadvantages between different learning software, you can optimize and improve yourself, learn and develop advantages, avoid shortcomings, make the functions and performance of its learning software more perfect, and help students learn more effectively.

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APPENDIX

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APPENDIX A
EXAMPLE OF LESSON PLAN

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LESSON PLAN

Course / Subject : Super Star Mobile Library APP application

Instructional Topic : Download method and use method of Super Star mobile Library APP.

Class Level : University public compulsory courses

Time for Instructional : Classes are held Tuesday, Saturday, Sunday, morning or afternoon during the freshman season

Instructor's name : Yuan Liang zhi

1. Objectives

1.1 Students can learn about the definition of Super Star Mobile Library APP.
1.2 Students can learn about the role of Super Star mobile library APP.
1.3 Students can learn to use the Super Star Mobile Library APP.

2. Content

The content mainly includes:

2.1 Super Star mobile Library APP concept

Super star mobile library is dedicated to professional mobile platform, the user can on the mobile devices such as mobile phone, pad self-service complete personal collection consult, the latest for lending and advisory browsing, have more than million copies of electronic books at the same time, huge amounts of newspaper articles, and metadata for users to choose Chinese and foreign literature, To provide users with convenient and fast mobile reading services.

2.2 Method of use: 1. WeChat pay close attention to the public, "Super Star" mobile library 2. Platform in the "common service" inside "the client download" to download the APP. 3. Select "zhoukou normal college," binding id number. 4. Registered user name and password are all id number.

2.3 APP using strategy: enter the page of the APP, you can see there are a lot of columns, including: bookshelf, collection query, academic resources, video, audiobooks, public class, newspapers and other columns. The bottom taskbar has "Scan", "subscribe", the middle of the small "1" can slide to the second page.

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APP using strategy: enter the page of the APP, you can see there are a lot of columns, including: bookshelf, collection query, academic resources, video, audiobooks, public class, newspapers and other columns. The bottom taskbar has "Scan", "subscribe", the middle of the small "1" can slide to the second page.

APP using the strategy: "collection query log on to their student id, you can view the collection resources of this school anytime and anywhere, and do the record, you can directly go to the library to borrow books, to avoid the various line check book.

APP using the strategy: "academic resources", a selection of books, newspapers, periodicals and other columns, there is a new book, watch free of charge.

Opens at APP using the strategy: "newspaper", there is a wide selection of newspapers, if page newspaper can't satisfy your appetite, you can click on the upper right corner to add further options.

APP using strategy: in addition, there is video, audio books, such as public class characteristic resources, add a subscription with a wide selection of personalized reading.

3. Instructional Strategies (teaching methods)

1) Learning management using Cooperative Learning model together with the Super Star mobile library application refers to learning in which students are arranged in small group and composed of 2 to 6 students of different abilities in a group. Group is made up of high-, average-, and low-achieving students. Group members are in cooperation and mutual assistance to engage in learning activities, to jointly complete the group learning objectives, improve the overall performance, and to obtain group rewards. In addition, teacher also uses Super Star mobile library application as tool for students learning during learning activity. The teaching procedures are listed as follows; 1) clarify goal and motivate students, 2) present information and materials, 3) organize students into learning teams, 4) assist with teamwork and study, and 5) presentation of group work.

Teaching steps	**Procedure**	**Teaching materials**
3.1 Clarify goal and motivate students	Example -Teacher inform learning objectives to clarify goal of this lesson -Teacher motivates students with the following of these questions; 1) Why this course is importance for your university life? 2) Will it help you in your college life when you take this course? 3) Have you learned the functions of Super Star mobile library APP through this course? 4) Have you learned how to use Super Star mobile Library APP by studying this course?	Library literature retrieval and Super Star Mobile Library APP
3.2 Present information and	-Teacher provide students with the information related to lesson’s topic	Freshman Library education and

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Teaching steps	Procedure	Teaching materials
materials	which cover the following topics; 1）Definition of Super Star Mobile Library APP. 2）The role of superstar Mobile Library APP. 3）Super Star mobile Library APP features. 4）Super Star mobile Library APP usage method. -Teacher provide sources of materials for exploring the previous topics	Super Star Mobile Library APP
3.3 Organize students into learning teams	<u>Example</u> -Teacher divide students into group/team which comprise of 4 members/group. -Teacher ask students to study the learning materials provided to them. Each group will assign the topic for study covered; 1）Definition of Super Star Mobile Library APP. 2）The role of Super Star Mobile Library APP. 3）Super Star mobile Library APP features. 4）Super Star mobile Library APP usage method. -Teacher's role is facilitator or guide and teacher intervene when group needs assistance. Teachers can design complete goals scientifically and reasonably, play a preliminary guidance, explain goals, create an atmosphere, participate in coordination, formulate multiple standards, implement multi-faceted evaluation, enhance students'	Reference pedagogy, educational psychology, educational principle, Chinese basic education new curriculum idea and innovation.

