NEURAL NETWORK SHAPING LIFE OF COLLEGE STUDENTS

RAKESH KUMAR DWIVEDI

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CHAPTER 1

DESIGN OF THE ENGLISH CRITICAL ABILITY CURRICULUM FOR COLLEGE STUDENTS IN THE INTERNET AGE

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ABSTRACT:

One of the key skills that contemporary students should have is speculation, which is also the aim of contemporary education. Teaching styles and technology have been continuously merged since the Internet era began. The most effective teaching uses a variety of information-transmission techniques, from blended learning to the flipped classroom. This essay aims to investigate how English critical thinking skills among college students are taught in the Internet era. The flipped classroom mode is used for teaching practice using the experimental technique and questionnaire survey method on the basis of studying the significance of developing college students' critical thinking ability and the curriculum design of critical thinking ability. Statistics were used to examine how the flipped classroom affected students' personality tendencies and the development of their critical thinking skills. Finally, it was determined that the many links established in the flipped classroom teaching had increased the students' critical thinking abilities to a certain amount.

KEYWORDS:

Contemporary, Continuous Lily, Examine, Flipped.

INTRODUCTION

In the competitive global economy for talent, using the practical skill of using English can help increase our talents' capacity to compete globally. College students lack the capacity to think critically and creatively in English due to the long-term test-oriented curriculum, and the topic is boring. Therefore, it is crucial to develop college students' ability to think critically in English. The study of speculative ability is attracting the focus of more and more professionals and academics. At the undergraduate level, Quattrucci pioneered a new approach to teaching advanced laboratories. Using speculative abilities to address problems is the goal of this approach, according to Matos et al., who noted that speculative skill education has always been a developing concern in the context of Portuguese higher education. The field is created to satisfy both the job market's requirements and the most difficult and complex social concerns. Luger suggests using problem-based learning strategies because there aren't many systematic research reviews that describe how teachers apply various speculative education tactics. For students majoring in visual arts in higher education, a one-semester treatment plan was suggested. One looks at its effect on these pupils' propensity for innovative and critical thinking.

Collin-Appling and Giuliano claimed that the capacity to succeed in speculative skills has a substantial impact on the decision-making process, whereas the problematic learning approach has minimal influence on the inclination to critical thought. The concept of critical ability is challenging to incorporate into nursing curricula, and it requires ongoing practice to enhance professional ability and future professional ability. The study of the issue of English critical

thinking both domestically and internationally is still in its early stages. There are still not many publications on how to foster students' capacity for critical thought, enhance the efficacy of English instruction, and foster students' long-term development in the teaching of English as a topic. Therefore, the goal of this work is to thoroughly research this subject in order to provide future teachers with scientific direction. In contrast to international researchers, this work focuses on analyzing and applying the value of developing college students' critical thinking skills as well as the critical thinking course design. The flipped classroom paradigm is utilized for teaching practice, and it is used to cultivate students' capacity for critical thought as well as their thinking personality. Through statistical research, it has been shown that the different links built up in the flipped classroom instruction have helped students' critical thinking abilities to an extent. The phrase "educational technology" encompasses both the technical equipment and procedures and the theoretical underpinnings that assist learning and teaching. Anything that improves classroom instruction through the use of blended, face-to-face, or online learning is considered educational technology, which is not just limited to high technology.

A person with training in educational technology is known as an educational technologist. To improve learning, educational technologists' study, create, develop, implement, and evaluate procedures and technologies. Although the phrase "educational technologist" is most frequently used in the US, "learning technologist" is also commonly used in Canada and the UK. The use of contemporary electronic educational technologies is crucial in today's society. Information and communication technology (ICT) in education, e-learning, learning technology, multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer-managed instruction, computer-based training (CBT), computer-assisted instruction or computer-aided instruction (CAI), internet-based training (IBT), flexible learning, web-based training (WBT), and online education are all included in the category of educational technology.

There are supporters of each of these several labels who point out potential defining characteristics. Nevertheless, a lot of phrases and ideas in educational technology have ambiguous definitions. For instance, Fiedler's assessment of the literature discovered a total lack of consensus regarding the elements of a personal learning environment. Furthermore, Moore believed that rather than being essentially different in concept or principle, these terminologies were stressing certain elements such as digitalization methodologies, components, or delivery mechanisms. For instance, m-learning places a strong emphasis on mobility, enabling learners to change the schedule, location, accessibility, and context of their learning. Despite this, m-learning's goal and basic tenets are still those of educational technology.

In actuality, the specific "narrowly defined" terminological feature that was initially stressed by name has merged into the overall field of educational technology as technology has advanced. When "virtual learning" was first used to treat posttraumatic stress disorder (PTSD), for example, it meant engaging in an environmental simulation within a virtual world. In actuality, a "virtual education course" is any educational program in which all or a sizable portion of the content is offered online. A course that is not delivered face-to-face in a classroom but rather through a replacement mode that may theoretically be connected "virtually" with classroom teaching is referred to as "virtual" in this larger sense. This means that students are not required to physically attend a classroom in order to study. As a result, the

term "virtual education" refers to a type of remote learning in which course material is provided via a variety of tools, including videoconferencing, multimedia materials, and course management software. Students have the chance to relate the material they are learning in the classroom to real-world circumstances through virtual education and simulated learning activities like games or dissections.

The student may not even be aware of the learning process as educational content is pervasively integrated in items. Smart learning is the combination of adaptive learning—using a customized user interface and materials with ubiquitous access to digital resources and learning opportunities at various times and locations. This results in each student receiving personally differentiated instruction. The idea of a smart city includes smart learning. Early tools, such as murals on cave walls, can be traced back to help people and children learn in ways that are simpler, quicker, more accurate, or less expensive. Abacuses of various kinds have been employed. Blackboards and writing slates have been in use for at least a thousand years. Books and pamphlets have played a significant part in education since their creation. Short copy runs for use in the home or school have been produced since the early 20th century using duplicating equipment like the mimeograph and Gestetner stencil devices. The debut of educational films and Sidney Pressey's mechanical teaching machines marks the beginning of the 20th century's use of media for education. Army Alpha, used to evaluate the intelligence and, more precisely, the aptitudes of World War I military recruits, was the first all multiple choice, extensive evaluation. The training of soldiers during and after World War II made further extensive use of technology, including movies and other mediated materials like overhead projectors. The description of meme by Vannevar Bush in 1945 is when the idea of hypertext first emerged.

In educational institutions during the 1950s, slide projectors were often used. Invented in the 1920s, Cuisenaire rods gained popularity in the late 1950s. Patrick Suppes and Richard C. Atkinson, psychology professors at Stanford University, tried utilizing computers to instruct elementary school kids in the Palo Alto Unified School District in California in math and spelling through Teletypes in the middle of the 1960s. From those initial tests came the Education Program for Gifted Youth at Stanford. The University of Illinois invented online education in 1960. Students may access class materials using connected computer terminals even though the internet wouldn't be invented for another ten years. When the School of Management and Strategic Studies at the Western Behavioral Sciences Institute in La Jolla, California, opened its doors in 1982, online education became a reality.

To administer a distance learning program to corporate executives, the school used computer conferencing through the Electronic Information Exchange System (EIES) of the New Jersey Institute of Technology. The New School in New York City and the EIES computer conferencing system were both used by Connected Education to offer the first fully online master's degree in media studies beginning in 1985. The Electronic University Network continued to provide courses for DOS and Commodore 64 computers in 1986. MIT started offering free online courses in 2002. Around 5.5 million students were enrolled in at least one online course as of 2009. At the moment, one in three college students enrolls in at least one online course. Eighty percent of DeVry University's bachelor's degree students complete two thirds of their coursework online. Additionally, 2.85 million of the 5.8 million students who attended online courses in 2014 completed all of them. From this data, it can be inferred that there is a consistent rise in the number of students enrolling in online courses.

DISCUSSION

Promote students' learning interest

In order for all students to properly integrate into the classroom and actively participate in classroom activities, as well as for students to have a strong interest in English courses, English teachers build students' thinking skills in the classroom. The biggest taboo in English education is when instructors mindlessly preach and explain. English teachers must continually motivate students, stimulate their interest in learning, use speculative teaching techniques to activate the original dull English, analyze the meaning of things, and approach situations dialectically in order to make the classroom vibrant and the students feel happy Assist students in solidifying their internalized subject knowledge of English In English classes, teachers encourage students to think critically, assist them in solidifying their understanding of political and ideological topics, and actively build a knowledge base for their pupils. He constantly internalizes the knowledge he has received and processes it on the basis of thought and analysis to create his own autonomous and stable cognitive structure and manner of thinking. There is no need for extra guidance for teachers. Students' ability to think has also improved, and the instructional material has been internalized and externalized into action [1]–[3].

Encourage students to cultivate a spirit of inquiry and innovation

In English classes, teachers should help students develop their capacity for logical thought, encourage personal participation, and allow students to genuinely take center stage in the class based on their prior experience. This encourages the pupils to perform, show off their personalities, and play to their strengths. Teachers must first put an emphasis on encouraging and assisting students in developing their own thought processes. They must also offer incentives for students to think logically and present their own opinions. Cultivating students' capacity for logical thought is conducive to fostering democratic equality between students and teachers, encouraging students' sense of innovation, and fostering students' spirit of challenge.

Design of Reclass Learning TasksTo-Do List for Pre-Class Study. A task given by the instructor, such as finishing activities based on the video resource's material, serves as the preview before the flipped classroom. After watching the micro class video, students might be unable to correctly complete the exercise. This is OK because the exercise's goal is to alert the teacher to the student's issue, much as taking the student's pulse. An information technology platform can be used to ensure that the students' completed homework is delivered to the teacher prior to the start of class. The objective prior to flipping the classroom is to assist teachers in comprehending the issues that pupils face because they may have forgotten the challenges that novices have when they are introduced to fresh knowledge.

Before class, students independently study, and teachers get student feedback on the material covered. Students should follow the instructions in the preclass self-study homework list to view the instructional video and finish the tasks on the self-study homework list after receiving the preclass self-study materials and self-study homework list. Through the network platform, teachers may monitor and direct their students' independent learning while also understanding the challenges they confront when taking part in classroom instruction. The teacher gathers the tasks that the students have performed and the corresponding exercises from the self-study task list, describes the issues that the students have encountered and the recommendations that the students have made, and gets ready for the upcoming lesson in the classroom. Planning of in-

class teaching activities The following links represent the teaching activities in this paper's flipped classroom depicts the process [4]–[6].

flowchart for a classroom exercise

Stretching before class. The pre-class warm-up exercises help students get ready for class, pick up some new information, and fully engage in the learning activities that follow, capturing the interest and attention of the majority of students. By using examples of content and teaching strategies that are closely related to the course material, teachers can fully pique students' interest and attention, pique their curiosity, and encourage their initiative and enthusiasm to participate in class activities. In this flipped classroom, teachers can simultaneously direct students to thoroughly review all self-study material before class through oral questions and form feedback for students through reflection and feedback to prepare for sporadic problems.

An explanation of the issue. The knowledge of the students may differ when they begin self-study prior to class due to differences in the knowledge structure and level of their cognitive abilities between various students, which can cause certain cognitive errors and imbalances between them. Students can have a central role in both classroom instruction and activities in the flipped education classroom described in this article. The teacher will use our students as examples to demonstrate the entire method of self-observation as well as the challenging areas that were discovered during the in-class research. All pupils run into these situations while doing their own self-study. The kids have strong personal feelings and are well-aware of the subject matter. Students can gradually acquire new knowledge in the constant balancing of understanding and achieve the comprehension and internalization of knowledge through discussions with professors.

Teamwork Discussion. Once students have solved the difficulties at hand, they can further their understanding by interaction with other students and support from them, developing their own cognitive structure and knowledge system. In accordance with the conventional teaching paradigm, students finish their assignments on their own after class and are unable to communicate with others or quickly access assistance when they run into problems. They will then come to the realization that they can't finish the activity totally on their own, which will have an impact on their confidence in their ability to learn. Through peer communication and collaboration, the instructional activities in the flipped classroom described in this article will forge a bond of support and mutual assistance among the students. Results Presentation. Teachers aid students in sharing and evaluating the findings of their research or group after they have cooperated and assisted one another. In addition to asking topics deserving of in-depth discussion, students also summarize the findings of both individuals and groups, choose group spokespeople to share their learning outcomes. The in-depth comprehension and information absorption of the issues can be further fostered by in-depth debate of the issues. Students can simultaneously experience the satisfaction and sense of completion of learning in shared sharing through the exchange of results between groups to further foster exchanges between students and through reciprocal evaluation between groups to enhance the acknowledgment of group results.

Survey Technique

This article chooses a group of 50 non-English majors from a university as the research subject; there are 9 boys and 41 girls in the group. Both the experimental group and the control group

are members of this class. The single-factor single-group pretest and posttest experimental mode has been chosen. This article runs studies in a real setting to investigate whether the flipped classroom paradigm helps develop students' capacity for thought. Before the experiment, this article will use a questionnaire survey method to understand the students' attitudes toward college English courses and their comprehension of the flipped classroom teaching mode. This understanding will be used as the basis for observing the changes in students' thinking abilities after the flipped classroom teaching is implemented. After the experiment, a questionnaire was created for various points in the teaching process to examine how the teaching experiment affected students' capacity for thought [7]–[9].

Test for Questionnaire Reliability

The variance of the questionnaire findings was first calculated in order to assess the reliability and stability of the questionnaire, and then the reliability of the returned questionnaire was verified using the "half-half reliability" approach. The correlation coefficient of the survey is determined by formula (1) using the reliability coefficient as a starting point. A test can be considered to have higher reliability if its reliability reaches 0.80 or more, in accordance with the theories and procedures of contemporary scientific research. The test results demonstrate the validity of the questionnaire.

Analysis of College Students' Speculative Personality Tendency as It Is Now

Students have negative speculative personality tendencies, as evidenced by Table 1's finding that the sum of their tendencies is. However, these eight dimensions' analysis, curiosity, tenacity, and self-confidence have an average value of >4 for each question, indicating that these four dimensions have a tendency toward positive thinking. The subjects' curiosity score was 5.044 among them, which was greater than the scores on a number of other aspects. The average score for analytical comes in second at 4.925. The average values of 3.069 and 3.034, respectively, for students' truth-seeking and cognitive maturity, show that these traits are relatively low in students.

Analysis of the current state of the students' speculative personality inclination prior to testing. The total value of students' speculative personality inclinations, as seen in Table 2, is, indicating that they have positive speculative personality tendencies. Additionally, the average score for each of the eight dimensions—analytical, curious, tenacious, and self-assured—is >4, indicating that these four characteristics also show a bias toward optimistic thinking. The average score for each of them was 5.052, which was higher than the scores for the other several dimensions. The average score for analytical is 2. It is 4.99. With average values of 3.205 and 3.170, respectively, it is clearly clear from these data that students' truth-seeking and cognitive maturity are quite low. Analysis of the students' speculative personality tendency post-test. that when pre- and posttest results are compared, the posttest values for each of the eight dimensions are all higher than the pretest values, and the posttest mean for the overall speculative inclination is also higher than the pretest mean. The mean values of students' curiosity and self-confidence are the highest among these eight categories, while the mean values of their genuineness and maturity are comparatively low. Not much differs between the other dimensions.

The Situation and Trend Changes of College Students' Thinking Ability, Overall

This article gives the average of the total scores of the thinking ability and the scores of various subskills in the four English examinations to examine whether the flipped classroom can develop students' thinking abilities. is twenty-five points. Figure 3 can be used to assess each speculative subskill's variations over time as well as the overall importance of speculative skills over the According to Table 3 and Figure 3, students' thinking abilities improved between the first two examinations, from to, and their average scores for interpretation and assessment skills were the highest, while their average scores for analytical skills were the lowest. The third exam revealed a declining tendency in some student subskills, particularly in evaluation and interpretation. The average value of the students' speculative subskills went from to in the fourth exam, nevertheless.

analysis of students' overall levels of cognitive ability

The Changing Trend of Self-Regulation and Emotional Characteristics in College Students This article examines the state of students' self-regulation and emotional characteristics in addition to the overall situation of speculative skills and its various subskills. It is hoped that by examining these changes, we will be able to determine whether process-flipping classroom instruction can enhance students' performance. Data is used in Table 4 to examine how the self-regulation and emotional aspects of students' writing have changed over time [10]–[12].

Average self-regulation and emotional trait data

In the first test, students' self-regulation and emotional traits were averaged at 2.852 and 2.592 in the pretest, and they were averaged at 3.274 and 3.232 in the posttest; in the second test, they were averaged at 3.027 and 2.677, and they were averaged at 3.899 and 3.601 in the posttest; and in the third test, they were averaged at 3.299 and 2.916, and they were averaged at 3.899 and 3.601 The four sets of data clearly demonstrate that the self-regulation and emotional characteristics averages have increased across the four tests, with the posttest average being higher than the pretest average.

CONCLUSION

The idea of distance learning has been around for many centuries, and Linda Harasim recently wrote an article titled "Shift happens: online education as a new paradigm in learning" that provides an overview of its history as well as a framework for understanding the needs it fills. The value of online education lies not in its ability to have developed a method for distance learning, but rather in its capacity to improve the effectiveness of this type of learning process by offering a platform that allows the teacher and their students to virtually interact with one another in real-time. The idea of online education first emerged in the late 1900s, when organizations and companies began to produce tools to support students' learning. These organizations saw a need to expand educational services globally, especially in underdeveloped nations. In order to provide students with access to recorded lectures and course materials that they may view or use in their leisure time, the University of Illinois developed a network of interconnected computer terminals known as the Intranet in 1960. This idea, known as PLATO (programmed logic for automated teaching operations), spread quickly around the world. While the internet was still developing, several institutions took this similar strategy.

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CHAPTER 2

DEEP NEURAL NETWORK PREDICTION OF THE EMPLOYMENT INDEX FOR COLLEGE STUDENTS

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ABSTRACT:

The field of employment has constantly extended, the number of entrepreneurs has gradually increased, and regional inequalities are now clear as higher education in China gains popularity faster than before and job opportunities for college graduates become more difficult to come by. The difficulties that college graduates have finding jobs has generated widespread concern in society. As a result, in this paper, a prediction and evaluation model for the employment development trend of college graduates is established using the convolution neural network (CNN). A case is used to demonstrate the viability and practicability, which is very important for the government and colleges to provide decision-making help and suggestions to address the issue of challenging employment. A larger family of machine learning techniques built on artificial neural networks and representation learning includes deep learning. The usage of several network layers is indicated by the term "deep" in deep learning. It is possible to utilize supervised, semi-supervised, or unsupervised methods. In areas like computer vision, speech recognition, natural language processing, machine translation, bioinformatics, drug design, medical image analysis, climate science, material inspection, and board game programs, deep-learning architectures like deep neural networks, deep belief networks, deep reinforcement learning, recurrent neural networks, convolutional neural networks, and transformers have been used, with results comparable.

KEYWORDS:

Demonstrate, Employment, Graduates, Material.

INTRODUCTION

A group of machine learning techniques known as "deep learning employs numerous layers to gradually extract higher-level features from the input's raw data. In image processing, for instance, lower layers might recognize borders, while higher layers might identify things that are important to people, like numbers, letters, or faces. Another way to think about deep learning is to "computer-simulate" or "automate" human learning processes from a source, like an image of dogs, to a learned item, like dogs. As a result, the idea of "deeper" or "deepest" learning makes sense. The most in-depth learning occurs when an object is learned entirely automatically from a source. Thus, a deeper learning refers to a blended learning process that involves both human and computer learning: learning from a source to a learned semi-object, then learning from the learned semi-object to the final learned object. Although they can also include propositional formulas or latent variables organized layer-wise in deep generative models like the nodes in deep belief networks and deep Boltzmann machines, the majority of contemporary deep learning models are based on multi-layered artificial neural networks like convolutional neural networks and transformers.

Each degree of deep learning learns how to change the incoming data into a tad more abstract and composite representation. In an application for image recognition, the initial input could be a matrix of pixels; the first representational layer could abstract the pixels and encode edges; the second layer could compose and encode arrangements of edges; the third layer could encode a nose and eyes; and the fourth layer could recognize that the image contains a face. Importantly, a deep learning process can figure out on its own which features to best arrange at which level. This does not eliminate the need for manual adjustment; for instance, different layer counts and widths can offer various levels of abstraction. The term "deep" in "deep learning" describes the quantity of layers through which the data is changed.

Deep learning systems specifically have a significant credit assignment path (CAP) depth. The series of transformations leading from input to output makes up the CAP. CAPs describe the relationships between input and output that might be causative. For a feedforward neural network, the number of hidden layers plus one (because the output layer is also parameterized) determines the depth of the CAPs. The CAP depth is conceivably limitless for recurrent neural networks, where a signal may pass through a layer more than once. Although there isn't a depth cutoff that distinguishes deep learning from shallow learning in all cases, most researchers concur that deep learning requires CAP depths greater than 2. It has been demonstrated that CAP of depth 2 is a universal approximator, capable of simulating any function. Beyond that, adding more layers does not improve the network's capacity to approximate functions. Additional layers aid in effectively learning the features since deep models (CAP > 2) are able to extract better features than shallow models.

A greedy layer-by-layer strategy can be used to build deep learning architectures. Deep learning aids in detaching these abstractions and identifying the elements that enhance performance. Deep learning techniques avoid feature engineering for supervised learning tasks by converting the data into concise intermediate representations similar to primary components and resulting in layered structures that eliminate representational redundancy. Unsupervised learning tasks can be handled by deep learning algorithms. Given that unlabeled data are more prevalent than labeled data, this is a significant advantage. Deep belief networks are an example of a deep structure that can be learned unsupervised. In the social network, college students are unique subgroups with high starting points, high quality standards, high aspirations, and other traits. After completing their higher education, college students have a better degree of knowledge and ideological consciousness. They will actively want to fit in once they enter society, but they also lack social experience. at order to research the employment of college graduates, namely the occupation choice and implementation of this group following the completion of their studies at a certain era, this paper examines the employment of college students in a very limited sense.

Every year, a specific number of college graduates are produced by public universities and colleges. If college students are not fully employed, it could lead to a variety of social issues in addition to the squandering of their talents. Therefore, college students' job is distinct from regular work, which is a challenging and demanding task. Chinese college students often graduate in June or July of each year, making it difficult and time-consuming for graduates to obtain employment. Typically, throughout the months leading up to graduation, they actively search for their ideal careers. As a result, hiring college students requires some promptness. The relevant government departments have a certain time limit when they calculate the employment rate of colleges and universities, especially in recent years.

The time restriction for university students' employment has evolved along with China's reform of the college student employment system, particularly the two-way choice, which steadily establishes and perfects the employment mechanism. When compared to other employment groups, college students' employment timeliness is relatively strong which means that they are no longer assigned to specific jobs during the hiring process. The employment period is typically two years, and there are good opportunities for university students to find the right job within the time available. It is in charge of assisting and directing them as they develop their career plans, cultivate their employability, and raise the competitiveness of their employability. It is therefore impossible for college students and other occupational groups to obtain such advanced, systematic education and mentoring. Additionally, students have more career options than other groups and have access to more employment information because to the benefits of the platform and network of universities. In order to obtain satisfying careers, college students can frequently use campus recruiting, network recruitment, school and teacher recommendations, alumni relationships, and other avenues.

If a person satisfies the three aforementioned fundamental criteria, they are deemed employed at the current stage. The aforementioned requirements set forth the boundaries of employment and distinguish it from home chores and mandatory labor. The four components of a college student's job position are the employment subject, the employment object, the employment environment, and the employment result. College graduates' employment concept, employment psychology, and comprehensive quality are all covered under the subject of employment. The employment environment consists of employment laws and policies, supply and demand in the market, the development of the employment market, employment services, and guidance. Employment results refer to the post-implementation graduates of the situation, in a limited sense and from a limited perspective.

This study organizes and compares the original employment dispatch data of college graduates in recent years in China, provides a macro-level description of the employment status of graduates, and highlights the employment trend. The findings of this investigation play significant functions. One is to give government departments a decision-making guide in order to increase employment. The employment system change and international employment have been examined in this study using a substantial amount of data, which may be utilized as the foundation for government agencies to develop employment policies for college students. The second is to offer market data so that discipline and specialist structure can be adjusted.

Theoretical research on the employment of college graduates has been improved as of late. The statistical analytic techniques and pertinent findings put forward in this thesis have a considerable bearing on the theoretical work on employment In order to offer fresh perspectives and solutions for resolving real-world issues like the difficulty of finding employment for college students and the method of talent development in colleges and universities, this study aims to comprehend the development trend of the unidirectional flow of college graduates from the city to the labor market. In order to accomplish this, it is intended to identify the development trend of college graduates' preference for the labor market through a comparative analysis of the statistical data on where college graduates find employment in China, provide a plausible explanation for this phenomenon using pertinent economic theories, and examine the causes and motivations for this new trend. It foresees how this tendency may affect future employment opportunities for college graduates.

DISCUSSION

There are few direct studies on the topic of college graduates in foreign countries due to the historical development stage and reality, and the majority of studies view them as a special category of employment in the rural labor market and place them in the urban-rural mobility of the population. In contrast to the direction of the flow from the countryside to the city, college graduates facing the rural population flow from urban to rural employment is a particular performance, and as a result, the rural population is urbanizing in the opposite direction. Foreign academics view hiring college students as a typical occurrence and offer the following four explanations to explain it.

Dual economic theory is one. According to the dual economic theory, there are two main economic sectors that make up the modern national economic development system: one is the industrial sector, which is characterized by high productivity and a low marginal rate of return, and the other is the agricultural sector, which is characterized by a conventional production model and a high marginal rate of return. The push-pull theory. The pull force is made up of positive factors like stable employment opportunities, high economic income, excellent working conditions, full social welfare and security, and promising development prospects. The push force is made up of negative factors like the high cost of living, low-income level, high unemployment rate, and harsh living environment [1]–[3].

The theory of individual labor supply decisions. The decision-making theory states that an individual has a certain amount of time in which they must divide their time between work and leisure in order to maximize their practical utility. College grads are the nation's most valuable human resource and a crucial component of the creation of modernization. To effectively allocate and develop the human resources of college graduates, it is crucial to learn, put into practice, and create a harmonious socialist society. The employment of college students has a direct impact on the growth of society and the economy in addition to being intimately tied to universities and graduates. Higher education has shown an upsurge in enrollment since 1999. China's college enrollment increased significantly between 2001 and 2008, and recent graduates have become increasingly popular with people from all walks of life.

With more college graduates entering the workforce, there are many issues with employment, such as the mismatch between supply and demand, irrational employment structures and flawed employment mechanisms, incomplete employment policies, unequal graduate quality and employer expectations, and high graduate expectations. The international financial crisis has had a significant impact on our nation's employment situation, especially since 2008, and pressure to hire recent graduates has increased. In light of this pressure, research and novel approaches are being investigated. Therefore, the government's active promotion of college graduates finding full and harmonious employment is a crucial step in addressing the livelihood issues of the populace and a duty that cannot be shunned [4], [5].

