

การพัฒนาแบบการเรียนการสอนแบบใช้ปัญหาเป็นฐานและการเรียนรู้แบบผสมผสานเพื่อเพิ่มความเข้าใจการป้องกันการบาดเจ็บจากกีฬาของนักศึกษาปริญญาตรี

Development of Problem Based Learning and Blended Learning Instructional Model for Understanding of Prevention Sports Injury of Undergraduate Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อประเมินปัจจัยที่ส่งผลกระทบต่อความเข้าใจการป้องกันการบาดเจ็บจากกีฬาของนักศึกษาปริญญาตรี ข้อมูลการวิจัยเก็บจากประชากรจำนวน 120 คน และกลุ่มตัวอย่างผู้สอน 3 คน จาก 3 มหาวิทยาลัยใน Guangxi Autonomous Region ได้แก่ Yulin Normal University, Guilin University, Hezhou University เครื่องมือในการวิจัยครั้งนี้ใช้ แบบสอบถามสำหรับนักศึกษาและแบบสัมภาษณ์สำหรับผู้เชี่ยวชาญ สำหรับการวิเคราะห์ข้อมูลเชิงปริมาณใช้ค่าร้อยละ ค่าเฉลี่ย และ ส่วนเบี่ยงเบนมาตรฐาน ส่วนข้อมูลเชิงคุณภาพใช้การวิเคราะห์เนื้อหา ผลการวิจัยพบว่า ปัจจัยภายในและภายนอกที่ส่งผลกระทบต่อความเข้าใจการป้องกันการบาดเจ็บจากกีฬาของนักศึกษาปริญญาตรีจากมหาวิทยาลัยในจีน 3 แห่งอยู่ในระดับสูง สำหรับการสัมภาษณ์อาจารย์ ผลการวิจัยพบว่า ปัจจัยภายในที่อาจารย์ระบุ ได้แก่ ความรู้และประสบการณ์ แรงจูงใจ การแนะนำ ส่วนปัจจัยภายนอกที่อาจารย์ระบุ ได้แก่ สื่ออุปกรณ์การเรียนรู้ วิธีสอน การประเมิน สิ่งแวดล้อม

คำสำคัญ: การเรียนรู้โดยใช้ปัญหาเป็นฐาน การเรียนรู้แบบผสมผสาน รูปแบบการจัดการเรียนการสอน ความเข้าใจการป้องกันการบาดเจ็บจากกีฬา นักศึกษาปริญญาตรี

Abstract

The purpose of this research aimed to examine the factors for understanding of prevention sports injury of undergraduate students. The data collected from 120 students The former 120 from 3 sections of students who enroll in Sport Injury Course in semester I of academic year 2022 and 3 lecturers from 3 colleges in Guangxi Autonomous Region: Yulin Normal University, Guilin University, Hezhou University. The

research instruments were the questionnaire for students and interview protocol. The data were statistically analyzed by finding frequency, mean and Standard Deviation (SD.) in quantitative data and used content analysis in qualitative data. The result revealed that the internal and external factors affecting understanding of prevention sports injury of undergraduate students are found to be at a high level. For the finding from interview lecturers, they identified the internal factors that Knowledge and experience, Motivation, and Guidance. For the external factors, the most affecting factors are: Materials, Method of teaching, Assessment, and Environment.

Keywords: Problem Based Learning, Blended Learning, Instructional Model, Understanding of Prevention Sports Injury, Undergraduate Students

Background

Sports Injury is a core course for students majoring in sports rehabilitation and is also a professional elective course for other sports majors. The teaching purpose of this course is to enable students to be familiar with the theory and clinical knowledge of sports trauma and to be able to examine and treat sports injuries proficiently and quickly according to the clinical manifestations of human tissue injuries in practice. The mastery of knowledge and skills related to sports injuries is one of the goals of training sports rehabilitation professionals, and it is also one of the requirements for students to be competent in sports rehabilitation and sports protection (Ministry of Education Teaching Steering Committee, 2018).