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Teaching steps	Procedure	Teaching materials
	understanding, discover problems and remedy in time.	
3.4 Assist with teamwork and study	Eight learning teams were established in the class, and no one was appointed as the team leader, but students were told to observe each other's role in the team, so as to find an efficient team leader after a semester. There are 8 learning teams with 4.7 members, and the team members can form groups based on gender differences. The effectiveness of same-sex learning can also be seen through such groups. But in order to achieve heterogeneity within the group, one group was male and female, with three members each. Through teamwork, each group of students can learn and summarize the course topics as follows: 1）Definition of Super Star Mobile Library APP. 2）The role of Super Star Mobile Library APP. 3）Super Star mobile Library APP features. 4）Super Star mobile Library APP usage method.	A practical study on the construction of teacher learning Community based on school-based research -- A case study of N School in Dalian.
3.5 presentation of group work	-After each groups completes their learning or exploring the knowledge, teacher give an opportunity for them to present what they've learned. -Teacher provides an opportunity for other groups to discuss and also give feedback. -Teacher and students make lesson summary together which the following topics; 1）Definition of Super Star Mobile Library APP.	Research learning results based on and reference to domestic literature reports as information materials.

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Teaching steps	Procedure	Teaching materials
	2）The role of Super Star Mobile Library APP. 3）Super Star mobile Library APP features. 4）Super Star mobile Library APP usage method.	

4. **Measurement and Evaluation**

Learning objectives	Method of evaluation
1.1 Students can understand the definition of Super Star mobile Library APP.	1.1 Teacher observe students answer question
1.2 Students can learn about the functions and functions of Super Star mobile library APP.	1.2 Teacher check students' assignment Teacher observe students' participation in group activities.
1.3 Students can understand and master how to use the Super Star mobile library APP.	1.3 The students are tested in the way of paper examination, and the results of the students are obtained.

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LESSON PLAN

Course / Subject : Understand the service and function of electronic reading room, use network service.
Instructional Topic : Electronic reading room service item and function introduction, use network service method.
Class Level : University public compulsory courses
Time for Instructional : Classes are held Tuesday, Saturday, Sunday, morning or afternoon during the freshman season
Instructor's name : Yuan Liang zhi

1. Objectives

1.1 Students can understand and use the electronic reading room for study.
1.2 Students can use wireless Internet services to find books and study.
1.3 Students can use the library bibliographic retrieval system to search for book materials.

2. Content

The content mainly includes:

2.1 Electronic reading room

Electronic reading room is a modern multifunctional reading room which is based on computer technology and network communication technology and integrates electronic literature (such as disk, CD, network service, etc.) reading, consulting, training and service. Provide students with access to the Internet, there are some databases, for students to search information to provide a place to find information.

In the process of establishing electronic reading room, all hardware, software and network products should follow the principle of mainstream development and international standardization as far as possible, so that the system has high portability, scalability and flexible interconnection, leaving room for future upgrading.

The system stability and security principle of electronic reading room. The information in the electronic reading room is not only for indoor users to read, but also for the use of college campus network users. In order to ensure the quality of service, it is necessary to ensure the stability of the system. In order to ensure the security of data transmission, the electronic reading room system should also have high security. Principle of expandability of storage medium in electronic reading room. With the increasing of all kinds of electronic resources, electronic reading room will collect more and more electronic documents, so the storage medium of the system must leave enough room.

2.1.1 Functions of electronic reading room: retrieval service function, electronic books reading function, VOD on demand function, Internet service, electronic books consulting service.

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The electronic reading room of our library has 200 seats and 200 desktop computers, which basically meets the daily learning needs of students.

2.2 Wireless Network service

With the rapid development of modern communication technology, the application of wireless network is more and more extensive, wireless campus network based on computer LAN technology has gradually been widely used.

Wireless campus network is the combination of computer network and wireless communication technology, it is not limited by cable, and can move, can meet the requirements of all kinds of portable devices into the network. Realize computer wireless network access, text and text transmission, E-mail receiving and receiving, network teaching,

Mobile office and other functions。

Wireless campus network have the flexibility to meet the teachers and students in a certain hollowness within the area of mobile learning needs, more applicable to the library, conference center and students of the open study area such as large space and a lot of mobile users, not laying cable, which make up the cable network in provide data services.

Wireless LAN with its flexible layout, high bandwidth and wireless access advantages, can break through the limitation of wired network nodes, realize the problem of Internet access by many people at the same time, greatly increase the campus network information points, convenient for teachers and students to obtain information, and further improve the information level of the school. In addition, the introduction of wireless network environment provides a new application platform for wireless multimedia, thus bringing the construction of educational information into a new world.