A few domestic specialists and academics have recently looked at college student employment from two angles: the design of personnel training and the selection of subjects. They believe that the university education system reform and graduate employment system reform of institutions of higher learning are not coordinated, that autonomy is minimal, and that admission requirements, professional environments, and employment market demand eventually lead to a situation of college graduates market supply and demand imbalance, which has a significant impact on college students' employment. Some academics hold that the

employment concept of today's college students is outdated, that the professional knowledge system needs to be improved, that employment psychology is still in its infancy, and that practical operation ability is relatively low and needs to be further developed. China has developed a number of employment policies and management strategies to entice college students to work at the grassroots level and in the central and western regions since the start of the twenty-first century. Projects undertaken by the state include "Selecting and Hiring College Graduates to Work in Villages," "Supporting Education, Agriculture, Medical Services and Poverty Alleviation," "College Students Volunteer to Serve the Western Region," and "Rural Compulsory Education Stage School Teacher Position Plan." Additionally, recent graduates are assisted in their efforts to launch their own firms as well as find employment in small and medium-sized businesses.

There have been numerous studies on the employment of college students undertaken by foreign professionals and academics. A developed market economy provided the backdrop for the development of Western employment theory. In addition to being an economic issue, employment is also a social, political, and technical one. The United States' overall strength has increased to the top of the world as a result of the country's tremendous improvements in its economic and scientific strength First, a study on graduate students' aspirations for work in rural areas is conducted. Third, the study of rural employment of college graduates, the influence of the traditional planning system mode on the way of examination and employment, and the influence of the government financial fund guarantee are the negative factors that affect the rural employment of college graduates. This is because the problem of the structural surplus of urban talents can be solved by introducing policies to encourage talents to return home. Fourth, it is important to take promotion efforts to help college graduates find work in rural areas. Implementing thorough reforms in talent selection, education, and training will help college graduates actively seek employment [6].

The aforementioned domestic and international research findings have provided the framework for this paper's investigation of college graduates' employment in rural areas; however, the current findings still have the following limitations. First of all, there is just a single research standpoint. Most studies that have been done so far describe events from a macro viewpoint in order to produce subjective impressions and empirical summaries. The proposed solutions lack any practical relevance because the mechanism and essence behind them are not studied on a theoretical level. Second, the research's information is not organized. Third, predicting job trends rarely involves the use of clever algorithms, particularly deep learning algorithms [7]–[9].

Design and Collection of Experimental Data

Along with 30 medical colleges and universities, 20 comprehensive colleges and universities are chosen for this job. This time, 4000 surveys were distributed, and 3812 legitimate surveys were recovered. In terms of gender, there were 2,331 girls and 1,536 boys, or 28.71% and 71.29%, respectively. 6.82% of students come from top-tier cities, 25.21% from small and medium-sized cities, 27.27% from regular cities, and 41.62% from rural areas, according to student sources. This study used a variety of methods, including literature review, questionnaire, interview, and statistical analysis. The academic performance data are then combined with student performance data and employment data from graduation to produce the CNN model's input. In Figure 2, this procedure is displayed. Finally, the employment

information is added to the score data set in order to anticipate the next employment index after the score data set has been updated in accordance with the employment situation [10]–[12].

Experimentation Findings

Entrepreneurship is about the pursuit of entrepreneurial goals and higher values in a particular area, not just about making a living. A thorough awareness of the activities is required to engage in entrepreneurial endeavors, and professional knowledge is a compilation of the guidelines for development in a particular subject. Your entrepreneurial activities will be carried out more effectively the more professional expertise you possess. College students must therefore learn professional information effectively in the classroom The link between embedding dimension and prediction accuracy is shown in Figure 3 to illustrate the process of choosing pertinent hyper parameters for the model in this paper. The prediction accuracy under the circumstances of various embedding dimensions has a tendency of first growing and then dropping as the number of iterations grows, as can be seen from the image. After 1100 rounds, the prediction accuracy approaches a steady level. Additionally, the image shows that when the embedding dimension is set to 30, the CNN model's prediction accuracy is good regardless of how many iterations are required. This is because the embedding dimension of the CNN model used in this paper is set to 30. The most accurate forecast was around 81%.

Some subjective student characteristics, such as students' professional level, social ability, and family background, will also have a significant impact on the prediction of employment trends in addition to the objective quantitative indicators mentioned above that can describe the prediction effect of the model. In Figure 5, the precise statistical outcomes are displayed. The employment index for college students is not uniformly distributed, as can be seen from the figure, making it simple to predict. However, the variable of market competitive pressure fluctuates greatly, making it difficult to predict. The prediction outcomes of the quantity of college students employed based on the CNN model are shown in Figure 6 in order to further confirm the efficacy of the proposed strategy. The efficiency of the suggested method is demonstrated by the Figure, which shows that even with a larger number of samples, the system can still make accurate predictions.

As observed in the figure, the projected values derived using the method in this study can closely match the actual number of students employed, and the fitting impact is unaffected by the growth in the number of data sets. The efficiency and stability of the suggested technique are thus demonstrated. The state should increase investment; colleges and universities should strengthen their ties with businesses and other hiring units; and schools should strengthen the development of practical training bases. Colleges and universities should concentrate on developing students' employment abilities, increasing awareness of practical education, fostering links between practical teaching units, developing practical teaching plans that are reasonable, and improving the practical teaching system. Figure 7 displays the employment indicator prediction findings for boys, girls, and the general population. The figure shows that the prediction outcomes for the method used in this paper for the various genders are also satisfactory. Information serves as both a foundation for job choice and a conduit to employers who can gather firsthand employment information and take the initiative in hiring. Figure 8 demonstrates that, regardless of whether the prediction results came from the training set or the test set, they were accurate. Finally, the comparison of the suggested method's prediction loss and iteration times follows. shows that both the training set and the test set, particularly the test

data set, maintain relatively low prediction loss values, which suggests that the CNN performs well in terms of generalization.

CONCLUSION

The state and municipal governments at all levels have recently released a number of initiatives to encourage the hiring of college students. In addition to the objective quantitative indicators mentioned above that can describe the prediction effect of the model, some subjective student characteristics, such as students' professional level, social ability, and family background, will also have a significant impact on the prediction of employment trends. It is illustrated that non-uniform distribution of the employment index for college students, which makes it easy to anticipate in this essay, on the basis of analysis and research, the pertinent theories of university students' employment were established through the graduates' demand forecasting model, used the CNN model to predict the market for graduates, and discussed how to cut the costs and save time on the search process, achieving better employment problem. Future employment index prediction models for college students should include variables like gender and family background in order to increase prediction accuracy.

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CHAPTER 3

USING A NEW DEEP LEARNING MODEL TO EXAMINE COLLEGE STUDENTS' PSYCHOLOGICAL STRESS

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ABSTRACT:

The burden or oppression that people's ideas, feelings, and other internal processes bear, as well as the emotional changes triggered by school, job, society, day-to-day living, interpersonal relationships, and other things, are all examples of psychological stress. It can incite anxiety and other unfavorable emotions in people, leaving them sad and frustrated on the inside, as well as lift people's spirits, enabling them to cope better with stimuli and challenges. College students are young adults in their 20s who are active, prone to mental health issues, and have dramatic mood swings. College students, a distinct group in the social development trend, are influenced by the learning and growth environment, and because they lack practical thinking and experience, their understanding of the world, values, and outlook on life is maintained at the theoretical level, making it challenging to adapt in a short amount of time. New events and contradictory circumstances that obstruct regular living and learning lead to excessive psychological stress. In order to address the various psychological pressures that college students are susceptible to, this study uses a deep learning model to evaluate and assess psychological stress in college students. The original ResNet50 network model, on which the deep learning model in this study is based, compresses the network structure to minimize the training costs and boost the effectiveness of the network. We trained a network with few parameters, a tiny model, and high precision to improve processing performance and conserve storage and computational resources. The investigation's conclusions can aid college administrators in preventing and early detection of student issues. While placing importance on the development of college students' psychological qualities, it actively creates a strong home-school cooperation mechanism and improves the students' capacity to deal with and resolve stress through enhancing their behavioral experience.

KEYWORDS:

Challenging, Environment, Psychological, Triggered.

INTRODUCTION

Students nowadays are living in a period of profound societal change. Due to the more complicated rivalry in contemporary society, they are under a great deal of pressure, and their psychological issues are getting worse. The long-term growth of college students is impacted by their mental health in addition to their academic, social, and personal lives. It is crucial to comprehend the current state of college students' psychological issues, investigate the root causes of those issues, and develop solutions for the psychological and behavioral issues they frequently face in both their daily lives and the course of their psychological development. The secret to a thorough application of high-quality education in colleges and universities is to maximize the psychological potential and quality of college students. A person is said to be in

good mental health if they feel internally stable and are able to adjust to their surroundings in any way. The psychology will not be out of balance when faced with challenges, making it easy to conquer them with the right behaviors. Stability and adaptability characterize the current level of mental health. It is quite challenging to assess the mental state of a person. When it comes to health, there is no clear-cut line. A person experiences stress, a condition of tension, when their body and mind feel threatened. Other names for it include "stress" and "tension." If a person is exposed to high amounts of stress for an extended period of time, their body and mind will suffer substantial harm.

High psychological pressure, low psychological endurance, and poor psychological adjustment skills are the main symptoms of mental health problems in college students. Stress on the mind is the main problem. The use of intelligent technology to gather and evaluate psychological pressure data from college students in order to support college and university management and carry out student management work efficiently is a challenge given the development of artificial intelligence. Reference looked into the connection between personality factors and search activity. An algorithm for identifying mental health issues based on network usage behavior is suggested in reference it is discussed how emotional aspects affect PhD students' network information retrieval. It was suggested in [8] to use time-frequency analysis of network behavior as a new technique for identifying depression. A novel approach to forecasting the future severity of mental illness (MIS) among Instagram users is put forth in Reference. The traditional approach to measuring psychological stress is mainly reliant on manual interaction and questionnaires.

Manual interviews and the use of daily or repeated surveys are among techniques used to monitor students' psychological stress over time. Wearable technology is utilized to measure pupils' psychological stress. Data collection using this method often takes a long time and is only useful for a subset of students who took part in the survey activities. Another relatively recent method is to gather and examine past student data, mostly using machine learning, and then process different data to develop models with suitable features to gauge students' psychological stress, for example, by leveraging students' Internet connection. The psychological stress of students can be evaluated using data from their learning, sleep, consumption, mobile phones, smartwatches, and other sources. This model can be extended after it is established and typically uses the data from already-existing records to make predictions. It does not need to be run again after each survey is finished. The performance of the evaluation model will be significantly impacted by the characteristics and proper model, both of which are essential.

This experimental study uses data of students who are completely organically recorded in the school to examine the efficacy of the psychological stress assessment of students in order to overcome the drawbacks of traditional research methods, such as the long period and limitations. The different student behaviors are built based on the deep learning model and the data features are constructed to assess the psychological stress of the students. The major work in this paper comprises mostly of the following components. Stress is defined as an emotion of pressure and strain in psychology. An example of a psychological pain is stress. Small degrees of stress may be advantageous since they can enhance motivation, physical performance, and environmental response. But excessive stress can also worsen a pre-existing ailment and raise the risk of heart attacks, ulcers, strokes, and mental problems like depression.

The source of psychological stress might be internal views that make a person feel anxious or other unfavorable feelings about a situation, such as pressure, discomfort, etc., which they subsequently perceive as stressful. Psychological stress can also be external and related to the environment. In 1974, Hans Selye postulated four different types of stress. He places pleasant stress (eustress) and negative stress (distress) on the same axis. Under stress (hypo stress) and overstress (hyper stress) are on the other. Selye advises balancing these: the ideal objective would be to have the maximum amount of eustress while precisely balancing hyper stress and hypo stress.

Greek root eu-, which meaning "good" (as in "euphoria"), is where the word "eustress" originates. When a person views a stressor favorably, eustress is the result. Dis- (as in "dissonance" or "disagreement") is the Latin root from which the word "distress" is derived. Distress that meets medical criteria poses a risk to one's quality of life. When a demand far exceeds a person's capacity, it happens. Major life events include things like getting married, starting college, losing a loved one, having a kid, getting divorced, moving residences, etc. These occurrences, whether favorable or unfavorable, can produce apprehension and fear, which in turn breeds stress. For instance, studies have shown that stress levels rise as students move from high school to college, with first-year college students having a roughly two-fold higher risk of stress than those in their last year. Due to their rarity, important life events have been determined to have a somewhat lower likelihood of becoming significant sources of stress.

The amount of time that has passed since the event and whether it was positive or bad both affect whether or not it generates tension. Researchers have discovered that whereas chronic events that occurred more than several months ago are associated to stress and sickness and personality change, recent events that occurred within the past month are typically not linked to stress or illness. Additionally, while bad life events might be linked to stress and the health issues that come along with it, positive life events are normally not associated to stress and if they are, it's usually very minor stress. Positive life changes and experiences, however, can forecast reductions in neuroticism. Some data suggests that stress can increase a person's susceptibility to bodily ailments like the common cold. Although acute stressful events (but not chronic ones) are linked to increased vulnerability, adjusting for life events does not change the link between social variety and colds. Stressful situations, such work transitions, are linked to sleep disorders like insomnia and poor sleep quality. According to research, an individual's response to stress can be influenced by the type of stressor (acute or chronic) as well as personal traits like age and physical health prior to the commencement of the stressor. A person's personality traits (such as their level of neuroticism), genetics, and experiences with significant stressors and traumas as a child may also affect how they react to stressors. Headaches may be brought on by stress.

Chronic stress and a person's lack of access to or use of coping mechanisms can frequently result in the emergence of psychological conditions including depression and anxiety (see below for more details). This is especially true in the case of persistent stressors. These are stresses that last for extended periods of time even if they may not be as powerful as acute stressors like a natural disaster or a serious accident. Since they are ongoing and necessitate a daily physiological reaction from the body, these stressors have a tendency to be more harmful to health. When such micro stressors can't be avoided (like stress associated to living in a dangerous neighborhood), the body's energy is depleted more quickly and typically over a long

period of time. For more information on the biological mechanism by which chronic stress may impact the body, see allostatic load. For instance, research has revealed that caregivers, particularly those who are caring for dementia patients, have higher levels of depression and have somewhat lower physical health.

DISCUSSION

The Main Cause of Psychological Stress among College Students, paragraph

The following three factors are the main causes of psychological stress among college students: One is the state of the family. A person's growth and development are greatly influenced by their education and their familial environment. Parents are a child's first teachers, and they will have a big influence on how they behave and how they develop as a person. The majority of our nation's only children have been raised by their parents or other adults since they were young; as a result, they lack self-care and practical skills, as well as the strength to resist pressure and the knowledge necessary to deal with disappointments. When they run into problems, they feel scared and defeated. The second difficulty is the one with school. Since schools are where most college students live and learn, they have a significant impact on how their physical and mental health develop. In middle school, teachers and parents prioritize grades over their pupils' ideological and psychological development. Because of this, some college students will have poor psychological health, struggle to fit in once they get to school, and deal with a range of psychological problems. The majority of schools and universities have established psychological counseling centers, although they can only assist with minor problems. Since counselors and teachers don't really get to know their pupils or pay attention to them, their psychological problems cannot be resolved. The third thing to take into account is the students' individual qualities. Many college students struggle with self-control and find it difficult to evaluate oneself honestly while pursuing personal growth. During the construction and development of their personalities, college students are easily influenced by negative conceptions and negative forces and as a result develop withdrawn and indifferent personalities [1]–[3].

Reset Deep Learning Model

The discovery of the problem of model "degeneration," which refers to an increase in model error rate as the network depth decreases, is a significant new characteristic of the Reset model. In order to address this problem, the Reset model was developed. The major objectives of a deep residual network's "shortcut connection," which can skip one or more layers in order to transmit results from the previous layer directly to the next layer of the network, are lowering gradient disappearance and improving model training accuracy.

The residual structure of Reset employs two mapping techniques: Ma's identity Experimental Setup displays the parameter settings used during the model training procedure. The evaluation markers are the F1-score, G-mean, and accuracy ACC. G-mean and F1-score provide for a more accurate assessment of the model's impact. True positive rate and true negative rate are both collectively referred to by G-mean. These two metrics' calculation algorithms are based on the quantity of their respective true positive categories. The calculated samples of each label serve as the denominator and calculate the correct probability individually, preventing the evaluation effect from being lost owing to imbalanced samples. The precision rate will be somewhat impacted by the sample's imbalance when calculating the F1-score, and there is a

significant penalty for misclassifying negative data as positive ones. Therefore, in general, G-mean is marginally superior to F1-score.4.3.2.

Experiments on Recognition Rate Using Various Models

The chosen comparison models mainly consist of convolutional neural network (CNN), recurrent neural network (RNN), long short-term memory network (LSTM), and ResNet50 in order to verify the impact of using the improved ResNet50 model on the psychological stress analysis of college students. Each model's parameter settings are referenced by the settings in the aforementioned articles. The test's experimental results for each model The experimental results show that each deep learning model's classification performance on the data exceeds 0.8, resulting in a reasonably effective result. This paper choose ResNet50 as the primary model since its experimental findings outperform those of other traditional models. The updated ResNet50 model utilized in this work produced the best experimental results. Comparing the upgraded ResNet50 to the original ResNet50, the recognition rate has slightly increased. This is due to the fact that the BN layer and the relu activation function's placements are changed as part of the process of enhancing the residual structure. The convolutional layer can perform better than the conventional one if the activation function is placed in front of it. In the previous article, the relu-DSConv-BN-relu-Conv-BN structure is ultimately shown. In addition to choosing the preactivation method, the initial relu activation function is deleted, and a BN layer is added at the end. At the same time, the size of the modified model is around 35% smaller than the original ResNet50 model. This is specifically due to the replacement of the 3 3 standard convolution in the residual block with DSC and the result of replacing the completely linked layer with the GAP layer. The model's parameters are drastically decreased, saving money on computation and lowering the amount of hardware needed for use in the future. The model's ultimate output is $y = F(x) + x$. The residual map refers to $y-x = F$, as the name implies (x), and the identity map refers to itself, which is x. Basic residual block designs come in two different flavors. This residual structure, was created as a bottleneck type for deep ResNet models with 50 or more layers. To achieve this, the input and output sizes are decreased by adding a 1 1 convolution layer before and after the 3 3 convolution layer [4]–[6].

Studies have also demonstrated that Type A personalities' perceived anger and chronic stress are frequently linked to significantly greater risks of cardiovascular disease. [67] This happens as a result of the immune system being weak and the sympathetic nervous system being highly aroused due to the body's natural reaction to stressful situations. [68] Hardiness, a phrase that describes the capacity to be both persistently stressed and healthy, is a trait that people might have. Negative emotional states, such as anxiety and depression, have long been thought to have an impact on the etiology of physical disease, which in turn has a direct impact on biological processes and may ultimately raise the risk of disease. However, research from the University of Wisconsin-Madison and other institutions has revealed that this is only partially true; while as perceived stress appears to raise the chance of reported ill health, the perception of stress as harmful also tends to increase the risk Disease might result from such modifications. Caregiving for a spouse who has dementia is an example of a stressful event that lasts for a considerable amount of time. Conversely, experiencing a sexual assault is an example of a quick focal event that is still perceived as overwhelming years afterwards.

Experiments demonstrate that when healthy human subjects are exposed to acute laboratory stresses, some indicators of natural immunity are adaptively enhanced, whereas functions of

specialized immunity are generally suppressed. Contrarily, chronic stress experienced by healthy people in everyday life is linked to a biphasic immune response characterized by low-grade, nonspecific inflammation and partial inhibition of cellular and humoral function. Despite the fact that psychological stress is frequently linked to illness or disease, the majority of healthy people can nevertheless live disease-free lives even after dealing with ongoing stressful situations. Additionally, there is no greater risk of illness, disease, or death in those who do not think stress will harm their health. This shows that each person is different when it comes to their susceptibility to the potentially harmful effects of stress, and that these variances are a result of both genetic and psychological variables. Additionally, the impact of stress on health can vary depending on the age at which it is encountered. According to research, experiencing chronic stress at a young age can affect one's biological, psychological, and behavioral reactions to stress for the rest of.

Examining College Students' Psychological Stress

The datasets were produced from four separate data sources. Based on the source data, unique estimates are made for each of the following variables: average student consumption at the canteen, average student consumption across all students, average student grades, and average student family level. Based on the collected characteristic data, the deep learning model is used to analyze the psychological pressure that students are under. A deep learning-based paradigm for psychological stress analysis for college students. Redesigned ResNet50 Model Structure, Version 3.2 Although ResNet's "addition" function can prevent gradient explosion and disappearance by extending the network, it also adds more parameters and makes training more challenging. Based on the concept of cost savings and taking into account the network model's actual operability and training speed, the lightweight of the network model is achieved. In order to reduce the computational complexity of ResNet50 [20] network training and increase its operational efficiency, this research compresses the ResNet50 network structure with reference to the network structure of MobileNet [7]–[9].

Depthwise separable convolution (DSC) is the fundamental unit of MobileNet. DSC separates standard convolution into depth convolution and point-by-point convolution. The one that generates the newest channels is called depth convolution, which convolves each input channel separately using k different convolution kernels. kc channels are output if c channels are input at this time, with k normally equal to 1. The depth wise convolution-generated kc feature maps are treated as a whole by the point-by-point convolution, which is a standard 1 1 convolution that also performs a standard convolution after combination. The number of parameters in the network can be greatly decreased. Equations display the usual convolution and DSC calculation formulas. displays three standard convolution layers. In order to achieve the goal of reducing the number of parameters, the 256-dimensional channel will be reduced to 64-dimensional and then restored by a 1 1 convolutions at the end. This initial 1 1 convolutions are used for dimensionality reduction. This study replaces the 3 3 standard convolutions in the residual unit while keeping the two 1 1 standard convolutions before and after. According to the literature dropout should be used in the ResNet residual block's identity section rather than between the convolutional layers when using dropout, which is what this research accomplishes. After the second convolutional layer, a dropout layer is added to avoid overfitting. Batch normalization, or BN, refers to the process of normalizing data in small groups. The mean is zero, while the variance is one. In order to prevent gradient disappearance or explosion during training, gradient backpropagation can be improved by incorporating BN operations into the network.

The specific computation stages for the BN operation are as follows: suppose a batch has labels. Determine the mean and variance for the batch first. Next, normalize the i-th training sample in the batch. The sample quantity should then be multiplied by offset. Three hundred students from a university's class of 2017 make up the research subject of this report. This research uses the technique of conducting psychological questionnaires to obtain positive and negative labels, then scored the quality of the questionnaire, and finally selected 280 valid student samples as the research object because the abnormal psychological pressure of college students leads to the real data of counseling or abnormal behavior is more sensitive. The labels of these 280 kids were shown to be extremely dependable after numerous comparisons and studies. The information and records used in this study primarily consist of the following: records of students' personal information, records of students' academic performance, recordings of students' use of campus cards, and records of students' receipt of financial aid while they were in school. The specifics of each piece of information [10]–[12].

CONCLUSION

College students place great importance on their mental wellness. College students can develop and successfully adapt to society when they are in a psychologically healthy state. A number of psychological stresses are placed on college students. The pupils will encounter psychological difficulties and possibly even develop mental illnesses if the psychological stresses cannot be adequately resolved. The schools and the parents of college students play a key role in resolving their psychological issues. Schools can only properly educate college students to develop their talents by accurately comprehending and resolving the psychological strain that college students experience. This study employs a deep learning model to assess and analyze the psychological stress experienced by college students. Based on the findings of the experiment, it offers advice to college staff on how to focus on psychological health education for students and create a system for timely crisis intervention. According to the experimental findings, the deep learning model utilized in this research can produce accurate analytical results with a rate of more than 80%. This study retrieved several features and carried out an experimental investigation to better understand the variables that affect college students' psychological stress. The experimental findings indicate that college students' consumption levels will have an impact on the model's implementation effect, demonstrating in full that this feature is one of the elements that has the biggest impact on changes in college students' psychological pressure. This study still has several shortcomings, though. For instance, the model is more affected by the choice of data features. Additionally, this is the path in which this paper will keep researching in the future.

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CHAPTER 4

A DECISION TREE ALGORITHM FOR VISUAL ART DESIGN IN A COLLEGE STUDENT PSYCHOTHERAPY SYSTEM

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ABSTRACT:

As society has evolved, having good mental health has become a prerequisite for a college student to develop into a competent adult. The goal of this study is to develop a perfect system of college students' psychological treatment by using data mining principles and techniques to identify the causes of college students' psychological issues, carry out psychological interventions on purpose, and promote college students' psychological health. In order to analyze the data of obsessive-compulsive symptoms, interpersonal sensitivity symptoms, and various psychological problem attributes, we built a data analysis model, elaborated the data preprocessing method, and applied the Apriorism algorithm. We then extracted the strong association rules and analyzed the results. Utilize the associated special educational opportunities and school environment to develop a set of mental health education strategies that are appropriate for contemporary college students and genuinely make it possible for them to receive effective therapeutic interventions in an acceptable art design treatment phase. Based on the aforementioned association pattern mining findings, a number of preprocessing operations were carried out on the data before the Apriorism algorithm was used to identify potential associations between nine psychological dimension factors of college students. Following the construction of a decision tree and pruning process using the ID3 decision tree algorithm, the classification rules for the psychological problems of the students were analyzed and discovered. These studies offer some useful practical reference material for work in school counseling.

KEYWORDS:

Competent, Interpersonal, Opportunities, Psychological.

INTRODUCTION

Intense rivalry among people has resulted in a number of societal issues as a result of the economy's quick growth, the expansion of schools and universities, as well as society's continued selection of talent. Adolescents' psychological development is still in its early stages, and they have a limited capacity to experience failures and bounce back. Adolescents are a high-risk group for mental illness because the development of worldviews and values is not objective enough and is influenced by a number of issues that can lead to considerable pressure and difficulty. Students frequently commit suicide by jumping off buildings as a result of increased pressure from jobs and exams. This tragic trend has prompted society as a whole to pay attention to college students' mental health and consider ways to foster healthy psychology in them. The data acquired over time is growing because many major colleges currently have their own psychological assessment systems, which generate and accumulate specific data once the psychological evaluation work is completed each year. The psychological evaluation data become unique data resources after years of collecting and convergence; if they are not used

for targeted analysis and utilization, they will remain dormant and useless data and consume hardware and software resources. In order for these data to serve their intended purpose, it is necessary to extract the crucial information that lies behind them using specific technical methods, as well as to evaluate and employ these data at a higher level. The existing psychological assessment systems typically have the ability to add, delete, modify, count, and query data, but they are unable to unearth the important knowledge and laws that are concealed in the data or to forecast which serious psychological issues college students will experience based on the current data.