The starting point of this course design is the needs of applied talents in sports rehabilitation in teaching practice. It is based on problems, uses online and offline mixed education and teaching as a means, is guided by teachers, takes students as the main body, and introduces cases and situations, online resources, etc., while solving problems while strengthening students' understanding of sports injury prevention. At the same time, this is also in line with the goals and requirements of Hezhou University for cultivating applied talents

Sports Injury course includes basic theory of sports trauma (classification and classification of sports trauma, etiology and pathology of sports trauma, overview of musculoskeletal system) and clinical practice (examination and diagnosis of sports trauma, rehabilitation treatment and treatment of sports trauma) Discipline specificity

Students are required to be able to quickly diagnose and treat different groups of people, different parts, and different injuries in clinical practice after mastering basic knowledge. Moreover, due to the complexity of knowledge and the diversity of inspection methods and treatment methods, students may forget knowledge and operate irregularly in clinical practice. Xiao and Yu. (2008) found through investigation that college students not only have insufficient access to sports injury knowledge and skills, but also have poor knowledge and skills mastery. Xiao (2018) pointed out that the ability of Chinese students to discover and solve life, workplace and social problems is relatively low, many college students have relatively weak practical ability and workplace adaptability, and many key skills have not been cultivated. Ge (2018) conducted a survey of students at Hebei Agricultural University and found that students not only lack knowledge of sports injuries, but also have poor ability to deal with sports injuries. Pan and Yao (2022) found that Chinese college students lacked knowledge and practical skills in cardiopulmonary resuscitation CPR. Ding, Liao and Zhu (2023) survey found that the unqualified rate of CPR first aid skills knowledge of non-medical college students is as high as 88.51%, indicating that non-medical college students have a low level of knowledge of CPR first aid skills, and most of them think that they cannot perform chest compressions and first aid skills correctly artificial respiration. Therefore, the researchers found that the current college students have insufficient knowledge and skills related to sports injuries, and it is necessary to further improve college students' understanding of sports injury prevention.

The blended learning model can not only break the limitations of traditional classroom teaching and narrow regional differences, but also help improve the teaching structure of the course. Knowledge interaction is carried out online through a series of links such as videos, teaching courseware, test questions, and discussion topics. Students can independently arrange their learning progress according to their learning characteristics and development needs. Diversified technologies support diverse learning needs, making up for the lack of classroom teaching can highlight the development of students' subjectivity and individuality. In the offline classroom, teachers and learners interact with each other through active, discussion, collaborative, commentary and other teaching activities. The overall grasp of activities is also conducive to the imparting of knowledge and the training of improving abilities. Tian (2005) and Song, Sun and Zhang (2023) found that in the exploration and

practice of the blended teaching model, students have a higher interest in the teaching content during the teaching process, and at the same time enrich relevant knowledge and improve multiple abilities. found that in the exploration and practice of the blended teaching model, students have a higher interest in the teaching content during the teaching process, and at the same time enrich relevant knowledge and improve multiple abilities.

Xiao (2018) pointed out that Chinese students' ability to find and solve problems in life, the workplace and society is low, many college students' practical ability and workplace adaptability are relatively weak, and many critical skills have not been cultivated. Qi (2019), Hu (2021), and Hu, Xu, Li, Ma, and Liu (2023) pointed out that the blended teaching model based on problem-solving learning can provide students with new learning thinking, improve students' ability to discover and solve problems, and also to a certain extent promote the improvement of students' innovation ability and cooperation and communication ability.

As the rationale shown above, the author realizes the importance of studying “Development of Problem Based Learning and Blended Learning Instructional Model for Understanding of Prevention Sports Injury of Undergraduate Students”.

Objectives of the Study

This objective of this study was to examine the factors for understanding of prevention sports injury of undergraduate students.

Definition of Terms

The factors affecting understanding of prevention sports injury of undergraduate students refers to the internal and external factors collected from students using questionnaire and interviews for lecturers designed by the researcher. The internal factors involve the information about students while external factors consist of information about the teacher and circumstances. In addition, the factors will be obtained by structured interviews with the lecturers.