2.3 Basic library search methods：

Students can use the desktop computer to directly access the website of the school library, after entering the website, you can see the column of fast track: keyword search. Here you can enter the book information you need to search.

Click to open the search page, there will be bibliographic search, classified browsing, journal navigation, new book announcement, virtual bookshelf, information release, reader recommendation, etc.

In bibliographic search, students can search by entering title, responsible person, subject word, order number, classification number, call number.

3. Instructional Strategies (teaching methods)

1) Learning management using Cooperative Learning model together with the Super Star mobile library application refers to learning in which students are arranged in small group and composed of 2 to 6 students of different abilities in a group. Group is made up of high-, average-, and low-achieving students. Group members are in cooperation and mutual assistance to engage in learning activities, to jointly complete the group learning objectives, improve the overall performance, and to obtain group rewards. In addition, teacher also uses Super Star mobile library application as tool for students learning during learning activity. The teaching procedures are listed as follows; 1) clarify goal and motivate students, 2) present information and materials, 3) organize students into learning teams, 4) assist with teamwork and study, and 5) presentation of group work.

Teaching steps	Procedure	Teaching materials
3.1 Clarify goal and motivate students	Example -Teacher inform learning objectives to clarify goal of this lesson -Teacher motivates students with the following of these questions; 1) Why this course is importance for your university life? 2) Will it help you in your college life when you take this course? 3) Have you learned about the functions of the electronic reading room and wireless Internet service from this course? 4) Do you understand and master traditional basic bibliographic search methods by taking this course?	Library literature retrieval and Traditional basic bibliographic retrieval method
3.2 Present information and materials	-Teacher provide students with the information related to lesson's topic which cover the following topics; 1） Electronic reading room 2） Functions of electronic reading room 3） Wireless Network service 4） Basic library search methods	Freshman Library education and document Retrieval course.

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Teaching steps	Procedure	Teaching materials
	-Teacher provide sources of materials for exploring the previous topics	
3.3 Organize students into learning teams	Example -Teacher divide students into group/team which comprise of 4 members/group. -Teacher ask students to study the learning materials provided to them. Each group will assign the topic for study covered; 1） Electronic reading room 2） Functions of electronic reading room 3） Wireless Network service 4） Basic library search methods -Teacher's role is facilitator or guide and teacher intervene when group needs assistance. Teachers can design complete goals scientifically and reasonably, play a preliminary guidance, explain goals, create an atmosphere, participate in coordination, formulate multiple standards, implement multi-faceted evaluation, enhance students' understanding, discover problems and remedy in time.	Reference pedagogy, educational psychology, educational principle, Chinese basic education new curriculum idea and innovation.
3.4 Assist with teamwork and study	Eight learning teams were established in the class, and no one was appointed as the team leader, but students were told to observe each other's role in the team, so as to find an efficient team leader after a semester. There are 8 learning teams with 4.7 members, and the team members can form groups based on gender differences. The effectiveness of same-sex learning can also be seen through such groups. But in order to achieve heterogeneity within the group, one group was male and female, with three members each.	A practical study on the construction of teacher learning Community based on school-based research -- A case study of N School in Dalian.

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Teaching steps	Procedure	Teaching materials
	Through teamwork, each group of students can learn and summarize the course topics as follows: 1） Electronic reading room 2） Functions of electronic reading room 3） Wireless Network service 4）Basic library search methods	
3.5 presentation of group work	-After each groups completes their learning or exploring the knowledge, teacher give an opportunity for them to present what they've learned. -Teacher provides an opportunity for other groups to discuss and also give feedback. -Teacher and students make lesson summary together which the following topics; 1） Electronic reading room 2） Functions of electronic reading room 3） Wireless Network service 4）Basic library search methods and learn about Super Star mobile library APP	Research learning results based on and reference to domestic literature reports as information materials.

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4. **Measurement and Evaluation**

Learning objectives	Method of evaluation
1.1 Students can use the library's electronic reading room for study.	1.1 Teacher observe students answer question
1.2 Students can use the library wireless network service for study and daily life.	1.2 Teacher check students' assignment Teacher observe students' participation in group activities.
1.3 Students can use traditional basic	1.3 The students are tested in the way of

retrieval methods to search for books.	paper examination, and the results of the students are obtained.

