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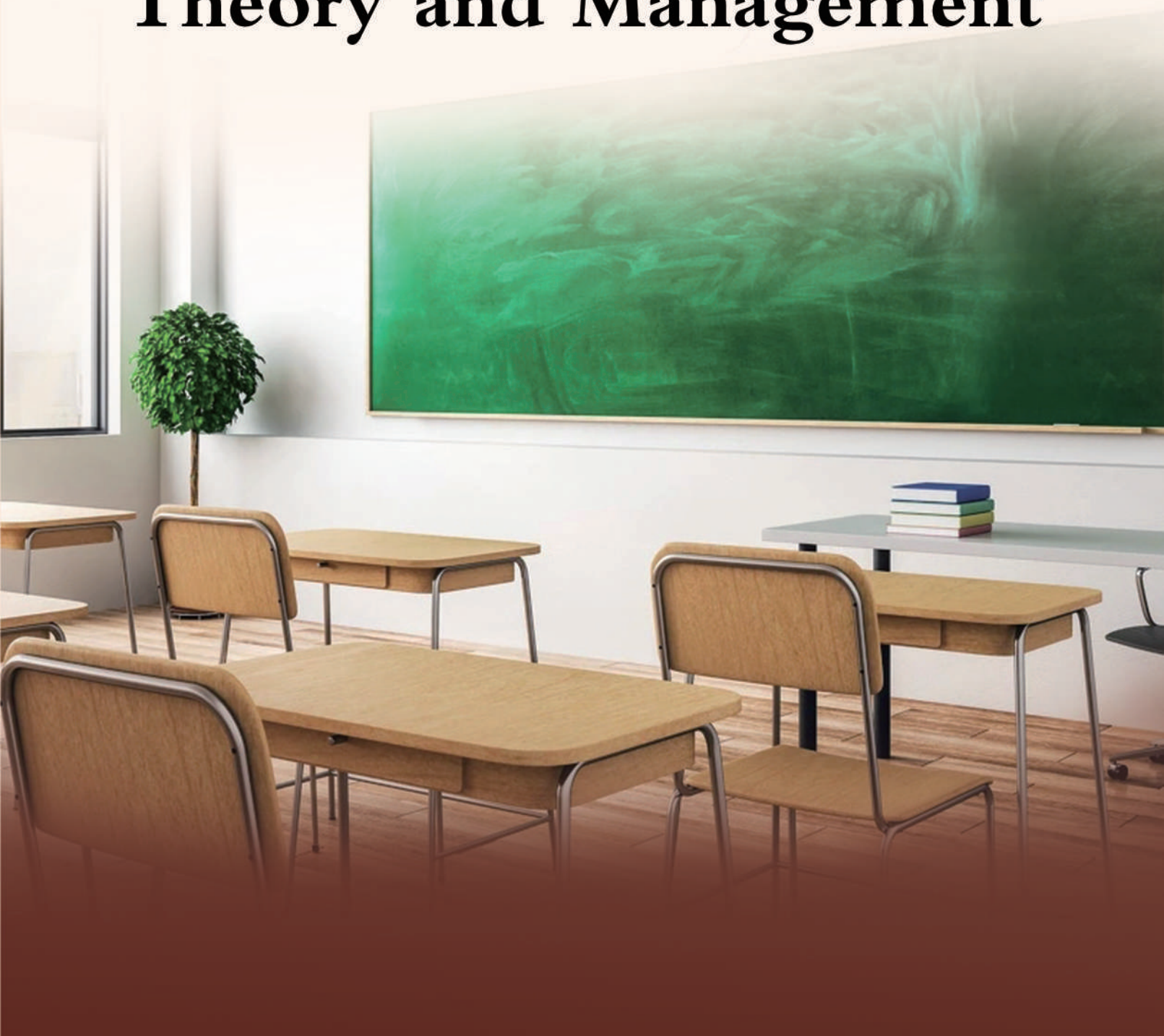

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Exploring the Difficulties and Challenges of the Local Macao English Language Learners towards the Online Synchronous One-on-one English Learning Class

Cheng Tak Chan*

Faculty of Humanities and Social Sciences of City University of Macau, Macau, China

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ABSTRACT

With the development of technology, the number of English learners who opt for online learning has been increasing. In the past, students had a tendency to download English materials and watch online videos for improving their English skills. Recently, thanks to a shift to online learning, students have been making more use of online synchronous one-on-one English classes to improve their English at leisure. Although this type of learning mode is becoming more and more popular, the study of the difficulties and challenges of English learners in such a field has been under-explored. This study attempts to use a qualitative approach to interview two English learners of different backgrounds to better understand the difficulties and challenges they encountered when using such a learning method. The two interviewees conclude points ranging from the learning aspect, distant feeling, signal delay, instability of the learning software and hardware that lead to technical problems. Certain measures to avoid the problems are also suggested in this paper.

1. Introduction

English is an international language used globally, as well as the second language in many countries. Being proficient in English aids in securing more opportunities in the future and in many sectors. English language is even considered as a must-learn ability. The heat of online learning is enhancing constantly and will go on in the future [1]. In the past, English learners tended to study English via tutorial school or studying abroad. Now, it is also the norm that many learners use online synchronous one-on-one English learning classes to improve their English at any time through this method. This mode of learning is beyond geographical limitation; online learning could be the most appropriate approach for learning and teaching oral skills for its versatility [2]. Online learning benefits students who otherwise may not be able to take part in the class physically; for example, if they have trouble finding childcare, fall ill during term time, or work full time so find it is difficult to travel to campus [3]. Also, the fees for this method of learning is much lower than those spent on a physical tutorial school or studying abroad, and the market for such a learning mode is ever increasing. However, with its gradual growth, the difficulties and challenges of online learners are still under-explored. This study attempts to further explore this topic and looks for possible solutions and suggestions to mitigate potential obstacles in order to have a better experience of online learning.

**Corresponding Author:*
Cheng Tak Chan,
Faculty of Humanities and Social Sciences of City University of Macau, Macau, China;
Email: kenton198958@yahoo.com.hk

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2. Literature Review

With the accessible convenience, online learning has long received praise, being largely relied on for further English learning. Online courses have been beneficial to students who tend to have a self-regulated learning approach [4]. It was mentioned students' interests were piqued so they were motivated to try online learning activities despite there being no assessment on these tasks [5]. Furthermore, synchronous learning is also largely advocated between the teacher and the learner. Synchronous learning such as videoconferencing or audioconferencing enables "live" and instant exchange [6]. This particular method offers authentic interaction in real time; possibly collaborating with other learners and a teacher, to complete tasks online rather than in a classroom [7]. Several advantages are listed with synchronous class, ranging from instant feedback, motivating the interchange of different angles, strengthening social presence, and fostering the exchange of emotional supports and supplying verbal elements [8]. The parents of young learners are also able to keep tabs on their child's progress by viewing lessons and assignments, as well as grades and feedback, possibly improving their ability to further help their child's progress [9]. Despite the numerous advantages to help with learning, there are still potential obstacles for the usage of synchronous English classes.

Research questions

(1) In the online synchronous one-on-one English learning class, what difficulties do learners find to have as for English learning?
(2) Besides the teaching mode, does any software of hardware affect the learning process when using such a method?

3. Research Method

This study used a qualitative case study, employing the semi-structure interview. Two interviewees of different ages and backgrounds were selected. The reason for the difference between the two interviewees in selection is that it is interesting to know if the obstacles they encountered respectively would be similar with their varying backgrounds. One is a 29-year-old lady who works in a bank in Macao. She has a bachelor's degree in Chinese and English translation, and a master's degree in Business Administration. She wanted to improve her English listening and speaking as she felt these skills of hers to be weaker than preferred. She chose a Philippine online English teacher due to the cheaper fees for each online class. Another interviewee is a 9-year-old girl who studies in an English primary school in Macao. She is interested in learning English. Her mother helped her register on the English learning platform for furthering her English ability. She chose an American English teacher due to her mother's thinking that native speakers make better teachers. For protecting their privacy, their names are not shown in the following. I will address them as Interviewee 1 (the 29-year-old lady) and Interviewee 2 (the 9-year-old girl). Certain responses contributing to the addressed questions were selected in the following for analysis.

4. Analysis and Results

Learning aspect

Interviewee 1 (Excerpt): During the class, I found training tends to focus on listening and speaking rather than reading and writing. Although I could ask the online teacher to teach me reading and writing, it is boring to learn them online compared to learning listening and speaking. I have had better training from this online teacher for my oral skills.

For improving speaking skills, sometimes it was a bit difficult to listen to the pronunciation clearly as there was still a monitor between us. The sound produced via a laptop is different from that produced in a classroom where a teacher stands in the room with me. I would prefer it if the online teacher articulated exaggeratedly so I could follow along a little easier. For listening, since the teacher I chose is a Philippine teacher, it seems they tended to speak English at a slow pace, so the speaking speed was alright. The experience was okay overall.

Interviewee 2 (Excerpt): Speaking practice was given in the online class. Reading practice was rare. I think I learn a lot of speaking skill from the online lesson because my speaking skill gets better and better. When I am promoted to a higher level in my primary school, I may want some reading and writing practices for the English assignments from my school.

In the real classroom setting in school or tutorial centers, students already know what will be taught to them as the teaching material is shown on the syllabus. However, online, not many teachers will use a systemic syllabus because some the learners may have just purchased one or a few lessons. In this situation, it is recommended that learners let the teachers know beforehand which aspects of certain skills they want to learn so that the online teachers can better prepare for it in advance. A detailed communication between the learner and teacher for the course planning should have been created before class; otherwise, it would

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disappoint the expectation of the learner. It was mentioned that accessibility can be a significant issue for online students, in comparison to physical classes. However, the drawback could also be that online teachers find it harder to adapt to a student's needs when only working online with them, rather than in a classroom setting [10]. Learners always have to be able to give feedback towards the teaching style, so the online teachers know whether there is possibility or necessity to change their online teaching approach. Furthermore, both interviewees show satisfaction with regards to learning outcomes for speaking skills gained from the online classes. Compared to a real classroom where a teacher is only able to take care a group of students, online synchronous one-on-one English learning classes has its advantages in targeting the improvement of pronunciation or speaking, the two of which are seldom modified and particularly trained in a big classroom.

Although the core of online synchronous one-on-one English learning class is said to be instant and spontaneous, it is still different from a real classroom setting as there are indeed some seconds or milliseconds delay due to the nature of virtual environment. For this reason, it has been suggested that online teachers must repeat important details in case it is missed. Also, as for teaching pronunciation, they should somehow exaggerate a little in order for the learners to better understand by looking at their lip movement. The technique that was listed, has been used and notable is listening and imitating to learn pronunciation [11]. This technique employs the Direct Method in which students learn the pronunciation from a teacher-provide model and repeat and imitate. Therefore, the clarity of pronunciation is essential, even if it is taught online. Learners can also make good use of the recording function to record the class upon the approval and agreement from the online teacher as they can play back for revision. Many platforms allow teachers to create an online archive of recorded sessions for this purpose [12].

Distant feeling

Interviewee 1 (Excerpt): Although the virtual class is so close to a real class, I still feel a certain sense of distance. The feeling is strange as I feel the teacher is close to me, but still seems distant.

A full interaction involves effort, and it is unavoidable that a virtual class requires a great deal more to recreate such a feeling. What the online teacher can do to compensate this potential flaw is they can share more about their own culture, which could potentially be one way to tackle the distant feeling. It was discovered that from students' angles, the absence of individual interaction between the online teacher and students could be one major drawback of learning distantly [13].

Signal Delay

Interviewee 1 (Excerpt): Even if it is always said that online synchronous one-on-one English learning class is instantaneous, actually it is not. It is not completely instant. Sometimes there is a delay or a pause during the class. The teacher couldn't hear me or vice versa. A 45-minute class has two or three stops or pauses in between and affected my learning experience. The teacher said maybe it's because of the instability of the Internet support in her country (Philippines). I suppose it could be caused by the Internet.

Interviewee 2 (Excerpt): I like the online English lessons. However, sometimes when it reached the most exciting or interesting part of the class or reached the key points in the content, there was a delay or pause or even delay of the sound or message delivery all of a sudden. This affected my attitude to the lesson. When there is a cut or stop in connection, the teachers couldn't hear what I said and vice versa.

Technical difficulties provide a major drawback for online students, causing significant frustration without the help of a technician available immediately [14]. For consideration and analysis, what leads to the above are reasons ranging from unstable Internet connection to malfunctions of software and hardware. In Macao, optical fiber and broadband are common and the speed for Internet connection is rather stable. However, in many countries, the Internet connection could be very unstable. Learners, before they buy an online one-on-one course, have to put this factor into consideration as well. Moreover, it is suggested that microphones and earphones instead of installed amplifiers of laptops should be used as they can have comparatively better function to ensure a higher quality of sound input and output. In addition to hardware, software needs to be taken in account. Some examples of applications with high praise are Zoom, Microsoft teams and Tencent video. The high quality of these applications ensures the smoothness of the class. Additionally, some learners prefer to use electronic cell phones for an online class; however, this could lower their experience as the monitor is so small that it is hard to read the screen sharing materials and even the text in the chat box. Still, it is recommended to use computer or laptop as the electronic device.

One current strategy for helping with sudden problems concerning hardware and software is typing in the chat box to let the online teacher know the occurrence is essential, which helps to relieve the awkward moments of

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embarrassment of not hearing both or seeing both freezing on Internet. Jose and Abidin found that in their study some participants actually had this chat function itself disrupted by slow internet networks and system failures by their electronic device, interrupting the participants' posts [15]. This could, however, lead to a learner's occasional writing practice for necessary communication in the online lesson, which could be an advantage.

It is recommended that online teachers try a few more test sessions or even evaluate themselves by recording their own sample teaching demonstration and playing it back to improve before the real online class. Online teachers should also take note of their facial expressions, tone, and body language to see whether they are appropriately shown on screen. In a real classroom setting, as long as the preparation is done well, most of these factors are under control. However, online teaching has a lot of sudden intervention. Therefore, online teachers are also required to be able to quickly adapt to maintain the smoothness of the online class.

5. Conclusions

When learners chose online synchronous one-on-one English learning class, it is important for learners to ensure the learning points have been clearly communicated to the teachers so there is no misunderstanding with respect to the learning targets. Through the online classes, learners should regularly let the teachers know how they feel about the course. Repetition or particularly articulation of certain important aspects, such as pronunciation, in the class should be applied to make sure the message can be conveyed to students accurately. The sense of distant feeling does exist in some cases and teachers can improve it by sharing more about cultures to the learner to close the gap between the teacher and learner in the virtual environment. When it comes to speaking practices, learners, when necessary, can ask teachers to lower their speaking speed, which is more helpful for the message delivery. As for choosing software for the online classes, it is recommended to use known stable programs such as Zoom, Microsoft Teams or Tencent video to maintain the stability of the class and clarity of connection. With respect to hardware, it is better to use headphones and microphone instead of the amplifiers installed on electronic devices. It is also not recommended to use a mobile phone for lessons as the monitor is too small for the reading subject material. Finally, it is also important to choose stable cable or optical fiber for transmitting signals instead of dial-up connection. All these can contribute to a better learning experience online. It was found that student satisfaction was influenced by course quality and the perceived production value, seeing it as more effective [16]. Students were more likely to feel satisfied if they felt motivated to use such online technology on their own. Therefore, while the online teacher tries the best to maintain the course quality, technology is that part that should not be ignored.

There are limitations to this study: this research only involves two interviewees, which may not be a reliable or representative number. In the future studies, firstly, a qualitative approach can be employed first to collect learners' attitude towards the online classes with the use of Likert scale and open questions in a questionnaire. Then, it is suggested that names or identification numbers may be left at the end of the qualitative research questionnaire. The researchers can contact around 10-12 interviewees whose responses are in-depth enough to be explored further. The final results and figures would then be more reliable for a deeper understanding with regards to this issue.

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An Exploration into the Application Value of Critical Thinking in Higher Education from the Perspective of Big Data

Zhenhua Zhou* **Xiaoxia Yang**

School for Marxism Studies, Shanxi University, Taiyuan, Shanxi, 030006, China

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ABSTRACT

Starting from the characteristics of big data, the cognition and thinking of contemporary college students have shown new features. Therefore, it is necessary to use the technical means of big data to formulate thinking under big data, combined with critical thinking. By doing so, students can finally nurture a correct attitude and better morality and even complete the fundamental task of higher education.

1. Introduction

After the "Internet +" Action Plan was proposed in 2015's Government Work Report, the Internet, as a technology carrier, has been integrated with government services, agriculture, healthcare, education, and other fields. Artificial intelligence technology, based on big data, is deeply integrated into everyone's daily life, making Internet higher education based on big data technology achieve unprecedented development. In the era of big data, only by giving a potent combination of big data thinking and critical thinking in higher education, can we effectively tackle the new challenges of the times and explore new ways to adapt to the characteristics of contemporary college students' cognition and thinking.

2. Big Data Thinking: A New Starting Point of Higher Education

The arrival of the era of big data not only means the emergence of a new way of living, but also means the arrival of a new trend of cognitive thought at a higher level, namely big data thinking. What we call big data thinking mainly refers to a way of thinking to know the world based on the use of big data resources and technology through big data. The application of big data thinking to higher education is bound to exert an influence on traditional education methods, educational philosophy, and educational objectives. Thus, there are different views on the definition of the subject of higher education from the perspective of big data within the academic circle, namely the single-subject theory (with educators as the main body) and the double-subject theory (both the educators and the educatees are subjects). This controversy also reflects growing attention to the status of students in higher education in the era of big data. Colleges and universities are the last threshold for most students to enter the society from school, and are also the main place of higher education. The thinking mode

**Corresponding Author:*
Zhenhua Zhou,
School for Marxism Studies, Shanxi University, Taiyuan, Shanxi, 030006, China;
Email: zhouzhenhua@sxu.edu.cn

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is formed by college students before they cross the last threshold directly affects their behaviors in the future.

2.1 New Characteristics of College Students' Cognition

Amid the era of big data, on the one hand, college students break the limits of space in their horizons to a large extent, and on the other hand, the features of big data-4Vs[1] gradually affect the way of thinking of college students, and even play a leading role in their behavior. Although college students step from perceptual knowledge to rational knowledge in higher education, the impact of big data thinking in the process of thinking processing perceptual materials can easily lead to deviations in the final cognitive results. Coupled with the malicious infiltration of the values of Western capitalist countries, the ability of college students to tell right from wrong and discard the dross and select the essential is challenged invisibly, showing the characteristics of fuzzy cognition and confused thinking. Therefore, it is a necessary way for college students, in order to correctly recognize and transform the world, to conduct an in-depth investigation of the necessity of critical thinking in the era of big data, and make big data thinking more precise by cultivating college students' critical thinking in the cognitive process of higher education.

2.2 Cognitive New Thinking of College Students

As far as the accuracy of the data is concerned, the accuracy in the era of big data is different from the accuracy of small data. The accuracy of small data lies in individual accuracy. That is, a single database is only accurate for several individuals. When these data are used to analyze more objects, the greater the number of analyses, the less accurate the data; However, the accuracy of big data lies in all-around accuracy, that is, it may be inaccurate when people analyze a single object with a massive database of big data, but when people use big data to analyze more objects, the more objects analyzed, the more accurate the data. If small data discover the contingency of the development of things, then big data masters the development laws of human society and nature through a large amount of data and precise algorithms, thus exposing the inevitability behind the contingency.

But humans are not machines, and so human brains are different from big data algorithms, because people will be affected by the environment, thinking, and other factors at the moment brains give instructions, thereby losing the accuracy of judging things. As some scholars mentioned when describing the relationship between big data' s necessity and contingency, " in the era of big data, it is the diversification of data sources and real-time rapid processing that enable people to get rid of the interference of contingency and grasp the inevitable" [1]. But in addition to necessity, thinking also influences how people know things, for which people's thinking is characterized by pluralism for other factors as using big data. In higher education, such pluralism is about whether college students can extract the essence from diverse values or get beyond vague appearances to the essence, and during which critical thinking is needed.