Development of Problem Based Learning and Blended Learning Instructional Model refers to a new instructional framework which consists of the stable teaching activities and procedures. Such a developed instructional model with 5 components: 1) Principle & Rationale, 2) Objectives, 3) Contents, 4) Methods of teaching & Materials and 5)

Evaluation, is confirmed by the experts in 4 aspects: 1) Utility Standard, 2) Feasibility Standard, 3) Propriety Standard and 4) Accuracy Standard

Problem Based Learning (PBL) refers to a teaching mode in which teachers create problems related to sports injuries to guide students according to their knowledge and experience in sports rehabilitation, and encourage students to actively discover, analyze and solve problems through independent learning and group cooperation, to promote and improve students' learning interest, self-efficacy and cooperation ability. The basic teaching process of the PBL model can be divided into the following four steps Step 1: Select teaching columns and conduct teaching analysis Step 2: Make a teaching plan and set up a cooperative group Step 3: Design the teaching process and carry out teaching implementation Step 4: Conduct teaching reflection and improve teaching implementation

Blended Learning (BL) refers to this study defined blended teaching model as the combination of two or more learning methods, integrating various elements according to a certain proportion from different angles, with students as the main body and teachers as the main body. under the teaching concept of guidance, to achieve the teaching objectives and achieve the best teaching effect teaching method. According to the purpose of this study blended learning can be divided into the following 5 steps: (Li, 2020; Hong 2023) Step 1: Preparation Phase Step 2: Introduction stage Step 3: Discuss and solve problems together Step 4: Display result Step 5: Assessment feedback

Understanding of Prevention Sports Injury refers to the prevention of sports injuries includes three levels of prevention, the first level of prevention refers to the prevention of the cause; the second level of prevention is also called "three early" prevention, three early refers to early detection, early diagnosis, and early treatment; the third level of prevention Also known as late prevention, symptomatic treatment to prevent the progression of the disease. The understanding of sports injury prevention mentioned in this article refers to the students' ability to correctly judge, deal with and prevent sports injuries after learning sports injury related courses, mastering the knowledge of sports injuries. According to the purpose of this study, the cognitive evaluation of sports injury prevention can be divided into 4 dimensions and 4 levels. (Zhu, 1997; Sun and Zhang, 2015). Dimension 1: Sports injury prevention Dimension. 2: Diagnosis and assessment of sports injuries. Dimension 3: First Aid Treatment for Sports Injuries. Dimension 4: Rehabilitation after Sports Injury. Evaluation level: Level1: Very High Scores 76 – 100 Level2: High Scores 51 – 75 Level3: Moderate Scores 26 – 50 Level4: Low Scores 0 – 25

Research Framework

Based on the research objectives, relevant theories are compiled and studied i.e., Problem Based Learning and Blended Learning and Understanding of Prevention Sports Injury. These thoughts and principles are employed as the foundation of the following the research framework is designed as shown in figure 1.1