This issue can be somewhat remedied by the use of data mining technology. The decision tree technique is highly effective, simple to comprehend, requires little processing, and performs well with discrete data, among other characteristics. After passing the test of the sample data set's complexity, indirection, and scale, a decision tree's usefulness can be assessed based on whether it is right and whether it is more efficient. The college counseling system has amassed a sizable amount of psychological evaluation data from students over the years, and if the appropriate technology and data mining algorithm can be utilized for mining, it is highly possible to comprehend the root causes of students' difficulties at a deep level. It is vital to learn about the enormous amount of accumulated student psychological assessment data for this purpose This study builds a corresponding mining model and decision tree from the psychological assessment data of college students as the data mining object, then applies the association rule algorithm and decision tree algorithm to the research object to examine the main causes of the psychological issues faced by college students. The combined mining outputs from the two algorithms were provided to the counselors for improved psychological intervention and direction.

The three components of a decision tree are the root node, branches, and leaves. The leaves of the tree are its classification tokens, the branches are its output results, and the root node represents one of the tree's attributes. The method applies a recursive method to test and assign instances until it reaches the leaf node, at which point it assigns instances to the class of the leaf node. The method iterates iteratively from the root node and assigns instances to its children based on the results obtained from the test; each child node corresponds to a value taken for that feature. There are two different types of data sets in the decision tree: sample data sets and test data sets. The algorithm is used to train the sample data set and afterwards create the appropriate decision tree. The sample data set is a collection of data in which the attributes and classifications are known. Using the test dataset, the decision tree is tested, the data is entered, the final categories are derived, the categories are compared to the actual types, and the decision tree's correctness is evaluated. The decision tree technique is highly effective, simple to comprehend, requires little processing, and performs well with discrete data, among other characteristics. Data preparation is necessary beforehand in order to increase the precision and effectiveness of subsequent mining. A crucial component and crucial step in data mining is data preparation. Data preparation techniques include transforming data, summarizing and decreasing data, cleaning data, and integrating data. After passing the test on the sample dataset's complexity, indirection, and scale, a decision tree can be assessed based on whether it is right and whether it is more efficient.

From the start of courses and educational lectures on psychology and mental health, to the holding of mental health competitions, to the carrying out of some scientific work on mental

health knowledge, to the establishment of full-time counseling rooms in schools, mental health education is also a process of gradual establishment and expansion.

There are several evaluation websites on the Internet thanks to recent advancements in science and technology, particularly in computer science and technology. Schools have also begun to create assessment websites where students can take tests online. These websites examine the behavioral traits of the individual and the group to provide appropriate results and recommendations depending on the assessment results.

One of the psychotherapies is art therapy, also referred to as art psychotherapy. The arts of art design, dance, theatre, poetry, and visual arts are used to combine psychodiagnostics and creative disciplines. The patient's artistic creation serves as a vehicle for self-expression in addition to being one of the key diagnostic tools used in psychotherapy.

Based on the physiological and psychological effects of the patient's artistic activity, this diagnostic tool aids in the relief of psychological issues and the promotion of psychological well-being. The interplay of the two sets of correspondences—the visual subject and the visual object determines the visual effect, and it is this relationship that gives rise to visual perception. The physiological qualities of the patient determine this method of thinking, and once this course of action takes on a thinking orientation, it contributes to the adjustment of the perceptual process of visual perception in the mind.

A sensation of empathy and enjoyment is created when visual perception and mental judgments are in harmony. The dynamic nature of visual perception will result in a sense of resistance and discomfort toward the logo design if the mental judgment and visual perception have different feelings. To make the logo design truly "vision-based," designers must therefore consider the patient's visual perceptual feelings and fully comprehend the process of mutual verification and visual integration between the patient's feelings and objective forms.

Patients' physical wants are the most fundamental and primal needs; they are important for ensuring racial and personal survival and serve as the foundation for other needs. The phrase "need for safety" refers to the requirement for individuals to live secure, respectable lives free from danger. Social demands include requirements for support from friends and family as well as approval and acknowledgement from social circles and organizations. The patient's need for respect and worth, including self-esteem and respect, is referred to as the need for respect. The need for self-fulfillment is the drive to achieve goals that are appropriate for one's aptitudes.

Layer by layer satisfying the patient's demands is the first step in satisfying the urge for self-fulfillment. There is always one need that is more pressing than the others, and the strength of each need will change depending on the situation and the time of day. Similar to this, during the process of creating a logo, care should be taken to consider the needs of patients at various levels, taking into account their physiological traits and psychological needs, in order to create a reasonable expression of the design form with the goal of meeting those needs as a starting point. This will help patients and logo design establish a positive interactive relationship that will aid in the recovery of their illnesses.

DISCUSSION

Design

As of now, the majority of psychological assessment systems lack a data mining module, and their functions are limited to data collection and simple statistical analysis, not the analysis of potential relationships between different psychological symptoms and attributes of students. As a result, college counselors and psychological counselors lack a solid foundation to carry out preventive interventions, which makes the application of data mining systems to psychological assessment systems more challenging. The association rule mining algorithm is used in this chapter to conduct research on the psychological evaluation data of college students [1]–[3].

Data mining techniques vary depending on the field of expertise. Each data mining technique has unique traits and steps for execution. Since diverse needs, such as data integrity and expert support, can affect the mining process, the data mining process also differs for different purposes, and this results in variations in data mining and the entire planning process in different locations. Due to various analytical methodologies combining varying degrees of competence, there are notable variances even within the same business. The procedures to be taken, the tasks to be completed at each step, and the desired outcomes must all be decided before data mining can be put into practice. Data mining cannot be successfully applied in an orderly fashion without a well-thought-out plan. Numerous software manufacturers and data mining firms offer consumers a variety of data mining process models to walk them through the data mining process step-by-step. The normalized Gini coefficient is the product of the Gini coefficient of a child node and the ratio of that node to its parent node, so the larger the Gini coefficient, the greater the uncertainty, i.e., the greater the impurity, when is divided by. Figure 1 illustrates the main stages of the data mining process based on the decision tree algorithm in this paper. CART can yield continuous results, which are regression results, as well as discrete results, which are discrete outcomes. A regression tree is another name for the constructed tree. Regression results can be obtained by processing data samples using the LSD and LAD numerical analysis methods, which are helpful in regression trees.

Dataset

The collection of the data source, or data preparation work, is where the entire process begins. The psychometric system's psychometric system extracts the raw data, which is generated by the administrator's and the students' logins to the system. The counseling center administrator organizes students to complete the SCL-90 form on the computer room and improve their personal information so that the information is stored in the database of the psychological assessment system after the administrator logs into the psychological assessment system to import various assessment questionnaires, including the SCL-90, which the administrator can add, delete, and modify. The current study used the SCL-90 results of the current cohort of students as the research object, association Apriorism algorithm to mine the association rules for each psychological factor, and decision tree algorithm in the classification to mine the implied relationship between each attribute in the basic data of the students and the psychological symptoms with a high probability of occurrence [4], [5].

Preprocessing of Data

High-quality data are the foundation for high-quality data mining outcomes. Accuracy, completeness, and consistency are the three components of good data. Real-world raw data typically has issues including duplication, inconsistency, noise content, and excessive dimensionality. Data pretreatment is required beforehand to address these issues and enhance the precision and effectiveness of subsequent mining. Data preprocessing is a critical component and crucial stage in data mining; some frequent techniques for data preprocessing include transforming data, summarizing and decreasing data, cleaning data, and integrating data. The laws of image perception, as well as the preferences and laws of various hues, should be taken into account when designing signage for art therapy facilities that serve patients with psychological problems. Therefore, when creating an art therapy center's logo, it is acceptable to consider the demands of the patients and create from their perspective. Data transformation can compress the data to a smaller interval, enhancing the effectiveness of mining algorithms using distance metrics and the accuracy of the executed results. Data cleaning can be used to remove redundant data by clustering and reduce data size by clustering. Data sets can combine data from various data sources into a complete and consistent data store. To obtain high-quality data after professional and scientific processing, employ the various data pretreatment techniques previously outlined either concurrently or selectively. This will set you up for high-quality mining results and good decisions [6]–[8].

Process of Data Normalization

Three symptom severity levels are represented by the SCL-90 scale: mild, moderate, and severe. Severe symptoms are those with a score of at least 4, moderate symptoms are those with a score of between 3 and 4, and light symptoms are those with a score of less than 3. The figures show that each dimension's proportion of students with severe symptoms is typically less than 0.1%. Because the support of the lower frequency items is less than the minimum support threshold, frequent items are frequently filtered out during the mining of the frequent item set if a high minimum support threshold is chosen. Since we use 3000 yuan as the cut-off point to get the number of persons in the two intervals, we use "yes" and "no" to identify the symptoms of each dimension and binarize "yes" with 1 () and "no" with 0 (). The continuous data "monthly household income" is discretized into two intervals, high and low, by adopting 3000 yuan as the cut-off point because the difference in the number of individuals between the two intervals is not very great. The SR1 number denotes the high interval, which is equivalent to 3000 yuan "Where did you live since childhood" is also discrete data, in which rural and small towns are generalized to rural areas and large cities and foreign countries are generalized to cities so that only rural and urban areas remain after generalization, and the corresponding numbers are SZD0 and SZD1.

The low interval corresponds to 3000 yuan and is represented by the number SR0. Option A is set to yes for the attribute "grew up with parents," while the other options "grew up with friends and family, grandparents, and others" are set to no. These values correspond to the integers GW1 and GW0, respectively. Each transaction in the above dataset contains 6 fundamental student information attributes and 9 psychological dimension factors, i.e., corresponding to the psychometric symptom datum. Option A is set to yes for the attribute of whether both parents are alive or not, and the corresponding number is SQ1; other options such as divorced and remarried, both parents are dead, and divorced and single are all types of missing parents, so

they are set to no, and the corresponding number Six qualities and one kind of psychological dimension component are included in each subset. The decision tree uses a top-down, divide-and-conquer strategy with a fundamental algorithm that is essentially greedy. It is a top-down recursive division. Each non-"leaf node" is discovered to have an attribute in its related sample set to test the sample set, starting at the root node. The training sample set is then partitioned into many subsamples sets according to the various test findings. Every new "leaf node" created by a subsample set is represented by a new "leaf node," and the cycle is repeated for each new leaf node until it reaches a particular termination condition. The division of the sample set and the choice of test attributes are crucial components in decision tree construction. Different decision tree algorithms employ various strategies. The decision tree compares and evaluates the attribute values of the nodes inside the decision tree and determines the branching from the node down according to the various attribute values using a top-down recursive technique [9]–[11].

Results

The ID3 algorithm's drawback, which tends to choose attributes with multiple attribute values, is avoided by the attributes in the dataset used for this study having only two attribute values per attribute. By computing the information gain of each characteristic and comparing the size, the ID3 algorithm, a conventional decision tree construction algorithm, chooses the best split node. Therefore, it was chosen to classify the data on student psychological problems using the ID3 algorithm. In this study, we first preprocess the original data set; next, we randomly select about 5384 records, or about two-thirds of the preprocessed data set, as the training sample set; next, we build a decision tree using the ID3 algorithm using the remaining 2691 records as the test sample set; finally, we evaluate the decision tree we built using the training set using the remaining 5384 records. The Diff-PCCDT algorithm suggested in this research and its parallel counterpart, , may be rendered ineffective when faced with the scenario of high-dimensional data. Therefore, to further enhance the efficiency and usability of the algorithm, we can think about incorporating corresponding modules to handle high-dimensional data into this algorithm in future work.

The specific processes for building a decision tree model using the ID3 algorithm for students with or without OCD symptoms are as follows: first, the information gain of each splitting attribute in the training sample set is determined using equations Then, the information gains produced by the various split attributes are compared, and the attribute with the highest information gain is chosen as the decision tree's root node. Additionally, the total training sample is divided into a number of sub datasets based on the number of branches generated downward by this attribute at this root node. The first two phases are then repeated on each split sub dataset until the leaf node of the spanning tree is reached or there are no more attributes available for splitting, at which point the process is complete. We may learn that the attribute QP (obsessive-compulsive symptom) has two alternative values and 1 (symptomatic) based on the randomly chosen training sample set. As a result, it is possible to partition the training sample set into two groups: 4222 samples with the value "0" and 1162 samples with the value "1." The training sample classification's anticipated information, or entropy, is determined using the formula as follows. It is therefore necessary to determine the entropy of each divided attribute. Using the gender attribute as an example, there are 3214 objects with gender as female (XB0), 712 of which are symptomatic, and 2502 of which are asymptomatic. Of these, 450 are symptomatic and 1720 are asymptomatic.

Analysis

Typically, generalization techniques are used to process discontinuous data, whereas in this study, discrete processing is used to treat continuous data. In other words, continuous data is artificially divided into a number of logical intervals, a line is drawn to represent each individual data summary value, and a discrete symbol is calculated and expressed in this interval range, typically in two steps: segmenting discrete points and describing the segmentation interval statistically or otherwise. Psychometric data becomes a unique data resource after years of gathering and aggregation, and if it is not used for focused analysis and exploitation, it will remain inactive and useless data and consume hardware and software resources. It is generally recognized that patients undergoing art therapy belong to a unique population that differs from other patients with disorders in terms of psychological and physiological characteristics as well as in how they react to outside stimuli. Therefore, it is important to take into account the rules of image perception as well as the preferences and rules of various colors when designing signage for art therapy facilities that serve patients with psychiatric problems. Therefore, when creating an art therapy center's logo, it is acceptable to consider the demands of the patients and create from their perspective.

Patients with psychological problems require designs that have a calming psychological effect based on their visual perceptual features and safety needs. A good visual effect to feel the inner sense of relaxation from the appearance of form expression is to feel the simplified transmission of forms when patients with psychological disorders are perceiving the objective world. This will help patients in a period of unstable thinking and logic to understand and recall more easily. At the same time, it also helps patients relax their guard, therefore when designing the logo, the first thing to do is to give patients a visually simple impression and arrange all the parts in the image according to this approach. The incorporation of color graphics in the proper form to communicate the design, which is also appealing visual imagery, simplifies logo design the visual form, which triggers the psychological and intellectual processes, a collection of diverse forms of expression simplification, and the visual effect, stimulates the transmission of such a feeling.

Sample Choice

A psychological prevention and intervention program suitable for mental health education research in colleges and universities is designed and established systematically in this experiment. It also establishes the necessary operational mechanism and evaluation system in participatory intervention activities. In addition to providing services to college students, this project investigates an efficient localized resource integration and utilization mechanism to translate the research findings into an appropriate mental health service model; during the establishment, implementation, maintenance, and updating of the model, it can foster the professional development of the participants, which is both the study's goal and the method's cutting-edge feature; it is both a survey and an investigation. Before enrolling, each underwent a preintervention assessment questionnaire for the target group, and a number of counselors received case-based treatment. All of the data, including depression from 1.71 to 1.63 and paranoia from 1.68 to 1.59, were significantly lower than the scores before treatment.

CONCLUSION

The psychological assessment data from a university is used in this study as the data mining object, and the association rule algorithm and decision tree algorithm are each applied to the research object in turn to create the corresponding mining model and decision tree. Following this, the study analyzes the main causes of the psychological issues that college students face. We can reasonably improve and enhance college students' mental health by using their social anxiety and depression as the entry points, designing the treatment with the aid of art, and synthesizing the results of the two algorithms to provide feedback to the counselors for more effective psychological intervention and guidance. The findings of the two algorithms are integrated, and the counselors are given the resulting information for improved counseling and psychological intervention. This paper fully utilizes contemporary art and design therapy, based on the principles and mechanisms of art and design therapy, and under the premise of analyzing the psychological conditions of contemporary college students, using the corresponding unique advantages of the school environment and education, to explain the importance of art and design therapy for adjusting students' bad emotions. Additionally, we can create an acceptable and ideal art design treatment system by our own real-world experience and active inquiry.

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CHAPTER 5

DEEP LEARNING AND MACHINE LEARNING-BASED CAREER ADVICE FOR COLLEGE STUDENTS

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ABSTRACT:

China's higher education has transitioned from an elite to a universal stage with the popularization of higher education, and the number of graduates is also rising. College students are currently under a lot of pressure to find jobs. It is challenging for college students to locate a career that matches them due to three factors: the abundance of employment, the diversity of professional needs, and the dissemination of job information. This paper examines the associated technologies and in-depth fundamental ideas of data mining to address this conundrum. The basic convolutional network approach is improved in three ways after the introduction of various conventional recommendation algorithms: activation function, pooling strategy, and loss function. Finally, utilizing the hybrid convolutional neural network, simulation tests are conducted on a deep learning and machine learning-based job recommendation model for college students. The primary research is described as follows A hybrid convolutional neural network is suggested, which employs convolution operation to learn high-level features to produce personalized employment recommendation The training optimization strategy of the hybrid convolutional neural network is studied, with a focus on the activation function, pooling processing, and loss function, and the viability of the optimization method is confirmed through simulation experiments Finally, the recall rate of the method used in this paper is over 15% higher than that of the DNN model, based on the evaluation indices of the recommendation algorithm (recall rate and F1-Score). The experiment is contrasted with the conventional, widely-used recommendation algorithm, and the comparative analysis of the experimental findings demonstrates the algorithm's efficacy for recommending college students for employment.

KEYWORDS:

Challenging, Dissemination, Fundamental, Personalized.

INTRODUCTION

As colleges and universities continue to grow in size, by 2020 the gross enrollment rate for higher education in China will have surpassed 50%, moving it from the stage of elite education to the stage of universal education. Graduating students are in greater demand than ever before for employment and employers have ever-increasing standards for graduates' professional aptitude and overall caliber. The historical model of employment advising is no longer able to accommodate the changing employment supply and demand connection. Colleges and institutions are concentrating their efforts on figuring out how to offer graduates individualized and precise job services. According to data, there will be 8.74 million college graduates in the country by. However, because to the new crown pandemic and increased trade protection, China's economy is under significant downward pressure, which has progressively caused

problems with employment for college students to develop. These issues may be mainly understood in the following ways:

(1) There are a large number of employed people, a protracted employment peak, and a dire condition. Fresh graduates will continue to face significant employment pressure for a sizable amount of time in the future.

(2) Due to some majors' failure to meet the needs of China's industry, which is a result of the country's rapid economic development, college students are experiencing structural unemployment.

(3) In the 'information overload' situation that college students find themselves in when choosing employment, a wide variety of job information makes it simple for students to become information scrutiny fatigue and unable to clarify their job search needs, which necessitates the expenditure of additional effort to find what is truly suitable for them. Employment issues were brought on by the post-information. A lack of scientific counsel on big data career guidance for college graduates is caused by the absence of a unified platform support and the incapacity of individuals to effectively match their personal characteristics with the needs of businesses.

Scholars from several Chinese colleges and research institutions have recently started looking into related topics including employment matching and job matching. The job matching system theory was advanced by Kumar, Gupta, and others. In contrast to Figueiredo et al., who took a different tack and suggested the use of dynamic research methodologies to explore the matching relationship between candidates and businesses Sajjadi et al. first offered the method basis of job matching in Dynamic person-post matching got increasingly developed in 2006, and dynamic fitting was proposed under the direction of Hariyanka et al. and others. In their respective studies, Koehn and Dau combined fuzzy mathematics theory and grey system theory to propose a new matching model. The straightforward principle of matching jobs with candidates has become obsolete with the arrival of the data age, making it impossible to accurately advise college students on their employment options. The theoretical avatars that come with it are no longer useful due to the volume of data. Big data analysis and the introduction of recommendation algorithms from other domains have become popular academic topics. Traditional recommendation algorithms are basically of three sorts when used for job recommendations: collaborative filtering recommendation algorithm, content-based recommendation algorithm, and hybrid recommendation algorithm.

Without relying on user or item content information, the collaborative filtering recommendation algorithm can produce collaborative similarity matching recommendations using historical activity interaction information that already exists and a series of user comparison information with the same behavior. The content-based recommendation algorithm is a type of algorithm that uses information from the user's profile or the project description to suggest an algorithm scheme, which then uses data mining or information retrieval to combine the project's attributes and characteristics to build the user's profile model. By combining the content-based recommendation algorithm and the collaborative filtering recommendation algorithm and utilizing the benefits of both, the hybrid recommendation algorithm seeks to improve prediction or suggestion performance. In order to make up for this, traditional recommendation algorithms must conduct numerous experiments on the choice of combination methods and the sequence of combinations in an effort to find a better combination method. Additionally, the weight distribution of the recommendation results obtained by various

methods must also be experimentally tested and analyzed. In order to address this type of flaw, researchers developed the idea of deep learning and began developing a deep learning-based recommendation algorithm. A deep neural network was suggested by Covington et al. for YouTube video recommendation. To give application recommendations for Google's application mall, Cheng et al. suggested a wide and deep model. For Yahoo News, Okura et al. suggested utilizing the RNN model to make news recommendations.

The goal of this paper is to use the high-level feature learning capability of convolution processing to improve the quality of employment recommendations for college students and address the "data trap" problem faced by college students in graduation selection. This paper draws on research findings of Zhu Wei's flight delay prediction algorithm combined with convolution processing. were modeled after how the human brain is constructed: a single "neuron" N receives information from other neurons, each of which, when activated (or "fired"), casts a weighted "vote" for or against whether neuron N should activate itself. In reality, the input "neurons" are a list of numbers, the "weights" are a matrix, and the next layer is a dot product (i.e., a number of weighted sums scaled by an increasing function, like the logistic function), which is the case in practice. According to Russell and Norvig, "the similarity to real neural cells and structures is superficial."

Local search is used by neural network learning algorithms to select the weights that will produce the desired output for each input during training. The backpropagation algorithm is the most used training method. In order to detect patterns in data, neural networks learn to represent complicated interactions between inputs and outputs. A neural network has the potential to learn any task. Signals in feedforward neural networks only flow in one direction. Recurrent neural networks allow for short-term memories of earlier input events by feeding the output signal back into the input. The most effective network architecture for recurrent networks is long short-term memory. uses numerous layers of neurons while perceptions only use one layer. In image processing, where a local group of neurons must first identify a "edge" before the network can recognize an item, convolutional neural networks strengthen the connections between neurons that are "close" to one another. Even if a problematic attribute (such "race" or "gender") is not expressly included in the data, a machine can nonetheless make biased conclusions. The feature will be related to other features (such as "address," "shopping history," or "first name"), and the program would use these features in the same way that it would consider race or gender when making judgments. According to Moritz Hardt, "the most robust fact in this research area is that fairness through blindness doesn't work.

The criticism of COMPAS brought to light a more serious issue with the abuse of AI. Machine learning models are made to "predict" the future, but these "predictions" are only reliable if we believe that the future will look like the past. Machine learning algorithms must anticipate that discriminatory decisions will be made in the future if they are taught on data that includes the outcomes of prior racist decisions. Unfortunately, some of these "recommendations" will probably be racist if an application utilizes these forecasts as recommendations. As a result, machine learning is not well adapted to assist in decision-making in fields where there is optimism for an improved future. It must be descriptive rather than prescriptive. Because developers are mainly white and male and because just 20% of AI engineers are women, bias and unfairness may go unnoticed. The Association for Computing Machinery presented and published findings at its 2022 Conference on Fairness, Accountability, and Transparency (ACM FAccT 2022) in Seoul, South Korea, recommending that the use of self-learning neural

networks trained on massive, unregulated sources of erroneous internet data be restricted until bias-free AI and robotics systems are proven to be safe.

DISCUSSION

Design of a model structure

Large-scale integrated systems were made possible by the convergence of control theory and control systems in the 1920s. Control systems were widely used in the industrial setting back then. Process controllers were first used in large processing facilities to control continuous variables like temperature, pressure, and flow rate. One of the earliest discrete control systems to fully automate a manufacturing process was a set of electrical relays incorporated into ladder-like networks.

Control systems saw a surge in use, especially in the automobile and aerospace industries. The race to space in the 1950s and 1960s sparked interest in embedded control systems. Engineers built control systems, including as flight simulators and engine control units, that could be used in the finished product. By the turn of the 20th century, embedded control systems were commonplace; even large-scale consumer goods like air conditioners and washing machines had sophisticated control algorithms, making them considerably more "intelligent" [1], [2].

The first computer-based controllers were released in 1969. Early discrete control technologies that made use of outdated relay ladders were imitated by these programmable logic controllers (PLC). Process and discrete control markets underwent a significant transition with the introduction of PC technology. A desktop computer purchased off the shelf that has the necessary hardware and software installed can run a full process unit, run established and complex PID algorithms, or function as a Distributed Control System (DCS).Plant simulation. Data-driven or first-principles-based plant modeling are both possible. System identification is one of the approaches used in data-driven plant modeling. By obtaining and processing raw data from a real-world system and using a mathematical procedure to identify a mathematical model, system identification identifies the plant model. The selected model can be used to conduct various types of simulations and analyses before being utilized to create a model-based controller. In first-principles based modeling, established differential-algebraic equations regulating plant dynamics are implemented in a block diagram model. Physical modeling is a sort of first-principles based modeling where a model is made up of connected blocks that represent the physical components of the actual plant [3]–[5].

Analysis and synthesis of controllers. The dynamic properties of the plant model are identified using the mathematical model created in step 1. These qualities can then be used to synthesize a controller. Real-time simulation as well as offline simulation. Investigated is how quickly the dynamic system reacts to complex, time-varying inputs. To achieve this, either a straightforward LTI (Linear Time-Invariant) model or a non-linear model of the plant with the controller must be simulated. Errors in the specification, requirements, and modeling can be discovered early on in the design process thanks to simulation. By automatically creating code for the controller created in step 2, real-time simulation is possible. This code can be installed on a specialized real-time prototyping computer, which can run it and manage how the plant operates. Code can be automatically produced from the plant model if a prototype plant is not accessible or if testing the prototype would be risky or expensive. This code can be run on a specialized real-time computer that is connected to the target CPU and has controller code

running on it. Thus, a real-time test of a controller against a real-time plant model is possible. Deployment. This is best accomplished through code generation from the controller created in step 2. Since it is unlikely that the controller will perform as well in practice as it did in simulation, an iterative debugging procedure is used, which involves examining data from the real target and changing the controller model. These iterative processes can all be carried out using model-based design tools in a single visual environment.

Optimizing Model Training

It is uncommon for the optimization process to result in a truly optimal system, despite the fact that the words "optimization" and "optimal" have the same origin. In general, a system may only be rendered optimal with respect to a specific quality metric, which may be in contradiction to other potential metrics. As a result, the system that has been optimized will often only work well for one application or audience. A program's memory consumption may increase in order to shorten the time it needs to complete a task. One could purposefully use a slower algorithm to utilize less memory in a program where memory is limited. Engineers make trade-offs to optimize the characteristics that are most important because there is frequently no "one size fits all" design that performs well in all situations. The process of optimization may be stopped before a fully optimal solution has been found because the effort necessary to make a piece of software completely optimal—capable of no further improvement—is almost always greater than is reasonable for the benefits that would be realized. Fortunately, early in the process is frequently when the biggest advances occur [6], [7].