3. Critical Thinking: A New Vision for Higher Education

In the era of big data, either people's daily life or ways of thinking are affected by it. Big data not only offers teachers in higher education new teaching approaches and course content, but also brings them challenges for the distraction of various information. Critical thinking training is to help college students acquire the ability of judging, analyzing, and evaluating objective things and to cultivate their subject, as well as independent consciousness, so as to harvest better fruit of higher learning.

3.1 Origin and Development of Critical Thinking

Critical thinking started as a kind of thinking tendency. Socrates of ancient Greek time is the first with critical thinking.The well-known "Socratic dialogue" is just a method of training students' critical thinking ability through conversations. In the dialogues, characters take their stand, question the views of others from own perspectives to finally realize goals of examining themselves and consolidate knowledge.

In the early 20th century, William Graham Sumner, an American social scientist, stressed the importance of critical thinking in *Folkways*. In 1910, John Dewey, the famous American educator, described the idea of "critical thinking" in the book *How We Think* [2]. In 1980s, the U.S. saw a large scale discussion on critical thinking as a teaching approach, after which critical thinking has always been a hot topic in academia, and the consideration over it has never been off the table. However, in China, academia began to notice this concept in late 1980s. As for now, critical thinking has only been studied in China for more than twenty years. And it is at the beginning of the 21st century that critical thinking was come up with to be applied to higher education. So it is even rare to

1 "4Vs" refers to: Volume, Velocity, Variety, and Value.

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talk about applying it to higher education in the era of big data.

3.2 Major Concepts of Critical Thinking

Critical thinking has been variously defined according to the scholars. In *How We Think*, John Dewey defined the essence of critical thinking as "temporarily suspended judgment; and the essence of this suspense is inquiry to determine the nature of the problem before proceeding to attempts at its solution." Dewey believes that critical thinking is "Active, persistent, careful consideration of a belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends". Critical thinking is applied to many disciplines without distinction. *Dictionary of Logic* defines critical thinking as objective judgment, analysis, or evaluation. The aim of judgement is for nothing but that of critical thinking: shortcoming not to be neglected while sensing its strong points, demerit not to be overlooked while noticing its merit. Critical thinking advocates judgment to re-conceive and reshape in pursuit of better result [3].

Therefore, critical thinking is the combination of deconstruction and construction. Higher education is a process from externalization to internalization and then externalization, in which the internalization is the process of deconstruction and construction. As to understanding higher education from the perspective of critical thinking, some scholars believe that "to understand higher education rationally with critical thinking refers to the thinking process in which people with social attributes systematically analyze and study the practice of higher education with Marxist judgment spirit, aiming to explore the inherent law behind the phenomenon, to shed light on the nature of objective things, so as to think and judge in a scientific and rational manner." [4] To understand critical thinking from the perspective of higher education refers to that students acquire the ideas, grasp the inherent law for development of things, and have the thinking ability to guide their own actions in understanding objective things.

3.3 Educational Function of Critical Thinking

Critical thinking training is a process from conscious to unconscious, and its core is "to question". This paper believes that questioning is not only to find the answer to the question, but also, as the core of critical thinking, when it is applied to higher education, educatees should have the consciousness to know why. In American academia in the 1990s, among the discussion on the definition of critical thinking, some scholars mentioned that "generally speaking, critical thinking is rational, evaluative and self-reflective thinking". [5] "Self-reflection" is the new outcome of discussion, and the "self-examination" proposed by other scholars is actually also self-questioning. This paper holds that self-questioning is the premise of analyzing, evaluating and judging other objective things for college students. The standard of judging things right or wrong is objective, but people are subjective when using such standard to judge. After all, it is the thinkers who solve practical problems on critical thinking, so only by cultivating the self-questioning consciousness of college students can improve their correctness of judgement in the era of big data.

In the cultivation of critical thinking, many scholars emphasize the cultivation of critical thinking ability. Some people think that "critical thinking knowledge", "critical thinking skills", "critical thinking attitude and habits" are the components of critical thinking activities, and the attitude and habits are at the core of guiding knowledge and skills [6]. The priority for higher education is to cultivate the critical thinking attitude,which is a process from externalization to internalization.

Here is a distinction between "critical thinking attitude" and "critical thinking habits". "Attitude" is a kind of consciousness, which is a critical thinking for objective things and also a tendency and choice in thinking for college students who are receiving or after receiving higher education in the era of big data. The second is to cultivate students' ability of critical thinking, where "ability" is equivalent to "skills", which means that college students have critical thinking ability and can use it to analyze and solve problems during and after receiving higher education in the era of big data. The last is to form the habit of critical thinking. The "habit" here is actually an instinct, an unconscious process, and also the ideal goal for the application of critical thinking in higher education. It refers to the ability of college students to use critical thinking instinctively when understanding objective things and solving problems in the era of complex big data during and after receiving higher education.

4. Critical Thinking Cultivation of College Students: New Path for Higher Education

The era of big data brings challenges and opportunities to higher education. Universities are the main front of higher education. In the era of big data, on the one hand, the integration of big data and classroom is advocated. Certain progress has been made in class reform but phenomenon of "one voice" chaired by teacher unchanged so that a gap remains between reality and ideal. On the other hand, tremendous amount of information in the

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era of big data will inevitably be mixed with useless information. College students will struggle with the useless information without protection from school, thus improving the cognitive ability of college students and consolidating the values of them, which are significant for them when came along society.

4.1 College Students' Critical Thinking Cultivation is a Realistic Need of Higher Education Reform

Although higher education has entered the era of big data, the plan of teaching reform more urgent, but it is actually at the intersection of traditional teaching mode and teaching mode in the era of big data from the perspective of the overall effect of teaching reform. In fact, big data has brought only a change to the higher education of most universities in form, but has not truly achieved the complete integration of big data and higher education.

At present, the reason why college students lack interests in the teaching content is that, on the one hand, the teaching content itself is boring, and on the other hand, the teachers ignore the cultivation of students' thinking in the process of teaching but just instill them the subject knowledge constantly. Firstly, teachers can develop students' critical thinking attitude when teaching the text, guide them to think actively, establish the spirits of questioning objective realities. In the process of constantly questioning --- answering, re-questioning --- re-answering, students can master the essence of the things' development, so as to stimulate students' interests in learning and desire for seeking knowledge. Secondly, teachers can further cultivate students' ability of critical thinking, so that they can take the initiative to find problems, think about and answer them without the guidance of teachers. Finally, after the students skillfully use the ability of critical thinking, they can form the habit of critical thinking. That is, they can actively use critical thinking to think about problems unconsciously.

The role of critical thinking in teaching reform is to return the classroom to students from teachers. Through the cultivation of critical thinking, students can learn actively, so as to effectively improve the phenomenon of "one voice" chaired by teacher and promote the higher education reform.

4.2 College Students' Critical Thinking Cultivation is a Thinking Weapon for College Students to Survive in Society

As a kind of thinking ability, critical thinking is the development goal that individuals should pursue. It is both a worldview and a methodology. College students' higher education must eventually be in line with society, not only to enrich the knowledge, but more importantly, to shape their own abilities and values. The cultivation of critical thinking plays an important role in the improvement of cognitive ability and the establishment of values for college students when they enter the society.

On the one hand, critical thinking cultivation is an integral part of college students' cognitive ability. Active mind and being good at thinking and distinguishing are the outstanding characteristics of college students. At this stage, institutions of higher learning usually train students' creative and critical thinking, so as to improve their ability and habit of thinking independently. Big data era is synonymous with "information explosion era". Big data is pursued by the public for it can realize information collection, screening, analysis and integration in an instant. In terms of quantity alone, information delivered by big data to college students can range up to tens of thousands, and each piece of information is testing the cognitive level of college students. The cultivation of college students' critical thinking is different from the direct teaching of theoretical knowledge, which is a method of "teaching them to fish" and a kind of ability cultivation. It can not only guide college students to study diligently and think, but more importantly, can keep them levelheaded when they face the disturbances in the society.

On the other hand, critical thinking cultivation is necessary for college students to shape their values. College students are both good at exploring new things and accepting new things. Some erroneous, false and malicious information may be novel, special and acceptable to college students. To a large extent, higher education achieves its teaching purpose through the transmission and influence of mass information. Similarly, college students may also be influenced by the constant clicking and reading of other information, thus affecting the shape of correct values. The cultivation of critical thinking is to build up the ability to distinguish information. The stimulation and influence of external forces are to stimulate their own ability. Critical thinking is a kind of self-ability. College students will eventually step out of campus. Without the help of teachers, they should be clear with and stick to their own values, stand firm at all times and avoid drifting with the current.

In conclusion, in the current rapid development of the Artificial Intelligence technology in educational application, the critical thinking based on Big Data has been more and more important, especially in teaching management, teaching content, teaching strategies

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selection, teaching evaluation and so on. It has a great significance in such aspects, and represents the future direction of the higher education.

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The Impact of the News Frames on Report of the 2020 Pandemic in China's National Media

Hai Tang* **Zhe Zhu** **Lihong Qi**

School of Foreign Languages, Wuxi Taihu University, Wuxi, Jiangsu, 214063, China

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ABSTRACT

News frames is a general application of the Frame Theory in journalistic practice, and the setting of the Frame Theory in news media, to some extent, may make the news agency have more choices of the topics, more channels of the report, and more impacts on readers and audiences. It is for this reason that news media are very interested in setting up their news frame to guide their reportage. It won't be surprised that when important affairs took place, the media set a theme for their coverage; while at the same time, audiences recognized that they are allowed to know the facts as well to evaluate the events properly. The coverage of disaster news is one of the concrete examples. However, when reading the reportage framework of the news in China, it can be seen that media would be likely to set similar frames for the focus of the report, and this potentially created complexity and difficulty in analyzing disaster news events in terms of content classification, reporting form, and news-making on effectiveness. The outbreak of the 2020 COVID-19 gathered media to work on a centralized proposal – anti-epidemic, so that textual, audio-visual contents and other forms of reporting show a diversified perspective for disaster news. This reporting form is a new challenge for Chinese news media, reflected in their practice on how Chinese government and people fought against the virus, how Chinese medical community dispatched their team to assist COVID-19 fight, and how Chinese media responded to the vilification of foreign media during that period. This paper takes three established media *Hubei Daily*, CCTV and *China Daily* as examples for an in-depth analysis.

1. Introduction

Disaster news refers to disaster events that would potentially impact on people's daily life, health and property. Disaster news report is a special form of news agency, to some extent, it may guide the media to find proper angles in its reportage, or, to solve problems the news media have to face, also, it is an inevitable requirement for media to optimize the effect so as to impact on public opinions [1].

While it is known to all that a disaster can always take place in a sudden, with features of being unpredictable, changeable, live or fleeting. Often when a disaster event occurs, media coverage becomes rather important. They play a role in appeasing the public, questioning authority and undertaking social functions [2]. It is fair to say that Chinese media have learned a lot of lessons through reporting on 2003 SARS incident, and their reportage on disaster events becomes more open and transparent.

However, if we take an in-depth look at the Chinese media reportage, it won't be difficult to find that news-making from the media, still, is lack of common consensus

**Corresponding Author:*
Hai Tang,
School of Foreign Languages, Wuxi Taihu University, Wuxi, Jiangsu, 214063, China;
Email: carlatube@qq.com

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guided by the news frame, leading to a lake of rationality commented by the public or a lack of continuity practiced by journalists so that a total public credibility could be missing [3]. But the coverage of the epidemic in 2020 has greatly strengthened the credibility of the Chinese media, and one of the important reasons might be that, the media start to know how to use the Frame Theory to guide their reports, and to guide the direction of public opinions.

We all remember that at the beginning of 2020, an outbreak of COVID-19 widespread media attention both at home and abroad. Domestic media used multiple means, through a variety of their news channels, to actively participate in reporting of the pandemic events. What are the focus parts of their reporting? And how the pandemic impact on their own news frames of the news media? By raising the two questions, this paper aims to take three national media CCTV, *Hubei Daily* and *China Daily* as representatives for an explanation.

The setting of the structure of this paper is divided into four parts; besides the above taking the role of an introduction, the next section will focus on the importance of the Frame Theory and how different media use it in practice. The third section takes China's three media, CCTV, *Hubei Daily* and *China Daily* as specific examples to show the news contents the three media have disseminated, while it also argues that not the contents itself but a centralized proposal of the news frame as the base and the keystone for guiding their reports to win public credibility during the outbreak. The last section is in relation to conclusion. It again argues that, in fighting against the COVID-19 epidemic, how important for media to set a central proposal of news frame, to some extent, it is the news frame that has offered more possibilities to increase China's discourse power.

2. Framing Theory, Frame-centered Representation and the Use of News Frames in Doing Disaster News

The Frame Theory was established by Marvin Lee Minsky, and it soon becomes an important method used in qualitative studies. On one hand, it focuses on the study of psychology, for instance, "cognitive science" is used as one of the frameworks. "Topic-setting" is a familiar example and is used to ask students to discover differences or specificities from the existing resources. The process of thinking about the topic may rely on a group of students, their cognition in understanding the keywords, the phenomenon, or the emphasis in relation to the topic. As Cai Shushan addressed:

The birth of cognitive science has provided a framework for the integration of multiple disciplines and heralds a new area of scientific synthesis [4].

On the other hand, the focus of the Frame Theory is on sociology studies. Erving Goffman borrowed the term "frame", which was coined by Gregory Bateson, but he then expounded the theory in communication studies.

From an anthropological perspective, human interaction is composed of multiple factors, such as shared cognition and identity, environment for communication and so on, all of which can be the frame used to determinate the quality of communication [5].

Obviously, Goffman opened a door for scholars to use the Frame Theory for working on communication studies. Then [6] took message as the frame to analyze people's health behaviors. And [7] analysed the attachment behaviors of tourists by setting the goal as the frame for their study.

The Frame Theory has been used frequently in media studies in recent years. For instance, news frame is an application of Frame Theory to guide journalistic practice in media. It is a fundamental outline for media organizations to collect news sources, edit news reports and disseminate them to the public [8].

Research on the news frame in China focuses on the function of the media in making news such as big media set frames for political communication; or medical journals set frames for delivering medical sources. Specifically, the setting of the news frames is also applied by media to do comparative studies such as domestic news vs. international report [9], or how a genre-based event deconstructed by different media [10,11]. In this sense, the news frame shows journalistic strategies and the value of the report cognized by the media.

The concept of "News Frames" is used in academia to study how the media report a particular event. In this sense, selecting topics and editing messages are very important for journalistic work. In addition, much of the attention shall be paid on balancing the contents; the encoding of the message shall be satisfied with the one decoded by readers. In other words, comments, attitudes, and beliefs of the media may impact on audiences, to some extent [10].

Talking about genre-based event, disaster news shows its particularity. Its harmfulness, danger, suddenness and higher sensitivity always force a speedy reportage from the media, so as to make timely reporting to meet the public needs, and allow the public to know the truth and to reduce the fear.

Chinese media have made great progress in reporting of disaster news in recent years. For example, when the Wenchuan earthquake occurred at 9:19 PM on August 8, 2017, its local TV station immediately published the event

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[9]. At the end of October 2019, the Paper.cn lively reported a bridge collapse event in Wuxi [12]. At the beginning of 2020, COVID-19 shown as strong virus and it acted as the biggest disaster news in China. Chinese media used an integrated news frame to report on the event, reflected in the process of how China fight against the epidemic, how China prevents it from wide spreading, and how China make great measures to save lives, as Shen Yurou argued:

The COVID-19 epidemic gives priority to media for fulfilling their discursive power. As a consequence, there shouldn't be only one voice, or few media to control the information. Instead, media shall set the frame for working on their reportage, by providing sufficient and accurate information to comfort the public [10].

It can arguably say that, how media report on disaster news will potentially affect the emotion of the audiences. In the following section, the focus of the paper will be given to three established media in China: *Hubei Daily, CCTV and China Daily*; they will be used as representative news media who used the Frame Theory in reporting on the pandemic. Then, what are the features of their reports?

3. Analyses of the Media Report on the Pandemic in 2020

From January to August 2020, lots of news organizations involved in reporting on the pandemic events. 21 of them were impressed by the public, according to *Yidianzixun*[1]. 17 of the agencies were related to the introduction and the updated information on the outbreak, including recent deaths, cured patients, and results of new treatment[2]. Around 47% of the articles focused on the prevention of the virus, and reposted articles were over 100,000. Average 48% of the contents concentrated on the sides such as hygienic knowledge, the effect of the pandemic on both daily life and national economy and the other[3].

This paper will choose 3 of the 21 news-media, *Hubei Daily*, CCTV, and *China Daily*, with both discourse and content analyses to see how the three national media set up their news frame for their specific reportage. The timeline of the research was in 3 months, from March to June in 2020.

4. Hubei Daily: Much of the Attention was Paid on Humanistic Care

Hubei Daily was founded on July 1, 1949. It is an official newspaper of the Hubei Province. The newspaper publicizes news and information orientating the development of Hubei province in industrial, agricultural, scientific areas, highlighting role models on all fronts.

According to cnhubei.com, during the outbreak, *Hubei Daily* published more than 60,000 reports, and the newspaper launched more than 1,100 special editions, along with 60 more columns; it posted 40 more pictures regarding topics to pandemic and attracted more than 70 series of comments[4].

> *[Hubei Daily] This might be a war without smoke, and in Wuhan, everyone is trying to fight against the virus and protect life. Some people even have to stay awake all night. They are doctors, nurses, drivers, cleaners, receptionists, etc.; they might be very ordinary, but without them, the city of Wuhan won't be safe. (02/03/2020, reported by Deng Wei and Chen Peng)*[5]
>
> *[Hubei Daily] The Hubei Government recently assessed 14 people who died in the prevention and control of the COVID-19 as the first martyrs, according to official documents. (02/04/2020, reported by Wuhan, Xinhua Net)*[6]
>
> *[Hubei Daily] On the May Day Holiday, President Xi Jinping wrote back to employees of Zhengzhou Yuanfang Group on April 30, sending greetings to all the people in China. (01/05/2020, reported by Beijing, Xinhua Net)*[7]

From reading the paper we can see that, from March to May 2020, *Hubei Daily* reported the outbreak in the form of a doctor-patient relation, with medical-team assistance, and experts' guidance. Also, the newspaper

1 Chuanmeijiangwen (29/02/2020). Official Investigation: These Media have Impressed the Public during the Outbreak (in Chinese). Available at http://www.yidianzixun.com/article/0OkJWl4L. [Accessed on 04/20/2021].

2 Zhangmenmiao (30/01/2020). Reportage of the Epidemic in Chinese Mainstream Media. Available at http://www.shopmall.org.cn/a/kuaixun/redianzhuanti/2020/0130/1208.html. [Accessed on 18/11/2020].

3 Dongtaidacaikao (02/02/2020). Analyses of the Epidemic Reportage on 13 National Media in China. Available at https://baijiahao.baidu.com/s?id=1657393394865526960&wfr=spider&for=pc. [Accessed on 18/11/2020].

4 See Hubei Daily Won the Prize Again (13/12/2020). Available at https://www.sohu.com/a/437949928_119861. [Accessed on 07/02/2021].

5 See Deng, W. and Chen, P. (02/03/2020). Working Day and Night to Fight Against the Virus: Approaching the Great People in Wuhan (in Chinese). Available at https://epaper.hubeidaily.net/pc/content/202003/02/content_22334.html. [Accessed on 04/02/2021].

6 See Wuhan, Xinhua Net. (02/04/2020). The 14 Victims in COVID-19 Epidemic in Hubei Were Assessed as the First Martyrs (in Chinese). Available at https://epaper.hubeidaily.net/pc/content/202004/03/content_24652.html. [Assessed on 04/2021].

7 See Beijing, Xinhua Net. (01/05/2020). President Xi Jinping Wrote back to the Workers of Zhengzhou Yuanfang Group to Encourage them to Overcome difficulties (in Chinese). Available at https://epaper.hubeidaily.net/pc/content/202005/01/content_28273.html. [Accessed on 04/02/2020].