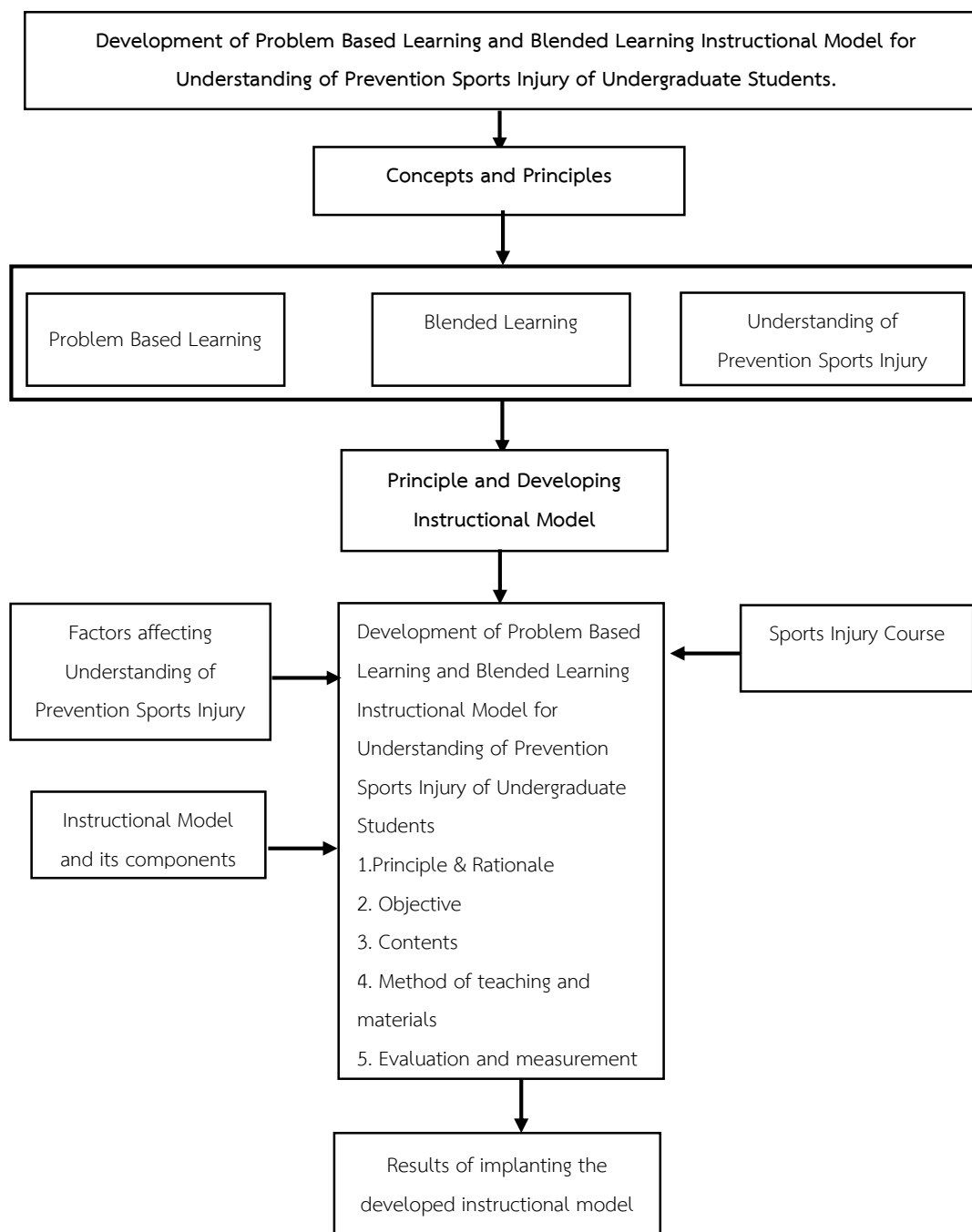


Figure 1 Research Framework

Literature Review

Sports Injury Course

Principle

Health is an inevitable requirement for promoting people's all-round development. China attaches great importance to people's health, but issues such as population aging and changes in the spectrum of diseases have brought a series of new challenges to maintaining and promoting health. At the same time, there are insufficient health services and growing health needs. The contradictions between them are still prominent (State Council of China, 2016). To promote national fitness and sports consumption, strengthen non-medical health interventions, encourage hospitals to train and introduce sports rehabilitators, popularize fitness knowledge, organize fitness activities, and promote the formation of a disease management and health service model that integrates sports and medicine (General Office of the State Council of China, 2019). Liu (2018) pointed out that sports injury is one of the important reasons for the inability to carry out healthy activities, and the prevention, treatment and rehabilitation of sports injuries should be paid attention to.

The sports injury course is offered by the School of Tourism and Sports Health of Hezhou University, and it is a professional core course. The leading courses in this course are Exercise Anatomy and Exercise Physiology. This course is based on ability and people-oriented, and mainly cultivates talents who can deal with sports injuries. This course adopts a blended teaching mode with actual sports injury problems as the carrier, encouraging students to realize the integration of theory and practice in the process of solving problems individually or in groups. Through the study of this course, students should master the ability of sports injury prevention and treatment.

Objectives

This course is designed to develop students' ability to cope with sports injuries. The first is to improve students' awareness of the theoretical knowledge related to the category, classification, and injury factors of sports injuries; the second is to improve students' ability to apply sports injuries in practice

Curriculum Structure

Unit 1 Category and Classification of Sports Injuries.