Most optimization techniques don't even pretend to produce optimal output; they just aim to enhance the outcome, even for a given quality parameter (such execution speed). Finding genuinely optimal output is the process of superoptimization. Numerous stages can be involved in optimization. Higher levels typically have a bigger impact and are more difficult to adjust later on in a project, necessitating substantial revisions or a new rewrite. Since earlier improvements are greater and can be attained with less work, and later gains are smaller and require more work, optimization can often continue by refining from higher to lower. The performance of some extremely low-level components of a program, however, can have a significant impact on overall performance, even if only slight changes are made early on or at a late stage. Efficiency is typically taken into account at some point during a project, though this varies greatly. Major optimization is frequently thought of as a refinement that should be done later, if at all. Cycles of optimization, wherein strengthening one area reveals constraints in another, are frequently present on longer-running projects. These cycles are normally ended when performance is satisfactory or gains become too tiny or expensive.

Performance is taken into account from the beginning to ensure that the system is able to deliver sufficient performance. Early prototypes need to have roughly acceptable performance for there to be confidence that the final system will (with optimization) perform as intended. For example, a video game with 60 Hz (frames-per-second) is acceptable, but 6 frames-per-second is unacceptably choppy. In the mistaken belief that optimization can always be done later, this is occasionally overlooked, leading to prototype systems that are incredibly slow – frequently by an order of magnitude or more – and systems that ultimately fail because they are architecturally unable to achieve their performance goals, like the Intel 432 (1981); or ones that take years of work to achieve acceptable performance, like Java (1995), which only achieved

acceptable performance with Hotspot (1999). A key source of uncertainty and risk can be the degree to which performance varies between a prototype and a production system, as well as how receptive it is to optimization.

Pooling Strategy Improvement

A family of techniques designed to address optimization and search issues is referred to as a mating pool in the context of evolutionary computation. The candidate solutions that the selection operators believe to have the highest fitness in the current population make up the mating pool. Parents are those solutions that are part of the mating pool. Individual solutions can be repeatedly inserted into the mating pool, with greater fitness values increasing the likelihood that they will do so. The parents are then subjected to crossover operators, leading to the recombination of genes deemed to be superior. Last but not least, mutation operators introduce random alterations in the genes, enhancing the genetic variety in the gene pool. The likelihood of developing fresh, better solutions is increased by these two operators. As a result, the offspring, the next population, who will provide solutions, are born. The total number of parents in the mating pool may differ from the size of the initial population depending on the selection process, leading to a new population that is smaller. Random individuals from the previous populations can be picked and added to the new population to continue the algorithm with a population of equal size [8]–[10].

The fitness value of the new solutions is now assessed. Processes end if the termination requirements are satisfied. They are repeated if not. As the processes are repeated, candidate solutions emerge that eventually lead to the best answer. Convergence is the process by which the genes gradually converge on the most ideal gene. A gene has converged if 95% of the population carries the same version of it. Population convergence is attained when each individual's fitness value reaches the value of the ideal individual, or when all of the genes have converged.fitness-related selection Random people are chosen to join the pool when fitness proportionate selection is used. However, the fitter individuals are more likely to be chosen and have a better chance of passing on their traits to the following generation.

The roulette wheel selection method is one of the methods utilized in this kind of parental selection. With this method, a hypothetical circular wheel is divided into slots, each of which has a size equal to the fitness ratings of a probable candidate. The chosen person is then determined by rotating the wheel around a fixed point. The likelihood of getting selected as a parent by the wheel's random spin increases with an individual's fitness value. Stochastic universal sampling is an alternative that can be used. This method of selection is similarly based on a spinning wheel. All of the members of the mating pool will be chosen at once because there are multiple fixed points in this situation.

based on ordinal selection

The tournament and ranking selection are examples of ordinal-based selection systems. The process of tournament selection entails the selection at random of individuals from a population, followed by a comparison of their levels of fitness. The winners of these "tournaments" will be included to the mating pool as parents because they have the best values. In ranking selection, each person is ranked according to their fitness scores. The choice of the parents is then chosen based on the contenders' ranking. Every candidate has a chance to be chosen, but those with higher rankings are given preference [11]–[13].

CONCLUSION

In order to minimize the issue of "information flooding," this study creates a college student employment data set and employs distributed data processing to extract data features through the analysis of college students' personal analysis and job information mining. A hybrid convolutional neural network model is simultaneously suggested for college students' employment recommendations. The quality of model prediction is considerably enhanced by enhancing the activation function, pooling strategy, and loss function in the algorithm. The recall rate and F1-Score of the algorithm in this research outperform both conventional recommendation algorithms and regular convolutional neural networks when compared to the latter. The approach used in this paper has a recall rate that is over 15% greater than the DNN model. The experiment is contrasted with the conventional, widely-used recommendation algorithm, and the comparative analysis of the experimental findings demonstrates the algorithm's efficacy for recommending college students for employment. In order to better conduct deeper correlation mining between college student information and job information, convolution processing, local connection processing, and multichannel convolution are used. These techniques help to enrich the overall feature abstraction, learn high-level abstract feature information, and improve the recommendation quality of the model, which demonstrates the effectiveness of this algorithm in enhancing the quality of human resources recommendation.

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CHAPTER 6

COLLEGE STUDENTS' RESEARCH ON THE ROUTE OF NETWORK OPINION EXPRESSION IN AN AI ENVIRONMENT

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ABSTRACT:

As civilization has developed and artificial intelligence technology has grown, network interaction has transformed into a grouping paradigm. With this network group architecture, communication space has been quickly expanded, communication content has been improved, and it has been customized to netizens' needs. The rapidly expanding campus network community can help students with a range of communication needs and provide a crucial platform for their everyday life and academic pursuits. How to extract opinion text from comment text is being looked into. On a more granular level, a method is provided for extracting opinion attitude words and network opinion characteristic words from a single remark text. The extraction of words expressing opinions and attitudes is more precise because to the creation of a semi-autonomous domain emotion dictionary generation technique. In order to increase the precision of network opinion feature word extraction and guarantee that network opinion feature words and opinion attitude words are synchronized, this paper proposes a window-constrained Latent Dirichlet Allocation (LDA) topic model. In this study, model simulation tests are conducted on the two-stage opinion leader mining approach and the linear threshold model based on user roles. By contrasting the outcomes with existing models, it is shown that the two-stage opinion leader mining method proposed in this study can significantly cut the running time while correctly finding opinion leaders with stronger leadership. It also demonstrates how, by differentiating between the effects of various user roles on the information diffusion process, the linear threshold model based on user roles proposed in this paper can efficiently limit the total number of active users who are activated multiple times during the information diffusion process.

KEYWORDS:

Artificial, Civilization, Grouping, Pursuits.

INTRODUCTION

People's online communication practices have significantly changed as a result of the ongoing development of Internet technology, from information searching, news reading, and video watching to gathering and discussion in communities on Weibo, QQ, and WeChat. By allowing everyone to share information in a virtual Internet space, this type of network group upends conventional face-to-face gatherings and discussions. This creates a diverse public space of discourse and a network of action organizations, which has become the interpersonal and emotional connection of college students. All areas of student life, education, and communication are now covered by college and university network organizations. These network groups may, to some extent, promote various connections and operate as a crucial platform for students' education and daily living. However, their study habits, lifestyle thought

patterns, and overall personality development are all being influenced by the online community. Students in college have quick minds and are open to new concepts. They enjoy discussing current events, social issues, and what they have observed and heard online, but they lack rational thought and judgment, knowledge, and experience, and their opinions are insufficient. It is normal to let other people's viewpoints impact how you convey your ideas. Additionally, some students lack political, moral, and legal knowledge, which contributes to the propagation of false opinions within the online community.

It is necessary to comprehend the characteristics and state of development of social network public opinion, to systematically summarize the value form of social network public opinion, and to examine the factors that led to the development of social network public opinion. Examples of social network public opinion research theories include the use of mobile Internet and smart terminals to create new communication technologies, the media benefits of social media to demonstrate the value of public opinion, netizens' reasonable demands for their own legitimate interests, and government management networks to create a clear and logical cyberspace. Any research system structure has relationships with other systems in accordance with a set of rules that disclose the internal laws of the system. The theoretical significance is primarily reflected in this article's research, which aims to advance the development of a theoretical framework for social network public opinion research, propose a model for the mechanism of social network public opinion research from the perspective of information ecology, and offer a fresh angle on the study of social network public opinion communication. This article's research primarily reflects the practical significance by promoting the development of early warning and monitoring mechanisms for the evolution of social network public opinion events, directing pertinent public opinion management departments to manage network users, and directing pertinent public opinion management departments to manage network user relationships.

The text preparation process is examined, and the main techniques provided are part-of-speech tagging and NLPIR-based comment text segmentation. When using a sentiment dictionary to extract opinion and attitude words, the process is completed by creating a domain sentiment dictionary. For extracting feature words from network opinions, a window-constrained LDA network opinion feature word extraction technique is recommended. Numerous experimental comparisons support the effectiveness and accuracy of the method. By including clustering to locate potential opinion leaders using the User Rank method, the Trenk technique proposed in this work is improved, which significantly shortens the program's execution time. When identifying individuals with stronger actual user influence capabilities, the TRank algorithm performs far better than it does when identifying individuals with greater theoretical user influence skills. The TRank approach also performs better when the total number of opinion leaders to be found is small. The Trenk approach proposed in this work is therefore both valid and accurate. The linear threshold model URI-LT based on user roles may offer a more realistic representation of actual social networks when modeling the process of information diffusion as compared to the LT, the K-LT model proposed in this article. Thus, the linear threshold model presented in this study is both sensible and efficient. A hypothetical kind of intelligent agent is called an artificial general intelligence (AGI). If developed, an AGI could learn to perform any cognitive work that humans or animals are capable of. A different definition of AGI is an autonomous system that outperforms humans at most economically valuable tasks. One of the main objectives of some artificial intelligence research and of organizations like

OpenAI, DeepMind, and Anthropic is the development of AGI. Science fiction and futurist studies often discuss AGI.

AGI researchers and experts continue to disagree on the timing for its development. It may be doable in years or decades, according to some, it may take a century or longer, and a small percentage of people feel it may never be accomplished. There is disagreement over whether new methods are required or whether contemporary large language models, such GPT-4, represent an early but imperfect type of AGI There is disagreement about whether or not AGI could endanger humanity; for instance, OpenAI views this threat as an existential one, while others believe it is too far off to be a concern-century 1950s saw the start of modern AI research. According to the first generation of AI researchers, artificial general intelligence was both feasible and imminent. Herbert A. Simon, a pioneer in artificial intelligence, predicted in 1965 that "machines will be capable, within twenty years, of doing any work a man can do.

The character HAL 9000, created by Stanley Kubrick and Arthur C. Clarke, was based on these forecasts; it represented what AI researchers thought they could achieve by the year 2001. On the attempt to make HAL 9000 as realistic as feasible in accordance with the general forecasts of the time, AI pioneer Marvin Minsky served as a consultant. In 1967, he predicted that "the problem of creating 'artificial intelligence' will substantially be solved within a generation. AGI was the focus of several traditional AI efforts, including Doug Lenat's Cyc project (which started in 1984) and Allen Newell's Soar project. However, it became clear in the early 1970s that researchers had drastically overestimated the challenge of the project. As funding organizations lost faith in AGI, researchers came under increasing pressure to develop "applied AI" that was actually useful.

A ten-year schedule that includes AGI objectives like "carry on a casual conversation" helped Japan's Fifth Generation Computer Project to rekindle interest in AGI in the early 1980s. Due to this and the effectiveness of expert systems, both the government and business invested more money in the area. However, the late 1980s saw a stunning fall in AI trust, and the Fifth Generation Computer Project's objectives were never achieved. AI researchers who forecasted the impending development of AGI had been wrong twice in the past 20 years. AI researchers had a bad reputation for making empty promises by the 1990s. They stopped making forecasts altogether[d] and refrained from mentioning "human level" AI out of concern that they would be branded as "wild-eyed dreamers. “There has long been a belief that "bottom-up" (sensory) and "top-down" (symbolic) approaches to modeling cognition will eventually come into contact. This assumption is hopelessly modular if the grounding arguments in this paper are true, since there is really only one workable way to go from sense to symbols: starting from scratch. It is unclear why we should even attempt to reach a free-floating symbolic level similar to the software level of a computer since doing so would appear to amount to uprooting our symbols from their intrinsic meanings thus merely reducing ourselves to the functional equivalent of a programmable computer.

Whole brain emulation is one method for developing AGI: A biological brain is meticulously scanned, mapped, and copied into a computer system or another computational device to create a brain model. The simulation model that the computer uses is so accurate to the real thing that it functions almost exactly like the real brain. In the context of brain simulation for medical research, whole brain emulation is studied in computational neuroscience and neuroinformatic. It is proposed as a strategy for developing powerful AI in artificial intelligence research. Future

thinker Ray Kurzweil predicts in the book The Singularity Is Near that a map of sufficient quality will become available on a similar timescale to the computing power needed to emulate it. Neuroimaging technologies that could deliver the required detailed understanding are improving quickly.

DISCUSSION

There aren't many international publications on the internet communities for college students and the expression of their thoughts there. They focus mostly on researching topics connected to online opinion communities and online opinion leaders. Learfield first proposed the idea of opinion leaders, who initially largely operated in the political sphere before gradually branching out into other spheres of life. On the Internet, it is frequently believed that foreign research opinion leaders are mostly interested in identification, traits, and sorts. Fundamental concepts like influence and impact are rarely studied, and much less is done in conjunction with the ideological indoctrination of college students. The first category of social public opinion is thought to be the public perceptions of related academics. Since the invention of the Internet, opinions from the online community have been shared. There are many works on the opinions of the Internet community because it is more popular in Western nations than it is in the domestic market; however, these works tend to concentrate on applied disciplines, and more are required to examine the opinions and influence of the Internet community from a variety of perspectives.

Related scholars proposed an information diffusion model in which dual information is simultaneously and dynamically propagated in a complex network, as well as a model of dual information infection propagation, taking into account the dissemination of two different types of information with distinct release times and the assumption that the content of each message may be unrelated to the content of the other messages. The researchers put up a model for how public opinion spreads in social networks that has an ongoing infectious incubation time. The noninfecting balance achieves a local stable state through model analysis, and the geometric approach of ordinary differential equations shows the noninfecting balance is globally stable. Related academics have talked about how cognitive biases affect whether or not online users share hot events. people with weak cognition are less likely to communicate hot events online than people with high cognition. Relevant researchers take into account the counterattack mechanism and construct a model of rumor propagation in a complex network. They contend that as self-resistance rises, so does the process's final condition of rumor spread. Based on the rumor spreading model, researchers developed a dynamic model of network malware propagating on scale-free networks and provided a model where exposure-infection-recovery-inoculation states are susceptible. Further developments were made to lengthen the inoculation period [1]–[3].

A microscopic risk diffusion model has been put forth by pertinent researchers that forecasts the dynamic spread of network risks and threats from a micro probability viewpoint and gathers the most likely border nodes that are currently infected with viruses to withstand network risks and threats. Relevant scholars discussed the characteristics of crisis information at different stages of dissemination and proposed a competitive model of crisis information dissemination, presuming that the public opinion crisis information dissemination on social media is a competitive process between true and false information. The influence of the virus's dissemination in the presence of search engines was quantified, as was the stability of the

virus's spreading process. By analyzing the social network's community structure, they put up a well-liked feedback approach to stop the virus from propagating. Academics divide the evolution of online public opinion into stages using the life cycle theory. Online confrontation and denunciation are examples of group polarization processes that occur from the differentiation, antagonism, and collection of opinions during the formation of online public opinion.

Related academics extract the topic and time attributes of the map's entities from the Neo4j graph database using the knowledge map approach, and then use multidimensional feature fusion analysis to track the evolution of public opinion themes. To incorporate the strategic interactions between Internet media and local governments into a more accurate model of infectious diseases, relevant academics have created an evolutionary game model. The limits of expected utility theory in identifying the gain and loss of game subjects were taken into consideration as they simultaneously examined the effects of different local government directing strategies on the development of public opinion. Researchers presented a dynamic network model of the evolution of public opinion and looked into modeling theories such as the structure, evolution aspects, and description methodology of the dynamic network model. By comparing and evaluating the outcomes of the five case events and the similarities and differences in the network public opinion transmission channel at each step, the pertinent researchers identified the critical factors influencing the development of emergent network public opinion. Researchers have different perspectives on this area of research and disagree on a number of factors, including the division of evolution into three, four, and six phases and the need for rigorous clarification of the law of evolution by academics [4], [5].

Corpus construction

Corpus labeling, character encoding, and time slicing are required for the network public opinion event corpus because opinion leader mining, knowledge graph visualization, communication, and diffusion analysis are all components of network public opinion event propagation and diffusion analysis.

Corpus tagging

Online public opinion is heavily influenced by opinion leaders. Finding opinion leaders is therefore crucial for the examination of the growth and growth of online public opinion events. Labeling the opinion leaders in the actual data set is required to confirm the efficacy of opinion leader mining. This article will designate Sina Weibo users who match the following four criteria as opinion leaders by combining the corpus of online public opinion events and the development law of online public opinion: There are four categories of users on Sina Weibo: (1) parties to the event; (2) Sina Weibo is designated as "Big V"; (3) people who have forwarded more than 300 events; and (4) official Weibo users, such as the government, educational institutions, and the organizations [6]–[8].

Encoding of characters

The knowledge graphs in this article are stored on the Neo4j graph database. The network public opinion event corpus' encoding format must be universally changed to UTF-8 encoding because the Neo4j database only accepts files in UTF-8 encoding format. For the examination of the development and spread of online public opinion, the segmentation of the life cycle of

online public opinion is crucial. The data from the online public opinion event corpus is separated into time periods in accordance with the online public opinion life cycle hypothesis.

Building a Knowledge Graph of Internet Public Opinion Events

The domain knowledge graph, which includes the network public opinion event knowledge graph, is often built using top-down construction techniques. First, the concepts, entities, attributes, and relationships of the corpus of network public opinion event are organized and the network public opinion event is modelled on the ontology. The ontology layer is carefully checked before knowledge acquisition, entity linking, and elimination are finished in order to guarantee the reliability of the graph. A rating is given to the network's public opinion event knowledge. The conceptual diagram for creating the knowledge graph of network public opinion events. The goal of knowledge representation and reasoning is to convert the triples of the knowledge graph into discrete vectors that can be computed. Once the knowledge graph is complete, relational reasoning can be carried out by performing calculations between the vectors. In order to create a graph attenuation attention network, this research suggests an attenuation attention mechanism and embeds it in the graph attention network. A graph attenuation attention network is used for knowledge representation and reasoning.

Opinion Content Extraction Algorithm Analysis

In order to extract network opinion feature words, opinion attitude words, and the collocation link between the two from the comment text, opinion content extraction varies from typical text content extraction in that it requires a sizable amount of data to be collected. Several studies are now being done on the extraction of opinions and attitudes, and the majority of them make use of publicly available emotion dictionaries. In order to achieve simultaneous extraction of the network opinion feature words and the opinion attitude words to ensure Internet opinion character, it is proposed in this paper to first extract the network opinion feature words and their positions using the emotion dictionary method, and then extract the network opinion attitude words using the LDA topic model based on the position of the opinion words. Figure 4.2 depicts the operational flow diagram of the opinion content extraction algorithm discussed in this article.

Preprocessing of Text

The language used in user comments differs from person to person and does not always adhere to the standards of grammar. Preprocessing is necessary to guarantee the precision of the comment content extraction model. The preprocessing procedure will be changed in accordance with the processing needs of the various applications. For instance, this article preprocesses comment contents, mostly to remove words that do not contribute to the expressing of thoughts and incorrect remarks. To identify Chinese words and their parts of speech (adjectives, nouns, verbs, etc. in the text, word segmentation and part-of-speech tagging are used. Technologies for word segmentation and part-of-speech tagging are quite developed, such as NLPIR, a popular word segmentation system. This article builds on the NLPIR word segmentation system by creating a vocabulary word segmentation dictionary specifically for the e-commerce industry, adding it to the NLPIR user dictionary. The proprietary vocabulary can be accurately recognized since the user dictionary has a higher priority than the word segmentation system. For instance, it would be preferable to accept "Gao Dashan" as a single word rather than a collection of terms to describe things.

The development of the fundamental dictionary comes first, followed by the expansion of the basic lexicon in the second phase of the process of developing the emotional language. The expansion of the sentiment dictionary falls under the categories of synthetic and domain expansion. The construction of the emotion dictionary is depicted emotive vocabulary ontology database served as the basis for the basic dictionary template in this article. The rare and unusual words are eliminated by removing the positive and negative words. The operation based on semantic similarity achieves the growth of the domain terms. If a new word that is not in the basic dictionary arises during the preprocessing of the review corpus, the semantic similarity between it and the reference word is determined, the qualified words are added to the candidate dictionary, and the candidate new words are then assessed. The point mutual information operation is used to determine the semantic similarity, which can be used to compare two words.

In order to calculate the number of two-degree neighbors, the number of cores, and the two-degree neighbors aggregation coefficient for each node in the graph, this article first builds a social network graph model. The zero value of each attribute is replaced with a nonzero minimum value to permit computation of the fourth attribute after maximum and minimum normalization on the three attribute values, respectively. Using the elbow strategy, we choose the ideal cluster number to start the clustering process. Set 2k20, as well as the elbow diagram, are both illustrates how significant the clustering effect is in this situation.

As shown in, the LDA topic model works best when each user's followers have the same impact weight for finding the most significant Top-N opinion leaders. To simulate information dispersion, the LT-a model is entirely dependent on the topology of social networks. An improved PageRank algorithm called the LDA topic model can precisely determine how effective a user is within the framework of a social network. The LDA topic model performs better than the other models in terms of theoretical user effect as a result. The user Rank and TRank algorithms substantially depend on the user's actual past behavior data, hence the LT-a topic model outperforms the LDA topic model in simulations. Although just the aggregation coefficient and the number of fans is used by the cluster Rank approach to assess user effect, it only uses social network topology to identify opinion leaders. The poor performance of Cluster Rank on the LT-a model shows that the number of fans is no longer sufficient to characterize users. The user Rank algorithm performs worse than the LDA topic model, at the same time. This demonstrates that the mining effect of the opinion leader candidate set using the algorithm for opinion leader mining suggested in this paper is superior without clustering. The Trenk algorithm's overall performance is poor since it decreases the accuracy of the clustering process used to identify potential opinion leaders.

CONCLUSION

This study suggests a method for simultaneously extracting the fine-grained network opinion characteristic words and the opinion attitude words from a single remark text. A semi-autonomous domain emotion dictionary generation approach is developed to improve the precision of opinion and attitude word extraction. The extraction of network opinion feature words is improved by using the position information of opinion attitude words, and it is ensured that network opinion feature words and opinion attitude words are synced by developing a window-constrained LDA topic model. Finally, the text of the comments is extracted to reveal their content. The total number of users that the URI-LT model can influence for the same seed

node is higher than the total number of users that the K-LT model can influence, but it is significantly less than the total number of users that the LT model can influence. It proves that user roles and temporal attenuation effects are extremely well captured by the URI-LT paradigm. This paper also shows that when the weight of the user's influence is distributed according to the user's role concurrently, the weight of the user's influence is dynamically accumulated according to the time decay factor. This is done by comparing the results of R-LT, T-LT, and URI-LT information diffusion. This is because this article limits the relative relevance of users to the range when assessing the relative significance of users across user roles.

However, the proportionate value of users in actual social networks is substantially higher. Therefore, by modifying the value range of the relative importance of users, the role of user roles in the URI-LT model can be strengthened. Based on the existing opinion leader mining techniques, this research suggests a two-stage framework for mining opinion leaders from all network users, which results in significant computational complexity. The framework is better at decreasing computational complexity, but there are still significant issues with computational correctness, necessitating more development. However, there are still issues with determining the relative importance of users, despite the fact that the linear threshold model proposed in this paper based on the improvement of user roles can effectively demonstrate the role of opinion leaders in promoting information dissemination in social networks.

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CHAPTER 7

BLOCK CHAIN TECHNOLOGY APPLICATION VALUE ASSESSMENT INNOVATION AND ENTREPRENEURSHIP FOR COLLEGE STUDENTS

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ABSTRACT:

There is a centralized trust challenge in the current information network for collegiate innovation and entrepreneurship. Administrators with bad intentions may utilize their privileges for both public and private ends. A decentralized blockchain technology and a platform for college students to get knowledge on entrepreneurship were both incorporated into the innovation to address this issue. Understanding how to evaluate the value of blockchain in information platforms for innovation and entrepreneurship is crucial. This study combines it with the already prominent artificial intelligence trend and provides a neural network to evaluate the worth of blockchain technology as a platform for entrepreneurial knowledge and creative thinking. The following is the content A method for evaluating application value that incorporates an upgraded residual neural network is suggested. Three consecutive convolutional layers are used in succession to create an enhanced data pooling layer first. The aurous residual block, which combines aurous convolution and the residual block, gives the method a large feature learning ability by expanding the receptive field. The dropout strategy is finally implemented to counteract the detrimental effects of overfitting. A skip connection and residual network-based method for evaluating application value is suggested. This approach adds residual connections and improves the data pooling layer using the inception module. The residual block contains a skip connection line that increases the residual block's ability to learn feature information. An aurous residual block with a skip connection line is developed in place of the regular convolution in the residual block with a skip connection line. The two designed leftover pieces are then joined end to end to create a neural network.

KEYWORDS:

Challenge, Centralized, Entrepreneurship, Prominent.

INTRODUCTION

The number of recent college graduates has increased, making the competition considerably tougher. In this context, entrepreneurship and innovation have contributed to students' growth as well as the resolution of employment-related challenges. The innovation-centered economy has dominated social and economic development in the national social environment. Better assurances for students to launch firms can be obtained by promoting student innovation and entrepreneurship and developing public platforms for knowledge on these topics that offer more and better news for college students. Traditional student innovation follows a centralized work style, and there is a problem of centralized trust crises. This is also true of an entrepreneurial information platform. Administrators with bad intentions may utilize their privileges for both public and private ends. For instance, dishonest administrators may

appropriate users' entrepreneurial endeavors or resell other users through transactions, costing platform users' money. The centralized work mode also has issues with efficiency. There is no assurance of timeliness when users post business information because they must first request administrator approval before publishing it to the platform.

The blockchain economic age has also swept the globe at the same time. After the steam engine, electricity, and the Internet, it is referred to represent the fourth technological revolution since it has allowed people to gradually create a reliable and trustworthy Internet information platform. Blockchain, which emerged from the Bitcoin system, gained popularity swiftly in 2012 and reached a study and discussion peak in 2015. To put it another way, the blockchain can be viewed as a distributed ledger. Each node on the blockchain system maintains this kind of ledger, which is used to record all transaction data as they happen on the network. Because blockchain technology is decentralized, each node has the power to validate transaction data. The system's implementation of the proof-of-work technique makes sure that the blockchain stays on a single path. To tamper with the data in the blockchain system, more than 51% of the nodes in the system must be compromised, as well as more computing power than 51% of the total computer power accessible on the blockchain system network.