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showed much of the respect to ordinary people who sacrificed their personal comforts during COVID-19 outbreak. The keywords or the key phrases like "the moment of the lockdown", "saving people's life", and "positive consequences of the anti-pandemic" were used frequently to explore how Wuhan residents fought against the COVID-19. And, President Xi Jinping's greetings and encouragements also highlighted the achievements of Wuhan people and their ways of anti-epidemic. In short, the reports conveyed a humanistic care to the public, by stressing a societal function of the media as news frame. In other words, the news frame set by *Hubei Daily* is not only on the outbreak, or understanding of the outbreak, but is also on addressing the great anti-pandemic spirit among doctors, patients and Wuhan residents, thus, the reportage in 2020 showed a great love for life in *Hubei Daily*.

5. CCTV: The Content of the Report Focused on Maintaining the Image of China

CCTV (China Central Television) is the national television station of People's Republic of China. It was established on May 1, 1958. CCTV has been talking the role of disseminating important news since its establishment in all directions, such as news information, socio-cultural life, entertainment, high-tech and so on so forth.

From the announcement of the outbreak in 2020, major news platforms of the CCTV have never been interrupted by their linkage to disaster news reportage. For example, a popular column of CCTV – "News 1 + 1", it not only invited Zhong Nanshan, Wang Chen, Li Lanjuan and other experts to explain the virus, but also it connected with local officials to discuss issues relating to health crisis so as to push updated information open to the public[8].

> *[CCTV News] From today onward, CCTV will consistently broadcast its prompt commentary on "Building a Strong Public Health System in China. (03/06/2020)*[9]
>
> *[CCTV News] The National Health Commission today informed that as of June 9, 31 provinces have reported 55 confirmed cases, of which 54 were imported from abroad, and 5 new cases were asymptomatic coronavirus carriers; among the existing confirmed cases imported from abroad, there have been no further infections within 15 days, and patients are gradually recovering under clinical observations. (10/06/2020)*[10]
>
> *[CCTV News] CCTV will broadcast its prompt commentary on the policy of "Ensuring the Safety of people's Lives in the First Place" in China. (29/06/2020)*[11]

The above examples are excerpted from CCTV's News Broadcasting Programme. From reading the contents we can see that, within the month of June 2020, CCTV News Broadcasting aired relevant outbreak information, while differently from *Hubei Daily*, it related to how government-led anti-pandemic policies and activity executed, and how significance the implementation of the policy benefits Chinese people. A series of important information such as "no deaths but an increasing number of cured patients", and "discussion certain approaches to save people's lives" indicate a strong signal of Chinese government in leading China to the positivity in emergency rescue and disaster relief.

6. China Daily: Re-emphasis of the Dominant Function of the "Mouthpiece Theory" on Chinese Media

China Daily is an English-based newspaper founded in 1981. It is an important window for Chinese people to understand the world, as well, it allows the world to understand China. During the outbreak, *China Daily* published a series of reports focusing on telling real stories of China, giving full play to the strategic supporting role of "the mouthpiece" in China's media management.

[*China Daily*] We are deeply shocked by your report on March 29 as China's anti-epidemic efforts have been seriously ignored, discrediting China's great contribution to the World Health Organization. The Chinese Embassy in the United Kingdom has expressed its dissatisfaction with the British Government and requested clarification on report and statements. (08/04/2020)[12] 引用

8 See *What Have CCTV and Other Official Television Stations Done during the outbreak?* Available at https://www.sohu.com/a/370273859_100097343. [Accessed on 07/02/2020].

9 The original context can be seen on https://tv.cctv.com/2020/06/03/VIDEwdcYtgWPtIrWwJz7IbQl200603.shtml?spm=C53156045404.PIxDNolGigyV.0.0 (*What does the Result of Covid-test Mean to Wuhan?*) [Accessed on 07/02/2020].

10 The original context can be seen on https://tv.cctv.com/2020/06/09/VIDE8iWUngyWOWLtjGeFo3UW200609.shtml?spm=C53156045404.PIxDNolGigyV.0.0 (*How to Improve a Public Health Emergency System?*) [Accessed on 02/07/2020].

11 The original context can be seen on https://tv.cctv.com/2020/06/29/VIDEqP9vlVmJiILPiZ2KKqE3200629.shtml. (With Tens of Millions of Confirmed Cases outside China, is it Going to be Out of Control?) [Accessed on 02/07/2020].

12 The original content can be seen on http://cn.chinadaily.com.cn/a/202004/08/ WS5e8cfc9ca310395ca8f743cc.html (*Liu Xiaoming: Don't Blame China, We Want to Beat This Together*). [Accessed on 02/11/2021].

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Figure 1. Previous US president Donald Trump

Source: https://baijiahao.baidu.com/s?id=1665406318741737727&wfr=spider&for=pc

Figure 2. Spokesman Geng Shuang on China's Foreign Press Conference

Source: https://baijiahao.baidu.com/s?id=1665406318741737727&wfr=spider&for=pc

> *[China Daily] WASHINGTON (Reuters) – President Donald Trump said on Wednesday he believes China's handling of the coronavirus is proof that Beijing will do anything they can to make him lost his re-election bid in November. (Cited in Steve Holland)*
>
> ...
>
> *In response, our spokesman Geng Shuang said at a regular Foreign Ministry Press Conference on April 30 that China had no interest in interfering in the U.S. election. (30/04/2020)*[13]

The above two examples were reported by *China Daily* in 2020. From the first contexts we see that, as the *Sunday Express* in Britain have misrepresented China's success in fighting against the epidemic, Ambassador Liu Xiaoming gave the media an immediate counter-attack. The second report illustrated Donald Trump's usual style, by imposing his nonsense on western media and his sinister willingness on China. However, Trump was constantly hit by spokesmen from China's Foreign Ministry and the state media in China (see Figure 1 and 2).

Judging from the coverage of the outbreak, it is ironically to say that western media reporting of disaster news does not seem to own the freedom that they used to have, and this partially has caused a prevention of the disease towards chaos. While the case of the *China Daily* emphases on "group images" built by China, the rescue teams, the achievement, and the arguing with the West, are efforts at all levels of Chinese government to contest anti-Western rhetoric and politics; by paying more attention to a stable and coordinated development, China's collectivism-based value orientation show certain advantages during the outbreak.

7. Conclusions

Chinese media in the coverage of the outbreak in 2020, reported the events regarding both "mouthpiece" and "societal" function of the media, with coordinated and unified characteristics [13]. It is a stabilized social order with a secure national image of China that has guided Chinese media a fundamental outline to report on the disaster news.

Under such a settled news frame, the media coverage of the COVID-19 pandemic would focus more on what a positive and determined approach supposed to be [9]. As seen from the above media, *Hubei Daily* reported the treatment by medical staffs, CCTV broadcasted in a timely manner to eliminate potential tragedies of the disaster, and *China Daily* worked on the attack from the West, all of which are respective news frames set by the three media, disseminating focused events to the public.

The temporary victory of the pandemic in China certainly has aroused the Western media to rethink the theme of reporting on disaster news, whether it shall be reflected only in its humanitarian or instructive scales, to a certain extent? As the ultimate goal of reporting disaster news is to awake people from understanding the nature towards respecting the nature, it also raises a severe question to China or Chinese media, when is the plan of developing the domestic green industry? Or what is the strategy to essentially protect an ecological environment? This might be the new news frame set for China, Chinese government, Chinese people especially Chinese media to think and to do for global development in post-pandemic times.

13 The original content can be seen on http://cnnews.chinadaily.com.cn//a/202004/30/WS5eaa915ba310eec9c72b6854.html (*Trump Says, China Will Try Harder to Defeat the Election of the U.S., Foreign Ministry of China: We Have No Interest at All*, reported by Wu Yuanchun). [Accessed on 03/11/2021].

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Study on the Connection Problems and Countermeasures of the Integration of Ideological and Political Courses in Colleges and Primary and Middle Schools

Hao Zhang Rui Zhang*

College of Marxism, Xi'an University of Technology, Xi'an, Shanxi, 710048, China

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ABSTRACT

The integration of ideological and political curriculum which exists in colleges and compulsory education is a powerful guarantee for enhancing the effectiveness of the course. Putting theoretical content as well as teaching practice into effect contributes to every improvement and new idea about the curriculum. Facing the new circumstances, new tasks, and new challenges under the social background, it is necessary to reinforce the connection of the integration of the subject in universities and colleges and compulsory education, and take problems as the research direction for the sake of expanding the channels for courses ideological and political construction, and understand the integrated evolution of ideological and political theory courses of undergraduate and specialist education and compulsory education to a higher degree. Grasping the current situation and problems of the theory curriculum in colleges and compulsory education, and exploring the content of the theory in undergraduate and specialist education and compulsory education are of great significance, both in the integrated construction of ideological and political theory courses of undergraduate and specialist education and compulsory education and in making the best of the courses to implement the basic task of fostering people.

1. Introduction

Ideological and political courses, as a systematic new educational project to cultivate people, make great contributions to lift the connotative progress of the curriculum, which request the organic connection of undergraduate and specialist education and compulsory education in the dimensions of time and space. In March 2019, the President of China pointed out at the teacher's symposium about the theory that taking the overall plan in consideration to elevate the integrated construction of political courses in undergraduate and specialist education and compulsory education as a significant project to accelerate the connotative progress of the curriculum is essential [1]. In August 2019, *Several Opinions on Deepening the Reform and Innovation of Ideological and Political Theory Courses in Schools in the New Era were issued by* the General Office of the CPC Central Committee and the General Office of the State Council, which has clarified that the construction of ideological and political courses in schools in the new era should be planned as a whole so as to accomplish the basic connection and integration of the teaching material system, teaching content, and teacher training of undergraduate and specialist education and compulsory education. It has

**Corresponding Author:*
Rui Zhang,
College of Marxism, Xi'an University of Technology, Xi'an, Shanxi, 710048, China;
Email: 11394141@qq.com

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further clarified the integrated establishment of ideological and political courses undergraduate and specialist education and compulsory education [2]. Thus, for the sake of promoting the overall construction of ideological and political courses in undergraduate and specialist education and compulsory education, it is necessary to break the object that emphasizes form and neglects moral education, to prevent the lack of connection of education goals, content and standards, to eliminate the negative slack of the curriculum in the co-construction and sharing system, to comprehensively enhance the construction of the courses and moral education. Meanwhile, to integrate the resources of the subject in undergraduate and specialist education and compulsory education, to promote the seamless connection of theoretical and practical ideological and political courses, and to cooperate to promote a new layout for the integration of the courses in undergraduate and specialist education and compulsory education.

2. The Necessity of Connecting Courses Teaching of the Ideological and Political Theories in Undergraduate and Specialist Education, and the Moral Education of Primary and Secondary Schools

It is at the work conference national ideological and political education for undergraduate and specialist education that the top leaders of the Party of the country stressed that the ideological and political theory courses are the key courses in terms of the basic task of strengthening moral education and cultivating people, which run through universities and colleges and primary and middle schools. Various courses must be combined with the curriculum teaching in the accordant orientation and start to exist and develop a synergistic impact. The subjects of ethics and rule of law in primary and secondary schools are basic courses which guide students to establish correct values, while the theories teaching in undergraduate and specialist education is the principal channel and soul curriculum which is responsible for effectively and efficiently carrying out the Party's educational policy, reinforcing moral education and fostering people's fundamental tasks. The system construction of the theory teaching in all courses requests that all the course teaching are supposed to stick to the right political direction, grasp the overall direction of curriculum development and subject moral education construction under the background of promoting the integration of the course in undergraduate and specialist education and compulsory education, clarify the connection and guidance of the theories teaching along with moral education in elementary and secondary schools in the education and teaching system, deepen the reform of school curriculum education, make the curriculum system better than before, explore the intersection of curriculum ideological and political development and moral education development with socialist values guiding, and completely comprehend the coordination as well as resonance of ideological and political elements in the educational function for the sake of establishing a common discourse system which satisfies the demands of contemporary students, promote the innovation of reinforcing moral education and fostering people, realize the requirements of advancing with the times, cultivate newcomers in charge of national rejuvenation [3], and meticulously paint a necessary blueprint in the completely new era in terms of constructing universities curriculum ideology and moral education in elementary and secondary schools.

3. Problems Existing in the Connection of Ideological, Political, and Moral Education in the Courses of Undergraduate and Specialist Education and Compulsory Education

There is a phenomenon that ideological and political curriculum in undergraduate and specialist education and compulsory education attaches great importance in form and neglects moral education

The Party's top leaders made a totally new judgment on the role of the education. At the beginning, they proposed that education was the country's major project and the Party's major project, who put education at an unprecedented height and took cultivating builders and successors of socialism developing in their appreciation of aesthetics and in the matter of their moral, intellectual and fitness level as the main part at the National Education Conference. Among the comprehensive development of labor, "moral education" ranks first, and young students gradually foster their outlook of life in the crucial period of elementary and middle school. It is very significant to receive quality and moral education, however, in the actual elementary and middle school education, moral education is seriously formalized and marginalized. Only carrying out moral education in the courses may easily lead to the "two skins" phenomenon with other curriculum education, which leads to a loose connection between classroom teaching and practical teaching. Ideological and political courses are not carried out through practical activities, but only constant indoctrinization, which makes it difficult for students to get the correct ideas into their minds. Besides, the content of moral education is facing

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a serious "outdated" problem and the content of moral education can't keep up with the trend of young people's thinking, which is too old-fashioned. In the meantime, the construction of moral education is also influenced by society. As economic development develops, such as "money worship", "hedonism" and other wrong thoughts, as well as the development of network technology, primary and middle school students are more likely to be exposed to bad information and moral education is facing more and more challenges. Thus, the integration of the courses can only improve classroom teaching effects through overall planning and reasonable layout.

The content of ideological and political courses in undergraduate and specialist education and compulsory education, is not closely connected

The curriculum concept separates itself from practice, which lacks compatibility. The ideological and political courses in compulsory education are divided into four parts: mental health, morality, law, and education in national conditions at the junior high school stage. However, influenced by open-book examinations and lower scores, the degree, to which politics courses in junior high schools are valued, is generally not enough. The ideological and political courses in senior high schools are divided into four parts: politics, economy, culture, philosophy, which are compulsory courses. The curriculum evaluation lacks quantitative and unified standards, and their standards are unclear. Due to branches of the college entrance examination and due to the fact that the particularities of physics, chemistry, biology and other subjects are difficult to be related to teaching ideological and political theories, there is a serious polarization in the theories teaching in elementary and secondary schools.

Curriculum evaluation is only based on subject scores. Therefore, the level of the courses of "students majored in science" at universities is generally not as good as "students of liberal arts", which is also the reason why schools have difficulty in enhancing the integrated implementation of ideological and political courses in undergraduate and specialist education and compulsory education. Meanwhile, college teachers in the theory teaching have insufficient understanding of elementary and secondary school textbooks. Besides, their teaching is independent of each other, which lacks cooperation. Furthermore, the evaluation of ideological and political courses in undergraduate and specialist education and compulsory education also has a separate system at the practical level, which separates from each other and which is independent of each other [4]. The content of the courses in elementary and secondary schools may be too different from that of the ideological and political courses in compulsory education. What's more, the repetition of the content of the curriculum is redundant and the coherence is not strong. Since the ideological and political curriculum in undergraduate and specialist education has added the legal content that are seldom in the primary and secondary schools' courses, it is relatively difficult for students to accept. The ideological and political courses of colleges and universities are too superficial in terms of legal content, and the pointed education of undergraduate and specialist education and compulsory education overlap, and some of the content is incapable of satisfying students' demands when they enter society from school. Thus**,** Not only should more attention be paid to the connection in the disciplines at the primary and secondary schools, but university education should also take into account how to continue to implement the theory education. In this way students can not only broaden the horizons but also understand the demands of various subjects and stages and the experience of mutual connection, thereby making it a complete and organically connected curriculum content construction system.

The system of co-construction and sharing of ideological and political resources in undergraduate and specialist education and compulsory education is weak

The foundation is to co-construct and share the subject's resources in undergraduate and specialist education and compulsory education, while sharing is the goal. Under the background of informationization, the advantages of informatization, digitization and intelligence in the subject system are not obvious. Factors such as regional issues and development level issues always influence the judgment of value identity and emotional morality. First of all, the way teachers of the courses in universities and colleges and primary and middle schools cooperate with each other is relatively simple, which lacks academic research and has their own characteristics. Teachers in colleges, universities, middle schools, and primary schools can only study the teaching of curriculum education corresponding to this stage, so it is difficult to co-build and share an integral and cohesive education system. Secondly, some teachers have deviations in their understanding of the combination of curriculum resources and information technology. If they simply regard information technology as the tool, gradually suffer from passive slackness and laziness in teaching, and have a weak sense of sorting out the knowledge structure and core content of textbooks, it

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will be hard for them to start from the overall situation. And the students will be easy to have a slack mood in the learning process. Thirdly, due to the different personnel who formulate curriculum standards in primary and middle schools, as well as universities, the total planning of curriculum standards in different stages lacks a sense of co-construction and sharing, and the university-related ideological and political curriculum standards have not been unified, which leads to the problem of convergence and which is a prominent problem before educators.

4. The Connection of Ideological and Political Theories Education in Undergraduate and Specialist Education with Subject Moral Education in Compulsory Education

The integration of the subjects courses which are in undergraduate and specialist education and compulsory education works as a whole, and the different phases of education are interconnected. The previous stage is the gradual and foundation of the next stage, while developing and improving the previous stage are followed closely. The elementary school phase is the enlightenment moment with regard to students to "seed", the middle school stage is the growth period for students to "grow", and students can mature to "booting" in the university stage. In the common cause of cultivating newcomers of the age, the referred courses of colleges, elementary schools and secondary schools are all "Golden Lessons", which is an inseparable organic part. The "discipline moral education" in elementary and secondary schools and the referred theories teaching in undergraduate and specialist education and compulsory education are a consistent entirety. In allusion to the problems and challenges arising from the theories teaching in the elementary and secondary schools, the reasons and results of the theories teaching in all curriculum should be analyzed in detail so as to fundamentally build an ideological and political system that meets the demands at any time, coordinate the effect of the structure of the theory in the same orientation, draw a well-integrated "concentric circle", and build a new pattern of collaborative teaching of the relevant subject curriculum.

Improve the layout of emphasizing forms and neglecting moral education

Firstly, schools should adopt different educational methods and teaching methods for students of different grades, position moral education goals scientifically and rationally, firmly grasp the content, methods and ways of moral education, and design the rationale as a whole, and take the integrated constructing of the curriculum on ideological and political teaching of colleges and elementary and middle schools as the guidance, deeply enhance the integration of moral education of "strengthening moral education as well as cultivating people", and build a large pattern of the courses, thereby making moral education penetrate layer by layer and organically connect, and promoting the core values of socialism from mind internally and simultaneity externally. Secondly, as the builders of moral education and the "mainstay" of the construction of the curriculum, college and university teachers must be in possession of a high level of profound and professional knowledge and a richer ideological and political practice and theory, and organically combine the two in the teaching process of profound and professional courses for the purpose of strengthening students' awareness of moral education and stimulate their enthusiasm for the referred education. Finally, in response to the passive impact from society, schools should take the initiative to meet the challenge and launch different ideological and political education for different wrong thoughts. Meanwhile, they are supposed to "concentrate on the concerns of young people" as well as the constantly updated moral education concepts. And they should be good at using the positive aspects of new social thoughts to guide and educate students. Thus, When it comes to teaching and educating people, scientific inquiry, and teacher growth and development, it is very essential to come to know the integrated establishment of ideological and political teachers in universities and colleges and primary and middle schools, coordinate the curriculum setting system, and improve the channels for ideological and political establishment.