Unit 2 The etiology and pathology of sports injuries.

Unit 3 Examination and diagnosis of sports injuries.

Unit 4 Treatment and prevention of sports injuries.

Unit 5 Sports injuries of various parts of the body

The factors of Understanding of Prevention Sports Injury

The factors of understanding of prevention sports injury means the internal and external factors collected from students using questionnaire and interviews for lecturers designed by the researcher. The internal factors involve the information about students while external factors consist of information about the teacher and circumstances. In addition, the factors will be obtained by structured interviews with the lecturers. Internal factors refer to the internal nature that affects the development of people or things, such as attitudes, motivations, self-efficacy, communication skills, cognition, etc.; external factors refer to external causes or factors that affect the development and changes of people or things. Contradictions, such as teachers, teaching resources, teaching methods, school environment, team atmosphere, etc.

Problem Based Learning

Definition of Problem Based Learning

Duan (2021) define the PBL model is a teaching model that starts from the problem, takes the student as the main body, the teacher as the guide, and the students discuss in groups this study believes that problem based learning a teaching mode in which teachers create problems related to sports injuries to guide students according to their knowledge and experience in sports rehabilitation, and encourage students to actively discover, analyze and solve problems through independent learning and group cooperation, so as to promote and improve students' learning interest, self-efficacy and cooperation ability.

Table 1 The results of the synthesis of PBL teaching steps

Author Component	Barrows and Tamblyn (1980)	Schmidt (1993)	Liu (2003)	Li(2010)	Wang(2018)	Duan (2021)	Rong (2022).	Frequency
Step 1								
Determine teaching objectives			√	√	√	√	√	5
Teaching Content Analysis			√	√	√		√	4
Teaching object analysis						√	√	
Step 2								
Make a teaching plan						√		
Teaching group						√		
Create problem situations and ask questions	√	√	√	√	√	√	√	7
Describe the problem	√	√						
Definition problem	√	√						
Teacher guidance			√		√	√	√	4
Students find problems			√	√	√	√	√	5
Step 3								
Group cooperation	√	√	√	√	√		√	6
Analyse problem	√	√	√		√	√		5
Making plans			√	√	√		√	4
Step 4								
Discuss a problem	√	√	√		√		√	5
Group report			√	√	√	√		4
Share results	√	√					√	
Step 5								
Assessment feedback	√	√	√	√	√	√	√	7
Teaching reflection					√	√		

Table 1 The results of the synthesis of PBL teaching steps (Continued)

Author Component	Barrows and Tamblyn (1980)	Schmidt (1993)	Liu (2003)	Li(2010)	Wang(2018)	Duan (2021)	Rong (2022).	Frequency
Step 6								
Modification of methods to form new conclusions			√					
Step 7								
Solve problems and start new ones			√					

Blended learning

Definition of blended learning

This study defined blended teaching as the combination of two or more learning methods, integrating various elements according to a certain proportion from different angles, with students as the main body and teachers as the main body. Under the teaching concept of guidance, to achieve the teaching objectives and achieve the best teaching effect teaching method.

Table 2 The results of the synthesis of blended learning teaching steps

Author Component	Lin, Wei, and Chen (2014)	Li (2020)	Liu (2021)	Ding (2022)	Hong (2023)	Frequency
Step1						
Teaching preparation stage					√	
Familiar with courses and operating platform		√		√	√	3
Step 2						
Determine learning goals and learning tasks		√			√	
Teachers provide resources	√	√	√	√	√	5
Students' complete tasks independently	√	√	√	√	√	5
Feedback formation		√	√	√	√	4

Table 2 The results of the synthesis of blended learning teaching steps (Continued)

Author Component	Lin, Wei, and Chen (2014)	Li (2020)	Liu (2021)	Ding (2022)	Hong (2023)	Frequency
Step 3						
Students' preliminary presentation plan	√		√			
Students communicate in groups				√		
Comments from teachers and students	√					
Problem introduction	√	√			√	3
Teacher explanation		√	√	√	√	4
Assign tasks and present results		√	√	√	√	4
Evaluate		√	√	√	√	4
Completed experiment	√					
Step 4						
Supplementary learning resources		√		√	√	3
Reflect on teaching	√	√	√		√	4