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APPENDIX B

THE SEARCHING FOR INFORMATION SKILL EVALUATION FORM

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No.	Item	Level of Performance				
		never	rarely	sometimes	mostly	always
1	Students are able to select and justify the appropriate search techniques (performance/skill of students)					✓
2	Students can master basic retrieval language and retrieval techniques.					✓
3	Students can understand and master the retrieval tool, and use the tool to search.					✓
4	Students can find out the relevant information accurately					✓
5	Students can use retrieval technology to quickly and accurately find the book materials they need.					✓
6	Students can use retrieval technology to process and organize book information.					✓
7	Students can use retrieval methods to store the information they find.				✓	
8	Students can use the Super Star Mobile Library APP search technology to search online on their mobile phones.					✓
9	Students can use retrieval technology to access information online on mobile phones.					✓
10	Students use retrieval tools to collect and innovate retrieval techniques.				✓	
11	Students can reserve seats using the learning software.					✓
12	Students can use the method of retrieving the call number for accurate retrieval.				✓	
13	Students can use retrieval tools according to the Chinese Library classification.					✓
14	Students can form study groups by using the retrieval skills of books and documents.					✓
15	Students can use the library's search system to accurately search books by author and title.					✓
16	Students can find books accurately by inputting the publication date in the library bibliographic retrieval system.					✓

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No.	Item	Level of Performance				
		never	rarely	sometimes	mostly	always
17	Students can recommend books they are interested in by using the recommended purchase method in the library bibliographic retrieval system.				✓	
18	Students can use the library book retrieval system to accurately retrieve the study CD with the book.					✓
19	When the author and title of the information resource required by the user are unknown, students can search the title catalog for it.					✓
20	Students can carry out book retrieval through library book classification, which kind of books can be accurately checked.					✓

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APPENDIX C

STUDENTS' SATISFACTION QUESTIONNAIRE TOWARD THE INSTRUCTION

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No.	Item	Level of Satisfied				
		very dissatisfied	dissatisfied	average	mostly satisfied	very satisfied
1	I am satisfied with Super Star mobile application which teacher use in classroom					✓
2	I am satisfied with the working in group					✓
3	The teacher's summary at the end of the class gave me materials to review and store knowledge.					✓
4	I think the teacher is very patient in listening to our questions and answering our questions				✓	
5	Through learning the classroom with using Super star mobile application, I feel that my retrieval practice ability has been improved.				✓	
6	I am satisfied with my teacher's expertise.					✓
7	I am very satisfied with the retrieval methods and techniques taught by my teacher.					✓
8	In the team, each student respects and understands each other, which makes me very satisfied.					✓
9	I am very satisfied when I respected others without discrimination				✓	
10	I am very satisfied when group members help, support, and encourage each other					✓
11	I am very satisfied when group members work together to achieve a common goal					✓
12	I am very satisfied when group members can communicate, solve problems, and resolve conflict effectively					✓
13	I think it is a waste of time to working in a team				✓	
14	When finishing a study project, I find it gratifying to see high-fives among my classmates.					✓
15	I am satisfied that there will be majority rule in the team.					✓
16	When each study team completes the task, the teacher will give the reward, I am very satisfied.					✓

APPENDIX D

SPSS OUTPUT

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1. SPSS Output for the first objective

Paired sample statistics

		Mean	N	Std.Deviation	Std.Error Mean
Pair 1	PreScore	83.5429	35	3.06155	.51750
	PostScore	94.4286	35	3.06100	.51740

Paired sample test

		Paired Differences				
					95% Confidence Interval of the Difference	
		Mean	Std.Deviation	Std.Error Mean	Lower	Upper
Pair 1	PreScore - PostScore	-10.88571	4.24106	.71687	-12.34257	-9.42886

Paired sample test

		t	df	Sig.(2-tailed)
Pair 1	PreScore - PostScore	-15.185	34	.000

2. SPSS Output for the second objective

One-sample statistics

	N	Mean	Std.Deviation	Std.Error Mean
PostScore	35	94.4286	3.06100	.51740

One-sample test

	Test Value = 70					
					95% Confidence Interval of the Difference	
	t	df	Sig.(2-Tailed)	Mean Difference	Lower	Upper
PostScore	47.214	34	.000	24.42857	23.3771	25.4801

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3. SPSS Output for the third objective

Descriptive Statistics

	N	Mean	Std. Deviation
Item1	35	4.9714	.16903
Item2	35	5.0000	.00000
Item3	35	4.6000	.69452
Item4	35	4.7143	.45835
Item5	35	4.7143	.45835
Item6	35	4.6000	.49705
Item7	35	4.8000	.40584
Item8	35	4.6571	.48159
Item9	35	4.7143	.45835
Item10	35	4.8286	.38239
Item11	35	4.6000	.49705
Item12	35	4.7143	.45835
Item13	35	4.7429	.44344
Item14	35	4.6857	.47101
Item15	35	4.7143	.45835
Item16	35	4.6857	.47101
Satisfaction	35	4.7339	.19726
Valid N (listwise)	35		

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CURRICULUM VITAE

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