Improve the integrated connection of ideological and political courses in undergraduate and specialist education and compulsory education

Ideological and political courses in colleges, middle schools and primary schools are the key courses for the basic task of providing temporary morality. Educational authorities at all levels should build and improve the relevant systems and mechanisms for the integrated establishment of the courses on the subject in universities and colleges and primary and middle schools, straighten out the relationship, and do a good job of linking up the curriculum standards at different stages in order to make sure that the content of moral education courses in colleges and elementary and middle schools is well connected with the relationship between textbooks at various stages during the teaching process. In accordance with this requirement, teachers of ideological and political curriculum in colleges are supposed to take the initiative

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to study the teaching materials of compulsory education, grasp the overall requirements of the courses, promote the coordination and cooperation of the education on the subject in different stages [5], and go deep into the classrooms of elementary and secondary schools. On account of research, in accordance with the requirement of the courses on the subject in universities and colleges, they are expected to draw up a reasonable teaching plan to avoid too much repetition with primary and secondary schools. Meantime, there is necessity considering what students are truly face who are in the difficult points of the curriculum on the subject in universities and colleges to avoid excessive "jump-thinking" knowledge points. Teachers in compulsory education schools should particularly analyze the different ideological and political levels of "students of liberal arts", formulate different teaching plans in accordance with student groups in different situations, and make relevant adjustments in terms of class time allocation, key reviews, and assignments. In terms of legal knowledge, to prevent the superficiality of the content of the professors, the courses on the subject in colleges should be close to the students' lives, proceed in an orderly way and little by little, impart knowledge from easy to more difficult, and closely combine legal knowledge with ideological and political education. Thus, innovating the ideological and political curriculum system, developing characteristic school-based courses, exploring relevant goals, and linking content and standards are a need and a useful attempt to promote the "coordinated operation" of ideological and political courses in universities and colleges and primary and middle schools. Thus, in order to enhance the integration of the education on the subject in universities and colleges and primary and middle schools, there is necessity designing curriculum content in line with the laws of students' cognition and reflect the personalities of various phases. The emphasis of the undergraduate and junior college stage is to carry out theoretical learning, the emphasis of the senior high school stage focuses on the development of learning of common sense, and the emphasis of junior high school stage focuses on the development of learning of common sense, and the emphasis of primary school is to carry out enlightenment learning [6]. Only in this way, can students begin to exist and gradually develop a particular shape of a correct view of life, world outlook and standards.

Boost the co-establishment and sharing of curriculum resources relying upon information methods

As the head and front of the education of universities and colleges and elementary and middle schools, ideological and political theory curriculum is a profound and systematic strategic project before realizing the co-construction and sharing. The integration of the courses in undergraduate and specialist education and compulsory education should learn from grid thinking. Under the guidance of the construction concept, weaving the courses on the subject of universities and colleges and primary and middle schools into the same education and teaching grid [7] requests efficient communication and exchanges among countries, localities, and schools and educators. For the sake of realizing the co-construction and co-sharing of specific resources, it is necessary to rely on the innovative and integrated development model of electronic equipment, set up a network sharing forum, optimize education and teaching resources, guide students to "buckle the first button" of knowledge [8], explore curriculum integration construction standards, and establish integration awareness, take the initiative to break through the barriers of the academic stage. For the sake of exploring the significant and difficult points of the connection of the courses on the subject in universities and primary and middle schools, it is necessary not only to analyze the changing trends and logical connections of curriculum teaching in many aspects, but also to coordinate the construction of the relevant curriculum resources, promote the integration process of the courses on the subject, and enable resource to develop and realize co-construction and sharing. It is also necessary to broaden the vision of socialist core values, coordinate the educational forces of different regions, explore the imbalance of regional development, expand the digital supplies and resources of the curriculum ranging from the depth of digitization, intelligence, and information, and transform from self-thinking to collaborative thinking, and promote the country, local governments, and collaborative educators at schools to form a new pattern so as to create a good resource co-construction and sharing environment, as well as ideological and political integration of undergraduate and specialist education and compulsory education.

5. Conclusions

In a word, to promote the integration of ideological and political courses in universities, primary and secondary schools is the only way for ideological and political disciplines to comply with the development of The Times, and the inevitable requirements for the implementation of moral education. The construction of an integrated connection system of ideological and political courses in primary and secondary schools should not only be rooted in the education and teaching practice of ideological and

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political courses, but also focus on the forefront of reform and innovation of ideological and political courses. It should not only be based on different development tasks in different regions of different students, but also take into account the physical and mental development laws and characteristics of teenagers in the new era. Therefore, it is of great significance to build a system that connects ideological and political courses between primary and secondary schools, promote the cooperation in education and teaching of ideological and political courses between different students, and realize the integration and connection of courses.

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Critical Thinking and Its Relevant Factors among Undergraduates

Yongmei Hou*

Department of Psychology, School of Humanity and Administration, Guangdong Medical University, Dongguan, Guangdong, 523808, China

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ABSTRACT

To explore the present status of Critical thinking and its relevant factors among undergraduates. A stratified random sampling was used to select 1013 undergraduates from 7 full-time colleges in Guangdong province. They were investigated with California Critical Thinking Disposition Inventory-Chinese Version (CTDI-CV) and a Self-Compiled Personal General Information Questionnaire. (1) The total score of CTDI-CV was (254.16±38.80). The undergraduates in the four levels of critical thinking of comprehensive strong, relatively strong, contradictory scope and serious opposition accounted for 1.78%, 5.31%, 87.4% and 5.51% of this group, respectively. (2) Multiple stepwise linear regression showed that the total score of CTDI-CV was positively correlated with the following 10 factors such as grade, family economic status, part-time experience, the teaching method used most commonly, like reading logic books, like reading reviews or essays, father's warmth, mother's warmth, openness and responsibility (β=.142 to .701, all P<.05). The following 5 factors such as father's negation, father's overprotection, mother's negation, mother's overprotection and neuroticism were negatively correlated with the total score of CTDI-CV (β=-.381 to -. 616, all P < 0.05). The overall level of critical thinking among undergraduates is relatively low. College Students' critical thinking may be related to many factors such as family rearing, school education and personal characteristics.

1. Introduction

Critical thinking is a way of thinking in a reasonable, reflective and open mind, which can help individuals express clearly and accurately, reason logically and rationally, and cultivate the spirit of speculation [1]. From the perspective of constituent factors, critical thinking includes the skills and abilities of critical thinking, as well as the tendency of critical thinking (that is, the intrinsic motivation, intention, emotion, attitude and tendency of using critical thinking). The former is the explicit expression of skills or abilities, while the latter is the implicit attitude and tendency, which is also the basis of the former. Critical thinking helps people develop independent and logical thinking in the information society, effectively identify information and make decisions quickly and correctly, and then innovate and start businesses. Therefore, as an indispensable part of higher education, the cultivation of critical thinking of college students has been a hot topic in education in various countries [4-6]. However, in the traditional teaching mode, critical thinking has not been well developed and cultivated and leads to the low critical thinking ability of college students, which affects their academic

**Corresponding Author:*
Yongmei Hou,
Department of Psychology, School of Humanity and Administration, Guangdong Medical University, Dongguan, Guangdong, 523808, China;
Email: 2184456621@qq.com

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achievement and work performance [7-9].

As for the influencing factors of college students' critical thinking, previous studies involved the following four categories: (1) Biological factors, such as the executive function of the brain [10]. (2) Psychosocial factors. Demographic factors, for example, grade, age, gender, place of origin, major, college entrance scores, academic achievement, family economic status [11-16], etc. Parenting style and parent-child relationship [17,18]. Teaching and educational factors. They are mainly power distance [19], teaching methods [20-24], learning methods [25,26], social practice [27], teaching equipment and means [28,29]. Personality characteristics such as learning motivation, self-confidence, self-esteem, optimism, emotional intelligence, metacognitive skills, problem solving skills and academic self-efficacy [30-33].

To sum up, previous studies focused on psychosocial factors, and there are no unified opinions on the role of many factors yet. Moreover, most studies only focused on the role of one or two factors, and failed to reveal the role of various influencing factors and the relationship between different factors.

Based on the above analysis, this study intends to adopt a large sample and multi center questionnaire survey to explore the current situation and influencing factors of college students' critical thinking in Guangdong.

2. Objects and Methods

2.1 Objects

From March to May, 2020, a total of 1200 questionnaires were distributed to undergraduates from freshmen to seniors from Guangdong Medical University, Dongguan Institute of technology, Guangzhou Institute of physical education, Xinghai Conservatory of music, Guangdong University of Finance and economics, Guangdong Ocean University and Shenzhen University by a stratified random sampling. 1013 valid questionnaires were returned, with an effective rate of 84.4%. There are 481 boys and 532 girls; 994 Han and 19 minority; 264 freshmen, 250 sophomores, 245 juniors and 254 seniors; 192 in comprehensive universities, 241 in science and engineering universities, 91 in finance and economics universities, 99 in agriculture universities, 252 in medicine universities, 40 in sports universities and 98 art universities; 814 only children and 199 non only children; 11 rich families, 533 well-off families, 427 food and clothing families and 42 poor families; 629 long-term residents in cities and towns and 384 long-term residents in rural areas; 44 excellent students, 517 good students, 399 average students, 49 passing students and 4 failing students.

2.2 Tools

2.2.1 Critical Thinking Disposition Inventory-Chinese Version (CTDI-CV)

It was revised by Peng Meici et al. [34] according to California Critical Thinking Dispositions Inventory (CCTDI). CTDI-CV has 70 items, which are divided into seven subscales: seeking truth, open mind, analytical ability, systematic ability, self-confidence of critical thinking, thirst for knowledge and cognitive maturity. The 6-point scoring method is used to score from 1 to 6 points corresponding to "very disagree" to "very agree". The higher the total score, the stronger the tendency of critical thinking. The total score is 70 to 420. The evaluation rules are as follows:

If the total score is 350 to 420, indicating that the subject's critical thinking tendency is comprehensively strong; If the total score is 280 to 349, indicating that the subject's critical thinking tendency is relatively strong; If the total score is 210 to 279, indicating that the subject's critical thinking tendency is in the range of contradiction; If the total score is 70 to 209, indicating that the subject's critical thinking tendency is seriously opposed to critical thinking. The scores of each subscale ranged from 10 to 60. The evaluation rules of each subscale are as follows: If the score is higher than 50, indicating that the tendency is very strong; A score of 40 to 49 indicates that the tendency is relatively strong, and a score of 30 to 39 indicates that the tendency is in a state of contradiction; A score of 10 to 29 indicates that the tendency deviates from the requirement of critical thinking. In this study, the Cronbach' a coefficient of the total scale is 0.84, and the Cronbach' a coefficient of each subscale is 0.68 to 0.77.

2.2.2 Short-Form Egna Minnen av Barndoms Uppfostran (s-EMBU)

It's a self-reported questionnaire, compiled by Marcus (2003) and revised into Chinese version by Jiang prize (2010) [35]. s-EMBU is divided into father's subscale and mother'ssubscale, each with 21 items and the same content, including three dimensions: negation, emotional warmth and overprotection. The 4-point scoring method is used to score from 1 to 4 points corresponding to "never" to "always". The average score of each dimension represents the subjects' perceived parenting style. The higher the dimension score, the stronger its tendency. In this study, the cronbach'α coefficient of the total scale is 0.85. The Cronbach' α coefficients of the father subscale and the mother subscale were 0.87 and 0.82, respectively. The Cronbach'α coefficient of each dimension is 0.69 to 0.78.

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2.2.3 NEO Five-Factor Inventory (NEO-FFI)

It's a self-report scale, developed on the basis of NEO-PI which compiled by McCrae and Casta (1985), and revised into Chinese version by Yao Ruosong (2010) [36]. NEO-FFI has 60 questions, Divided into five dimensions, namely neuroticism (n), extraversion (E), openness (o), agreeableness (a) and responsibility (c). The 5-point scoring method is used to score from 1 to 5 points corresponding to "very disagree" to "very agree". In this study, The Cronbach's α coefficient of each dimension is 0.73-0.81.

2.2.4 Self-Compiled Personal General Information Questionnaire

The CNKI, Wanfang database, VIP database, Baidu, google, Pubmed and other search engines were used to search the literature about college students' critical thinking (706 in Chinese and 56749 in foreign languages). Based on that, the basic content of the questionnaire was constructed, with a total of 23 items. Combined with the results of 3 collective discussions with 10 representatives of undergraduates and 5 experts in the field of higher education, 3 items were deleted and 1 item was added. The final questionnaire for personal general information involves 21 items, which includes age, gender, grade, school category, major category, academic achievement, family economic status, place of origin, only child or not, part-time experience, father's education, mother's education, reading habits, teaching methods, learning methods, teaching assistant section, etc.

2.3 Data Manipulation

SPSS 20.0 was used for statistical analysis. Descriptive statistics were used to calculate the average score and standard deviation of each scale; Pearson product correlation was used to explore the correlation between variables; multiple stepwise linear regression was used to analyze the related factors of CTDI-CV total score.

3. Results

3.1 Descriptive Statistics of Each Scale Scores

There were 18 (1.78%), 54 (5.31%), 885 (87.4%) and 56 (5.5%) college students whose critical thinking was in the level of comprehensively strong, relatively strong, contradictory range and serious opposition, respectively.

It can be seen from table 1 that the overall level of critical thinking of college students in this group (average score of CTDI-CV = 217.84 ± 49) is in the scope of contradiction.

Table 1. Descriptive statistics of total score and dimension (subscale) scores of each scale (n = 1013)

Dimension	Min	Max	M	SD	Number of items	Average score of items	Standard deviation of each item
seeking truth	23	54	41.57	5.94	10	4.16	0.59
Open mind	21	52	39.28	6.23	10	3.93	0.62
Analysis ability	19	53	35.85	4.57	10	3.59	0.46
Systematic ability	12	45	34.20	6.60	10	3.42	0.66
Self-confidence of critical thinking	16	50	33.56	3.74	10	3.36	0.37
Thirst for knowledge	18	32	34.61	7.29	10	3.46	0.73
Cognitive maturity	15	39	35.09	4.43	10	3.51	0.44
Total score of CTDI-CV	169	338	254.16	38.80	70	3.63	0.55
Father's negation	6	17	13.55	2.56	6	2.26	0.45
Father's warmth	9	31	19.13	4.01	7	2.74	0.58
Father's overprotection	8	21	12.72	1.78	8	1.61	0.25
Mather's negation	7	17	11.93	1.64	6	1.99	0.27
Mather's warmth	18	35	23.18	5.04	7	3.32	0.72
Mather's overprotection	9	28	19.02	4.49	8	2.38	0.58
Openness	27	57	42.16	6.25	12	3.51	0.52
Responsibility	25	50	37.04	4.69	12	3.09	0.39
Extraversion	22	45	38.25	6.43	12	3.19	0.54
Agreeableness	28	52	39.12	3.92	12	3.26	0.33
Neuroticism	19	47	33.87	5.57	12	2.82	0.47

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3.2 Correlation analysis of s-EMBU, NEO-FFI and CTDI-CV

It can be seen from Table 2 that the total score of CTDI-CV was significantly correlated with the six dimensions of s-EMBU and the scores of openness, responsibility and neuroticism in NEO-FFI (all $P < 0.01$).

3.3 Multiple Stepwise Linear Regression Analysis on the Related Factors of College Students' Critical Thinking

3.3.1 Variable Assignment

First, the possible situations (alternative answers) of the demographic classification variables that may affect the total score of CTDI-CV are assigned, and the results are shown in Table 3.

3.3.2 Multiple Stepwise Linear Regression Analysis of Related Factors of College Students' Critical Thinking

Taking the total score of CTDI-CV as the dependent variable and the factors that may be related to the total score of CTDI-CV (including demographic variables, six dimension scores of s-EMBU and five dimension scores of NEO-FFI) as the independent variables, a multiple stepwise linear regression is carried out within the 95% confidence interval, the results are shown in Table 4.

It can be seen from table 4 that 10 factors such as grade, family economic status, part-time experience, the teaching methods used most commonly, like reading logic books, like reading reviews or essays, father's warmth, mother's warmth, openness and responsibility are positively correlated with the total score of CTDI-CV（β=.142 to .701, all $P < 0.05$). Five factors such as father's negation,

Table 2. Correlation analysis of s-EMBU, NEO-FFI and CTDI-CV scores (n = 1013)

Dimension	Seeking truth	Open mind	Analysis ability	Systematic ability	Confidence of critical thinking	Thirst for knowledge	Cognitive maturity	Total score of CTDI-CV
Father's negation	-.226**	-.253**	-.011	-.022	-.124**	-.131**	-.233**	-.278**
Father's warmth	.374**	.276**	.023	.035	.436**	.213**	.198**	.328**
Father's overprotection	-.310**	-.198**	-.014	-.030	-.173**	-.244**	-.169**	-.261**
Mather's negation	-.246**	-.220**	-.007	-.019	-.107**	-.188**	-.208**	-.252**
Mather's warmth	.270**	.236**	.014	.026	.383**	.179**	.186**	.274**
Mather's overprotection	-.283**	-.164**	-.009	-.041	-.162**	-.157**	-.205**	-.218**
Openness	.347**	.811**	.148**	.059	.268**	.183**	.148**	.530**
Responsibility	.392**	.033	.019	.044	.324**	.338**	.309**	.351**
Extraversion	.044	.053	.026	.036	.028	.032	.035	.037
Agreeableness	-.039	-.018	.034	-.037	-.049	.041	.122**	-.027
Neuroticism	-.321**	-.236**	-.125**	-.150**	-.235**	.192**	-.347**	-.346**

Notes: * $P < 0.05$, ** $P < 0.01$

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Table 3. Variable assignment

Items	Options and assignment
Grade	0 =freshman, 1= sophomore, 2=junior, 3=senior
Gender	0=Male,1=Female
3. Major categories	0 =Engineering, 1 = science, 2 = economics and trade, 3 = management, 4 = linguistics, 5 = medicine and pharmacy,6 = art and design
4. School categories	0=science and engineering, 1=liberal arts, 2=agriculture 3=medicine, 4=sports, 5=art, 6= comprehensive
5. Only child or not	0=No,1=Yes
6. Family economic status	0 = poverty, 1 = food and clothing, 2 = well-off, 3 = rich
7. Origin	0 = city or town, 1 = country
8. Do you have part-time experience?	0 = none, 1 = yes
9. Academic achievement	0 =unqualified, 1 =qualified, 2 = medium, 3 = good, 4 = excellent
10. Father's education	0 = primary school and below, 1 = junior high school, 2 = senior high school or technical secondary school, 3 = junior college, 4 = Bachelor's degree, 5 = Master's degree, 6 = doctor's degree
11. Mather's education	0 = primary school and below, 1 = junior high school, 2 = senior high school or technical secondary school, 3 = junior college, 4 = Bachelor's degree, 5 = Master's degree, 6 = doctor's degree
12. Do you like reading philosophy monographs?	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
13. Do you like reading logic monographs	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
14. Do you like reading math books	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
15. Do you like reading scientific papers	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
16. Do you like reading reviews or essays	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
17. Do you like reading prose	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
18. Do you like reading novels	0 = not at all, 1 = not very much, 2 = it doesn't matter, 3 = a little, 4 = very much
19. Which teaching method do you adopt most often?	0 = traditional teaching method, 1 = role play, 2 = PBL teaching method, 3 = evidence-based practice teaching, 4 = simulation debate
20. What kind of learning style do you use most often?	0 = individual learning, 2 = cooperative learning
21. Which teaching aids do you used most commonly	0 = traditional teaching means, 1 = conventional multimedia, 2 = network teaching platform

Table 4. Multiple stepwise linear regression analysis of main influencing factors of CTDI-CV total score

Dependent variable	Independent variable	Nonstandard coefficient	β t P R^2 R_{adj}^2
		B Standard error	
	Total score Grade	.271 .047	.157 7.414 <.001 .539 .534
of CTDI-CV	Family economic status	.257 .071	.194 2.640 .008
	part-time experience	.278 .063	.201 2.903 .006
	teaching method	.838 .106	.701 4.566 <.001
	Like logic monographs	.797 .086	.689 4.734 <.001
	Like reviews or essays	.589 .093	.412 8.471 <.001
	Father's negation	-.691 .089	-.616 -2.029 .040
	Father's warmth	.503 .139	.457 2.785 .005
	Father's overprotection	-.352 .048	-.298 -4.279 <.001
	Mather's negation	-.477 .062	-.399 -5.488 <.001
	Mather's warmth	.418 .054	.356 7.343 <.001
	Mather's overprotection	-.501 .137	-.381 -8.611 <.001
	Openness	.664 .097	.603 4.492 <.001
	Responsibility	.387 .094	.286 2.468 .014
	Neuroticism	-.528 .083	-.468 -2.091 .036

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father's overprotection, mother's negation, mother's overprotection and neuroticism are negatively correlated with the total score of CTDI-CV (β=-.381 to -. 616, all $P < 0.05$).