Understanding of Prevention Sports Injury

The prevention of sports injuries includes three levels of prevention, the first level of prevention refers to the prevention of the cause; the second level of prevention is also called "three early" prevention, three early refers to early detection, early diagnosis, and early treatment; the third level of prevention Also known as late prevention, symptomatic treatment to prevent the progression of the disease. The understanding of sports injury prevention mentioned in this article refers to the students' ability to correctly judge, deal with and prevent sports injuries after learning sports injury related courses, mastering the knowledge of sports injuries.

Table 3 The results of the synthesis of Dimensions of understanding of sports injury prevention

Author Component	Zhu (1997, p196)	Sun and Zhang (2015)	Winter Sports et al (2022, p132)	Frequency
Sports injury prevention		√	√	2
Diagnosis and assessment of sports injuries	√	√	√	3
First Aid Treatment for Sports Injuries	√	√	√	2
Rehabilitation after Sports Injury		√	√	2
Have certain basic knowledge of sports injury treatment	√			
Clarify on-site handling procedures.	√			
Adopt appropriate and diverse treatment methods for sports injuries.	√			
Standards for the treatment of sports injuries.	√			
The treatment results are in compliance with regulations and the trauma is significantly improved.	√			
Primary prevention,			√	
Secondary prevention			√	
Tertiary prevention			√	

Research Methodology

This research used Mixed Method Research. This research aimed to examine the factors affecting Understanding of Prevention Sports Injury of Undergraduate Students. The data collected from the group of students and lecturers. The details were shown as follow.

Data from students

Population

Group 1: The former 120 from 3 sections of students who enroll in Sport Injury Course in semester I of academic year 2022 from 3 colleges in Guangxi Autonomous Region.

- 1) 40 students from Yulin Normal University
- 2) 40 students from Guilin University
- 3) 40 students from C Hezhou University.

Research instrument

The questionnaire for students

Designing instrument 1 (The questionnaire for students)

1. Study Sport Injury course and factors affecting understanding of prevention sports injury of undergraduate students.

2. Design a questionnaire on factors to improve understanding of prevention sports injury of undergraduate students in Guangxi Province. The questionnaire consists of three parts. The first part is the commonly used data of the respondents, including gender, school and age. In the second part, there are 30 influencing factors, 15 internal factors including motivation, professional attitude, communication and communication skills, self-efficacy, critical thinking, etc. The external causes include 15 problems, including teachers, teaching materials, teaching environment, external environment, teaching resources, etc. The third part is expert advice.

3. Present the draft of questionnaire to the advisors for checking correctness and completion.

4. Assess the validity of questionnaire on factors to improve understanding of prevention sports injury of undergraduate students by 5 experts (List name in Appendix A) through Index of Item-Objective Congruence (IOC) according to the criteria shown below. (Phongsri,2011)

+1 = Sure that the contents are related to the topics

0 = Not sure that the contents are related to the topics

-1 = The contents are not Guangxi Province related to the topics

The acceptable items must have the IOC values not less than 0.5. The IOC calculated from the validation measures.

5. Design Likert 5-point rating scale questionnaire on the following score rating criteria.

Score rating criteria

5 means strongly agree

4 means agree

3 means neutral

2 means disagree

1 means strongly disagree

Quality Validation

Using IOC by 5 experts to test the quality of questionnaire.

Data Collection

1. Ask for permission for data collection.

2. Collect data from the assigned students using the developed questionnaire.

Data Analysis

The factors affecting Understanding of Prevention Sports Injury obtained from the students are interpreted using mean interpretation criteria proposed by Phongsri (2011)

4.51-5.00 means The Highest

3.51-4.50 means High

2.51-3.50 means Moderate

1.51-2.50 means Few

1.00-1.50 means Fewest

Descriptive statistics

frequency, mean (μ) standard deviation (σ)

Group 2: The lecturers who are teaching sports injury course from 3 colleges in Guangxi Autonomous Region.