The blockchain is the source of the consensus system, whose existence both fosters greater inter-person trust and opens up new avenues for collaboration. In the blockchain system, the centralized platform is replaced by a P2P network of blocks, and the community's game rules are revised using open-source algorithms. This blockchain technology revolution is sweeping across many industries and fields, including financial transactions, energy storage, the Internet of Things, medical resource placement, and education management industry of college students. This is due to the characteristics of decentralization and data that cannot be tampered with. The current informatization structure in student information management depends on the Internet and is evolving with the technological development of the network sector at a time when the idea of Internet + integrity mechanism is becoming more common in homes. Information management technology is an interdisciplinary field that combines technologies from many fields. Blockchain technology will undoubtedly be used in innovation and entrepreneurship information management, as the authenticity, accuracy, and autonomy of tracking and sharing data can be considerably enhanced. This is based on the present trend in technology application research.

In addition to addressing issues with the administrator trust crises based on the centralized work mode, the application of blockchain technology to college students' innovation as well as entrepreneurship information platforms will also hasten the dissemination of entrepreneurial knowledge. By ensuring that each user retains a state of ownership over their own entrepreneurial information, blockchain technology is also helpful in resolving the issue of ownership of entrepreneurial information. The research of the usefulness of blockchain in college students' innovation and entrepreneurial information platforms has substantial practical significance as well as application potential in this regard. Using cryptographic hashes, a blockchain is a growing list of documents (blocks) that are securely connected to one another. Each block includes transaction data (often represented as a Merkle tree, where data nodes are represented by leaves), a timestamp, and a cryptographic hash of the preceding block. Each block links to the blocks before it, forming an effective chain (compare linked list data structure), because each block carries information about the blocks preceding it. Thus, once a

transaction has been recorded, it cannot be undone without also undoing all subsequent blocks, making blockchain transactions irreversible.

Blockchains are primarily administered using peer-to-peer (P2P) computer networks for use as public distributed ledgers. To add and validate new transaction blocks, nodes cooperate according to a consensus algorithm protocol. Blockchains may be regarded as safe by design and serve as an example of a distributed computing system with strong Byzantine fault tolerance even if blockchain records are not unchangeable and blockchain forks are conceivable. Based on earlier work by Stuart Haber, W. Scott Stornetta, and Dave Bayer, a person (or group of individuals) going by the name (or pseudonym) Satoshi Nakamoto constructed a blockchain in 2008 to act as the public distributed ledger for bitcoin cryptocurrency transactions. Bitcoin was the first digital money to eliminate double spending without the aid of a central server or trusted authority because of the blockchain technology within it. Other applications have been influenced by the bitcoin design and publicly viewable blockchains, which are extensively utilized by cryptocurrencies. One kind of payment rail may be thought of as the blockchain.

For corporate purposes, private blockchains have been suggested. While some have suggested that permissioned blockchains, if well designed, may be more decentralized and consequently more secure in practice than permission less ones, Computerworld referred to the marketing of such privatized blockchains without a sufficient security architecture as "snake oil"[8].A temporary fork can occasionally be induced when different blocks are generated concurrently. Any blockchain contains a specific method for scoring many versions of the past so that one with a higher score can be chosen over others, in addition to a secure hash-based history. Orphan blocks are those that weren't chosen for the chain. There are occasionally various copies of the history among the peers supporting the database. They only retain the database version with the best score that they are aware of. Peers expand or overwrite their own databases whenever they receive a higher-scoring version, which is often the previous version with one additional block added, and then they retransmit the improvement to their fellow peers. There is never a 100% certainty that any given entry will always be included in the most accurate version of history. Blockchains are frequently designed to stack new blocks on top of older ones, and they are given incentives to do so rather than to replace older blocks. As more blocks are added on top of one entry, the likelihood that it will be superseded falls exponentially and eventually becomes very low.

For instance, the proof-of-work method used by bitcoin determines which chain is authentic by accumulating the most proofs of work. A sufficient level of computation can be shown using a variety of techniques. Instead of performing computation in the typical segregated and parallel fashion, a blockchain does computation redundantly. Building a solid foundation is a must for college students to begin innovation and entrepreneurship activities, according to the literature. According to Literature the hard platform for innovation and entrepreneurship should be more disciplinary, and colleges and universities should rely on fields like liberal arts, science, and engineering to create practice bases for these concepts and engage with businesses. According to the research we should concentrate on the natural blending of on-campus and off-campus hard platforms when developing a hard platform for innovation and entrepreneurship. According to literature a three-layer progressive hard platform for innovation and entrepreneurial practice should be built for the school-local partnership model. This platform should comprise government leadership, industry engagement, and school-enterprise

cooperation. Some schools and universities have developed their unique traits when building solid platforms for entrepreneurship and innovation. Using departments and off-campus innovation and entrepreneurship practice bases as the base, Literature constructs a satellite-type hard platform based on the school's demonstrative innovation and entrepreneurship practice base. Literature constructs a cloud platform for dual entrepreneurship and innovation with IoT, connects physical platforms with online platforms, and creates creative workshops, entrepreneurial spaces, etc. Soft platform research is done at the second level. The three components of building a soft platform for innovation and entrepreneurship are described in literature enhancing the curriculum system for innovation and entrepreneurship; enhancing the teaching staff for innovation and entrepreneurship; and creating a platform for innovation and entrepreneurship.

DISCUSSION

creates a security and confidentiality management system based on blockchain technology and modifies and adjusts the blockchain's underlying protocol using techniques like invisible signatures and access control rights. Reference created a method that combines a threshold signature and a decryption hybrid network to defend the blockchain against malicious assaults. In reference the privacy protection mechanism is introduced, present privacy protection issues with blockchain technology are analyzed, and a defensive method for blockchain applications is suggested. Reference discovered that the internal tokens and permission control designs of smart contracts differ significantly from one another. Reference offered a basic model for the architecture and operating system of blockchain smart contracts and introduced those contracts' technological benefits and typical application domains. Reference suggests a blockchain data storage and sharing scheme that uses an attribute proxy re-encryption algorithm, facilitates keyword retrieval, and aids businesses in more securely and effectively acquiring information storage and sharing services. In order to address the issues of internal access control and data sharing between organizations,

Reference suggests a data access control and sharing paradigm utilizing blockchain. The technique of combining blockchain and IoT to create a secure sharing economy distributed application to monetize products securely and increase wealth is covered in reference. According to the literature blockchain can be used to authenticate various long-term documents in the public sector and examines how it affects management procedures and government organizations. In order to connect various energy sources to various customers and producers and increase energy efficiency, Reference offers an energy consumer service model using blockchain technology. A theoretical investigation of the junction between artificial intelligence (AI) and blockchain is provided in Reference, which also discusses how the two impact one another. According to literature the danger of patient information leakage can be decreased by using blockchain technology to store and record patient-related data.

Resents and CNN

The convolutional layer's primary job is to extract features. Multiple features are extracted using various filters, and deeper features are obtained using multiple convolutional layers. In order to execute convolution calculations and extract local information, the convolutional layer extracts sequences from the immediate vicinity using filters. Additionally, the same filter traverses the entire sequence with the same weight matrix and a set step size, making the

convolutional network translation invariant. Less parameters are required to be learned by the model, which increases training efficiency.

The down-sampling layer is the pooling layer. It decreases parameters, boosts training effectiveness, and lessens the overfitting problem. The pooling function is primarily responsible for carrying out the pooling process, and the most used pooling functions are average and maximum pooling. In order to enhance local features, the so-called maximum pooling technique extracts local data from the convolutional layer output sequence and outputs its maximum value. The retrieved local subsequences are averaged via average pooling. The formula for calculation is The technique of adding an activation function is frequently utilized to obtain nonlinear capabilities. The network without activation function just transforms the input image through multiple layers before producing the output, which restricts the ability to extract features. Different activation functions can be chosen to suit various occasions. Activation of REL is [1]–[4]

To use the SoftMax function to perform the final classification output of features gathered by the network, a fully connected layer must be added at the end of the convolutional neural network. The fully connected layer's goal is to integrate the features in the feature map to extract the high-level meaning of the features, which can then be used to categorize the data. This is done after multiple convolutional layers and pooling layers. The fully connected layer transforms the feature map created by the convolutional layer of a convolutional neural network (CNN) network into a feature vector with a defined length. The fundamental concept of batch normalization is rather simple. The general data distribution rapidly approaches the upper and lower bounds because, as the network deepens, the input value of each layer is continuously changing during the training process. The gradients of the neural network's initial few layers disappear as a result of back-propagation, which slows training convergence. To prevent the gradient vanishing phenomenon, batch normalization forces the skewed data distribution into a standard distribution.

Shallow network models include the majority of neural networks. Model deterioration and overfitting issues will arise when the number of network layers is high. Additionally, the shallow network model's capacity to extract features when there is a vast amount of data and complicated data features is obviously inferior to that of the deep network model. As a result, ResNet was proposed as a remedy for deep convolutional neural networks' disappearing gradient. By joining several residual blocks together, a relative neural network introduces residual learning. If the underlying error is made available by shortcut connections, the gradient of the objective function can be employed in the training process. To enable the residual neural network to learn more features while having a deeper number, the residual gradient has also been improved. The formula for calculation is The construction of a residual neural network typically consists of two pooling layers, a number of residual blocks, and fully connected layers. The number of stacked residual blocks can be used to alter the depth of the network.

Data Pooling Layer Improvements

More feature information can be obtained by using a bigger convolution kernel, which can also bring a broader receptive field. Traditional residual neural networks combine a single convolutional layer with a pooling layer to create a data pooling layer. The 7 7 convolution kernel among them is better suited for training data with a huge structure that can only be finished by using several GPUs. Application value features are complex, and a data pooling

layer with fewer parameter calculations and excellent feature extraction capabilities is needed. This is because a big convolution kernel will increase calculation and the number of parameters. Therefore, using 7 7 convolution kernels is inappropriate for assessing the value of an application. This chapter substitutes three 33 convolutional layers for the seven 77 convolutional layers for this issue. Batch normalization is introduced to boost the extraction rate for the network even further. A residual connection structure is incorporated into three convolutional layers to prevent the overfitting issue. Illustration 3.2.3 shows the improved data pooling layer structure (IDPL). Suppression of Overfitting Based on Dropouts [5]–[7].

An excellent way to avoid overfitting is to drop out. During the training process, Dropout will randomly remove a certain number of neurons from each training batch. By restricting forward propagation and reverse updating processes to the parameters of the residual neural network, a regularization effect is produced, and overfitting problems are successfully suppressed. After using dropout in the middle layer, some neurons will no longer be linked or dropped. Other levels of neurons won't be impacted by this. Dropout can be used to reduce the interaction between neurons and reliance on local features, preventing overfitting.

Improved Residual Neural Network Structure

In this section, the standard residual neural network is enhanced. There are now 13 convolutional layers in the network as a result of the augmentation, which are typically made up of 5 residual blocks connected end to end. Figure 3 shows the structure of the improved residual neural network (IREN), which first converts the input data into a two-dimensional grayscale image and extracts the signal's features. This method uses three 3 3 convolutional layers and five residual blocks in the data pooling layer. Each residual block's convolution layer employs a 3 3 kernel, and the first and third residual blocks are known as atrous residual blocks with respective dilation rates of d = 2 and d = 1. By including batch normalization after each convolutional layer, the technique becomes more generalizable while speeding up how quickly the network learns. [8].

Evaluation of Application Value Using Skip Connection and Remaining Network

An application value evaluation method based on skip connections and residual neural networks is suggested in this chapter. The initial step of the strategy is to create a better data pooling layer with inception to increase network width. Then, residual blocks with skip connections and arouse residual blocks with skip connections are constructed by adding skip connections and arouse convolutions to the residual blocks. A data pooling layer, two residual blocks, and a residual neural network are then built.

Data Pooling Layer Improvement and Inception Module

The inception module replaces the ideal local sparse structure with a dense component. Each inception module typically uses convolution kernels of various sizes to collect extensive hierarchical information. It is challenging to effectively classify the application value evaluation method because of the weak data features. This chapter uses Inception to build a better data pooling layer in an effort to solve this issue. This pooling layer uses residual connections and multilevel convolution kernels to replace the conventional pooling layer. Figure 4 depicts the organization of the improved data pooling layer (INDPL Three 33 tiny convolutional layers are used in the data pooling layer. Convolutional layers are layered and structured in threes to increase the network's width while decreasing its depth. Conca refers to

the fusing of two branch features with a given number of channels, and the combined input of the final fused feature and residual link to the maximum pooling layer results in the decrease of the dimensionality of the feature set. The pooling layer, which is primarily located in the top layer of the network and has a multilevel and multichannel deep structure, can efficiently extract feature information from the input signal [9].

Block Remaining with Skip Connecting Lines

The second convolutional layer in a conventional residual neural network simply performs convolution on the feature vector from the first convolutional layer. The second convolutional layer's input and the residual block's input are not correlated in any way. In order to improve the residual block's learning effectiveness, this chapter proposes a residual block with skip connection lines. The first convolutional layer and the input are combined to generate a subresidual block by use of the construction of a skip connection line with coefficient. In this method, the residual block's input vector can be learned by the second convolutional layer in addition to the characteristics from the first convolutional layer. Because it can extract internal information, the residual block with a skip connection line has a higher learning efficiency.

Blocks with a skip connecting line and atrous residuals

To ascertain the value of blockchain technology in the innovation and entrepreneurship information platform for college students, a detailed evaluation methodology must be used. Atrous convolution allows for the expansion of the receptive field as well as the improvement of the feature learning effects of residual blocks. In order to create the atrous residual block (SCARB) with the skip connection line, this chapter combines the skip connection residual block and the atrous convolution. The resulting structure (SCARB) is shown in Figure 6. The residual block with skip connection line replaces the regular convolution with the atrous convolution and increases the receptive field by setting the atrous rate. This section studies the impact when the atrous rate is 2 and 3, respectively, taking into account the fact that choosing a too high an atrous rate may result in the loss of feature information continuity, making it impossible for the atrous residual block to properly extract the information in the feature. The method in this research provides a higher evaluation accuracy when the atrous ratio is 2. Therefore, the acquired receptive field is similar to the receptive field brought by the 5 5 convolution kernel when the 3 3 conventional convolution kernel is substituted with an atrous rate d = 2. The atrous convolution kernel's filling locations that lack parameter values are filled with 0. Following the atrous convolution procedure, the residual block is better able to gather data and acquire new features.

Network Organization with Residual and Skip Connections

This chapter suggests an enhanced residual neural network method, the structure (SCRNEN), which is depicted in,to extract feature information more efficiently. To properly extract feature information, the improved data pooling layer based on the Inception module must first preprocess the collected data into a two-dimensional signal as input. Due to the small number of effective samples, the typical residual neural network can improve the ability to learn features by adding more residual blocks, but networks that are excessively deep can overfit during the training phase. As a result, it's important to manage the network's depth and choose the right number of residual blocks. The inclusion of five enhanced residual blocks enables end-to-end building of a residual neural network. For the first and third residual blocks, atrous

residual blocks are employed, along with skip connection lines. The blocks for the second, fourth, and fifth residual blocks are set up using a skip connection line, correspondingly. The enhanced residual block's convolution kernel is 33 in size, and its atrous rate is d = 2; the overfitting effects are then reduced using a dropout layer and a fully connected layer. The softmax technique is then used to produce the classification results [10]–[12].

CONCLUSION

The issue of a centralized trust crisis affects the innovation and entrepreneurial platform used by college students today. Administrators that are evil can use their own rights to further their own objectives, both public and private. For instance, malicious administrators may take users' business ideas as their own or resell other users through transactions, resulting in financial losses for platform users. A decentralized blockchain technology was added to the information portal for college students on innovation and entrepreneurship in order to address this issue. How to evaluate the usefulness of blockchain technology in the information platform for innovation and entrepreneurship for college students has become a hot topic. The results of this effort are summarized as follows A technique for enhancing a residual neural network's applicability is suggested. By strengthening the data pooling layer, this tactic improves the ability to extract data features. By including a customized arouse residual block, the residual neural network may then learn feature information across a wider range. The dropout method is finally presented to counteract the drawbacks of overfitting. Based on skip connections and leftover neural networks, an application value approach is suggested. This technique develops a more effective data pooling layer based on the inception module. A network that is well-structured at the pooling layer allows for the effective extraction of feature information from the data. Following that, an arouse residual block with skip connection line and a residual block with a skip connection line are designed. Both residual blocks transfer features via skip connection lines, improving the effectiveness of learning residual block characteristics. The approach can therefore extract more feature data from smaller data samples.

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CHAPTER 8

A FEASIBILITY AND ACCEPTABILITY STUDY OF WEB-BASED DEPRESSION SCREENING AND PSYCHIATRIC CONSULTATION FOR COLLEGE STUDENTS

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ABSTRACT:

The quality of life of college students has been adversely impacted by a steady rise in the prevalence of depression. This study explores the viability and acceptability of screening and psychiatric consultation for depressed college students using a Web-based methodology, incorporating Skype. Methods. The nine-item Patient Health Questionnaire (PHQ-9) was performed online by the students, and those who screened positive (PHQ-9 10) or indicated any degree of suicidal ideation were given the option of a Skype-based web-based psychiatric consultation. Students responded to a 7-item satisfaction survey after the consultation to provide feedback on how well this web-based approach was received. Results. 285 of the 972 pupils who agreed to the online depression screening for students had a positive result. 17 of them successfully finished the Skype psychiatric consultation, with 69 pupils giving their assent. The interview was helpful in helping 13 (76.4%) students better understand their depression. 15 students (88.2%) said that videoconferencing may be an effective way for psychologists and psychiatrists to consult with patients. Conclusions. College students can now access depression screening and psychiatric counseling through modern internet technology; those who took part said they had a good time. Future research must address the low participation rates among college students, recruit underserved students, and adopt a videoconferencing technology that provides sufficient data confidentiality protection.

KEYWORDS:

Adversely, Depressed, Explores, Psychiatrists.

INTRODUCTION

In the United States, major depressive disorder (MDD) affects 2% to 3% of males and 5% to 9% of women at any given time, with lifetime risks of 5% to 12% for men and 10% to 25% for women. The quality of life of college students has been significantly impacted by a constant increase in the prevalence of depression. In a 2007 national poll conducted on 39 college campuses, 43.2% of students said they had "felt so depressed it was difficult to function" and 10.3% said they had "seriously considered trying to kill themselves" in the previous year College students who have MDD tend to do worse academically drink more alcohol consume more unhealthy foods, have worse physical health, and have more suicide thoughts. A college student's likelihood of dropping out of school is twice as likely to receive a depression diagnosis during their time there. These numbers may underestimate the true prevalence, according to a systematic evaluation of studies on depression among college students. Therefore, it's important to recognize and treat depression in university environments.

Several studies have successfully screened for mood disorders among college students using Web-based surveys of depression and anxiety. Online screening does not, however, provide children with all of the materials they require for care. Up to 85% of pupils with positive mental disorder screening results do not receive any professional therapy Lack of problem recognition and necessity, appointment wait times, a lack of time, financial limitations, and privacy concerns are a few causes. These obstacles to getting a favorable screen result and getting expert therapy must be removed. According to Kim et al, screening and professional service access must be combined such that a student can address a mental health need discovered through screening within the same session. Contrary to computer-generated feedback, Hass et al. argued that clinician-student interaction and tailored assessment could assist students detect and overcome treatment resistance. To maintain students' social engagement, Mailey et al. underlined the necessity for a more participatory model of Internet interventions with a live clinician as opposed to interactions that were text-heavy. Clinical depression is best treated with therapist assistance, according to a study of technology-assisted self-help and limited contact therapies.

In light of these findings, researchers and clinicians are turning to videoconferencing, which enables in-person communication between the student and the clinician while avoiding the expense of logistical obstacles like transportation and any potential stigma associated with visiting an on-campus mental health clinic. The student's appearance, including the student's choice of dress and attire, facial expression, and movement, can be assessed by the clinician, who can then utilize these visual signals to help make a clinical diagnosis and treatment decision. There are already a large number of online counseling services However, there aren't many research evaluating the efficacy and security of these treatments for mental health in academic settings A model of mental health services was created by Kansanshi et al. that used videoconferencing to link students who were very distressed with physicians. Even though the services could only be provided at a clinic connected via a virtual private network, the approach was successful in enhancing mental health treatment for college students in the rural university context.

Positive findings have been found in studies that looked at the viability and acceptability of using Skype to provide psychotherapy to clinical populations 83% of therapists rated providing treatment via Skype as being fairly or very feasible, and 95% of patients said that receiving treatment via Skype was fairly or very easy in a study measuring the effectiveness of exposure therapy for social anxiety disorder using Skype Clinically substantial reductions in depressed symptoms were seen in two studies that looked at the effectiveness of cognitive behavioral treatment and problem-solving therapy delivered over Skype to individuals with depression. In these studies, technical issues include poor video and sound quality (such as blurriness, frozen pictures, and delay) and poor sound quality (such as choppiness, softness, echoing, and delay) persisted. Skype was used from homes or primary care offices on desktop or laptop computers. Furthermore, Skype psychotherapy began before telephone screening or in-person technology setup took place.

This study looked into the viability and acceptability of a Web-based approach that screened college students for depression online and then, if the results were positive, scheduled an online appointment with a psychiatrist. There was no in-person setup or screening; the whole process, from recruitment through consultation, was conducted online. Off-campus psychiatrists with a license provided the consultations using the free video conferencing tool Skype. In the study,

students used their own mobile laptops with built-in webcams through wireless networks on campus, simulating a real-world scenario. A self-rated satisfaction survey was used to gauge the consultation quality. We proposed the possibility and acceptability of using this Web-based methodology to improve the identification and care of depressed college students.A psycho-social intervention, cognitive behavioral therapy (CBT) tries to lessen the symptoms of a variety of mental health illnesses, notably depression and anxiety disorders. One of the most effective treatments for substance abuse and co-occurring mental health disorders is cognitive behavioral therapy.In order to promote emotional regulation, cognitive behavioral therapy (CBT) focuses on confronting and altering cognitive distortions (such as thoughts, beliefs, and attitudes) and their accompanying actions. and create individual coping mechanisms aimed at resolving present issues. Despite being first developed to treat depression, it has now been used to address a wide range of problems and treat a variety of mental health illnesses, such as anxiety, substance use disorders, marital troubles, ADHD, and eating disorders numerous cognitive or behavioral psychotherapies, such as CBT, use techniques and strategies supported by scientific research to treat certain psychopathologies.

CBT is a popular type of talk therapy that combines the fundamental ideas of behavioral and cognitive psychology. It differs from traditional methods of psychotherapy like psychoanalysis, in which the therapist first develops a diagnosis before searching for the underlying unconscious meaning of the client's behavior. CBT, on the other hand, is a "problem-focused" and "action-oriented" type of therapy that is intended to address particular issues linked to a recognized mental disease. The therapist's job is to work with the client to identify and put into practice practical solutions that will help them achieve their goals and lessen their disorder's symptoms. CBT is predicated on the idea that many psychological problems are developed and maintained in part due to cognitive distortions and maladaptive actions. and that by imparting new information-processing abilities and coping techniques, symptoms and related discomfort can be lessened.

For treating less severe forms of depression, anxiety, PTSD, tics, substance use disorders, eating disorders, and borderline personality disorder, review studies have concluded that CBT alone is just as effective as psychoactive pharmaceuticals. According to some research, CBT for the treatment of mental diseases including major depressive disorder works best when accompanied with medication. For the majority of psychological illnesses in children and adolescents, including conduct disorder and aggression, CBT is advised as the initial course of treatment. Studies have shown that alternative legitimate therapy approaches can be just as successful in addressing specific adult diseases. Treatment guidelines include CBT as a preferred psychosocial treatment together with interpersonal psychotherapy (IPT). Some of the core components of CBT's predecessors have been found in many prehistoric philosophical systems, including Stoicism.

Modern cognitive-behavioral therapists detect cognitive distortions that contribute to depression and anxiety based on the Stoic philosopher Epictetus' theory that logic can be used to recognize and reject incorrect beliefs that cause damaging emotions. The Stoic thinkers are the philosophical forebears of cognitive therapy, according to Aaron T. Beck's original depression treatment handbook. Epictetus' influence on Albert Ellis is another illustration of how the Stoics influenced cognitive theorists. John Stuart Mill, a significant thinker who founded Associationism, a precursor to classical conditioning and behavioral theory, had a significant impact on the evolution of CBT. The origins of CBT today can be found in the early

20th-century development of behavior therapy, the 1960s development of cognitive therapy, and the following fusion of the two.

DISCUSSION

Recruitment and Screening

Between December 2010 and December 2011, undergraduate and graduate students currently enrolled in universities in Massachusetts were approached to take part in the Web-based depression screening survey via as well as printed and digital school flyers. At one local university in Boston, over 1,500 flyers were inserted into the mailboxes of the students who lived there. Students who took part in the study had a one in fifteen chance of winning a $20 gift card in a raffle. All participants gave their free, informed permission in writing. The Institutional Review Board gave their approval for both the study and the use of Skype for a clinical consultation. The nine-item Patient Health Questionnaire (PHQ-9) for depression screening was part of the screening survey, which also gathered data on student demographics, including sex, year in college, prior and present histories of depression and treatment. If a student received a PHQ-9 suicide item score of 1 or higher, or a PHQ-9 score of 10 or above, they were deemed to have MDD. The poll instructed a student to go to the closest emergency room or dial 911 before continuing if they had expressed any suicide thoughts. A student was classified as screening negative for MDD if their PHQ-9 score was less than 10 and they did not indicate suicidality [1]–[3].

Regardless of their PHQ-9 score, every student who answered the depression screening question received a direct access to an online depression toolbox at the end of the survey. The toolkit contained information on a nearby suicide prevention hotline as well as links to two websites that offer psychoeducational resources on depression. The website "Doodle Meet Me" (http://www.doodle.com/about/meetMe.html), which displays the schedule availability of the research psychiatrists, was used to arrange a Skype consultation with one of the three participants who had tested positive for MDD or suicidality. The final survey page explained the Skype consultation in detail and included a direct link to the biography of the primary investigator, who was the physician the students would speak with, in order to promote transparency.

Online consultation

The American Telemedicine Association's Practice Guidelines for Video-Based Online Mental Health Services were adhered to in this study. When arranging the Web-based consultation, students gave a second informed, voluntary, written consent. A member of the clinical research team checked the student's contact details, which included a non-identifying username, email address, and phone number, before the videoconference. To check the connectivity and operation of the clinic's videoconferencing technology, the research staff member had a subsequent online trial session with the student. Online consultants are board-certified psychiatrists with specialized knowledge of depression. The majority of the consultations were handled by the senior author (Albert Yeung). He has conducted more than 100 online consultations and has a wealth of expertise conducting clinical interviews through Skype.