4. Discussion

The total score of CTDI-CV and the scores of each subscale in this group are in the contradictory range, with 87.4% of the students in the contradictory range, and 5.9% of them in serious opposition, which is consistent with the results of previous studies [7-9], suggesting that the level of critical thinking is not high, which is common among college students.

Multiple stepwise linear regression shows that 10 factors such as grade, family economic status, part-time experience, the teaching method used most commonly, like reading logic books, like reading reviews or essays, father's warmth, mother's warmth, openness and responsibility are positively correlated with the total score of CTDI-CV. Five factors such as father's negation, father's overprotection, mother's negation, mother's overprotection and neuroticism are negatively correlated with the total score of CTDI-CV.

Grade positively predicts the total score of CTDI-CV, which is consistent with the results of the research of nippod [37], but age can't enter the regression equation, suggesting that natural physiological maturity is not the main influencing factor of critical thinking, and relatively speaking, mental maturity (including the expansion of knowledge and the improvement of understanding ability) can promote the development of critical thinking.

Family economic status and part-time experience are independent positive predictors of CTDI-CV total score, which is consistent with the results of previous research [15], suggesting that the superficial capital partition between classes has changed into the deep ability partition. Family economic status reflects the adequacy of family members' living conditions and the richness of learning and practical activities. Good family economic status can provide sufficient living conditions for family members, so that they have opportunities to participate in more diverse learning and practical activities, so as to expand their knowledge and improve their ability of analysis and criticism. Part time job is the most practical activity close to social life, which makes individuals contact with diversified social phenomena and promotes the development of individual's ability of comparison, identification and criticism.

Three factors such as the teaching method used most commonly, like to read logic books, like to read reviews or essays positively predict the total score of CTDI-CV, which is consistent with the results of previous studies [20-26], suggesting that learning materials and methods which are rich in organization and can inspire thinking can improve critical thinking.

Father's warmth and mother's warmth positively predict the total score of CTDI-CV, while father's negation, father's overprotection, mother's negation and mother's overprotection negatively predict the total score of CTDI-CV, consistent with the results of previous studies [17,18], suggesting that moderate emotional connection and democratic and respectful family atmosphere are helpful for the children to be good at thinking, exploring and questioning.

Openness and responsibility positively predict the total score of CTDI-CV, while neuroticism negatively predicts the total score of CTDI-CV, which is consistent with the results of previous studies [33] suggesting that people with curiosity and imagination, wide interests, sensitive to things, stable emotions and strong self-control ability are more able to think patiently, analyze deeply, find problems and trigger critical thinking.

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On the Prescription Translation of Traditional Chinese Medicine

Le Xiong*

Xi'an Eurasia University, Xi'an, Shaanxi, 710065, China

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ABSTRACT

Traditional Chinese Medicine (TCM) is an essential legacy of Chinese culture, which makes a great contribution to China and the world's medical fields. To make it accepted by more people from different countries, the translation of TCM becomes important. As an important branch of TCM, the study of prescription promotes the development of TCM, and its translation is also significant. However, there are various problems in TCM prescription translation and there are few standards in TCM translation. Thus, this research uses Christiane Nord's "Functionality plus Loyalty" Translation Theory to analyze the TCM prescription translation. Based on characteristics of prescription formation, the paper applies Christiane Nord's "Functionality plus Loyalty" theory to TCM prescription translation. It draws a conclusion that TCM prescription translation can be done according to "Functionality plus Loyalty" theory, and there are three ways of prescription names translation. They are literal translation, free translation and transliteration.

1. Introduction

It is known that traditional Chinese medicine translation is an important science which has promoted the medical development around the world. The prescription is a small branch of traditional Chinese medicine (TCM). For the further study and spread of prescription of TCM, prescription translation of TCM becomes vital and significant. However, there are still a lot of problems in its translation. It is essential and significant to find some appropriate translation principles and methods of TCM prescription.

2. TCM Prescriptions and Features

The TCM prescription names' translation is a field worth studying to make it easily understood in the process of exchange and research [1]. However, there are still a lot of problems in its translation, including poor readability, ambiguity, and complexity [2].

The prescription names' translation is complicated, because its formative methods have nearly eleven ways. Jun, Chen, Zuo and Shi are basic elements of prescription. Jun is the principal component and plays the main role in prescription's effect. It is for the main symptoms and illness. Chen certainly assists Jun to augment principal medical component's effect. Besides, it is mainly for accompanied symptom. Zuo is complement in prescription. It helps Jun and Chen to make the herbs more effective called due complements; it is for minor accompanied symptoms; even it helps weaken the toxicity and violence called diminution complement. Sometimes it is used for contrary complement. Shi is a kind of mediation guide and harmonizing guide used as a mediator. It is not difficult to see that Jun, Chen, Zuo and

**Corresponding Author:*
Le Xiong,
Xi'an Eurasia University, Xi'an, Shaanxi, 710065, China;
Email: xiongle@eurasia.edu

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Shi are different in their perspective role and effect. Their names are profoundly influenced by Chinese culture in monarchy areas.

There are mainly seventeen forms of prescription: decoction, powder, pill (bolus and pellet), paste, wine, sublimed preparation, medical tea, distillate formula, lozenge, stripe formula (medical cone), thread formula, suppository formula, granule, tablet, syrup, oral liquid, and injection. Decoction is a kind of liquid by dipping the medicine in water or wine, then decoct and get rid of dregs. Decoction is mainly internal medicine, such as " 麻黄汤 ", " 小承气汤 ". The external medicine of decoction is for bath, fumigation, and gargle. Powder is to pulverize different medicines and mix together. It also divides internal and external medicine, for example, " 七厘散 ", " 银翘散 ", " 金黄散 ", " 生肌散 ", " 八宝眼药 ", " 冰硼散 "。Pill is solid through combining the fine powder or medical extractive with binder, for example, " 六味地黄丸 ", " 安宫牛黄丸 ", " 舟车丸 ". It consists of honeyed pill, watered pill, flour and water paste pill, and concentrated pellet. Paste is made by boiling medicine in water and oil, then getting rid of residue. It is comprised of electuary, ointment and plaster, for example, " 鹿胎膏 ", " 八珍益母膏 ", " 狗皮膏 ", " 暖脐膏 ". Wine is also called medical liquor. The medicine is bathed in white wine or rice wine, getting rid of dregs, for example, " 风湿药酒 ", " 参茸药酒 ", " 五加皮酒 ". Sublimed preparation has no certain form. Its value and effectiveness decides its name, for example, " 至宝丹 ", " 活络丹 ". Medical tea is rough powder or block-shaped powder and it is taken as tea, for example, " 午时茶 ", " 刺五加茶 ", " 减肥茶 ". Distillate formula is using fresh evaporable medical component to make a kind of fragrant water solution, for example, " 金银花露 ", " 青蒿露 ". Lozenge is a kind of fine powder or solid, for example, " 紫金锭 ", " 万应锭 ". Stripe formula uses mulberry paper with medicine to twist into strips, for example, " 红升丹药条剂 ". Thread formula is making silk thread and cotton thread boil in medical liquid and used as external medicine as it dries. Suppository formula is mixing the fine powder and matrix to make a solid medicine, for example, " 小儿解热栓 ", " 消痔栓 ". Granule is a kind of dry powder or block shaped medicine, for example, " 感冒退热冲剂 ", " 复方羚角冲剂 ". Tablet is formed by fine powder or medical extractive and some accessory, like " 口含片 ", " 泡腾片 ". Syrup is a kind of concentrated sugar water, for example, " 止咳糖浆 ", " 桂皮糖浆 ". Oral liquid is made by extractive from medicine by water or other solvents, like " 人参蜂王浆口服液 ", " 枸杞地黄口服液 ". Injection is a kind of aseptic liquor and aseptic powder, for example, " 清开灵注射液 ", " 生脉注射液 ".

Different prescription names adhere to different formation methods. There are eleven methods of prescription names' formation. First, the prescription names after its comprised herbs' names, like " 麻杏石甘汤 ". Second, prescription names are from their principal herbs, such as " 桂枝汤 ". Third, the prescription names after its number of herbs' types for it is composed of different kinds of herbs, like " 四物汤 ". Forth, prescription names consist of the herbs' number and processing methods, for example," 十灰散 ", " 四生丸 ". Fifth, naming after the guide herbs, like " 十枣汤 ". Sixth, naming in a metaphor way, such as " 舟车丸 ". Seventh, naming after their effects, for example, " 温脾汤 ". Eight, naming after principal herbs and prescription effect, like " 黄连解毒丸 ". Ninth, using principal herbs and the number of the rests' herbs, such as " 当归六黄丸 ". Tenth, naming after color, like " 桃花汤 ". Eleventh, some prescription names originate from Yi Gua, for example, " 交泰丸 ", " 清宁丸 ". All of these rules are normal, and certainly there are some unusual methods. In this research, the main aim is analyzing usual and regular prescription names' translation.

3. Christiane Nord's "Functionality plus Loyalty" Translation Theory

It is known that Christiane Nord's "Functionality plus Loyalty", based on German functionalist methodology in 1970s, is still popular and practical. The "Functionality plus Loyalty " refers to the translator should aim at producing functional target text which conforms to the requirement of the translation skopos fixed by the initiator, respecting, at the same time, the legitimate interests of both the author of the origin and the readers of the translation [3].

To apply "Functionality plus Loyalty" to source texts in the translation process, translators should be clear about the requirement from the client before translating, which is called "brief [4]". An ideal brief includes the expected function of target texts, readers, media, publishing time and place, etc. Then translators should analyze the source texts, which is instructive to translation process. Through analyzing the source texts, translators would understand whether the source text is translatable, how much information of source text is related to the function of target text, what kind of translation strategy should be used to be in line with brief made before translation. This kind of analysis is helpful for translators to decide what kind of information should be remained and what kind should be deleted, and to choose or adjust appropriate translation strategies in accordance to function of target text.

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In her *Translating as a Purposeful Activity Functionalist Approaches Explained*, she demonstrated that function was essential for any source text[5]. Like the skopos theory not only adapted to different strategies according to different translation situations, but also coincided with the change of paradigm in some disciplines. It was pragmatic, because it could meet the needs and expectation of receivers of the target text in a communicative intention. Translation of prescription is for medical or cultural exchanges and communication. Therefore, the aim is clear and in line with the purpose of functional approach.

Functionality is important, the loyalty is appropriate as well. It is a methodology of culture-oriented, focusing on the differences between different cultures. Functionalist theory is practical because it paid heed to the target text's function. While, in *Translating as a Purposeful Activity Functionalist Approaches Explained*, she held that Skopos rules could be easily interpreted as "the ends justify the means[5]". Readers certainly wanted the target text to be faithful to the source text, and she thought that certain ranges should be added to skopos theory. That is loyalty, not fidelity. "Loyalty means that the target-text purpose should be compatible with the original author's intentions [5]". Loyalty demanded translators to consider the difference between culture-specific concepts and respect the authors' individual communicative intentions. As for the TCM prescription, a part of Chinese traditional culture, demands a method that can break down the cultural obstacles, respect both the Chinese and foreigners. In this way, Christiane Nord's "Functionality plus Loyalty" seems appropriate.

4. Prescription Names' Translation Methods

4.1 Literal Translation of Prescription Names

Literal translation means translating original text in an honest way that is word by word. It emphasizes the honesty and order of translation.

As is mentioned above, there are eleven ways of prescription names' formation, and translate prescription names through literal translation in nine conditions. First, if they are naming after their comprised herb's name, like " 葛根汤 " can be translated into "Decoction of Pueraria Root"; Second, if they are naming after their principal herbs, like " 桂枝汤 " can be translated into "Cinnamon Twig Decoction" or "Decoction of Cinnamon Twig ". Third, if they are naming after the number of herbs' types, like " 四物汤 " can be translated into "Decoction of Four Drugs "or" Decoction of Four Ingredients". Fourth, if they are formed of herbs' number and process methods, like " 四 生 丸 " can be translated into "Bolus of Four Fresh Drugs". Fifth, if they are composed of guide herbs, like " 十枣汤 " can be translated into "Decoction of (with) Ten Chinese Dates" "Decoction of (with) Ten Jujube" "Ten Chinese Dates Decoction" or "Ten Jujube Decoction". Sixth, if they are naming after effects, like " 上 清 丸 " can be translated into "Bolus for Clearing away Heat of the Upper Heart of the Body", "Pill for Clearing away Heat from the Upper Part of the Body ". Seventh, they are made up of the principal herbs and effects, like " 止咳枇杷糖浆 " can be translated into "Cough Syrup of Loquat Leaf", "Syrup of Loquat Leaf for Arresting Cough" and "Syrup with Loquat leaf for Arresting Cough". Eighth, using principal herbs and the number of the rests' herbs, like " 当归六黄汤 " is translated into "Chinese Angelica Decoction with Six Yellow Ingredients" or "Decoction of Chinese Angelica with Six Yellow Ingredients". Ninth, naming after color, like " 桃红散 " is translated into "Pink Powder".

4.2 Free Translation of Prescription Names

Free translation emphasizes the expressiveness of target text. It does not advocate word by word translation. It puts the meaning first.

There is one condition in which the prescription names should be translated through free translation method. That is, they are naming in a metaphor way, such as " 舟车丸 " can be translated into "Pill for Relieving Ascites". This prescription name cannot be translated in literal translation method, because translation in such way would make confusion and misunderstanding. Therefore, it can be translated in free translation method to deliver its effects. Besides, such prescription names like " 孔 圣 枕 中 丸 " contain the Chinese cultural elements. To make it acceptable for foreign readers and respectful to source text, it can be translated into "Confucian Pill for Hypermnesia". " 越婢汤 " is translated into "Decoction for Relieving Edema". From the Chinese, we cannot easily understand the meaning of this prescription and its effects. While, in English translation version, we can learn that this prescription is to relieve the edema. In this way, the English translation version sends the meaning to readers and presents the pharmacist's meaning.

4.3 Transliteration of Prescription Names

Transliteration is to translate original text into *Pinyin*. This translation method is chosen when literal translation and free translation are not adaptable. The purpose is to avoid cultural differences, confusion or misunderstanding.

Such prescription names as " 白虎汤 ", " 青龙白虎汤 ", " 小青龙汤 " which are the most typical of containing cultural

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elements." 小青龙汤 " is translated into "Minor Decoction of Green Dragon" is not quite appropriate. Because westerners regard "dragon" as a symbol of cruelty and evil, but in the east is opposite. Therefore, if translated in a common way regardless the cultural elements, the translation would make mistakes and confusing.

Thus, it is easily found that the main translation methods are literal translation, free translation and transliteration. Based on the characteristics and forms of prescription names, translation can be made through its function, components and dosage to make it easily understood. Added to loyalty, translation would be benefit for medical culture exchange and medical research in the world.

5. Conclusions

TCM prescription translation is important for research and exchange. However, there are no standards for the translation and some prescription names' translation now are complicated, ambiguous, and nonsense. According to Christiane Nord's "Functionality plus Loyalty", target texts require functionality and readability. It comes to the conclusion that literal translation, free translation, and transliteration can be used in prescription name's translation.

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Intension, Current Implementation and Improvement Path of Instructional Leadership: A school Case of Hong Kong

Ling Dai Yicai Zhu*

College of Educational Science, Tai Zhou University, Taizhou, Jiangsu, 225300, China

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ABSTRACT

This paper aims to analyze the implementation status of instructional leadership of a HK primary school that benefits in mid-ranking and mainly uses instructional leadership to develop their curriculums. Instructional leadership is the result of introducing leadership concepts into the teaching field, and it reflects the changing trend of school management to a certain extent. At present, the research on instructional leadership is limited to the principal's leadership, which limits the overall function of instructional leadership. By investigating the actuality of school and the implementation of school policies and programs, the paper deeply analyzes the existed problems in a Hong Kong school and offers optimization suggestions: strengthen the school distributive leadership construction, promote the professional development of teachers and curriculums, establish a diversified evaluation system, develop an organizational culture of democratic cooperation and improve the curriculum leadership of principals.

1. Introduction

Instructional Leadership, as a formal academic concept, originated from the effective school movement in the United States at the end of the 20th century. In this movement, through empirical research, many researchers confirmed that a student's academic achievement is not only influenced by the family socioeconomic status, but also by the relationship between school organizations, principals and teachers [1]. Strong principal instructional leadership was considered to be the primary characteristic of an effective school at that time. It emphasized the personal qualities of the top leader and focused too much on the heroism of the principal. From the 21st century, researchers started to pay attention to other staff, such as middle managers, course supervisors, teachers. This paper first clarifies the development history and intension of instructional leadership, and then it sorts out the connection and difference between instructional leadership, distributive leadership and curriculum leadership. Lastly, the paper takes a Hong Kong primary school at the intermediate level as an example, analyzing the current situation and existing problems of instructional leadership mode in schools, and puts forward some suggestions to promote the development of teaching and management in schools.

2. Literature Review

Intension and Development

At the beginning of 1980, the rise of the Effective

**Corresponding Author:*
Yicai Zhu,
College of Educational Science, Tai Zhou University, Taizhou, Jiangsu, 225300, China;
Email: 596064720@qq.com

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Teaching Movement represented by Ronald Edmonds made instructional leadership highly valued by researchers [2]. At that time, many researchers described and analyzed the characteristics of effective schools and found that instructional leadership was an important factor affecting school effectiveness. Therefore, instructional leadership began to receive more extensive attention at both the theoretical and practical levels [3]. At that time, the teaching leader was portrayed as someone who could not only set goals, oversee processes, supervise teaching, but also create the teaching environment, solve problems, coordinate relationships, and combine expertise and personal charisma who can transform a school [4]. Ronald Edmonds, by summarizing the practical experience of school, reinforced the statement that "principals pay attention to teaching and learning" and ushered in a new era of academic research and practice of principal instructional leadership. However, excessive role expectations have not produced a large number of heroic leaders, and only a few outstanding principals who were passionate about education and competence could be expected to develop into powerful leaders [5]. To deal with this problem, in 1982, Stephen Bossert of the Far West Laboratory in San Francisco published a seminal literature review in which Stephen synthesized the findings of the literature to propose a framework for principals' instructional management behavior. The principal's personal characteristics affect the teaching management behavior, and the principal's management behavior affects the school atmosphere and the teaching and learning organization, and then affects the students' learning. The conceptual framework developed by Stephen provides a valuable perspective for subsequent scholars to use conceptualized instructional leadership in practice [6].

In the mid-1980s, on the basis of absorbing the research results of relevant disciplines, some scholars clearly defined the intension of instructional leadership and put forward a new explanatory framework [7]. Among many definitions, the model proposed by American scholars Philip Hallinger and Joseph Murphy has the greatest influence and the highest citation rate. They define instructional leadership as the principal's leadership and management of the school's teaching work and promote the teaching of teachers and the learning behavior of students. The three core dimensions: "defining school mission", "managing curriculum and teaching" and "creating a positive school climate" were identified and finally, ten instructional leadership functions were further subdivided [8]. The management and research of principal's instructional leadership move from sampling to concrete.

Since the beginning of the 21st century, education quality has become a strategic theme of basic education reform and development in various countries, and the learning and development of students has received extensive attention from educators and researchers. An "emerging force" is flourishing, that is, the study of instructional leadership that advocates learning as the center is constantly emerging. At this time, research on instructional leadership pays great attention to teaching and learning, and research on instructional leadership has become a global phenomenon with the appearance of learning center leadership [9].

It can be concluded that the evolution of the intension of instructional leadership has roughly experienced the development process from the main body leadership activity to the learning-centered leadership. After summarizing various viewpoints, we define instructional leadership as the leader's influence on stakeholders such as teachers and students to effectively coordinate curriculum and teaching, so as to realize the school's teaching mission and vision and promote students' learning and development ability [10]. It is embodied in three aspects: First, instructional leadership is a kind of ability to grasp the mission of an organization that mobilizes people to fight around this mission. Second, instructional leadership refers to the leadership of a leader in the field of teaching, and it is not limited to various teaching management behaviors, abilities and performance, but also involves relevant situational factors such as organizational culture, cadre-group relationship, teacher motivation and so on. Third, instructional leadership not only leads the teaching of teachers, but also the learning of students. However, the current research on instructional leadership has not deeply explored how teachers lead students to learn, so that the effect of instructional leadership cannot be sustained for a long time, and the problems of "teaching and learning" in instructional leadership research need to be solved. Moreover, instructional leadership has developed from the traditional instructional leadership of principals to the current distributive leadership, but after all, it is led by a few people, so there are still problems in the scope and depth of its influence on teaching activities.