- 1) Lecturer from YuLin Normal University
- 2) Lecturer from Guilin University
- 3) Lecturer from Hezhou University

Research instrument

The interview for the lecturers

Designing instrument 2 (The interview for the lecturers)

1. Study literature on sports injury ability, and factors affecting Understanding of Prevention Sports Injury

2. Design the draft of open-ended interview on 2 factors Internal factors and external factors (10 questions) affecting Understanding of Prevention Sports Injury of Undergraduate Students.

3. Present the draft of open-ended interview to the advisors for checking correctness and completion.

4. Assess the validity of open-end interview on factors affecting Understanding of Prevention Sports Injury for the students by 5 experts (List name in Appendix A) through Item-Objective Congruence (IOC) according to the criteria as shown below: (Phongsri ,2011)

+1 = Sure that the contents are related to the topics

0 = Not sure that the contents are related to the topics

-1= Sure that the contents are not related to the topics

The acceptable items must have the IOC values not less than 0.5. The IOC calculated from the validation measures.

5. Do the open-end interview in 3 Guangxi Autonomous Region. The open-end interview type can only be answered by the lecturers.

Quality Validation

Using IOC by 5 experts (List name in Appendix A) to test the quality of open-end interview.

Data Collection

1. Ask for permission for data collection.
2. Collect data from the assigned lecturers using the developed interview.

Data Analysis

Content analysis

Results

Analysis results serving objective about examine the factors for understanding of prevention sports injury of undergraduate students. The common data of the respondents from three universities in overall shows that most of respondents were male. The most common age distribution is relatively concentrated on, the 18-23 years as shown in the table 1 below.

Table 4 Common data of the respondent in overall (N-120)

Data		Yulin Normal University		Guilin University		Hezhou University	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Gender	Male	23	57.50	32	80.00	28	70.00
	Female	17	42.50	8	20.00	12	30.00
	Total	40	100	40	100	40	100
Age	Below 18 yrs.	1	2.50	0	0.00	0	0.00
	19-20 yrs.	14	35.00	12	30.00	12	30.00
	21-22 yrs.	15	37.50	25	62.50	24	60.00
	Over 23 yrs.	10	25.00	3	7.50	4	10.00
	Total	40	100	40	100	40	100

In addition, internal and external factors affecting understanding of prevention sports injury of undergraduate students of Yulin Normal University, Guilin University and Hezhou University are found to be at a high level as shown in the table 5 below.

Table 5 The result of questionnaire about internal and external factors affecting understanding of prevention sports injury of undergraduate students of Yulin Normal University, Guilin University and C Hezhou University

Data	Factor	μ	σ
Yulin Normal University	Internal Factor	4.20	.875
	External Factor	4.22	.944
Guilin University	Internal Factor	4.57	.702
	External Factor	4.61	.657
C Hezhou University	Internal Factor	4.26	.612
	External Factor	4.41	.593

For the data from interviews with three lecturers, the factors that affect understanding of prevention sports injury of undergraduate students are summarized as shown in table 3.

Table 6 The factors that affect the Chinese culture English reading ability of college students

Factors	Details
Internal factors	
Knowledge and experience	3 lecturers are masters of physical education, proficient in sports injury related knowledge, with high professional knowledge, ideas and abilities. 2 lecturers have 4-6 years of teaching experience, and 1 lecturer has 7-9 years of teaching experience. 3 lecturers have rich experience in subject teaching knowledge and mature application of teaching strategy knowledge. They like the course of sports injury very much, and can use different ways to teach and evaluate, which can better mobilize students' enthusiasm and develop students' thinking.
Motivation	3 lecturers love teaching and are willing to devote themselves to teaching. When students encounter learning difficulties or cannot successfully complete the course, they all have a sense of social responsibility and are willing to guide students in appropriate ways. The three lecturers said that vivid explanation, correct guidance, the use of teaching resources in the teaching process, and inspiring and instructive