The physicians introduced themselves and recognized the identities of the kids by requesting them to provide their school student identity card with a photo and the location of the student at the start of the hour-long web-based consultation using Skype. While students were present

at their individual university campuses, clinicians conducted the sessions from the offices of their outpatient clinics. The medical professionals made sure the patient was in a private setting where the clinical conversation could not be easily overheard by others. The pupil made use of their own computer and webcam. In order to arrive at a psychiatric diagnosis in accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), the consultation used a standardized clinical review of the history of the current illness (including psychiatric, [4]–[6] medical, psychosocial, and family history) and the mental status exam. This was followed by a discussion of the available treatment options. The doctor also requested input from the student regarding the application of online screening and the consultation service. The clinical interview's specifics were documented and safely kept. If students completed a release of information form, physicians forwarded a consultation report to the students' healthcare providers after the consultation and made any required referrals.

Within a week of completing the one-hour Web-based consultation, all students who participated received a Skype satisfaction survey asking about the audio and visual quality of the Web-based interview, its value in helping people understand depression and begin treatment, and their thoughts on the use of web-based videoconferencing for mental health services. Students who agreed to be contacted again were sent follow-up surveys via email eight weeks after the initial survey was finished. These surveys included a second PHQ-9 questionnaire, questions about the use of online resources, any treatment the student may have sought since the completion of the initial survey, reasons for not seeking treatment, and barriers to seeking treatment for depression. Students who responded once more were entered into a drawing for a chance to win.

Tools for Screening for Depression Online

In primary care settings, a self-administered tool called the 9-item Patient Health Questionnaire can be used to test for MDD in patients. Each question on the questionnaire relates to one of the nine criteria used to diagnose severe depression according to the DSM-IV-TR. When adopting a total score of 10 or higher as the criteria, Kroenke and colleagues demonstrated that the PHQ-9 had an 88% sensitivity and 88% specificity for detecting MDD.

Computer programs for online video conferences

phone over Internet Protocol (VoIP) services and software like Skype enable online phone, video, and instant message communication. More than 300 million people have enrolled on Skype, which is now the most popular desktop videoconferencing program. The application is available for free download on a variety of platforms, including desktop computers, tablet computers, and mobile devices. Peer-to-peer (P2P) connections are used by Skype, which means that computers communicate with one another directly. The kids were instructed to create a fresh Skype username devoid of personal details like their name or birthday. The doctor additionally made use of the clinic's main Skype account. The idea that web-based consultation is a "effective" and "successful" substitute for an in-person clinic visit is also supported by qualitative comments from the students. Skype complies with Advanced Encryption Standards, which complies with the Federal Information Processing Standards for electronic transmission under HIPAA It is pretty simple for me to visit a neighboring hospital, said one student. Students identified the benefit of being able to "connect with a doctor from my apartment where I was comfortable," with the use of Web consultation, "I may have been able to start my own business from my apartment where I was comfortable, but I know some of my friends who

would have a much harder time doing that, so I would definitely recommend Skype as an appropriate substitute." Nevertheless, according to the consulting doctors personal interactions with N.T., T.C., and A.Y, this did not impair their capacity to provide psychiatric diagnoses and counsel the students [7]–[9].

The eight-week follow-up survey was completed by a total of 254 students. 53 students (20.9%) scored positively for depression on the second PHQ-9. Since completing the initial screening survey, 43 students (16.9%) have sought therapy for depression. 15 students (6%) used the depression toolkit and other online tools. In the eight weeks after the screen, 123 pupils (51.5%) said they weren't using online resources because they were "too busy/forgot." 33 students (56.9%) said they "did not experience any obstacles" when trying to get help for their depression.

DISCUSSION

The results of this study suggest that a thorough approach of active outreach to college students via online screening, followed by student-initiated online scheduling and a psychiatric consultation using Skype, may be a workable and acceptable model to enhance the identification and treatment of college students with depression. This study illustrates the technical feasibility and safety of students completing an online depression screening and psychiatric consultation using their personal laptops and webcams. The adoption of web-based technologies removed geographical restrictions and reduced the need for costly travel for such screening and consultations. College students, who have a restricted amount of time due to multiple academic and social commitments, should pay particular attention to this. Additionally, depression symptoms can discourage patients from making the effort to go to a clinic in person. This service gave customers the choice to contact a specialist from the convenience of their own dorm rooms.

Contrary to telephone or Web-based treatments, videoconferencing therapy enables for the transmission of visible and nonverbal communications between patients and therapists. The usage of videoconferencing over audioconferencing, which allows for visual clues including eye contact, facial expressions, and body language, was validated by the qualitative responses of these students who tested positive for signs of depression or suicidality initially expressed interest in a Skype interview. This result is similar with other research, which found that many college students with severe depression symptoms do not seek medical attention. Some of the students who tested positive for depression might have been "false positives," meaning that they might be going through stress-related symptoms during a demanding academic semester but not genuinely be depressed. It is likely that students will feel at ease answering an anonymous survey but will be hesitant to discuss their symptoms in person rather than via a virtual medium. This is a public health issue that may be brought on by the stigma associated with mental diseases the failure to recognize the need for assistance, or worries about potential administrative penalties, such as forced leave or expulsion from school.

These worries could be allayed by including a brief individualized psychoeducational component at the conclusion of the screening materials and by offering more details about the contents of the psychiatric consultation. The need for professional intervention may be highlighted by an explanation of the student's PHQ-9 depression score that identifies the specific depressive symptoms the student may be experiencing and their short- and long-term detrimental effects on their life. A more detailed analysis of this score can be obtained during

a mental consultation with a clinician. The specifics of this consultation, such as the subjects covered and potential post-session treatment choices, may also allay concerns about seeing a psychiatrist for the first time. It needs to be made clear that privacy is respected. Making the service more approachable may involve informing prospective participants of the high approval ratings among peers who have gotten such a consultation [10]–[12].

The lack of time and the low importance given to mental health in that period may be the cause of the low completion rate (25%) of the consultation among interested respondents 17 out of 69 participants. 123 students (51.4%) stated "Too busy/I forgot" as their excuse for not using online mental health resources in the eight-week follow-up survey. Additionally, 33 students (56.9%) said they "did not experience any obstacles" when looking for depression treatment. Treatment obstacles that are internal in nature may be just as significant as those that are external. According to Yorgason et al. [39], lack of time is another major deterrent for college students from utilizing mental health services. Although they could do so right away, numerous students asked for appointments one to two weeks after their screening visit, and many of them were unable to keep them. It might be best to combine the screen and consultation into one session. With the use of this web-based strategy, institutions might be able to hire outside consultants for online consultations or make use of their current consultants for off-campus practice. By extending the hours of the clinician, the service might be made more accessible in the early evening or other times when students don't have courses or other obligations.

Increased priority and flexibility of appointment times may result from more aggressive outreach in the intermediary phase between the screen and the online consultation. Although students in this study had the option to book an online consultation appointment right after the screen, they could only do so once. By offering second and third chances to participate, automated follow-up emails with a link to the online schedule service may enhance participation. Additionally, it gives college students with fluctuating schedules the freedom to reschedule their initial appointment as required. In order to answer inquiries and worries regarding the consultation, clinical professionals may reply to this email or engage in a Skype conversation with students. However, rather than addressing any psychiatric issues, the goal of such a chat would be to enable and promote the online consultation.

The small percentage of participants (18.8%) who felt the consultation was helpful for beginning treatment for depression may be cause for concern as well. A professional consultation was not required for the treatment of depression for about half of the students because they were already mental health consumers and could begin their therapy on their own. However, a week might not have been long enough to seek treatment after the appointment. However, in order to concentrate on depressed college students who are undertreated, future research should be limited to students who are not receiving any active treatment. It could be beneficial if psychiatrists and the university mental health clinic had more direct connection. In this study, the psychiatrist provided an outside provider consultation report. The Web-based psychiatric consultation could be used as a tool to identify students who require additional treatment and to encourage students to seek help by sending the report directly to an on-campus clinician with more concerted efforts from the on-campus clinic and outside providers.

There may be a self-selection bias in the 47% of students who requested this online consultation who are currently undergoing psychiatric therapy. The ability to currently or previously receive care in person may have lessened barriers to receiving online psychiatric consultation. As was

previously said, there may be stigma or fear associated with consulting a mental health professional for the first time, even online. What happens during the consultation and potential choices after the meeting need to be made transparent. Students who were receiving psychiatric therapy and who tested positive for depression sought advice online. This may show that this model is helpful for both identifying depression in students and enhancing continuing in-person treatment. Overall, both individuals who are currently receiving other psychiatric therapy and those who are not gave this online consultation model a high approval rating (93.8%).

And last, using Skype as a venue for an online psychiatric consultation has both benefits and drawbacks. The software's familiarity and ease of use from desktops and a variety of free mobile applications are advantages. There are already 47 million Skype users in the United States so people may communicate with mental health specialists without having to sign up for a new service. The majority of users are between the ages of 18 and 35, making this software suitable for a younger audience like college students. Skype's security issues and HIPAA compliance are major drawbacks. Skype uses 256-bit encryption, which complies with the U.S.-specified Advanced Encryption Standard. NIST is the National Institute of Standards and Technology. Skype is protected from unwanted access using a firewall, which it uses to operate According to several experts, it takes considerable experience and talents to hack into Skype, which makes it tougher to do than to most telephone lines or physical offices with file cabinets. But whether Skype falls under the HIPPAA Conduit Exception or not is still up for discussion. Skype is criticized for failing to disclose on its website that it complies with HIPAA regulations and for not providing business associate contracts to therapists or clinics who utilize it for elemental health services. Future tele psychiatric consultations should keep an eye on how Skype responds to these issues and think about switching to a platform that has proven HIPAA compliance.

CONCLUSION

In conclusion, we used a thorough Internet-based screening and consultation paradigm to boost recognition and treatment of depressed college students, and we had some success. The utilization of students' own laptops, built-in webcams, and Skype is a potentially workable paradigm for providing mental health treatments to college students because of the high approval among completers. The students' insightful comments point up the value of speaking with a clinician in person. The study's low participation rate among eligible students implies that additional psychoeducation is needed to raise awareness of depression and the advantages of seeking therapy, as well as a flexible schedule that may accommodate the demands of busy college students. Additionally, we advise using a videoconferencing platform that safeguards individual privacy and that all measures adhere to American Telemedicine Association standards. With the advent of Web-based videoconferencing, doctors based at remote locales can now deliver their services to colleges with little access to mental health facilities locally and on-campus. Although we only offered a single Web-based consultation in the current trial, the concept might be improved to offer students with MDD ongoing treatment and long-term symptom monitoring. Future research with randomized controls and a bigger sample size is required to prove the viability, affordability, and applicability of this paradigm to different populations. This Web-based service may potentially help underserved people in academic settings and beyond as the use of webcam-equipped laptops, tablets, and smart phones among patients and clinicians increases quickly.

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CHAPTER 9

EFFECTIVE METHODS FOR IMPROVING COLLEGE STUDENTS' EDUCATION IN INNOVATION AND ENTREPRENEURSHIP IN THE CONTEXT OF THE "INTERNET"

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ABSTRACT:

Higher education must unavoidably examine the innovative and entrepreneurial education of college students while also comprehensively refining the scientific theory of development. College students should receive extensive and effective instruction in creative and business literacy as a method to lessen the intense employment competition and advance the development of an innovative nation. The goal of this paper is to perform a thorough investigation of practical methods for enhancing business and creative literacy instruction for college students within the framework of Internet+. The purpose of this paper is to examine how to improve the creative and business literacy training of college students in the context of Internet+, to explain the concepts involved and the current state of the training of creative and business literacy of college students, and to discuss the value and practical significance of the training of creative and business literacy of college students as well as the current innovation of college students in China. In entrepreneurship, opportunities, difficulties, and issues are encountered. There have been trials with surveys. The findings indicate that more than 83.6% of graduates have some knowledge of creative and business literacy training, but only 58.2% of college students are satisfied with the program as it is now structured. Five recommendations are made in this article's conclusion for improving college pupils.

KEYWORDS:

Entrepreneurial, Innovative, Significance, Training.

INTRODUCTION

Education in innovative entrepreneurship can foster students' creative thinking, spirit, aptitude, and awareness. In a more detailed sense, college students who receive instruction in creative and business literacy are more likely to find employment, start their own businesses, and be guaranteed future social integration. A stable and healthy growth of socialism with Chinese characteristics can be ensured by it, and from a macro perspective it can indirectly assist societal stability. The unequal distribution of educational resources may be improved via "Internet + education." Even in relatively impoverished areas, a sizable number of top-notch educational resources can be made accessible online, saving on education costs and lightening the financial load on students and parents. A relatively recent teaching strategy called "Internet+" has the potential to increase students' interest in studying and their comprehension of the material. The emergence of "Internet+" education improves the educational model, which encourages the sharing and trading of educational resources and heightens learners' interest. Completely reinforce the college graduate employment counseling service system, construct and enhance the professional structure of student business counseling service, and create and offer pertinent required and elective courses for all students. The establishment of a

national innovation system has frequently been a decision made by the government. The nation's capacity for innovation and development of increasingly potent competitive advantages has significantly improved as a result of the deployment of science and technology practices as a central strategy. The Party Central Committee conducts a thorough assessment of China's strategic requirements as well as a scientific analysis of the fundamental state conditions in China.

As one of the most important strategic choices for achieving the goal of scientific development, the Party Central Committee supports independent innovation and the creation of an innovative state. Comprehensive, coordinated, and sustainable development are the pillars of the scientific development concept. It refers to coordinating the development of political civilization, spiritual civilization, and ecological civilization, as well as the development of urban, rural, and regional areas, while sustaining a steady and quick pace of economic growth. College students play a significant role in bringing the idea of scientific advancement to life and creating an innovative nation. The expansion of the idea of scientific progress and the emergence of numerous social businesses are both aided by the introduction of creative and business literacy training for college students. It is possible to completely exploit the purpose of education and transform education into national wealth by studying college students' entrepreneurship education.

The national innovation strategy is now being implemented in China. Innovation is fueled by entrepreneurial activity, which also serves as its primary structural component. Traditional industries and manufacturing techniques will disappear, along with the associated requirement for skill. New information will continuously be developed and used, increasing the need for new talent. As significant institutions for knowledge transmission, colleges and universities must assume the historic responsibility of developing top-notch talent of all kinds for the nation One indication of a new stage in the evolution of society is the introduction and growth of creative and entrepreneurial schooling. An inventive talent pool with entrepreneurial abilities should be educated as part of a quality education system. One of the new ideas in education is the use of creative and business literacy training as a method of introducing quality education gradually. Focusing on the investigation of college students' innovative and entrepreneurial education is necessary to further the reform and development of higher education.

A teaching method is a collection of guidelines and techniques used by instructors to facilitate student learning. These tactics are influenced by the learner's personality and the subject matter that will be covered in the lesson. The learner, the nature of the subject matter, and the sort of learning it is intended to produce must all be taken into consideration for a teaching method to be effective and appropriate. The methods of instruction can be broadly divided into two categories: teacher-centered and student-centered. Teachers serve as the primary authority figures in a teacher-centered (authoritarian) approach to education. With the intention of testing and assessment, students are seen as "empty vessels" whose main responsibility is to listen to lectures and receive direct instruction. The main responsibility of instructors is to provide knowledge and information to their students. This paradigm views teaching and assessment as two distinct processes. Tests and evaluations with objective scoring are used to gauge student learning. Although instructors are the figure of authority in the student-centered approach to learning, both teachers and students are equally involved in the learning process. Another name for this strategy is authoritative. The main responsibility of the teacher is to guide and support students' learning and general content comprehension. Group projects, student portfolios, and

engagement in class are just a few of the official and informal assessment methods used to gauge student learning. Teaching and assessments are intertwined, and during teacher instruction, student learning is continuously assessed.

Relevant theories of business and creative literacy training have previously formed a largely developed theoretical framework abroad China has given theoretical research in creative and business literacy training substantial thought, but it lacks traditional theoretical research and started later. More or less developing places still offer innovation entrepreneurship education, and it is necessary to expand the range and depth of business literacy instruction. At the close of the 20th century, theoretical studies on entrepreneurship education in China were launched. The concept of innovative entrepreneurship education was initially put forth in "Pedagogical Reflections on the Renewal of Entrepreneurship Education." Since then, Chinese academics have blended theory and experience to advance theoretical study on training in business and creative literacy. Four key areas are the focus of the research. First, the function of business and creative literacy training is considered.

The complete economic and social development of China can be actively aided by innovative entrepreneurial education, which can also advance academic change in the talent training model used in Chinese institutions. College students' job-related strain can be reduced by entrepreneurship education, which can also help them find jobs. In addition to helping China's higher education system continue to progress and reform, it can also, from a macroeconomic perspective, help create a peaceful society and realize the Chinese ideal the design of the curriculum and the style of instruction both reflect the long history and clear benefits of creative and business literacy training in the US. In the US, the concept of creative entrepreneurial education permeates all academic subjects and is ingrained from an early age. Primary schools in the US offer courses on creative entrepreneurial education. In the US, there is a vast array of innovative entrepreneurship education curricula that are inextricably tied to the unique traits of entrepreneurs but in no way all the same. In other words, they tailor their courses to each student. Their case-based innovative entrepreneurial education curriculum is even more advantageous, and the system of learning methods paired with practice is no longer dogmatic but instead places a strong emphasis on practical analysis and problem solution.

The examination of college students' instruction in creative and business literacy is the main topic of this essay. First, the study's history, importance, the current status of research both domestically and internationally, the value of training in creative and business literacy, and the reality of innovation and entrepreneurship. It outlines the pertinent theories of "Internet +" and cutting-edge entrepreneurship education, including the meaning of entrepreneurship education, its subject matter, and the importance of entrepreneurship education for college students. The reasons for the absence of training in creative and business literacy are examined, along with the findings of the survey experiment. There have been five optimization methods put out for consideration. Refine the guiding principles of entrepreneurship education for college students, improve the idea of creative and business literacy training for college students, improve the delivery method, teaching staff, entrepreneurship education practice system, and entrepreneurial environment.

DISCUSSION

Proposed Approach

The uneven distribution of educational materials can be made better using "Internet+" education. Even relatively underdeveloped areas can access top-notch educational resources online using the traditional educational approach, saving on tuition. The cutting-edge "Internet +" learning approach, which is still relatively new, can encourage pupils to learn and enhance knowledge retention. The development of "Internet +" education in cutting-edge companies enhances the current educational paradigm, makes it easier to share and exchange educational resources, and spurs students' interest in learning.

The "Internet +" era has arrived, which presents chances for college students to innovate and launch businesses as well as a number of problems. Students in colleges need to be proficient in both the innovation and entrepreneurship processes in addition to a number of other abilities. It is impossible to rely only on theoretical education in a setting where opportunities and problems coexist. More significantly, students can differentiate themselves in a cutthroat social context by developing their entrepreneurial spirit and innovation awareness. On this new equalizing platform, students can make use of their subjective initiative, share resources, and develop self-worth.

College students employ current information technology to establish a relatively low entrepreneurial barrier in the context of "Internet +" compared to other forms of entrepreneurship, as they do not require the same stable financial support as physical investments. It will lessen the pressure associated with creativity and entrepreneurship, as well as the costs associated with both, including the cost of failure. It will also, indirectly, improve students' excitement for these concepts. While Internet+ can give college students a top-notch platform to launch a business and give them power, it also sets high standards for their entrepreneurial abilities. Increasing their capacity for innovation and entrepreneurship is a difficult task. It takes more than just knowing current information technology to run a successful firm in an Internet+ environment. They must also understand how to effectively use technology and be successful in a variety of entrepreneurial endeavors. Despite the diversified and dispersed nature of consumer demand growth, it is crucial to comprehend how demand is related to appropriate Internet usage. In this regard, college students need to consistently develop their sense of novelty and invention, widen their knowledge and horizons, integrate relevant demands and new entrepreneurship in a scientific and logical manner, and persistently build up practical experience.

The content of creative and business literacy training for college students should have the following characteristics based on the objective component of entrepreneurship education: first, a combination of academic knowledge and practical skills. Second, a blend of professional expertise and creative entrepreneurship; third, a blend of rigidity and adaptability. Training in creative and business literacy often focuses on the following four areas:

Develop an understanding of entrepreneurship

The foundation of training in creative and business literacy is the formation of consciousness. It encompasses professional awareness, business consciousness, change consciousness, strategic awareness, and risk willingness. We constantly face the challenge of identifying markets and commercial prospects in the course of innovation and entrepreneurship. To make

the best choice, we must keep the necessary market knowledge to examine the macroeconomic environment from a macro viewpoint and comprehend the market's trajectory. Only having a great understanding of business opportunities is insufficient, though. It's also important to take advantage of the chance. Opportunities will be converted into productive forces, which will then be converted into intellectual capital, produce tangible benefits, and accomplish sustained development of innovation and entrepreneurship as they present themselves. Additionally, it must establish market-entry plans, high strategic awareness, and unique market, product, and humanistic innovation initiatives. Finally, success is built on a foundation of perseverance and hard effort.

Expand knowledge of entrepreneurship

Business knowledge is the system and structure of knowledge that is crucial for entrepreneurship and innovation. It mostly consists of sophisticated knowledge, managerial knowledge, and professional knowledge. The only way we can lay a strong foundation for the future is by methodically mastering the fundamental concepts and abilities of the relevant subjects. Innovative and entrepreneurial knowledge is more specifically defined as specialized knowledge applied in company procedures, steps, and techniques. Choosing business possibilities, identifying business prospects, and creating company plans are a few examples. In essence, management knowledge, sophisticated information needed for a certain vocation or skill, and professional knowledge are the major components of entrepreneurial knowledge. On the Internet, there are many resources for learning about entrepreneurship [1]–[3].

Encourage entrepreneurship

The seven essential competencies of an entrepreneur include skills in career planning, data processing, self-learning, communication, team building, and management. These cutting-edge entrepreneurial skills are essential and provide businesses with the fundamental tools they need to thrive and expand. They make it possible for creative business owners to identify and exploit possibilities, allowing them to experience significant growth. Since developing entrepreneurial abilities cannot be pursued overnight, we can speak with more knowledgeable instructors about this.

Improving corporate quality

An all-encompassing characteristic of innovative entrepreneurs, the entrepreneurial attribute of innovation is most often manifested in the co-operation, independence, adaptability, devotion, and persistence of innovative entrepreneurs. The behavioral traits of innovative entrepreneurs, such as innovation and entrepreneurial quality, are very significant. Whether a person can accurately assess the success and failure of entrepreneurship depends on their level of innovation and entrepreneurialism. Training in innovation and entrepreneurship is necessary for college students to have a well-rounded education and is not simply a crucial requirement for the quality of education. Universities and colleges serve as a foundation for developing talent. It is possible to significantly improve both college students' overall quality and their capacity for innovation and entrepreneurship by teaching them these skills.

Through talent education, higher education institutions are also developing creative and business literacy skills as part of the ongoing, deeper reform of the educational system. The traditional model of education has been updated in line with this, but the reform of creative and entrepreneurial education is still lacking in depth. College students don't receive enough

attention or effective support from society in terms of innovation and entrepreneurship. The value of creative and business literacy training for college students is not sufficiently understood from the perspective of colleges and universities, who see it as merely a means of enhancing students' employability. College students often think that innovation and entrepreneurship are very difficult and that the future is uncertain from the perspective of the students, which is influenced by social cognition, the knowledge horizon, traditional attitudes, and other relevant issues. Additionally, college students lack enthusiasm in innovation and entrepreneurship since they are too focused with entrance tests and public service exams. In other words, conceptual slack tends to substantially impede the successful growth of business and creative literacy instruction in colleges and universities [4]–[6].

It is a society that is now free to evolve. College students are allowed to make decisions based on their particular preferences when it comes to choosing a career and the course of their future development. College students' decisions are influenced by a variety of factors, with family, school, and social influences dominating the list. Currently, traditional ideas of work and societal perceptions have an impact on Chinese college graduates. They frequently select relatively "ideal" careers after graduating from college, such as those of public servants, well-liked teachers, and workers for state-owned businesses, which has caused many college grads to have fewer employment options. On the other hand, entrepreneurial education for college students can support the formation of fresh job patterns and provide doors for future growth. College students improve primarily through the acquisition of more academic knowledge, enhanced practical skills, continued personal development, etc. This advancement is possible thanks to the entrepreneurial education that college students receive, which goes beyond helping them understand their previous textbooks. Theoretical knowledge can also give college students a variety of real-world platforms and numerous chances to engage with others, hence promoting further personal development in college students. Students at college are a highly skilled group with a structured curriculum. It has extremely high levels of literacy and cultural understanding. Therefore, compared to other broad social groups, a group of college students has more room for growth. The topic of maximizing college students' potential has grown in importance in Chinese higher education. The potential of college students has not yet been fully utilized because Chinese higher education in business is still in the classic book-entry stage. As entrepreneurship education for college students is more practice-oriented and diverse than other forms of education, it offers new ways of thinking and new ways to utilize the potential of college students.

It is crucial to considerably improve people's perceptions of novelty and innovation if China is to further increase its overall national strength. College students are the driving force with the greatest vigor and potential in the growth of society, and they play a significant role in strengthening the innovation consciousness and innovation ability of the nation. The nation's innovation system will develop more quickly if college students are taught about entrepreneurship and there are many leaders who have an entrepreneurial mindset and skill set. In this new era of innovation, college students with creative and entrepreneurial skills are desperately needed. Because of this, college students should view it as their obligation and define their goals and duties. The reform of the talent training model in Chinese colleges and universities is made possible by the introduction of entrepreneurship education for college students, which aids in overcoming the drawbacks of the old educational model [7].

Experimental Environments

(1) Subjects for the experiment are chosen. randomly chosen from three universities, with the three institutions denoted by the letters A, B, and C, accordingly.

(2) Selection Theory. Choose from all schools and universities a certain number of freshmen, sophomores, graduates, and college instructors.

Research Techniques

(1) Techniques for Literature Research. Effective use of the findings of earlier studies is a requirement for scientific research. This work uses the literature research approach, fully utilizing the full-text Chinese CNKI journal database and other pertinent research tools, and conducts appropriate induction and ordering based on a significant amount of references to the body of prior literature. First, utilizing pertinent arguments and points of view from domestic and international studies on the theory of entrepreneurship education, the status quo of entrepreneurship education at home and abroad is analyzed. Second, with specific educational concepts connected to entrepreneurship education in mind, the principle of freedom and holistic development is examined. Finally, in order to be able to relate to them, pertinent theories must be discovered and learned.

(2) Comparative research techniques are #2. Foreign nations offer a plethora of knowledge when it comes to studying how to teach college students about business. This extraordinary experience can serve as a guide for the research of university-level entrepreneurship education programs. Comparative study allows us to pinpoint the weaknesses in both creative and business literacy instruction.