3. Related Concepts

3.1 Curriculum Leadership

Curriculum leadership and instructional leadership are two concepts with similar meanings [11]. Instructional leadership is inseparable from curriculum planning, design and guidance, and curriculum leadership is inseparable from monitoring, evaluation and improvement

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of teaching. Instructional leaders often influence the results of curriculum and teaching by directly changing the relevant conditions, while curriculum leaders achieve the goal directly achieved by improving the ability of members in the organization. "Curriculum leadership" was put forward by famous curriculum experts such as Rambert, Grasthorne and Brubeck in the United States. It uses the theories, methods, strategies and behaviors of leadership to complete the tasks within the scope of the curriculum, to understand the curriculum, implement the curriculum, evaluate the curriculum better, and in order to achieve the fundamental goal of curriculum: improve the quality of the curriculum, promote the professional growth of teachers, develop the academic achievement of students and rebuild the school organization and culture. Sergiovanni defined CL: it provides members of the school with necessary support and resources like the basis of professional knowledge to enrich the course and teaching quality, promotes the communication between the teacher, urges schools to develop a culture of cooperation and continuous improvement, finally, achieves the target of excellence in education [12].

Instructional leadership is a top-down leadership paradigm, which emphasizes the cooperation and control of teaching; curriculum leadership only emphasizes cooperation in teaching, the idea of sharing and the multiple sources of leadership. Instructional leaders not only emphasize the cooperation with the leader in the teaching process and the guidance of teaching activities, but also emphasize the management control of the leader [13]. While, in the teaching process, curriculum leadership only emphasizes cooperation with the leader, empowers the leader, participates in leadership, and shares power. Curriculum leadership attaches great importance to the multiple aspects of leadership, mainly because of the diversity of leading subjects. Education managers, principals and teachers at all levels can become the subject of curriculum leadership.

3.2 Distributive Leadership

Distributive leadership was originally put forward by the Australian social psychologist Gibb. He believed that leadership is a quality of a group and a function shared by a group [14]. In the 1990s, distributive leadership was introduced into the research field of western educational leadership. Researchers further improved the concept and reached a consensus: leadership not only exists in some specific roles, but in the relationship between various roles in reality [15]. That is, leadership is not a personal act of the principal, but a distributed practice, which is widely distributed in the work situation of the leader. The function of distributive leadership exists in many leader interactions. The concept of instructional leadership was accepted and applied to other models like Distributed Leadership, Shared Leadership and Transformational Leadership.

Based on the view of distributive leadership, instructional leadership is a team task, which is jointly constructed by the principal, the assistant principal, the subject director, the head teacher and the course teacher. The focus of distributive leadership is to enable all professionals in the school, no matter whether they are informal management positions can participate in the practice of professional leadership. Distributive leadership pays special attention to the leading construction of senior teachers, academic leaders and teaching backbone. Compared with traditional leadership, distributive leadership attaches great importance to teamwork and advocates the construction of a good relationship between members of the organization. At the same time, it emphasizes the cooperation between informal organizations and active organizations. Through their collaboration and communication, the professional ability and cohesion of the entire educational organization are improved, and a new type of professional leadership culture is established [16]. Distributed leadership can solve the problems of insufficient personal teaching knowledge and insufficient leadership energy of principals.

4. School Background

The school was founded on September 1, 1989. Mr. A, chairman of Hong Kong B group, donated a large sum of money to equip and complete the school, so it was approved to take A as the school name. With "Knowledgeable, Diligence, Loyalty and Honesty" as the school motto, the school focuses on moral education, and emphasizes the balanced development of intellectual education, sports, group education and aesthetic education. The lessons are mainly given in Cantonese apart from English enhancement classes, in which all subjects are taught in English except Chinese. The school has 24 classrooms, and each grade has 4 classrooms, and the total number of teaching staff is 57, and it is a "medium-sized" campus in HK, covering an area of about 4,000 square meters. The numbers of teaching staff and the classrooms are increasing rapidly since 2013, but the ranking of the school is always after 200, in the mid-ranking of HK.

4.1 Survey of the School

School A is an aided school. In Hong Kong, aided schools are a non-profit-making advocacy group that

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receives government funding to provide free education. The education fee is largely funded by the government, but its management is the responsibility of the school council. There are 423 such primary schools in Hong Kong, accounting for about 81 percent of the total. The management of the school is delegated to the Council by the sponsoring body. Its curriculum and enrollment are basically the same as that of a government primary school. Students are comprised of local students, cross-boundary students and NCS. The school sets English classes, English enhancement classes and Chinese classes. For the English class, all subjects are taught in English except the Chinese course. There are two subject panels for Chinese, English & Mathematics.

After the semi-structured interviews and investigations, school A provides quality education by establishing a school executive committee above the school administration. The members include a principal, parent representatives, teacher representatives, teacher managers and senior teachers. The committee directly reports to the Board of Directors in order to ensure effective decision making, management and efficient support. The committee is formed by the following teams: the teaching and learning team, the school-culture and student support team and the development team. Each team will propose a designed and revised policy (see Figure 1).

4.2 Current Implementation of Instructional Leadership

This aided elementary school uses typical instructional leaders. The school management committee has set up a three-year main focus for the Teaching & Learning group to optimize Teaching & Learning strategies and strengthen students' autonomous learning skills and abilities. And teaching and learning group sets the strategy plans according to the Major Concerns which is set by the School Administrative Committee: 1. Designing some activities to enhance student self-directed learning skills; 2. Creating workshops to introduce the ways to simulate student reading skills; 3. Developing some strategies to intensify student in doing the e-assignments; 4. Promoting STEAM in each subject; Also, the mathematics panels have designed different activities to fulfill the strategy plans which are set by T&L group. The committee is also responsible for the management of courses and teaching. They produce teacher manuals to correct students' work, design assessments, and recommend time allocation for each lesson. All the worksheets, assessment papers, lesson plans and student works will be saved in school cloud servers. Each subject group holds regular meetings, and each meeting is attended by the principal and assigns tasks. A teacher in the school said that they had the meeting about 1 or 2 days during the peak season, and

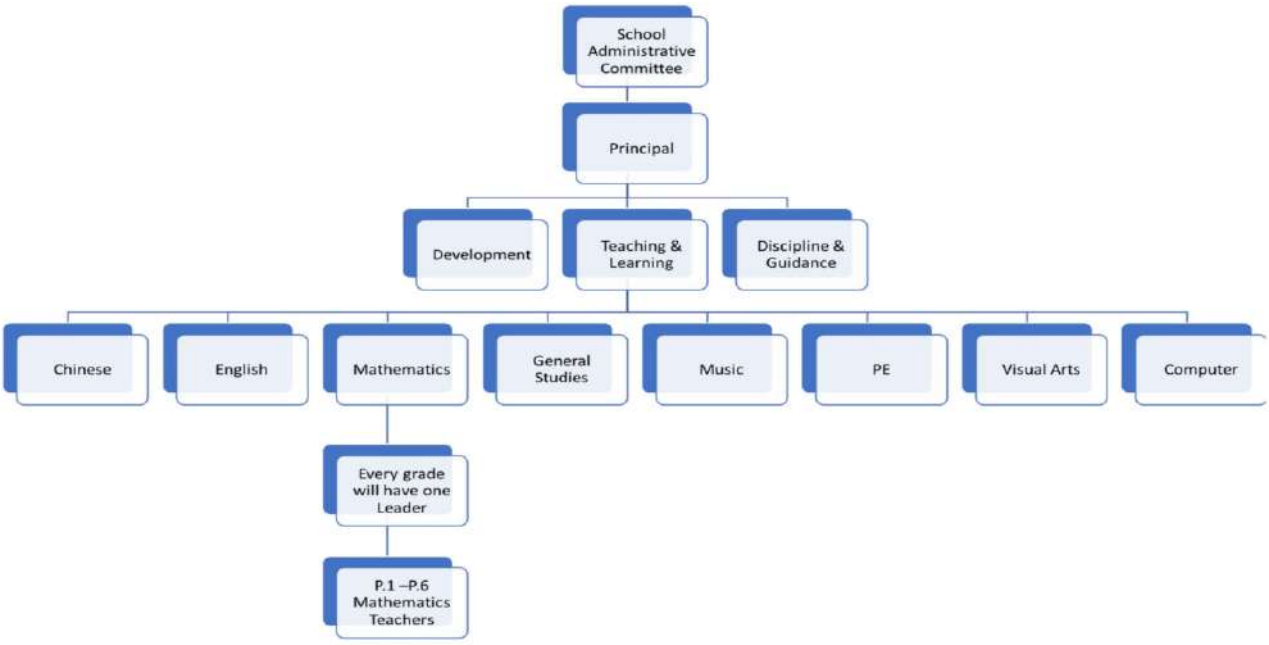

Figure 1. Administrative combination:

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they often needed to analyze the content of the meeting and get many missions from each meeting. Regarding the supervision of teaching arrangements, members of the organizing committee will conduct random checks on each class and conduct class observations to promote the development and ranking of teachers. They also evaluate teachers by monitoring students' work and analyzing and recording students' evaluation performance. This can enhance the scheme to improve the assessment performance. Teachers in school A are also required to do a lot of work to promote the teaching atmosphere, such as teachers designing activities that simulate students' autonomous learning. Teachers use Geogebra and NearPod Apps to write math programs, and use different levels of worksheets to increase learning diversity in the class, and teachers have common planning time every week. School A provides workshops to enhance teachers' teaching skills. In addition, students can get different support schemes from the universities of HK and EDB.

5. Analysis of the School

5.1 The Reason Why School Mainly Uses the Instructional Leadership

Curriculum leadership of principals is a key factor influencing curriculum reform and practice. As a ranked school, a person with rich experience and prestige to lead the school out of the bottleneck is of great significance to the school. Most of the staff in the school only have a master degree, and there are not many veteran teachers who can be competent for important positions. Therefore, Ms. C, who has many years of experience as a principal, was elected as the leader of the school.

5.2 The Weakness of the Instructional Leadership of This School

As the administrative structure setting, the school should have a good schema of distributive leadership. However, the school pays too much attention to instructional leadership, and teachers cannot have much decision-making power. In fact, the principal's decision may not be completely suitable for front-line teaching, and it will often deviate from ideals and reality.

One teacher in this school said that they often need to work very late because of too much impractical mission from the principal. That's the corrupt practice of highly instructional leadership.

After the investigations, researcher found that there are many other problems exposed in the assessment and supervising aspect. The supervising system is imperfect, principals and committee only have time to observe several classes, assessment of learning and teaching is the direct way for teachers to get feedback and improve themselves. They do not involve subject differences. They only use the same set of class assessment forms to evaluate various subjects such as mathematics and English. This makes teachers only adopt similar teaching designs and rarely carry out creative teaching, which can not only improve children's learning interest, but also fully consider the children's learning psychological characteristics. These weaknesses make it impossible for all subjects to develop rapidly.

6. Improvement Path of Instructional Leadership

Strengthen the construction of distributive leadership while the school should give more rights and space for teachers. We believe that the role of teachers as leaders should be strengthened in the teacher role series, that is, teachers are leaders [17]. The point of "teacher is a leader" is put forward because the characteristics of the teacher's leadership are in line with the teaching practice of its role, and the teaching activities are highly similar to the leadership activities. Taking teachers as the leading role can improve teachers' teaching leadership ability and promote the transformation of teachers' concepts. It has important value and significance in teaching practice.

In addition, diversified classroom assessments can help teachers better understand the highlights and deficiencies of the classroom. Classroom learning is the main way for students to achieve their learning goals. Teachers are advised to use a variety of assessment methods and interacted with students. Teachers should pay attention to individual differences of students and mobilize students' enthusiasm, initiative and interest in learning. The purpose of the assessment is to promote learning. With the diversification of the education system reform and the need for diversifying talents in the development era, the teaching model has become more and more important. At the same time, a well-functioning classroom evaluation system is increasingly closely related to the achievements of teachers and students. Effective teachers, classrooms, and student assessment systems can truly assess the goals of teaching and learning.

Lastly, develop an organizational culture of democratic cooperation. Leaders should have democratic concepts and styles of work, and principals' role should change from commanding to cooperating with teachers. It is necessary for leaders to create an atmosphere of collaboration and sharing in schools. Principals should let teachers and students participate in instructional leadership work through collective activities and empowerment, stimulate teachers' team consciousness, and realize the common growth of both individuals and organizations. Besides,

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exploring university-government-school cooperation is also a valuable way to benefit teaching leadership.

In addition, find scientific and appropriate implementation approaches to improve the curriculum leadership of principals. As the principal, he should make the school's school-running philosophy a code of conduct acceptable to every member of the school, listen to teachers' voices on curriculum construction, do more communication and share more, and grasp the direction of curriculum reform. As the principal, he should accurately construct the structure of all kinds of courses, attach importance to the teaching values in the course of implementation, be good at summarizing all useful and effective methods, and promote the curriculum construction to support the characteristic development of the school strongly. As the principal, he should pay attention to cultivating excellent teachers, be good at discovering leading figures in the teaching team, create favorable conditions, build a teacher growth platform, and improve the professional level of teachers, to ensure the quality of curriculum construction. The curriculum and the teaching are inseparable and consistent. All the policies and the strategies should keep their integrality and relevance. Becoming an excellent school to obtain student success, it is very necessary for school leaders to have outstanding experience, knowledge and skills in curriculum setting and teaching leadership.

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New Features and Trends of Higher Education during the Epidemic Period

Bin Yan[1] Joseph Eleojo Victor[1,2*] Oguche Innocent Amodu[3]

1. School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China
2. Department of Civil Engineering, Faculty of Engineering, Ahmadu Bello University Zaria, Kaduna State, 800242, Nigeria
3. Department of Civil Engineering, Faculty of Engineering, University of Abuja, Abuja, 900105, Nigeria

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ABSTRACT

The epidemic that ravaged the world has had impact on every element of human endeavors, including education. This devastation was evident in the speed with which several countries' ministries of education shut down school activities and halted academic sessions. In the wake of the epidemic, several trends and features has emerged in the higher education sector as higher education institutions tries to create methods to offset the disruptive impacts of the COVID-19 epidemic on their activities and operations. The trends that will shape the future of the higher education industry are not new. However, the epidemic on the other hand has hastened their progress. It has become evident over the last year what the post-epidemic higher education institutions will look like. The rapid speed of change that has already begun will continue. It is in tandem to this that this paper identifies and discusses some of the emerging trends and new features of higher education in the epidemic period.

1. Introduction

COVID-19 disease, caused by a coronavirus, was declared a public health emergency of international concern by the World Health Organization (WHO) on March 11, 2020. Fever, cough, exhaustion, shortness of breath, pneumonia, and acute respiratory distress syndrome are among symptoms of COVID-19 disease, which has led to mortality in some cases (WHO, 2020). According to a UNESCO report, Coronavirus (COVID-19) began spreading fast over the world in late December 2019, killing over 3000 people [14]. As a result, numerous governments have implemented a variety of strict measures, including national lockdown and social isolation, as well as the closure of educational institutions, in order to prevent the virus from spreading further. According to Huang et al., (2020), as of March 12th, 2020, 46 countries across five continents had declared the shutdown of schools, including tertiary institutions, in order to contain the spread of COVID-19. Because there has been no specific antiviral treatment, prevention has mostly been used to control its spread [5,11].

The epidemic that ravaged the world has had impact on every element of human endeavors, including education. This devastation was evident in the speed with which several countries' ministries of education shut down school activities and halted academic sessions. The global epidemic has had the most damaging effect on

**Corresponding Author:*
Joseph Eleojo Victor,
School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China; Department of Civil Engineering, Faculty of Engineering, Ahmadu Bello University Zaria, Kaduna State, 800242, Nigeria;
Email: jaser1901@csu.edu.cn

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schools that do not possess an e-learning infrastructure. This was the case in higher institutions in Africa, while in developed nations like the United States, Canada and United Kingdom, school's educational revenue and income took a diminishment. According to the report by [15], the closure of educational institution has impacted over 91% of the world's student population.

According to [16], nearly half of the world's students are still affected by partial or complete school cancellations a year after the COVID-19 global epidemic began, and over 100 million more children will fall below the minimum reading competency level as a result of the health catastrophe. Despite global efforts to combat the COVID-19 epidemic one year later, significant disruptions remain in the reopening of schools, education and training systems.

In the wake of the epidemic, several trends and features has emerged in the higher education sector as higher education institutions try to create methods to offset the disruptive impacts of the COVID-19 epidemic on their activities and operations. Though these trends have obvious deficiencies and weaknesses as seen in the inexperience of teachers, complex environment at home, weakness of e-learning infrastructure (Murtgatrotd, 2020). However, the epidemic situation demanded definite intentional action to mitigate its effect on the education of students. Most notable is the "Suspending Classes without Stopping Learning" a policy initiated by the Chinese government to ensure that learning was not affected by the epidemic [20]. This study or paper will examine some of the trends and features of higher education during the epidemic.

The findings of this paper are significant in all regards and of great importance to various stakeholders involved in the educational sector. This study will provide educational authorities with crucial information on emerging trends in higher education, such as ICT, so that they can include them as pedagogical improvements in education. Furthermore, the findings of this study will aid higher education institutions by providing them with useful information that will help them improve their curricula and better educate teachers to deal with the epidemic's various challenges.

2. Methodology

Secondary sources of data were employed to perform this research. The review centered on accessible literature on the COVID-19 epidemic and higher education journal articles published in the year 2020 during the epidemic period. The study's thematic area was developed using meta-analyses of qualitative literature, commonly known as meta-synthesis. Also examined were e-contents, legitimate websites, and other internet reports from national and international bodies relating to the COVID-19 epidemic and higher education institutions. The qualitative analysis of the data and information gathered throughout the review was driven by the study's topic area. Background information on the COVID-19 epidemic, its consequences on higher education institutions, the features and new trends adopted by higher education institutions during the epidemic period were among the topics covered.

3. Findings and Discussion

The COVID-19 epidemic makes practically every aspect of our existence questionable. Higher education institutions are scrutinizing their structure, approach, and sustainability in order to adapt and even overcome the challenge they face. As such, innovative institutions have had to pull through their operations in the face of costly operational constraint. To go beyond mere experimentation, higher education institutions are letting go of old practices, balancing pressing demands, and learning lessons, all while putting students first.

It has become evident over the last year what the post-epidemic higher education sector will look like. Trends that will shape the future of the higher education industry are not new. However, the epidemic on the other hand has hastened their progress. The rapid speed of change that has already begun will continue. If we can see and adopt the developing trends and patterns, the COVID-19 epidemic period will be remembered as a time of reflection and fresh opportunity particularly in terms of more choice and cost of learning, which enabled us to serve more students in more meaningful ways.

3.1 Bimodal Delivery of Academic Programs

The devastating impact of the COVID-19 epidemic has left humanity with a reality that we have to live with for some time. Subsequently, it will not be possible for higher education institutions to return to normal operations anytime soon. As such, a combination of face-to-face and online learning is the new norm. Many higher education institutions have adopted e-learning as a way to avoid completely disrupting their academic calendar. These institutions have taken advantage of the critical role that information and communication technology (ICT) plays in everyday life to revolutionize the learning environment, using ICT tools to facilitate learning throughout the global epidemic. College and universities have adopted a number of e-learning platforms however, these platforms

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are in exhaustive. Zoom, Tencent Meeting, QQ-meeting, Microsoft Teams, Google Hangout (meet), Skype, Bamboo Learning, Google Classroom, and so on are just a few examples.

The COVID-19 epidemic caused many institutions of higher education to turn to e-learning platforms out of necessity and a sense of urgency [18]. This is only the beginning. Technology will continue to play a critical role in classrooms including how assessments are produced, textbooks are distributed, communication occurs and even internships are conducted. For example, during the pandemic in July-August 2020, Central South University's third-year civil engineering students completed their internship online. How did this happen? Experts from several fields of civil engineering, as well as professionals working outside of academia, were invited to discuss their research with the students and the project they were working on, respectively.