Factors	Details
	teaching methods can stimulate students' confidence and interest to a certain extent. In different periods of learning sports injury courses, instructors will actively communicate with students to keep students curious and fresh through different ways, to help students master the knowledge and skills of sports injury courses.
Guidance	As the main undertakers of education, the three lecturers play a crucial role in guiding students' learning. Good instructor guidance can not only improve the learning effect of students, but also promote the overall development of students. While teaching, the three lecturers can find the shortcomings of students in time, and guide students to establish correct learning attitudes and values by changing teaching methods, creating teaching situations, and conducting effective communication. Lecturers can stimulate students' learning interest and motivation by setting examples and teaching by example, and guide students to form a positive and diligent learning attitude.
External factors	
Materials	Lecturers believe that rich teaching resources have a very important impact on students, which can directly affect the learning effect and development of students. Online courses, multimedia textbooks, laboratory equipment, etc., these resources can meet the learning needs and interests of different students, and help them better understand and master knowledge. High-quality teaching resources can provide a rich learning experience that stimulates students' interest and curiosity. For example, interactive textbooks, simulation experiments, and multimedia presentations can enrich learning and help students better absorb knowledge. However, the quality of teaching resources and the way they are used can also have a negative impact, which can lead to reduced learning outcomes if resources are used improperly or are not suited to the needs of students. Therefore, educators need to propose the selection and design of teaching resources to maximize student learning and development.

Factors	Details
Method of teaching	All three lecturers said that teaching methods have an important impact on students' learning results. Two lecturers have a single teaching method, but the lecturers said that they would learn a variety of mixed teaching methods such as online, offline or online and offline as soon as possible according to the teaching content and students' learning situation, and would use a variety of teaching methods such as question, project and exploration to teach students, so as to inspire students to have deeper thinking and solve problems in life.
Evaluation	The lecturer believes that assessment and measurement play an important role in the field of education. Assessment and measurement are often accompanied by feedback, which can help to understand students' strengths and weaknesses and guide students to improve learning strategies and skills. Assessments can also provide a basis for personalized learning. By understanding each student's strengths and areas for improvement, educators can provide them with appropriate materials and support to meet their individual needs. Educators can use the results to improve their teaching methods. By analyzing student performance, they can identify weaknesses in teaching and make necessary adjustments to better meet students' needs..
Environment	All three lecturers said that teaching environment is an important basis for the effective implementation of teaching activities. Although the influence of teaching environment on teaching is sometimes not immediate, its potential influence cannot be ignored. The good learning atmosphere created by the classroom learning environment, multimedia equipment and good teacher-student relationship provides good teaching conditions for students' learning. All three instructors promote an interactive and collaborative learning environment. They encourage group discussions, which can enhance students' social interaction, teamwork skills and mutual learning.

Conclusions and Discussions

There are three internal factors affecting college students' understanding of sports injury prevention. 1) Knowledge and experience; 2) Psychology (motivation); 3) Guide and communicate. The rich knowledge and experience of lecturers can better mobilize the enthusiasm of students, and better teach students the relevant knowledge of sports injury courses, which is conducive to the future growth and development of students. Lecturers love teaching, are willing to devote themselves to teaching work, and students have good learning motivation, all of which help to promote students' awareness and understanding of sports injuries. The guidance of lecturers and the communication between teachers and students can further promote students' learning.

The external factors affecting college students' understanding of sports injury prevention mainly include 4 points: 1) Materials; 2) Teaching methods; 3) Evaluation; 4) Environment. Both lecturers and students believe that rich teaching resources have a very important impact on students and directly affect the learning effect and development of students. Both lecturers and students agreed that combining teaching methods with the objectives and knowledge competencies in the sports injury curriculum would help to raise students' awareness of sports injury prevention. Both lecturers and students agree that different assessments can better identify student needs as well as weaknesses in teaching, so that necessary adjustments can be made. Both lecturers and students agree that a good learning environment can enhance students' understanding and awareness of sports injury courses.

Recommendations for Further Research

To development of problem based learning and blended learning instructional model for understanding of prevention sports injury of undergraduate students and to study the results of implementing problem based learning and blended learning instructional model to understanding of prevention sports injury of undergraduate students

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