(3) Methods for inquiry and investigation. Through close interaction with the subjects of their studies, researchers must gather direct knowledge about them. Additionally, they must use thorough scientific analysis to reach more reliable results. This thesis employs the survey methodology; therefore, university students serve as the primary study subject. With a distribution of 2000 questionnaires and a collection of 1982 questionnaires, there was a 99.1% return rate. Table 1 displays the total number of interested responders.

Understanding of Innovation and Entrepreneurship Among Survey Respondents

Analyzing the data from the Creative and Business Literacy Training Awareness Survey, it can be seen that university A graduates have the lowest perception of creative and business literacy training, at 83.6%, compared to university graduates from the three universities, who have the highest perception at 92%. The percentage of undergraduates that perceive innovation and entrepreneurship the best is only 65.1%. Faculty and students at the three universities do not significantly differ in their understanding of innovation and entrepreneurship. The degree of comprehension among first-year students' spans from 49.2% to 56.3%, and among second-year students, it ranges from 55.3% to 65.1%, indicating that college students currently have a relatively poor level of understanding of creative and business literacy training. Only 63.2% of college students are satisfied with their present level of creative and business literacy training [8]–[10].

CONCLUSION

The key issues with today's creative and business literacy programs include bias, a flawed educational system, a flawed teaching staff, and a lack of application. Many schools and institutions place too much emphasis on the theoretical teaching of innovation and entrepreneurship, forgetting the significance of hands-on learning, when it comes to creative and business literacy training. Training in business and creative literacy tends to be fairly dry in both form and substance. Low interest in learning is caused by students' lack of autonomous thought, constant adherence to lectures, and lack of participation in pertinent practice. In this study, a questionnaire survey was conducted, and the findings revealed that while 58.2 percent of college students are content with the current creative and business literacy training, more than 83.6 percent of graduates have some knowledge of such training. This study discusses the reasons why training in creative and business literacy is ineffective, along with the experiment's findings, and offers five optimization methods for debate. To provide examples of entrepreneurship education principles, to improve the idea of innovative entrepreneurship education for college students, to improve the teaching system, to improve teachers, to improve the practice of entrepreneurship education system, to improve the entrepreneurial environment, to improve college students' innovation ability and comprehensive quality, and to improve college students' innovation education innovative theorizing. The next research can focus on this topic because this experiment is not specifically demonstrated using real-world examples of creativity and entrepreneurship.

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CHAPTER 10

MODEL DEVELOPMENT OF DANCE EDUCATION SYSTEM FOR COLLEGE STUDENTS WITH INFORMATION TECHNOLOGY BACKGROUND

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ABSTRACT:

The quick development of computer network technology has altered how people study and interact. The process of learning has also significantly improved throughout the years. Dance instruction must experiment with new approaches, modify lesson plans, and challenge narrow stagnant thinking while being guided by effective teaching strategies and teaching thinking. With online distance learning, more people can learn and share more educational resources since it overcomes the time and geographic restrictions of traditional learning techniques. The suggested dance education program for college students in this article describes the B/S-based online program's design and related technology. The technology can act as a capable aid for sports choreographers by providing technical characteristics including composition alignment, movement mechanical rationality, and vocal-dance coordination. In order to ensure the accuracy of the data, the experiment involved interviews with 30 teachers and 50 pupils. These interviews were videotaped, and data were entered using a form. Significant improvements have been made to the multimedia network environment, and 83% of teachers and students now agree with the new teaching strategy and have revised their concepts. Thus, integrating information technology into dance education can enhance the performance environment of dance education, expand the horizons of teachers and students, and employ information technology for direct appreciation and design.

KEYWORDS:

Characteristics, Learning, Overcomes, Providing.

INTRODUCTION

Humans have entered the information society as a result of the widespread use of broadband Internet. Traditional educational models face new opportunities and difficulties, and online education based on information technology has developed into an important study area. Web-based learning and teaching methods are becoming more and more popular. The idea of using information technology in education has given rise to fresh concepts for educational reform and new developments in the field. The development of dance education combined with modern information technology is an inevitable trend of educational development because of how vivid and inclusive modern information technology is, which can greatly stimulate students' learning enthusiasm and promote the improvement of education quality. While sports dance simulation can enhance computer technology, virtual reality technology can give teachers and dancers cutting-edge, scientific training methods and broaden the area of teaching.

A school is a type of educational facility created to offer classrooms and other learning settings where students can be taught by teachers. The majority of nations have formal education

systems that are occasionally required. Students move through a sequence of schools in these systems. These institutions are referred to by different names depending on the country (explained in the regional terminology section below), but they typically include primary school for young children and secondary school for teenagers who have finished primary school. A university or college is a frequent name for a place that offers higher education.

Since Classical antiquity, the idea of putting pupils in a single location to learn has been around. At least as far back as ancient Greece (see Academy), ancient Rome (see Education in Ancient Rome), ancient India (see Gurukul), and ancient China (see History of Education in China), there have been formal educational institutions. The Byzantine Empire had a well-developed educational system that started in the primary grades. Traditions and Encounters states that the primary school system was established around 425 AD and that "... military personnel usually had at least a primary education...". Education was a must for Empire residents due to the sometimes efficient and frequently huge government. Byzantium lost a lot of the splendor and luxury of Roman culture in the course of surviving, but the Empire placed an emphasis on effectiveness in its military manuals. Up until the empire's dissolution in 1453 AD, the Byzantine educational system was in place.

In order to train future clergy and administrators, many cathedral schools were established throughout Western Europe during the Early Middle Ages. The oldest still in existence and still in continuous operation are The King's School in Canterbury, which was founded in 597 CE, King's School in Rochester, which was founded in 604 CE, St. Peter's School in York, which was founded in 627 CE, and Thetford Grammar School, which was founded in 631 CE. Monastic schools that taught both religious and secular studies were also founded in Western Europe beginning in the fifth century CE. Students in a given nation may additionally attend schools before and after their primary (elementary in the US) and secondary (middle school in the US) education in addition to these basic institutions. Very young children (usually ages 3-5) receive some education in kindergarten or preschool. Following secondary school, students may choose to attend university, a vocational school, college, or a seminary. A school could specialize on one area, as an economics or dancing school. Alternative schools could provide unconventional curricula and teaching techniques.

When the government is unable to meet a student's needs adequately or specifically, non-government schools, also referred to as private schools, may be necessary. Other private schools may also be religious, including Christian schools, gurukuls (Hindu schools), madrasa (Arabic schools), hazes (Shi'i Muslim schools), yeshivas (Jewish schools), and others; alternatively, they may be institutions with a better degree of education or those that aim to encourage other types of personal accomplishments. Adult educational institutions include business schools, military academies, and corporate training facilities. The school system is frequently criticized for failing to adequately prepare students for their future lives, for fostering some temperaments while stifling others, for giving students strict instructions that would stifle creativity, for using extrinsic measures like grades and homework that would stifle kids' inherent curiosity and desire to learn.

Teaching and learning take place separately from the institution of school via homeschooling and distance learning, respectively, or in a virtual school outside of a typical school building. Departmental, small learning communities, academies, integrated, and schools inside schools are just a few of the organizational structures used to organize schools. After information

technology has a significant impact on education, multi-channel growth of theoretical education is typically investigated. The teaching optimization theory exhorts us to attain the best teaching effect when teachers completely examine the diversity of pupils in all aspects, i.e., when teaching in the most customized method. introduced a new dance communication platform that took the form of network communication, communication, virtual performance, education, and dance remote interactive performance. This paper combines the concept of online distance network dance education with the shortcomings of current university education to realize the flexible education of dance process and suggests investigating the internal potential concepts and mechanisms. This paper is based on the existing educational system, platform, modern programming method, and database technology. Distance learning can satisfy the need for flexible placement of teachers and students, enhance teaching techniques to some extent, and modernize tried-and-true educational concepts.

Traditional in-person instruction has gradually given way to contemporary online learning. Education on network platforms is becoming more and more common. Dance education resources may be tangibly improved by integrating dance into network platforms for learning. In terms of communication, it will at the same time overcome the drawbacks of conventional dance teaching techniques and realize more extended communication as well as assist you in considering how to teach dance in the university. The online classroom teaching approach surpasses the standard teaching method so that the students may actually become tutors, master the course, and motivate themselves to learn on their own through dance class, group communication, discussion, and reports.

The following are the innovations of this paper:

(1) A modular structure has been used in the design of syllabus preparation. To automatically generate standard form lesson plans and schedules, program leaders only need to enter subject requirements, teacher information, and professional subject requirements information system. This is more convenient and user-friendly, making the development of educational programs more convenient.

(2) The module structure of the teaching plan allows for the automatic generation of the teaching plan and schedule in standard format by the person in charge of the plan with the input of the teacher information, curriculum requirements, and other information systems relevant to the specialty, making the teaching plan more user-friendly and humane.

The teacher in this paper's dance teaching system develops the teaching mode in accordance with the lesson plan and creates appropriate teaching activities so that the students can conduct independent online learning in accordance with their own unique circumstances. The five sections that make up this paper's research framework are organized as follows: The research background and significance are introduced in the first section of this publication before the main study is covered. The second section introduces the associated work of online dance instruction systems and educational information technology. In order to give the readers of this paper a more thorough understanding of the development of a dance teaching system based on information technology, the third part of this research examines the choice of web service mode as well as the design and implementation techniques of online teaching module. The fourth section, which serves as the paper's main body, discusses the application and test analysis from two perspectives: the bandwidth demand test and the online voice and video effect test. The work summary of the entire material is presented in the paper's last section.

DISCUSSION

Online Dance Instructional System

Online instruction is a form of instruction that combines the benefits of C/S and B/S architecture (Browser/Server) [1]–[3]. Second, users can use the browser to access Web pages (application resources) on the web server by clicking on a link to the URL, which identifies the resource name and storage location. It is possible to handle the dance teacher's instructional materials (audio, video, demonstration videos of the dance teacher, student training videos, etc.) in the dance class. The following formula can be used to calculate the separation between the centers of gravity of any two postures given their data:

These are the center of gravity's coordinates

Through the use of web pages, users communicate with the web server. The database is accessed by the web server using middleware, and the data is then converted into web pages and sent back to the user's browser for use. Existing computer technology can be utilized to extract key frame images from video files, and then pattern matching, computer graphics, and other methods can be used to extract the human body in motion to get the final 2D data and motion contours of each joint point. Finally, computer animation is produced by deriving the 3D data of the human body from the 2D data of the human body. The following equation, which mostly represents the difference in degrees of freedom around the human body, can be used to express how comparable human body posture and orientation are: where is a measure of the degree of freedom of the entire body

Last but not least, C/S mode is utilized to create sophisticated tools for some complex applications, including some graphical ones that are challenging to open and have limited flexibility in the browser environment. It is typical in some applications to blend the traits of C/S and B/S. Some apps employ B/S, whereas others employ C/S. To monitor students' learning progress and the development of various dance talents, it is possible to handle the video of each student's dance exam properly. The human body's 3D motion data is rearranged into a virtual animation, replicating the human at a fixed frame rate, which is then made into an animation after being rendered in a 3D scene. They may be studied from all angles and directions, with their activity being captured on computers and simulated in high-quality ways The application visitor is brought to the foreground based on the background database, and the server typically reacts to requests or actions given by users through browsers [4], [5].

Development and Use of an Online Teaching Module

The key components of an online classroom are the video voice, online interactivity, and whiteboard modules. Therefore, according to its own hardware level, students' learning patterns, and other learning features, college dance instruction should develop scientifically sound learning objectives and lesson plans. The dance online teaching system is under information technology, which stresses the significance of the online teaching module. Additionally, the online interaction module's information transfer is asynchronous and intermittent on a packet basis, enabling reliable transmission during transmission in the event of stored or real-time video and audio source data. Each packet may follow a different route since the network is dynamically changing; as a result, the time it takes to reach the client will vary and the initial packet may arrive late. In order for clip to properly transition to clip, smooth the last three meals of clip and the first three inclinations of clip at the same time.

The intention is to provide students with a choice of instructional and assessment materials that they can review outside of class to further their dance knowledge. The most crucial aspect is interoperability, and access to the database enables modifications to the database drivers without affecting the program. 30 professors and 50 students participated in interviews, which included time interaction update status. The interviews were recorded, and after the data was entered using the form, the form's dependability was checked. 83% of teachers and students updated their concepts and approved of the new educational model, which resulted in a substantial change in the roles of teachers in traditional classrooms and multimedia online contexts. The whiteboard module typically uses HTTP/TCP to transmit control information while RTP/UDP (user datagram protocol) is utilized to transmit real-time audio data in the streaming transmission implementation scheme. However, as synchronization is done by adjusting the output speed of different media rather than changing the output content, it is frequently assumed in practice that the content has minimal relationship with the output speed of media. As a result, we can get [6]–[8]:

The coaches may assess the players' performance in all directions and determine immediately whether it has improved during and after training thanks to the data on their performance being graphically shown in real time. Considering the ground distance between, the element of the matrix, and the transportation distance from to, the Monge-Kantorovich distance is Based on the B/S mode-designed online teaching system, an ASP.NET page design and Windows Media streaming video solution were developed. Web technology is used by several colleges to create their own online learning environment and motivate students to use it For the aim of online teaching, students on campus can connect with people outside the university through resource sharing to expand their horizons and boost their learning effectiveness. Students can analyze dance movements more efficiently and dance instruction can be made more successful with the help of modern information technologies.

Maguo provided a thorough explanation of the nature of the online teaching method. Online instruction does not involve classroom network video; rather than just looking at a computer all day, students and teachers should interact in person. Wan and others draw pupils with the use of current, cutting-edge virtual reality technology. This is a system for simulating and experiencing the actual computer network environment. It automatically simulates a virtual environment using computers, and it reflects and realizes the movement of the characters in the computer in real life. Jiao et al. studied West Point Military Academy students who were majoring in a certain subject. While in class, they leveraged the interaction between professors and students to critically examine these new concepts and started group activities to address some problems. He encouraged these pupils to continue learning after class. Panzhou, who is now the research focus for digital dance vocabulary, uses a computer to assemble and organize the dance spectrum. Numerous dance scores concentrate on the distinctive records of ballet, social dance, and modern dance, and Zhang and Yang have examined Macedonian dance aspects The online dance education system governs the operations of each department while also coordinating resource sharing, communication, and cooperation among all education-related departments. It improves efficiency, speed, and convenience in the management of education. Students can access learning materials at any time, make the most of Internet resources and sporadic computer time, and increase learning effectiveness by setting up a remote online learning system. Dance can therefore be digitized.

Information Technology in Teaching Research

When it comes to using virtual human animation technology in dance instruction, the conventional method has teachers manually label the movements frame by frame, which is time-consuming, expensive for motion capture, and inaccurate for manual recognition. The narrow inertia of traditional dance education is mainly seen in the theoretical teaching, where it is assumed that giving students the words from books is equivalent to finishing a task, rather than exploring more innovative teaching strategies and transforming cramming education and forced learning into active and receptive learning. As a result, the information technology is used in the dance instruction system in this study. The arrangement of the user-selected action segments is referred to as a new action sequence using offset mapping, motion affine transformation, and motion mirror after motion capture technology is utilized to capture the human motion parameters in real life.

By reviewing the available studies on the cost-effectiveness of online education, Wu et al. outlined the main elements determining the cost-effectiveness. The number of courses provided, the frequency of course updates, the media employed, the kind and quantity of student support services, and the dropout rate are some of these determinants. Sang elaborated on the connection between flipped classroom pedagogy and encouraging curriculum reform in colleges and universities from a theoretical level and outlined the fundamental characteristics of flipped classroom pedagogy in colleges and universities as well as the issues that need to be resolved. This work serves as a pioneering guide for education reform in Chinese colleges and universities. The three key variables that affect how affordable online education is, according to Chen, are the number of students, the quantity and variety of the online courses, and the medium. Liu claims that educational information solutions are distinguished by high levels of personalized service customization, adaptable and sophisticated information services, and platform integration of cutting-edge information technologies including wireless capabilities and artificial intelligence. The successful use of contemporary information technology in education, which has significantly aided the growth of online education, is a focus of Cvetkovic et al.'s research Students can complete the learning process using the system suggested in this paper, including teacher-led dance demonstration learning, self-learn dance uploading, automatic scoring of dance movements, communication and discussion with teachers and classmates about the difficulties they are having with dance learning, which can help them become better dancers [9]–[11].

Selection of the Web Service Mode

The B/S structure, also known as browser/server mode, is a network structure mode that emerged with the development of the Web, with the Web browser serving as the client's primary application program. Multimedia hyperlinks can be used to structure the teaching content according to the actual needs of students, realizing the multi-angle connection of teaching information. The management information for teaching can take the form of video, voice, and other files. Following the definition of the similarities between the majority of motion frames, the "difficult task" can be automatically located in the "original motion fragment." In this research, we define the distance between frames using a quaternion-based method: Where are the two quaternions, what is the distance, and what is the importance of the joint First off, unlike in a C/S structure, the client simply needs to install a single browser (like Firefox) and is not required to install database clients, application clients, etc. The user interface

is straightforward and uniform. Basically, as long as they can open the website page, online students and teachers can use it. Users can communicate with one other and the online database via a system called a web database system, which consists of a client, a server, and a network connecting the client and the server. This study uses linear interpolation to determine the hybrid motion of the overlapping portions and the network database system to stitch together numerous motion segments into new motion segments.

The accumulation of information and resources for dance teachers can be standardized and regulated. The system itself provides a library of models so that technicians or user administrators can choose the right human models. Different users have different requirements. A virtual scene that includes moving references is also created for the user based on his actual training scene. And the following equation is used to determine the translational position of the human body's root node in motion On the client, the web browser launches the video/audio player and employs HTTP to get initialization data from the web server, such as video and directory information.

Test of Bandwidth Requirement

There are some bandwidth requirements because online teaching systems can accommodate multiple online users simultaneously. It is important to identify the system participants, such as the remote system administrator for online dance instruction, teachers, students, and student monitoring. The users of the dancing distance video instruction system on the list above each have various executive functions. As an illustration, the management module for basic data is initially segmented into various submodules in accordance with the department or role to which the data belongs. The data is then encapsulated to give a common access interface, and various user roles can only access the modules with permissions. The size of the video window must also meet certain specifications. Each student will eventually have a different bandwidth, which can negatively impact the effectiveness of the course if the video window is too large. Figure 7 depicts the CPU temperature, CPU package, variations in CPU cores, and several other computer-related hardware indications as the remote dance teaching system's user base continuously grows.

CONCLUSION

At this time, online live video classroom development is starting to diversify and gain popularity. The pedagogical idea of the junior high school of the new era of education is embodied in the online real-time classroom based on WEB mode. An innovative approach of naturally fusing information technology, information methods, information resources, human resources, and dance course content to jointly complete dance course instruction is information technology and dance integration. The teacher is simple to get in touch with when issues arise in the traditional teaching paradigm since it lacks a strong knowledge network. This is detrimental to the growth of pupils' capacity for self-learning and impediments the development of their spirit of inquiry. The collegiate dance education system discussed in this study can be connected to the current classroom instruction strategies. An innovative approach to online dance teaching is implemented using contemporary, cutting-edge information technology. The new, cutting-edge approach to education that combines the classroom with the Internet has distinct advantages over the traditional approach that was only used in the classroom. This approach allows students to access the video courseware produced by the micro-lesson anytime, anywhere, which significantly reduces waiting time and boosts

productivity. It can also successfully increase students' self-expression, communication skills, and on-site adaptation. The concept enables the design, production, distribution, and reuse of software components and offers theoretical recommendations for creating "component" software. Therefore, it is essential to quickly promote distant learning across the nation.

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CHAPTER 11

CHINESE COLLEGE STUDENTS' PROMOTION OF PHYSICAL LITERACY USING BIG DATA AND LEARNING ANALYTICS

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ABSTRACT:

Physical literacy is becoming increasingly well-liked among educators who are seeking to raise the bar for curricula and education in general. It entails a wholistic, all-encompassing, lifelong learning strategy that incorporates motion and physical activity. Physical literacy is a prime example of the commitment to cultivate a generation that is healthier and more active because it generally has favorable benefits on people's physical, psychological, social, and cognitive health. The development of physical literacy is influenced by a variety of interactions between humanities and social sciences; hence, a study of this kind will be interdisciplinary and take into account both collective and individual aspects. By creating a complete causal loop diagram of the model to depict the overall system, the current research suggests a system dynamic "SD" model to support students' physical literacy. The system is then depicted as consisting of four subsystems based on the casual loop diagram. In order to find better allocations for optimum effectiveness in promoting physical literacy, the model is simulated by assigning 14 alternative changes of indices in the physical literacy promotion system. For efficient, quick, and accurate analysis and results, simulations are run using the Apache Spark architecture and "Big Data" technologies. According to the study, different physical literacy indices in different grades need to be addressed; the best way to promote physical literacy is to improve lower-grade students' physical knowledge and higher-grade students' physical attitudes. The model can be used to guide decisions on effective physical literacy promotion and management strategies.

KEYWORDS:

Becoming, Commitment, Humanities, Promoting.

INTRODUCTION

Physical literacy is defined as "the motivation, confidence, physical competence, understanding, and knowledge that individuals develop to maintain physical activity at an appropriate level throughout their life p. The idea of physical literacy has undergone extensive development. Although physical literacy might be considered a goal for a physical education program taught in a school setting, it's important to keep in mind that it applies to everyone. In this sense, there are six phases of physical literacy: infancy, childhood, adolescent, young adulthood, and elder adulthood. Dr. Margaret Whitehead first introduced the concept of physical literacy at the 1993 International Association of Physical Education and Sport for Girls and Women Congress in Melbourne, Australia. As a result of this research, the idea and definition of physical literacy were created. The ramifications of physical literacy as the goal of every building were then outlined. A lot of nations, including the United States (U.S.), the United Kingdom (U.K.), and Canada, promote physical literacy to encourage individuals to be active and The idea of physical literacy quickly attracted attention on a global scale. It's crucial to remember that physical literacy has various benefits in addition to improving physical health.

Physical literacy has a positive impact on all areas of development, including academic performance, cognitive abilities, mental health, psychological well-being, social skills, and healthy lifestyle choices. The development of physical literacy and the mastery of basic movement and skills may then become mandated for all children. Reading and writing skills are vital, but so is physical literacy!

A discussion on empowerment and its importance in developing physical literacy has been included in research on the promotion of physical literacy which has grown in popularity Wang also investigated how Chinese traditional sports culture and physical literacy could be combined. These research, however, solely addressed theoretical analysis; hence, they lacked efficient procedures and supporting evidence. On the other hand, other studies provided marketing tactics for various demographics. For instance, Zhang and Dong investigated the meaning and development of physical literacy in university students. Furthermore, in the Korean context, Unthatch highlighted the significance of promoting physical literacy and offered prospective implementation options appropriate to the life stages of particular population groups. A model of athletic skills was also proposed by Babelsberg and Wormwood as a viable framework for structuring (developmental) movement activities to improve physical literacy. Although they employed several efficient tactics for promoting physical literacy, it has rarely been debated how to best distribute these measures.

A system dynamics (SD) model was developed by Forrester to investigate the behaviors of feedback loops that contained stocks (levels) and flows. In several domains, including management, economics, and transportation, SD has been used to effectively model, simulate, and research complex systems. For instance, Duan et al. developed an SD model to validate a human resource management strategy, while Zhou et al. established an SD model to address a third-party logistics inventory problem. Additionally, utilizing De Soto's idea of an informal economy, Olaya et al. constructed an SD model, while Bendor used an SD model to investigate the dynamics of U.S. automotive gasoline consumption since 1975. Furthermore, by implementing future public transportation plans, Ercan et al. used an SD approach to model and simulate the most feasible and doable carbon dioxide reduction scenarios for U.S. cities.

To the best of our knowledge, not much study has promoted physical literacy in China using an SD approach. Although certain promotional tactics have been researched and put into practice, it is a complex undertaking that requires adequate care to assess and maximize their performance. SD is a practical solution to this issue. As a result, the goal of this study is to construct an SD model for the promotion of physical literacy in order to decide on the best allocation for achieving promotion effectiveness. The current study depends on the use of big data analysis methods, which have proven to be quite effective in systems for studying user behavior and performing predictive analysis. These systems are capable of consuming data sets of any size and complexity, successfully capturing discriminating information, developing improved feature sets, presenting superior analyses, and producing effective visualization and querying. The current study makes use of Apache Spark Hadoop services, which is open-source software for dependable, scalable, distributed computing, to take use of the benefits of big data. Due to its dispersed working method, this not only offers higher reliability, speed, and precision but also successful simulation outcomes. We shall cover four scenarios and their unique simulations in the part that follows to show the outcomes. Early on in the People's Republic of China, the emphasis on education was on raising literacy levels among the general populace. Only 20–40% of the population was literate in 1949.

Through formal education and literacy efforts, the communist government placed a strong emphasis on raising literacy levels. The number of students attending elementary school tripled, secondary school attendance surged by a ratio of 8.5, and college enrolment more than quadrupled in the first sixteen years of communist rule. The Chinese educational system has been aimed toward economic development ever since the Cultural Revolution (1966–1976) came to an end. Through the "Decision on the Reform of the Educational Structure" issued by the Central Committee of the Chinese Communist Party in 1985, the federal government transferred control of elementary education to local governments. The State schooling Commission was to be established, and nine years of compulsory schooling, as part of the government's education reform plan, which was announced in May 1985. The significant rise in education funding in the Seventh Five-Year Plan (1986–1990), which totaled 72 percent higher than money allocated to education in the previous plan era (1981–1985), was one of the clearest indications of the government's commitment to enhancing education. Compared to 10.4% in 1984, 16.8% of the state budget was set aside in 1986 for education.

Official policy has fluctuated between ideological imperatives and realistic initiatives to advance national education as a result of ongoing intra-party realignments. The socialist education movement (1962–1965) and the Great Leap Forward (1958–1960) both aimed to eradicate the deeply ingrained academic elitism, to close social and cultural gaps between urban and rural populations, and to end the propensity of intellectuals to despise manual labor. Universally strengthening social equality was given top attention throughout the Cultural Revolution On a bridge in Beijing, a mean value theorem equation is printed.

Education is seen by the post-Mao Zedong Chinese Communist Party leadership as the cornerstone of the Four Modernizations. Science and technology education started to take center stage in educational policy around the beginning of the 1980s. The utmost importance had been placed on growing scientific and technological knowledge as well as educating professional individuals by 1986. Although the humanities were valued, technical and vocational skills were seen as more crucial to achieving China's modernization objectives. Priorities in education were reoriented in line with Deng Xiaoping's economic development plan. Additionally, emphasis was placed on advancing the education of the educated elite who would continue the modernization effort in the ensuing decades. Beginning in 1976, a policy that encouraged studying and borrowing from abroad for advanced training in a variety of scientific subjects was adopted as a result of a renewed emphasis on modern science and technology.