The erratic pace of ICT progress can be seen in advanced countries' inventive development, such as Japan's use of robotics to perform a virtual convocation ceremony for its students [10]. Business Breakthrough University (BTT) in Japan devised a brilliant method of holding a graduation ceremony without the students being physically present. Instead of them, the graduates used remote-controlled robots to accept their degrees.

The COVID-19 epidemic has shown that, while good physical infrastructure is important for a good learning environment, it may also be excessive [2]. As a result, higher education institutions are investing more in ICT infrastructure and employees to provide the necessary technological assistance. During this digital shift to global virtual learning, institutions' commitment to invest in user-friendly technology for a seamless experience can help overcome time, technological, and location constraints to learning.

3.2 Transition to Entrepreneurial University

The epidemic occurs at a time when government financing for higher education has been dropping, and governments have slashed funding for higher education as a result of mounting fiscal constraints [4]. A decline in revenue in the form of students' tuition fees and donor-funded research due to the COVID-19 epidemic has impacted the financial health of higher education institutions. This is a reality most higher education institutions in developing countries must accept because resources in the form of government funding are channeled to other sectors of the economy expected to play acritical role in economic recovery as Altbach & de Wit (2020) mentioned [3]. UNESCO (2020) and the World Bank (2020) have warned that worldwide support for higher education, research partnerships, and partnership schemes, which is typically targeted at vital areas like boosting Ph.D. programs, could plummet.

One year into the global epidemic, higher education institutions have realized that the transition into the entrepreneurial university is unavoidable. This is made possible as higher education institutions are learning through strategic community engagement, cover the financial deficit by generating additional revenue through symbiotic relationships in knowledge, technology transfer, and resource exchange activities [2].

As [2] point out, the shift to an entrepreneurial university is not a simple process. It is a deliberate, conscious, systematic, and rational transition to profit-making institutions through strategic community engagement. Only through recognizing, implementing, and supporting entrepreneurial behaviors, orientation, education, structures, practices, culture, and research across the entire system will this be accomplished [13].

3.3 Institutionalized Contingency Planning

Even the best-rated higher education institutions can be swamped by a pandemic breakout if they lack contingency preparedness, as the COVID-19 worldwide epidemic has revealed. One year into the epidemic, higher education institutions have realized and acknowledged the need to outgrow from situational to strategic, proactive and inventive responses to catastrophes and emergencies [7]. As noted by [2], previously, spontaneous responses motivated solely by institutional survival have almost always resulted in turmoil, jeopardizing the institution's essential ideals. As a result, higher education institutions have made disaster and emergency contingency planning mandatory in order to prevent, prepare for, reduce, respond to, and recover from future occurrences of such occurrences, reducing operational disruption and psychological repercussions on students and staff.

3.4 Virtual Assessment of Learners

Assessment lies at the heart of the teaching process [1]. The impact of the COVID-19 epidemic which has resulted in a shift from face-to-face to full-time online learning, has also impacted institution's ability to assess students' performance. This was exacerbated by the fact that the majority of teachers and students transitioned to e-learning with little or no experience with virtual evaluations. The goal of assessment is to test the understanding of students and determine their ability to progress to the next.

Months into the epidemic, higher education institutions

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in China, made a breakthrough viz the "TronClass" application. TronClass is a mobile application that combines a variety of teaching resources to provide the most interactive teaching experience. It supports multiple application scenarios such as learning management, flipped classrooms, smart classrooms and so forth. With the mobile APP, it fully covers the PC and mobile terminals, and realizes fragmented learning, zero storage and integration, homework, testing, discussion, and interaction, it's like bringing the classroom with you in your pocket and getting the latest course dynamics in real time [8].

Central South University used the TronClass and teachers were able to assess students, how? On the TronClass application, students operate from a personal account while teachers operate from institutional account, the teacher asked the students to go into their TronClass account and take the test that the teacher would administer while watching everyone through their webcam during the online class on QQ meeting or Tencent conference. The teacher has control over the amount of time and questions that the students view; in the end, the assessment goal is met because students can see their score in their personal account. Students can then ask questions to find out what the correct solution is.

While many schools struggle with how to give end-of-semester exams online, higher education institutions are advised to adopt TronClass as it would help them achieve their intended goal of evaluation and quality assurance.

3.5 Greater Emphasis on Lowering College Cost

The COVID-19 epidemic has thrown higher education institutions into disarray [9], with most classes and assessments moving online for the remainder of the academic year. With so many indicators pointing to a significant drop in revenue for higher education institutions, tuition fees have been called for to be cut (or even eliminated), which has sparked heated debate among students and faculty.

However, some institutions are taking measures to reduce the impact of the global epidemic, a report on Forbes (2021) mentioned, "Student loan debt should not increase as a result of the COVID-19 epidemic unless it impacts the time-to-completion. Colleges and universities are taking great efforts to ensure this will not be the case. Many already have announced tuition freezes for next year, and some are even offering lower tuition or other incentives to continue enrollment and degree progression".

Recently, Ohio State University recently announced it intends to be the first public university to offer a "zero-debt" bachelor's degree "at scale" [18]. What does this imply for institutes of higher learning? It means that more public institutions will provide tuition-free education to students, making it easier for them to graduate debt-free. Because of the aforementioned variables, the cost of higher education will fall for many students from all socioeconomic backgrounds. This is a tremendous accomplishment.

4. Conclusions

What this entails for any higher education institution depends on its position in the higher education landscape. However, every institution will need to take action and, hopefully do so, having this question in mind: How do we improve student learning in ways that empowers them to be the architect of their lives? This can only be achieved if we are able to create a working environment within the institution that attracts and retains talented people to the higher education sector. Higher education institution must go beyond mere experimentation, let go of old practices, balancing pressing demands, and learning lessons, all while putting students first.

The COVID-19 epidemic offers us a unique opportunity to learn from one another in real time as no university or higher institution of learning is alone in dealing with the devastating impact of the epidemic. The epidemic has had and will continue to have a drastic impact on higher education institutions. As a result, it is important that education administrators and other stakeholders in the education sector, respond quickly to incorporate new trends and adopt emerging features of higher education in the wake of the epidemic. Cooperation can help institutions establish strategies that will aid them in effectively adopting emerging trends in higher education, by implementing to see what works and what doesn't, and adhering to what works.

While higher education institutions can aim to provide consistently high-quality teaching and communication to students, it is critical that they listen to students' wants and concerns and use the most up-to-date technology resources for engaging in genuine discussions and creating a more active and inclusive student body.

Policymakers and other education authority stakeholders are being persuaded to enlist the assistance of professional corporations to assist them in adopting these new emerging trends and faces of education in order to mitigate the global epidemic's already existing impact on higher education institutions. While remote learning has taken center stage in the wake of the COVID-19 epidemic, leaders and education administrators are being urged to collaborate with all stakeholders in the education sector to ensure active participation, for improved quality of

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e-learning so as to minimize the negative effects of the shift from face-to-face learning to e-learning.

The trends that will shape the future of the higher education industry are not new. However, the epidemic on the other hand has hastened their progress. It has become evident over the last year what the post-epidemic higher education institutions will look like. The rapid speed of change that has already begun will continue. If we can see and adopt the developing trends and patterns, the COVID-19 epidemic period will be remembered as a time of reflection and fresh opportunities.

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Portuguese and Chinese Translation Teaching Based on Learners' Interests

Wenqiang Song*

Information Engineering University, Luoyang, Henan, 450002, China

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ABSTRACT

The report of the 19th National Congress of the Party proposes to "accelerate the construction of first-class universities and first-class disciplines, and realize the connotative development of higher education." In the Declaration on the Construction of New Liberal Arts, it is mentioned that "we should insist on student-centeredness, output orientation and continuous improvement, build a quality assurance system for liberal arts education with Chinese characteristics, and construct a quality culture with liberal arts characteristics." In this context, undergraduate education in higher education institutions should further explore the integration of traditional teaching modes with modern technological means, and make use of high-tech means such as Internet+MOOC platform, flipped classroom and pair-sharing classroom to improve and innovate undergraduate teaching modes. This paper mainly tends to explore the translation teaching of Portuguese language majors in our college, which is not extensive but has certain significance.

1. Introduction

The teaching approach mentioned in this paper is focused solely on the course of Portuguese-Chinese translation, with the core feature of interest-based teaching and the specific practice of hybrid teaching, incorporating a variety of teaching methods. The specific implementation is divided into three steps, namely the preparation phase, the implementation phase and the assessment phase. The three stages are closely interlinked and form the basic framework of this teaching model.

2. Preparation Stage

Survey of Participants' Interests

Students' interest is their inexhaustible motivation to learn. Under the traditional teaching model, classroom teaching is often insufficient for the cultivation of students' interests, and the content of the lectures is so far removed from students' interests that students may find the learning content boring and find no intrinsic motivation, and are therefore reluctant to put in much effort to study the course content [3]. In the new Portuguese-Chinese translation teaching model, then, in order to address the lack of internal motivation of students' interests, it is first necessary to conduct a survey of students' interests, is conducted before the course is offered.

The instructor then prepares a targeted curriculum for the areas chosen by the participants. The areas provided in the table are relatively limited, as the actual implementation requires that the areas be developed in relation to specific realities, both in terms of the breadth of choice and the practicality of implementation, before which the instructor needs to consider two factors: firstly,

**Corresponding Author:*
Wenqiang Song,
Information Engineering University, Luoyang, Henan, 450002, China;
Email: 15138790207@163.com

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the instructor's knowledge of the relevant area; and secondly, the closeness of the subject content to translation methods and techniques. The content of the areas of interest set out mimics the areas listed by Coursera, but with specific pedagogical realities in mind. Therefore, Table 1 only provides a sample of references intended to show the areas of choice prepared for the development of translation courses in the major, and other teachers can and do make appropriate deletions to the content of the areas in this table according to their own familiarity with the areas. It should be made clear that in this table, students may only select one of the areas as their major and another as their minor for subsequent translation courses. Table 1-2 show a sample of the choices made by the students in the class. The table shows that Elsa was most interested in the area of literature and chose it as the main course for her future translation course, with music as the next most interesting area and chose it as a minor.

Table 1. Area of interest questionnaire

Name	Area	(tick)
	Literature	
	Arts	
	Military	
	Economy	
	Philosophy	
	Music	
	Sports	

Table 2. Area of interest questionnaire

Name	Area	(tick)
Elsa	Literature	√ 1
	Arts	
	Military	
	Economy	
	Philosophy	
	Music	√ 2
	Sports	

The interest of the learners is the inexhaustible motivation of the learners. In the traditional teaching mode, the cultivation of the learners' interest is often insufficient, the connection between the content of the lessons and the interest is not systematic, not lasting and too single, the learners may find the learning content boring and often do not want to make great efforts to study. By categorizing the different areas and allowing students to make their own choices, it largely reflects the students' willingness, interest and desire to learn something, so that if they have a goal and an orientation, they will be more committed to their studies. Once you know the main areas of interest chosen by the students, you need to refine a specific topic as the name of the course offered, which requires the students themselves to choose accordingly within the framework of the specific area.

Table 3. Name of the subject of the course offered

Name	Area	Specific Theme
Bruno	Sports	History of the NBA and some famous players
Elsa	Literature	Paulo Coelho's work and character appreciation
Noé	Arts	Portuguese blue and white porcelain art

The table shows the range of topics chosen and their content. We can also see that the choice of topics varies according to the interests of the students, and that this part needs to be reviewed by the instructor to assess the practicality and feasibility of the course, and to expand and reduce the range of topics without changing the interests of the students. After completing this step, the instructor will then begin to collect materials on the topics chosen by the participants, combining translation theories and methods, as well as the translation skills to be taught, using the content of the topics as a carrier and the theories and methods as a core, writing behind-the-scenes scripts, recording teaching videos, and post-processing them to eventually form a teaching module based on the interests of the participants.

3. Implementation Phase

The basic form of the implementation phase is network + classroom, which is mainly supported by the interest-based translation courses prepared by the instructor on the network platform, through independent study and submission of corresponding assignments. The online platform is the center of the students' self-learning, and it is also a key point of this mode for the teaching reform, and the explanation of knowledge and the discussion and Q&A should be reflected in this link; in the classroom, the instructor always focuses on the core of translation theory, translation methods and translation skills, and then makes supplementary explanations for the important issues of a lesson, answers the questions that appear in the students' online learning, and then through specific examples and exercises. The instructor will consolidate the students' mastery of what they have learnt, disseminate and transfer, and use examples on different topics to make them realize that the same translation methods can be applied in different fields, deepening their grasp of the core of the course, i.e. translation methods and translation skills.

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3.1 Basic Preparation

The following basic preparations should be made for the implementation of this teaching model: firstly, in the context of the current semester, a survey of the distribution of the participants' time after school to get an idea of the time they can spend on e-learning, as shown in Table 4 Questionnaire on time after class (Bruno as an example).

3.2 Content of Lectures

The content of the lectures has to reflect the specific interests of the participants but not deviate from the requirements of the course in translation, and therefore has to be planned in terms of the specific arrangements. In simple terms, content = interest + synchronization.

Interest-based means that the teaching of the translation course should be in line with the participants' previous knowledge of the chosen field, and that the translation methods and techniques to be taught should be integrated into the introduction to the field, so that the participants can use their own strengths and understand the essence more quickly in concrete translation practice. For example, when introducing the translation of action modifiers, such as the phrase "The students entered the school, singing and laughing", "*Os alunos entraram na escola, cantando e rindo "*The phrase *"cantando e rindo*" is an adverbial verb used in Portuguese to modify the state of the students entering the classroom, and when the instructor wants to talk about this point, based on the interest-based teaching model, we change the form of the sentence in the online video platform that is close to the learner's topic, changing into a new form where the video camera is given to the expression of a famous player. The following sentence was given at this point: " *A animação da torcida de basquetebal entrou no estádio, cantando e dançando, mas nesta altura, Kobe era extremamente tranquilo*. " The use of "*cantando e dançando*" is also a subjunctive verb that modifies the way the cheerleaders enter the court, however, based on the participants' interest in the NBA, this cut is very appropriate and very natural to accept.

Synchronicity means that each participant receives the translation knowledge in sync with each lesson. Generally speaking, each student has only one translation lesson per week, so the online resources are updated once a week, because the specific content of individual students' learning is different, and the introduction of relevant translation methods and translation techniques is the same, so that the instructor can focus on solving students' problems in class and give more examples to deepen other students' comprehensive understanding and digestion of the knowledge explained. This also allows for a concentration of scattered learning in the classroom. This is an important aspect of ensuring that classroom teaching exists in this mode.

The content of the lectures is based on the translation techniques described in the Portuguese-Chinese translation textbooks, but we optimize the content of the lectures, for example for the "repetition method" technique, we get the following content.

The "repetition method" means that in Portuguese the language often uses other components to replace repetitive parts and link them to the context to form fuller sentences. In Chinese, however, this is not so often the case, and it is customary to use "repetition" to complete the

Table 4. Questionnaire on time after class (red for busy, green for free)

Name	Class session	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bruno	1						
	2						
	3						
	4						
	5						
	6						
	7						

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context, which is a technique used in Portuguese-Chinese translation. For example, "*A casa de Tino, está situada no Parque Natural, numa aldeia chamada Vale de Mu,a cinco minutos do Porto.*" translates as. "Tino's family lives in a natural park in a small mountain village called Mu Valley, five minutes from the port." In this example, in the original Portuguese sentence, the small mountain village -*aldeia*- appears only once, linking the sentence by the participle '*chamada*' and the preposition 'a'. In the Chinese translation, however, we would have been better off repeating the mountain village, linking more modifiers and making the sentence fit the conventions of Chinese expression. In the case of ordinary teaching, the examples we give are limited to this and our students receive the same examples, then based on the new model mentioned, different students will get different teaching examples in the online teaching, for example, we will see examples like this, see Table 5.

The translation of Noé's example reads "Blue and white porcelain is a thin, polished or glazed tile. Blue and white porcelain is often used to decorate walls and is well known in Portugal." In the original Portuguese sentence, blue and white porcelain appears only once, and the explanation is too long, so if you translate it in one go, the sentence will be too long. Paul published his first book, *The Hell Files*, in 1982, but, unfortunately, it was poorly received." In this sentence, the repetition of "the book" completes the sentence and conforms to Chinese expressions. From the examples given above, we can see that the introduction and teaching of basic translation methods can be fully integrated into the choice of learners' interests. This is how all the content of the lessons is recreated and processed based on the learner's area of interest, forming a unified core of teaching.

4. The Assessment Phase

The assessment phase is the examination and evaluation of the specific competencies of the participants in the teaching model. As the module is delivered in both classroom and off-site settings, the specificity of the assessment is taken into account. The basic approach is that the trainee's total grade = 60% of the written exam + 40% of the usual grade = 100%.

The written test consists of two parts: one part is an examination of the subject matter studied by the student, involving the content and extensions of the online teaching, and the translation questions are focused on the content of the subject matter of the student's own choice; the second part is the common assessment part, which is designed to test the student's ability to transfer and disperse, to see whether he or she can apply the methods and techniques learned to specific practices, and thus break through his or her own field of study. The second part of the examination is the common assessment, which is designed to test the participants' ability to transfer and disperse the skills they have learnt into practice, thus breaking the limits of their own field of study. A paper is worth 100 marks, with each section worth 50 marks.

There are two main aspects to consider in relation to the usual grades: the production of the teaching video for the minor, and the daily completion of the course, both of which account for 40% and 60% respectively. Please refer to Table 6.

The first elements of Table 6 are available on the e-learning platform; the quality of the work submitted is judged by the instructor, who gives his or her opinion and comments. The number of articles collected refers to the amount of information collected by the students on the topics of their chosen major and minor courses, to see how much research and exploration they have done in the

Table 5. Example of teaching translation

Noé	**O azulejo** é uma peça de cerâmica vitrificada e/ou esmaltada, de pouca espessura, são recomendadas para serem utilizadas como revestimento de parede, ganhando grande fame em Portugal.
Elsa	A edição do seu primeiro livro foi em 1982, **Arquivos do inferno**, que não teve repercussão desejada infelizmente.

Table 6. Daily Performance Assessment Form for the first part of the assessment

Name	Number of courses completed	Number of assignments submitted	Quality of assignments submitted	Number of articles collected
Bruno				
Elsa				
Noé				

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area of interest, not only to serve the production of their teaching videos for their minor courses but also to help the instructor to accumulate information as a reserve of basic materials for future courses in this area. Through the combined assessment of these items, a fair score is given to the student.

5. Conclusions

The new model of teaching Portuguese-Chinese translation, which is based on the interest of students and is realized in the form of a pair of classes, is an innovative attempt in the construction of a new liberal arts [4]. Through the introduction of this model of translation teaching, we have found a way to increase students' interest in learning and to combine theory and practice, with good results in the corresponding teaching practice. In addition, the accumulation of overlaps in students' areas of interest will allow for the development of better internalized learning materials in the future, helping them to understand the integration of translation theory and practice, while the extension of non-overlapping areas of interest will allow teachers to enrich their future translation teaching with examples that will open up students' horizons and provide them with a multi-faceted understanding of the Portuguese-Chinese translation process. Although there are still certain shortcomings, the practical application and feedback of the model will make the teaching of translation based on the "interest" of the students more effective.

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Introducing a Levy Scheme to Online Educational Use of Copyrighted Works

Weijie Huang*

Law School, Shenzhen University, Shenzhen, Guangdong, 518073, China

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ABSTRACT

It is common for teachers to use others' copyrighted works for the purpose of teaching. The current copyright law in many nations only exempts educational use in the context of offline classroom teaching. The use of others' copyrighted material in online teaching may still constitute copyright infringement. To protect teachers from the chilling effect of copyright infringement, to safeguard the public's freedom to obtain knowledge, and to ensure the commensurability of the profits and responsibilities of online teaching platforms, this paper proposes a levy scheme for online teaching. Under the levy scheme, teachers are free to use others' published work for the purpose of online teaching, provided that such use does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interest of the copyright owner. Online teaching platforms should remunerate the copyright owner of the work used in the platform according to the number of participants of the course that uses such work.