Intellectuals were encouraged to conduct research in support of the Four Modernizations starting at the Third Plenum of the Eleventh National Party Congress Central Committee in December 1978, and they were given relatively free rein as long as they followed the party's "Four Cardinal Principles". Intellectual speech may be restricted if the party and the government decide that the four cardinal principles' structures have been pushed too far. In the late 1970s and early 1980s, there was a significant resurgence in both literature and the arts. In addition to the introduction of several new international literary and cultural expressions, traditional traditions once again flourished. China's Ministry of Education recommended for the inclusion of environmental education material in all public-school curricula beginning in the first grade and continuing through the second year of high school in 2003.

DISCUSSION

Promotion of Students' Physical Literacy and Its Causal Relationship

In order to make the study more straightforward, we proposed that there are just four subsystems of physical literacy: physical knowledge, physical skill, physical attitude, and physical competence. The complete causal loop diagram for the physical literacy promotion system is based on the introduction of issues and repercussions that were previously described. The first is a positive feedback loop in which the level of self-awareness increases as physical literacy increases. Benchmark Dataset **the** current study presents a case study on the promotion of physical literacy among college students in China. Zhao and a physical education school at Shandong University, China, provided the used data. Based on actual data from students in each college grade, the SD model was developed. Freshmen data are the first data in the SD model, whereas sophomore data are the 12th month's data in the SD model. The data for junior students in the SD model correspond to the data from the 24th month, and the data for senior students to the final month. Table 1 lists the specific beginning variables. The data are used to calculate the additional level of physical literacy for each grade, which is shown in. The proposed model is investigated by comparing it to several tests that are explained in the following subsections:

A physical exam

The model structure's consistency with the real world is assessed using an appearance test. The research group's experts examined each coefficient in the SD model of physical literacy and concluded that the model was accurate in describing the situation as it was. A model operation test is carried out by looking for any undesirable output when the model is operated. In this test, various simulation steps are chosen with the step sizes set at 0.25, 0.5, and 1. The entire operation is discovered to be stable and producing no negative outcomes.

Historical Test

To confirm that the model is accurate, a historical test compares simulation results to actual data and notes any discrepancies. A historical analysis of the simulation data for physical knowledge, physical skill, physical attitude, physical competence, and physical literacy shows that there is a less than 5% difference between the simulated result and the actual outcome. By altering the established model's structure, equation, or parameters and evaluating the effects on the amount of change in the system, a sensitivity test is carried out to compare the simulation findings. Parameter sensitivity and sensitivity test structure are two broad categories. A sensitivity test will be performed using the variable of professional advice. In the current situation, a 3% decrease or increase in the professional guidance metric denotes no appreciable changes. Similar to the connection test, the structure sensitivity test showed that the structure was effective with support from the literature and theoretical analysis.

Simulations

Four indexes—physical knowledge gain, physical skill improvement, physical attitude improvement, and physical competence improvement—were chosen for simulation purposes and functioned as the control variables for simulation control. Government and society can have an impact on the four indexes throughout time. three models are created by altering one index, two indices, and three indexes, respectively, for improved projection and evaluation.

Figures 3-5 display the related simulation findings. Finally, crucial node information is shown in Table 4 for easier observation. China has mandated a nine-year compulsory education for what is equivalent to a fifth of the world's population since the 1950s. 90% of China had primary school education by 1999, and 85% of the population was now enrolled in the nation's nine-year obligatory education program. The amount of financing for education that the federal and provincial governments provide varies by region, with rural areas receiving significantly less than big urban areas. Tuition fees are an addition to the government funding given to the institution.

China uses a shared-cost model for non-mandatory education, with tuition set at a specific share of the cost. While this is going on, the government has taken steps to help students from low-income families' access higher education, including policies and programs for scholarships, work-study programs, and subsidies for students with particular economic difficulties, tuition reduction or exemption, and state stipends. The percentage of young and middle-aged people who are illiterate has decreased from nearly 80% to 5%. The system educated over 400 million workers in junior or senior high school as well as about 60 million mid- or high-level professionals. 250 million Chinese students currently attend elementary, junior high, and senior high school, which is a twofold growth over the rest of the globe during the same time span. The gross enrollment rate in junior high schools is 94.1 percent, and the net enrolment in primary schools has reached 98.9 percent. In China, there are 28.8 million pupils enrolled in primary and lower secondary (junior high) schools that are run by the government as of 2015 [1]–[3].

At numerous International Science Olympiad Competitions, including the International Biology Olympiad, the International Olympiad on Astronomy and Astrophysics the International Olympiad in Informatics, the International Earth Science Olympiad the International Mathematical Olympiad, the International Physics Olympiad and the International Chemistry Olympiad, Chinese high school students consistently took home multiple gold medals each year.

An open-source framework called Apache Spark offers unified analysis services for handling enormous amounts of data. It offers a programming interface for entire clusters that has fault tolerance and implicit data parallelism. Figure 6 depicts the general architecture of Spark in a distributed setting, which primarily consists of the Driver and Worker modules. By executing the application's main method, the Driver establishes Spark Context, constructs the Resilient Distributed Dataset (RDD), and applies the necessary transformations to the RDD. Spark Context is in charge of connecting with Cluster Manager and acting as a link between the Spark cluster and the data processing logic. To maximize task scheduling efficiency, Cluster Manager creates a unified schedule for the cluster's resources, allots the necessary cluster computing resources for the task, and launches Executor. The Work Node is responsible for handling the cluster's computing Tasks. The Work Node launches an Executor for the Task when a computational task is run on a cluster. The Executor then launches a thread pool to control the Task, which serves as the executor's computational unit. The Executor will report the Task's status to the Driver, and when all tasks have been completed, the Executor will come to a complete halt. Additionally, Spark now has a number of parts that make up its ecosystem after years of accretion., the composition of the Spark core is depicted. A lower level of self-knowledge satisfaction will result in more active learning activities, which will increase physical knowledge, which will improve physical literacy as a whole. The second loop is a

negative feedback loop, meaning that raising the first parameter will make people feel more burnt out from exercising, which will lower their level of physical competence and, in turn, lower their level of physical literacy [4]–[6].

Physical Literacy Promotion Subsystem Flow Diagram

The following presumptions are used in order to create the flow diagram of the physical literacy promotion subsystem to better demonstrate the results, it is assumed that the four subsystems are both interdependent and independent of one another. Physical literacy is influenced by all subsystems because it is a common parameter among them, however in order to make mathematical modeling of subsystems simpler, it is assumed that physical literacy is only determined by this particular subsystem and is not influenced by other subsystems. We made the assumption that it would take three years to get from being a freshman to a senior in order to reflect the reality of college students. It is expected that over time, the settings and resources connected to students' physical literacy altered as a result of the increased implementation of physical literacy promotion strategies for college students in schools and society. Negative variation brought on by illness and unintentional damage was disregarded, and system failure brought on by significant changes and other abnormal circumstances was not taken into account in order to simplify the model and reflect the reality. Four subsystems are formed and described in the following subsections based on the examination of the causal link of promoting students' physical literacy. All the coefficients were reviewed by six literacy and physical activity specialists, two doctorate instructors, and four PhDs [7]–[9].

Physical Competence

The state variable is physical knowledge, and the rate of the variable is defined by the difference between the growth in physical knowledge and the decline in physical knowledge. Self-knowledge satisfaction is a component of physical knowledge reduction, and physical literacy influences self-knowledge satisfaction. The desire for information increases and self-knowledge satisfaction decreases as physical literacy increases. The availability of knowledge is a time-dependent variable since it increases as civilization and information technology advance. The following equations are created to express this:

Physical aptitude

Physical skill is the state variable, and the pace at which it increases or decreases is defined by how much it increases minus how much it decreases. Fitness burnout includes a decline in physical ability, and the level of physical literacy influences fitness burnout. According to Zhao, having a greater level of physical literacy makes one feel more content with their present skill set. The improvement in the fitness environment brought about by the rise in national support makes it a time-dependent variable. The following equations are created to express this:.2.3. Body Language

Physical attitude is the state variable, and the pace at which it diminishes or improves is the variable. Physical attitude is determined by subtracting physical attitude diminishment from physical attitude augmentation. Other temptations are reduced by physical attitude because physical literacy impacts other temptations. Physical attitude enhancement is influenced by physical knowledge growth and physical skill enhancement because greater knowledge and skill promote attitude enhancement. A time-dependent variable, learning attitude changes with time. As a result, the subsequent equations are created: Physical Competence Subsystem The

rate of physical competence depreciation and improvement is the variable, and physical competence is the state variable. The degree of physical literacy has an impact on both the debasement of physical skill and the lack of drive. Physical competence improvement is impacted by an increase in physical knowledge and an improvement in physical attitude since knowledge and attitude growth promote competence Since the fitness milieu gets better as more people get interested in fitness, it is a time-dependent variable. We created the following equations to represent this: The Cobb-Douglas production function is used to assess physical literacy, and the four subsystems are merged with the "physical literacy" variable. The Cobb-Douglas production function primarily examines the link between variations in the amounts of various constituents and the output produced over a given time period with the same degree of technical skill. One of the most often used production functions in economics, it is a mathematical model that forecasts the output of industrial systems in nations and regions [10]–[12].

While assuming that the external variables remain constant, the current study on physical literacy examined the link between the variables present in the four main subsystems. When applied to the analysis of the contribution rate of changes in factors to output, the assumption about the relationship between the dependent and independent variables is consistent with the Cobb-Douglas production function analysis model. As a result, this study separates the output of the four main subsystems, the level of physical literacy, and models it using the traditional Cobb-Douglas production function. Experts in the research group assessed each coefficient and found that it agreed with the subsystem equations.

CONCLUSION

The goal of the current study was to better allocate resources in order to develop the most successful promotion strategy. It did this by presenting an SD model for increasing physical literacy among college students in China. The findings indicated that different physical literacy indexes require attention at various grade levels. For example, for students in lower grades, an increase in the physical knowledge index was most important in promoting physical literacy, whereas for students in higher grades, an increase in the physical attitude index was most effective. The results of the current study made a substantial contribution to the body of literature already written on this subject. First, past research' main goals were to introduce the importance of developing physical literacy and their empowerment, and they did so by using various tactics for various populations. Instead of discussing the promotion of physical literacy in general, these studies would be more useful if they were focused on fixing particular issues. Therefore, the goal of this study was to identify a better allocation to get the greatest approach for promoting physical literacy in order to address a specific issue. Second, the current study demonstrates that the SD approach could be used to create a general model. Using a generalized representation of a complicated system, SD is a modeling technique that overlooks the specifics of a system. In areas including management and transportation, it has been extensively used in strategic and policymaking modeling and simulation. The findings of the current study therefore have greater theoretical worth and practical impact when compared to those of other comparable research. Last but not least, the majority of the other studies mostly conducted qualitative and theoretical evaluations without using successful techniques or evidence to back their assertions. An SD model is used in the current work to get over this limitation, which strengthens the validity of the study and the findings.

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CHAPTER 12

THE DEVELOPMENT OF COLLEGE STUDENTS: INNOVATION AND ENTREPRENEURSHIP INCENTIVE MECHANISM USING HIERARCHICAL ANALYSIS

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ABSTRACT:

College students are the group with the most potential for innovation and entrepreneurship, which is crucial for China's modern economic development. In order for college computing, students', I&E passion to be continually and effectively exercised, I&E requires the effective integration of a number of incentive approaches based on the individual variations and diversity of college students. This study, which is based on the theory of hierarchical analysis, establishes the evaluation system of the implementation effect of the I&E incentive system for college students by setting the evaluation indexes of that effect, computing and obtaining the weights of each evaluation index, and providing a reference framework for the design of that incentive system. Our investigation shows that the generated judgment matrices' CR values are less than 0.1, passing the judgment matrices' consistency test.

KEYWORDS:

Computing, Evaluation, Individual, Matrices.

INTRODUCTION

Premier Li Keqiang first put forth the call for "mass entrepreneurship and innovation" (also known as "dual innovation"), and it has since been brought up at the First World Internet Conference, the State Council executive meeting, and other events. The goal of this call is to cultivate and give birth to a brand-new driving force for national economic development, stimulate the innovation potential and entrepreneurial vitality of the entire society, and realize the wealth of the people. I&E education has unavoidably emerged as a new hot spot in China's reform of higher education in a significant way. By first conducting theoretical research on innovative and entrepreneurial education and then applying the research findings to simulation exercises, psychological quality, and innovative and entrepreneurial ability, it organically combines scientific research, educational teaching, and business training and prepares the majority of entrepreneurs to engage in innovative and entrepreneurial activities. However, it is essential to build a set of scientifically sound incentive and restraint mechanisms to control the behaviors of universities in order to ensure the effective development of I&E education.

Colleges and universities must have scientific, standardized, comprehensive, and workable incentive programs, tools, and techniques in order to maintain the excitement and prevent danger. The majority of students still view work in terms of the quest of secure jobs as the ultimate objective. They believe it to be a specialized educational activity for each kid who has a strong capacity for invention and excellent academic performance, while the mass group finds it challenging to participate. It also stifles the bulk of adolescents' entrepreneurial ideas from the cradle, especially when combined with the passive environment of society, school, and

family. According to the survey, the majority of domestic colleges and universities' I&E education work is overseen by the president in charge of student work, who is also in charge of the employment guidance department, student management department, league committee, or ideological and political research department. This president is jointly responsible for completing education and teaching work and coordinating students to participate in activities; there isn't yet a dedicated management and research department. The lack of a strong relationship between entrepreneurial education teaching and professional teaching, as well as the challenge of effective departmental collaboration within the university, would result inexorably from this complex management environment. A systematic theoretical and practical system is not effectively combined with economic development, the existing theoretical system only continues to exist at the research level, with fragmented content forms, and it is not combined with the current higher education and teaching system.

The Incentive Scheme Is Not Scientific. Currently, universities manage the I&E activities of college students based on a few rough indicators rather than conducting thorough, objective research on the factors that motivate students and performing in-depth analyses of each factor's effectiveness. As a result, the incentive scheme and incentive measures lack scientific rigor According to reinforcement theory, incentive programs in colleges and universities lack scientific rigor in the following ways: there is insufficient focus on the spiritual motivation factor in positive reinforcement; there is insufficient focus on the function of negative reinforcement in correcting improper behaviors and averting potential risks of I&E; there is insufficient scientific analysis of the function of each subfactor in incentive factors; and there is insufficient evaluation.

Nowadays, colleges and universities are unable to quickly and thoroughly grasp the information changes of college students' I&E when carrying out innovation management work affairs, to use big data intelligent facilities to grasp the latest intelligence in time, and to take the initiative to discover the bad phenomena or even illegal and unlawful behaviors of college students. This is due to the lack of intelligent data analysis methods and mining tools. We are unable to quickly and precisely grasp the timing of incentives and change the incentive scheme The goal of this paper is to build an evaluation system for the I&E incentive mechanism for college students based on evaluation indexes and the theoretical framework of hierarchical analysis. The most well-known is traditional entrepreneurship, which involves founding a new company (for example, a new business). Most university-level programs educate entrepreneurship in a manner comparable to those of other business degrees. The UK Higher Education system, which views creativity and innovation as a prelude to the creation of new ventures, distinguishes between the two.

Here, entrepreneurship is defined as the development of business acumen that can achieve the maximum potential, while enterprise is defined as the capacity to produce various ideas and opportunities that can be realized. This makes subject-based entrepreneurial curriculum possible for any field that is governed by the UK Higher Education's Quality Assurance Agency for Higher Education. The European Commission outlined a number of learning outcomes that underline the need for teacher development at all levels and address the need for a European-wide perspective on how such learning should be evaluated The Entrepreneurship 2020 Unit of the Directorate-General for Enterprise and Industry also provides best practice advice for educators working in schools and classrooms. In addition, the OECD and the European Commission collaborated in 2015 to publish guidelines for the development of

entrepreneurship-related skills and abilities. Action-based entrepreneurial education programs represent an alternative strategy Occasionally, this is referred to as venture creation programs (VCP). In these courses, starting a new business is an essential component of the learning process. Therefore, the most complete VCP programs also operate an on-site company incubator and last a long term.

Another strategy is to encourage innovation or expand markets for established businesses' existing products, services, or markets. Intrapreneurship, often known as corporate entrepreneurship, is a strategy that was made well-known by author Gifford Pinchot in his book of the same name. Clustering, according to more recent study, is now a driving force. Clustering happens when a group of employees splits off to form a new business while still conducting business with the parent. One such large-scale cluster is Silicon Valley. Creating charity organizations (or segments of already-existing charities) that are intended to be self-supporting in addition to doing good activities is a modern strategy. Typically, this is referred to as social enterprise or social venturing. Governments have even adopted a form of public sector entrepreneurship that places a stronger emphasis on innovation and customer service. The policies of Ronald Reagan in the United States and Margaret Thatcher in the United Kingdom served as the foundation for this strategy.

In addition, entrepreneurship is being promoted as a means of fostering abilities like risk-taking and problem-solving that support achieving personal objectives and academic success. The problem is far more than what we typically believe it to be, regardless of whether the business owners are new or expanding startups. It is imperative that we understand what we are entering into. It's critical to receive the appropriate education in the four main areas of entrepreneurship and professional business development: mindset, skills, knowledge, and tools. Millions of entrepreneurs have benefited from the "take the bull by the horns technique, which is the finest way to prepare both mentally and financially for obstacles to be conquered.

DISCUSSION

Present I&E Incentive Mechanism Situation for College Students

I&E is a crucial component and has a significant impact on social and economic growth. At the two sessions in 2015, General Secretary Xi Jinping put forth the idea that "innovation is the first driving force to lead development," and Premier Li Keqiang spoke of I&E at a number of gatherings, including the World Internet Conference, the Davos Forum, and the State Council executive meeting. It plays a significant guiding role in promoting and igniting the entrepreneurial vigor and innovative potential of the entire society. The most active dynamic element of innovation drive is found in college students. In order to effectively direct students' practices and foster their innovative spirit, universities should modify their techniques. In contemporary businesses, motivation is essential for management and direction. According to the incentive theory, establishing an I&E incentive system for higher education can help students solve their issues with innovation education, employment, social adaption, self-cognition, and career planning [1], [2].

The creation or extraction of economic value is referred to as entrepreneurship. According to this definition, entrepreneurship is considered as transformation that typically involves greater risk than is typical when beginning a business and may also involve values other than just financial ones. A person who starts and/or invests in one or more enterprises, taking on the

majority of the risks and reaping the majority of the gains, is referred to as an entrepreneur. "Entrepreneurship" is the term used to describe the act of starting a business. The entrepreneur is frequently viewed as an innovator, a source of fresh concepts for products, services, businesses, and operational methods.

More specific definitions of entrepreneurship include the "capacity and willingness to develop, organize and manage a business venture along with any of its risks to make a profit" and "the process of designing, launching and running a new business, which is often similar to a small business. These businesses' founders are frequently referred to as "entrepreneurs". While most definitions of entrepreneurship center on starting and operating businesses, because starting a business involves significant risks, many start-up businesses fail for a variety of reasons, including "lack of funding, poor business decisions, government policies, an economic crisis, a lack of market demand, or a combination of all of these.

An organization that has the capacity to transform discoveries or technological advancements into goods and services is referred to as an entrepreneur in the realm of economics. In this view, entrepreneurship refers to both established companies' and new companies' operations. According to psychologists, all behaviors are motivated by some sort of reason, and that motivation is a state of mind in humans. According to American psychologist Douglas McGregor's X-Y theory, X theory holds that most people have a certain amount of imagination and creative talent while Y theory holds that most people are generally lazy, prioritize personal interests and security, do everything in their power to avoid work and resist change, and must use coercion and both hard and soft management techniques. The lack of an efficient reward system at the school is what causes college students' lack of excitement and their inadequate capacity for innovation and entrepreneurship [3]–[5].

The governments of nation states have made an effort to foster entrepreneurship and enterprise culture in the twenty-first century in the hopes that it will enhance or stimulate economic growth and competition. Entrepreneurship was intended to strengthen the economy when supply-side economics was abandoned. Different schools of thought are accepted in entrepreneurship because it is an academic field. Disciplines like management, economics, sociology, and economic history have all studied it. Some people believe that entrepreneurship belongs to the entrepreneur. These academics frequently concentrate on the actions and characteristics of the entrepreneur (for an example, see the text under the subheading Elements below). The functionalistic approach to entrepreneurship is another name for this.

Others depart from the individualistic viewpoint to highlight the entrepreneurial process and immerse themselves in the interaction between circumstance and agency. The processual approach or the contextual turn/approach to entrepreneurship are some names for this strategy. Maslow thought that each period, each person had a particular set of wants, and that people can have multiple needs at once. Not all of these five wants can be supplied; the higher the level of need, the harder it is to satisfy; needs affect human action; and unmet needs in the stage of life occupy a significant position. Because Theory X and Theory Y have different conceptions of human nature, their approaches to motivating people also diverge. Determination of Evaluation Indexes. Being an entrepreneur, or the owner or manager of a business enterprise, is the act of attempting to gain money through taking risks. Entrepreneurs supervise the establishment and expansion of a business in their capacity as managers. Entrepreneurship is the process through which a person or group of people locates a business opportunity and gathers and makes use

of the resources needed to exploit it. According to Jean-Baptiste Say, a French economist, entrepreneurship "shifts economic resources out of an area of lower and into an area of higher productivity and greater yield" in the early 19th century. Entrepreneurs transform or modify value by producing something fresh and original. No matter how big or small the company is, it can participate in entrepreneurial chances. To become an entrepreneur, you must meet four requirements. Prior to recombining resources to make money, there must be opportunities or circumstances to do so. Second, entrepreneurship necessitates individual distinctions, such as preferred access to particular people or the capacity to identify information about opportunities. Third, accepting some level of risk is essential. Fourth, coordinating people and resources is necessary for the entrepreneurial process [6]–[8].

An entrepreneur works to add value for others by investing their time, effort, and resources. Both the consumer of the value produced and the entrepreneur profit as a result of their financial compensation for their efforts. The study of entrepreneurship and the role of the entrepreneur both dates back to Adam Smith and Richard Cantillon's writings in the late 17th and early 18th century. However, until a significant comeback in business and economics from the late 1970s, entrepreneurship was mostly neglected experimentally and theoretically. This neglect peaked in the late 19th and early 20th centuries. In the 20th century, Joseph Schumpeter's work in the 1930s and that of other Austrian economists like Carl Menger, Ludwig von Mises, and Friedrich von Hayek had a significant role in the understanding of entrepreneurship. A successful innovator, in Schumpeter's view, is someone who can and is willing to take a novel concept or invention and turn it into a marketable product. In order to completely or partially replace subpar discoveries throughout markets and industries, entrepreneurship uses what Schumpeter dubbed "the gale of creative destruction" while simultaneously developing new products, including new business models.

It has been stated that the dynamism of industries and long-term economic progress are mostly due to creative destruction. Academic economics debates the idea that entrepreneurship promotes economic growth since it is an interpretation of the residual in the endogenous growth theory. Israel Kirzner's alternate hypothesis contends that most innovations may be far more modest advancements, such as the switch from paper to plastic in drinking straw production. The experts chosen for this article are mostly business executives from various industries, academic specialists, and students. To calculate each evaluation indicator, in-depth interviews and questionnaires were used. The ability is chosen and the three-level target hierarchical structure evaluation system is established in accordance with the hierarchical structure of the hierarchical analysis. The assessment system X is the first-level target level, and the incubation platform Y1, instructor level Y2, and student level Y3 are the second-level guideline levels, respectively, as indicated in Table 1. The return rate of special support funds Z11, platform usage Z12, and student coverage rate of projects Z13 are the secondary assessment indices for Y1. The secondary evaluation indices for Y2 are the quantity of I&E projects under teacher supervision (Z21), the success rate of I&E competitions under teacher supervision (Z22), the rate of transformation of teachers' innovation results under teacher supervision (Z23), and the rate of transformation of teachers' innovation results under student supervision (Z24). The secondary evaluation indices for Y2 at the teacher level are the quantity of I&E projects supervised by teachers Z21, the percentage of winning I&E competitions supervised by teachers Z22, the percentage of successfully transforming teachers' innovation accomplishments Z23, and the percentage of successfully transforming teachers' I&E Z24; the

secondary evaluation indices for Y2 at the student level are the enhancement ability Z31, the enhancement quality Z32, the growth rate quality Z33, and the rate of 4.

Enhancement Strategies for the Incentive Mechanism

A seamless information communication channel must be established in order to guarantee that information users can receive timely, pertinent information in order to construct an appropriate incentive mechanism. Universities can award students with specific credit rewards and ensure that records of credit growth are kept in the appropriate system if they meet specified goals in I&E. College students' incentive system needs to be improved incrementally. Colleges and universities should continually strengthen the implementation of internal reward and punishment mechanisms and include I&E in the credit mechanism as part of the process of enhancing the incentive mechanism in order to continuously improve the ability of college students in all areas. Universities and colleges should focus first on developing college students' entrepreneurial awareness. It is essential for today's college students to develop holistically. The quality expectations for college students in the new era also include the quality of I&E, requiring that they have an entrepreneurial spirit and an awareness of innovation, both of which can only be developed through I&E education because they cannot be developed through regular life. While developing students' professional skills so they can better serve society is a crucial component of education for colleges and universities, one of their most significant educational duties also involves developing students' innovative and entrepreneurial potential.

For their accomplishments in I&E during their academic careers, the university may award the students with a set sum of money. In addition, the institution may use the funds as a project fund for the students' research outputs. This can provide students with some financial assistance, lower their entrepreneurial risk, boost their enthusiasm in entrepreneurship, and help to build incentive mechanisms even better. The best way to give college students the chance to practice I&E is to establish an I&E area and foster an entrepreneurial culture where they can start their own businesses, market their goods, or develop new ones. Colleges and universities should not charge students for their stores and instead encourage them to try their hand at creative entrepreneurship on campus. This would help students feel more relevant and will help them continually grow their enterprises by their own efforts [9]–[11].

CONCLUSION

In short, using a mix of incentives and sanctions, we should create an I&E incentive system for professors and students that is based on the idea of "combining education with practical education" that permeates the entire talent-development process in colleges and universities. The assessment system of the I&E incentive mechanism for college students is established in this work using the hierarchical analysis approach, qualitative and quantitative analysis, and 11 indicators in 3 aspects: the incubation platform, teacher level, and student level. This not only offers a fresh method for assessing the impact of the I&E reward system for college students, but it also serves as a model for creating a successful I&E incentive system. The terms "entrepreneur" and "small business" are frequently confused or used interchangeably. While most entrepreneurial endeavors begin as a small firm, not all small businesses fall within the definition of entrepreneurship. Many small firms are sole proprietorships with just the owner as their only employee, or they have a small number of staff. Many of these tiny enterprises just provide an existing good or service, with no plans for expansion. Contrarily, novel products, processes, or services are offered by entrepreneurial enterprises, and the entrepreneur

often seeks to scale up the business by hiring more people, expanding internationally, and other ways. This process is funded by venture capital and angel financing. The term "entrepreneur" may be more closely related to the phrase "startup" in this way.

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