1. Introduction

To encourage creation and promote cultural development, copyright law awards authors an exclusive right to use their works within a certain period of time, meaning that anyone who wishes to use a work must obtain the authorization of the copyright owner. However, in some cases it is difficult for users to reach an agreement with the copyright owner. For example, the user wants to parody and satirize the copyrighted work and the copyright owner is worried that it will affect his own reputation, or the user is for non-profit purposes and thus is unwilling to spend time and money negotiating with the copyright owners. In order to save the transaction costs and to promote the circulation of knowledge, copyright law has crafted limitations and exceptions of right. The most typical one is the doctrine of fair use, under which users may use a work for certain purposes without permission from and without remuneration to the copyright owner, provided that such use does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interest of the copyright owner [1]. Since education can promote social and cultural development, many national copyright laws provide fair use protection for educational use [2].

Nevertheless, the fair use doctrine for educational use has been designed for offline classing teaching. Whether the use of copyrighted material for online teaching is legal is unclear. Such uncertainty has caused chilling effects for teachers and schools, which in turn affects the effectiveness of online education which has become more and more important during the COVID-19 pandemic.

**Corresponding Author:*
Weijie Huang,
Law School, Shenzhen University, Shenzhen, Guangdong, 518073, China;
Email: gdsthwj106@163.com

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Many uses that constitute fair use in offline classroom teaching, such as distributing sample essays to students for teaching and playing videos in courseware for illustration, would be considered illegal just because the course is conducted online. By examining the purpose of the fair use doctrine, Section 2 explains why educational use in the online environment should not be considered fair use. Since fair use is one of the limitations of copyright, Section 3 analyzes the applicability of other two limitations, i.e., compulsory licenses and levies, to online educational use. The paper concludes with a proposal for a levy scheme for the use of others' copyrighted material for online teaching.

2. Educational Use under the Fair Use Doctrine

The purpose of constructing fair use as well as other limitations of copyright is to prevent the exclusivity of copyright from prejudicing the public interests. The exclusivity of copyright has been regarded as a "necessary evil" [3]. The exclusivity of property right is determined by the physical characteristic of tangible property, that is, tangible property can only be possessed by one person, and only the possessor has the ability to dispose of it. On the contrary, the exclusivity of copyright is an "artificial" monopoly as the subject matter of copyright (i.e., a work) can be possessed by different people at the same time [4]. Copyright law confers on the author an exclusive right to exploit his/her work in order to prevent free-riding of copyrighted works and to provide economic incentives for creation, but at the expense of public access to knowledge. When the cost of the exclusive regime outweighs its benefits, the exclusive right should be limited. Education promotes social welfare so the use of copyrighted works for teaching purpose is normally regarded as fair use in national copyright laws.

In addition to bringing social benefits, another constitutive element of fair use is that it cannot unreasonably harm the interests of copyright owners. Therefore,

copyright laws of various countries generally require educational use to be non-commercial, and some additionally require the use should be conducted in non-commercial educational institution [5]. Limiting the teaching location to offline classrooms is also to avoid unreasonably harming the interests of copyright owners. Offline classrooms have physical boundaries with a limited number of students, which means that the dissemination of works is limited to a specific space and to a specific audience, so it will not affect the potential market for or value of the work.

However, it is difficult to limit the scope of the dissemination of works in the scenario of online teaching. Even if the teacher sets the account number and password of the classroom, students can easily share such information with others who have not enrolled in the course, especially in the case of anonymity. Moreover, with the widely available functions such as screenshots and recordings provided by online teaching platform, students are able to obtain courseware that embodies copyrighted works at basically zero cost, and share the courseware on the Internet. In other words, when the use of the copyrighted work occurs in the online environment, the copyright owner can hardly control the dissemination of the work. As educational use for online teaching probably harms the existing and future market for the work, such use can hardly be considered as fair use.

3. The Applicability of Compulsory Licenses and Levy Schemes

In addition to fair use, copyright law has also set up other limitations and exceptions, such as compulsory licenses and levies. This section intends to examine the applicability of these two limitations to online educational use. The doctrine of compulsory license allows the use of a copyrighted work without the permission of the copyright owner but requires the user to remunerate the copyright owner. Therefore, it is also named the "permitted-but-paid" rule [6]. The compulsory license has been provided for online educational use in some countries, but in a limited way. For example, China applies the "permitted-but-paid" rule to the use of certain types of copyrighted material to make courseware for implementing the nine-year compulsory educational program or the national educational plan online [7]. Nevertheless, the compulsory license is limited to use for the implementation of the "nine-year compulsory education or national education plan", which means that many non-profit public lectures and courses conducted online during the Covid-19 would still face the risk of copyright infringement.

A more serious problem is that online educational use is more compatible with levy schemes rather than compulsory licenses. A levy scheme, similar to a compulsory license, is also a "permitted-but-paid" rule. Under levy schemes, a use without the authorization

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from the copyright owner is permitted provided that the copyright owner has obtained remuneration from the such use. Nevertheless, levy schemes and compulsory licenses have different legislative purposes, as well as different way of implementation. Compulsory licenses have been designed to balance the protection of copyright and the prevention of copyright monopoly. A compulsory license is usually applied to situations where the copyright owner refuses to authorize a user due to the opportunism while such use is very important to the user [8]. Therefore, it is the actual users, usually professional users that use works on a large scale, who pay the royalties of compulsory licenses.

Levy schemes refer to rules that require the provider of the equipment or service that facilitates and profits from the use of copyrighted works to pay levies to copyright owners, and end users are exempted from their non-commercial, private use of copyrighted works. Levy schemes have usually been applied where a large number of end users make non-profit, private use of copyrighted works with the help of certain equipment or service [9]. Enforcing copyright against a critical mass of end users is difficult, but providing remuneration and incentives for copyright owners is crucial. By targeting intermediaries who profit from the use rather than non-commercial end users, levy schemes strike a balance between maintaining the incentives for creation and protecting the freedom and privacy of private use.

4. Imposing a Levy to Online Educational Use

The practice of online education and the number of its participants has been on the rise. Most of the participants of online education use courseware which embodies copyrighted works for personal study and research rather than for commercial purpose. While online teaching platforms have made profits from the use of copyrighted works through charging fees for courses, for certification, for software and for advertisement [10]. To strike a balance between protecting copyright and preserving the public's access to and use of knowledge, and to ensure the platforms' liability commensurate to their profits, it is necessary to impose a levy to online educational use. That is, it is free to use others' copyrighted works to prepare courseware for the purpose of online teaching without the authorization of the copyright owners, provided that such use does not conflict with the normal exploitation of the copyrighted works and the online teaching platform providing the course makes fair remuneration to the copyright owners.

The premise of applying the limitations of copyright to a user is that the user would not unreasonably harm the interests of the copyright owner. Although other existing levy schemes are applied to noncommercial use, because of the diverse management models on online teaching platforms and the ambiguous boundary between profit and non-profit, [11] the levy scheme proposed here is restricted to the use that does not conflict with the normal exploitation of the work. Whether a use conflicts with the normal use of the work can be measured by the total revenue brought by the courses using the work to the online teaching platform. Based on empirical research, the Copyright Bureau and the Ministry of Education can set the upper limits on the revenue of courses in different fields. Once the revenue exceeds this upper limit, the levy scheme should not be applied and the use should subject to the exclusive right. By determining the threshold of the levy scheme for online educational use, the public's access to knowledge could be promoted and the incentives of copyright owners can be maintained.

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Practice on CSU-CCECC-ABU Cooperation Mode

Atolagbe Shakirudeen Olabanji Xuhui He* Bin Yan

School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China

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ABSTRACT

Student exchange program has been an integral part of higher education, which is popularly known as international joint-, double-, and combined-degree programs, which perform an important role in which its strategic plan is aimed to allow students to become true global citizens. Educational Internationalization strategy brings important benefits to individuals, institutions, and the nation's education systems. The international student exchange program is not only a powerful tool in strengthening the relationship between two institutions but also helps in building the social, political, and economic development of the partner nations. Also, it is among the most cost-effective ways to project influence around the world. Educational collaboration on student exchange has had a beneficial impact on the status of any country, institution, and students, influencing society at its prominent backdrop for only favourable outcomes and a brighter future. CSU-CCECC-ABU collaboration was the first of its kind, and it was in accordance with both institutions' missions to encourage collaborative innovation to address the needs and problems of Nigeria, the People's Republic of China, and the rest of the globe.

This paper first outlined the background concepts and explicitly analyzed the pattern of cooperation practice, research on the National, University, and Students benefits respectively. Second, it provided a comprehensive description of challenges faced by exchange students during their stay in China. Third, suggestions were also provided on how to improve and sustain the educational cooperation practice of the joint degree program. Furthermore, it provides the current status of the CSU-CCECC-ABU cooperation practice. Finally, the paper provides directions to subsequent research studies.

1. Introduction

For a rapidly accelerated development, Education has become a link to the future, a stimulant for the construction of human capital, and a manpower industry that generates the knowledge and skills required for development. However, it is widely accepted that a country's ability to develop its citizens' skills, knowledge, abilities, and competencies is critical and fundamentally linked to the educational system - a social service with positive externalities that promotes economic, social, political, and technological change [1,2].

According to Sheriff's report, For any country to strike a balance between infrastructural development and human development, it is essential to invest in education [3]. Education is an excellent tool for the holistic development of human beings, as it makes use of the entire body to attain a predetermined set of goals.

Joining a student exchange or study abroad program for a semester or two is one of the most efficient ways

**Corresponding Author:*
Xuhui He,
School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China;
Email: xuhuihe@csu.edu.cn

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for students to get foreign experience. Such programs assist students in becoming multilingual individuals with intercultural abilities, as well as in forming long-lasting connections with people from other nations, all of which contribute to world peace [4]. Universities are attempting to extend their student exchange programs and encourage their students to join as a result of these benefits. As a basis, they must prepare their students for intercultural competence and foreign profession [5]. Institutions, programs, and courses should be positioned to contribute to the internationalization of higher education and to prepare students for global markets. An internationalized curriculum, according to the Organization for Economic Cooperation and Development (OECD), is one that has a "international orientation in context, aimed at preparing students for performing in a competitive and dynamic context, and designed for domestic as well as international students [6]."

According to Knight [7], After completing the collaborative program requirements defined by partner schools, a joint degree program awards one joint qualification. The cooperating institution awards only one qualification in this area of collaborative program. However, due to limitations such as non-recognition and acceptance of the certificate stamp by two different universities, a double degree program is offered instead. Upon completion of the program requirements set up by the partner universities, the double degree program awards two individual qualifications at an equivalent level. This is practice in almost all the regions in the world such as the US which is in partnership with countries like China, France, Turkey, Germany, and South Korea among others [8]. Universities all over the world are also involved in research collaboration, which is a means of generating and exchanging ideas, methodology, and results among academics, industry scientists, and government scientists [9].

China's strategy plan for education internationalization includes collaborative degree and research programs to strengthen links and transfer home technology to other nations for the common good. The Chinese government authorizes and encourages a strong-strong partnership model of Sino-foreign colleges to expedite education opening up and bring in more high-quality international educational resources [10]. According to the Ministry of Education of the People's Republic of China, collaborations with over 180 nations or regions have resulted in the establishment of 2,385 collaborative educational institutions and initiatives, as well as 8 high-level people-to-people exchange schemes. While collaborative degree programs between China and other advanced economies with world-class universities have existed for some time, China has recently expanded its partnership to developing nations, allowing students from other countries to pursue their study in China. More partnerships are being formed as a result of China's development, particularly to efforts like the Forum on China-Africa Collaboration, which are directed by China-Africa strategy. The research partnership between China and Africa has increased as a result of such initiatives, from a few hundred publications in 2006 to over 2000 in 2016 [11]. China annually awards scholarships to around 1,500 African students, and several Chinese colleges have formed links with African institutions [12]. Because of China's research capacity, a collaboration between China and other institutions across the world would contribute to the development of research capacity and output dedicated to improving university rankings [13].

In the last decade, Nigeria's relationship with China has expanded. Aside from commerce, foreign direct investment, and financing, educational cooperation has emerged as a key component of the China-Africa framework. As a result, it is impossible to underestimate the significance of education. It develops, shapes, and even transforms you. The number of people who are educated determines a country's influence. In Nigeria, however, the government only set out 7.04 percent of the 8.6 trillion Naira budget for education. As a result, China is extending its educational collaboration with Nigeria through the Forum on China-Africa Cooperation (FOCAC) framework in order to close the skills and educational gap in Nigeria and assure sustainable growth.

According to Edeh's report, the FOCAC educational agenda has grown to include technical and vocational education and training, distance learning (remote learning), school construction, volunteer dispatch, and teaching Chinese as a foreign language [14].

Educational cooperation has become an essential aspect of the China-Nigeria framework to strengthen both nations' ties with the agenda of working together for common development and a shared future, and this will be explored to the extent that the character of China's aid policy, generally, are often, illustrated by its education and training policies and practices. (FOCAC 2009) [15].

In line with the China-Africa framework, in early 2017 during the Federal executive council meeting, the Minister of Transportation made a pronouncement on the partnership strategy to establish the University of Transportation in Nigeria to provide the manpower required for Rail Mass Transit development, as well as to develop future railway infrastructure and to speed up professionals for massive transportation investment in the railway, airport and roads development. It was from

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this approach, ABU was picked out of seven Nigerian universities to begin the joint degree program which was dubbed **'3+2'** (three years in ABU plus two years in Central South University, Changsha) in railway and transportation engineering with China's Central South University (CSU), Changsha. The process began and a team from Central South University (CSU), Changsha, China paid a visit to verify the kind of institution ABU was and check the modalities upon which the exchange program will be built. It wasn't so long, the company who has been in charge of Railway Infrastructure construction in Nigeria (China Civil Engineering Construction Corporation, CCECC) was also charged by the ministry of transportation to also be a part of the collaboration since its part of the agreement made in the contract project between the Federal government of Nigeria. Therefore, CCECC came up on board and firstly facilitate the visit of ABU delegates to CSU to establish various aspects of the collaboration. The visit enabled all involved parties to have a very long discussion and negotiations, although there were issues of understanding such as knowing respective institutions strengths and academic capacity but in the long run, it was settled and they were able to formulate the whole framework of the collaboration on the 3+2 joint degree program. Afterward, a Memorandum of Understanding (MOU) was signed in December 2017 by all parties involved and this is what gave birth to the practice of CSU-CCECC-ABU Educational exchange cooperation. First of its kind in Nigeria and Africa at large [16].

As a citadel of learning, ABU considered the situation and the trend of the event in the transportation sector particularly the railway technology, took advantage of the government commitment to revive the railway sector, and then conceived the 3+2 program.

Establishing a joint program is far more than entering into a contract. It encompasses developing a new study program and a new arena for knowledge. The fundamental goal of building joint programs is to advance the standard of the education and research the degree encompasses. The possible outcome of two or more institutions joining forces to offer a study program should be a program of a higher academic standard than the institutions would achieve independently. However, this kind of collaboration brings about important strategic, scholastic, and practical encounters, particularly when legislative and educational structures differ. The work is demanding and time-consuming and there is a need for support to be able to create well-integrated programs and of the highest quality [17].

This paper first outlined the background concepts and explicitly analyzed the pattern of cooperation practice, research on the National, University, and Students benefits respectively. Second, it provided a comprehensive description of challenges faced by exchange students during their stay in China. Third, suggestions were also provided on how to improve and sustain the educational cooperation practice of the joint degree program. Furthermore, it provides the current status of the CSU-CCECC-ABU cooperation practice. The conclusion was drawn from the discussions in the paper and there was a provision of directions for further research in the future.

1.1 Basic Terms and Concepts

1.1.1 Joint Study Programme

According to the definition of European Higher Education which is straightforward and appears to fit the area's reality. However, it may be too simple to convey the reality's complexities. As a result, a more precise definition of a joint program can be devised. "An integrated curriculum organized and offered jointly by several higher education institutions and resulting in a (double/multiple or joint) degree" [18].

1.1.2 Joint Degree Program

"A joint degree is cited a educational capability issued jointly by a minimum of two or more higher education institutions, or jointly by one or more educational activity institutions and other granting bodies, based on a study program developed and/or provided jointly by the higher education institutions," according to a strong recommendation from scholars [19].

1.1.3 Dual Degree Program

Dual degree programs are planned and offered by two or more partner institutions in separate nations, according to the US criteria. The student receives a diploma from each of the partner institutions at the conclusion of the program. "Double" degrees are another term for such programs [8].

1.1.4 Memorandum of Understanding (MOU)

A Memorandum of Understanding (MOU) could be a formal, lawful document between two or more parties that shapes a partnership/collaboration. This is steady with the University of Chicago's definition. Depending on the interests of the person or group establishing the agreement, each active MOU serves a specific purpose - visiting scholar exchanges, student exchanges, resource sharing, and so on. It should be noted that unless the parties expressly specify that they do not intend to be

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legally bound by the conditions of an MOU, it will be regarded as a binding agreement [20].

A Memorandum of Understanding (MOU) is a document that sets forth the parties' broad understanding of the fundamental aspects that will eventually be agreed upon, according to another definition from an organization. A Memorandum of Understanding should be written once the institutions have agreed on the general structure for the intended collaboration. This document may or may not be legally binding, depending on the parties' wishes, though it may become legally binding inadvertently. A Memorandum of Understanding has no defined format, and whether it contains details of the parties' ideas or only the major elements necessary to move the negotiations forward is a matter of personal preference and pragmatism. As a general rule, the Memorandum of Understanding should cover the transaction's most important provisions. Drafting concerns can be discussed later, but they should be avoided at this juncture [21].

1.1.5 Bachelor Degree Exchange Program

Students from two universities in two separate countries can participate in an exchange program, which permits them to spend two or more semesters taking classes at the other university. Students from the "home university" spend a limited amount of time as visiting students at the "host institution" to get foreign experience. A student exchange agreement between the two colleges allows for this strategy to be implemented. For undergraduate students to be eligible for an exchange program, home universities typically have a minimum grade point average (GPA) requirement. Additionally, the students must meet the host university's basic standards. A minimum GPA or a certain degree of fluency in the host country's language are examples of these requirements. For a long-term agreement, the number of students in each university's exchange program should be roughly equal in both directions. The arrangement may come to an end if an approximate balance is not met over a period of time [22].

1.1.6 University-Industry Cooperation Practice

Plewa and Quester define university-industry partnerships as "trusting, committed, and interactive interactions between university and industry organizations that enable the transmission of creativity, ideas, skills, and people across time to produce mutual benefit" [23].

Educational programs, student employment, consultancy work, and research [24] are the four basic types of partnerships with industry that have been identified.

Students, professors, educational programs, research output, and university reputation all gain from collaboration with industry.

Students, faculty, and the university as a whole benefited from collaborations with industry. Gaining practical skills, increased work chances, and, in a few programs, extra certification of their talents by the company were all highlighted as advantages for students. Employer participation in education was seen as critical to attaining high-quality, relevant information and skills. Improved expertise, particularly in practical elements of their field, enhanced financial benefits, and the ability to influence government policies, particularly for those involved in formulating and amending government policies and legislation, are all advantages for faculty [24].

Partnerships between universities and industries are becoming more important in the innovation process. To boost their regional innovation systems, regional policymakers are designing policy instruments to facilitate knowledge transfer between science and industry. The widespread acceptance of the non-linear model of innovation to explain the innovation process in innovation studies has given rise to this policy trend [25].

1.2 Aims and Objectives of the CSU-CCECC-ABU Educational Cooperation

1.2.1 Aim

The Joint-Double Bachelor of Engineering Degree program is the result of strategic thinking by ABU academics, and the partnership is primarily focused on the following areas:

(1) In the shortest period possible, it's proposed to have developed indigenous railway technology and manpower in Nigeria.

With these new graduates trained in two worlds and armed with top-notch skills, it is hoped that Nigeria will lead African nations in the development of railway technology and toward the realization of the African Union's vision 2040 of creating an integrated high-speed train network that connects all African capitals and commercial centers, facilitating the movement of goods, people, and capital.

(2) Developing technically proficient and well-rounded engineers with strong technical abilities and a thorough awareness of the context concerns surrounding sustainable development and the environment in which they work.

1.2.2 Objectives

The following are the specific goals of the joint degree program:

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(1) It will provide an excellent opportunity to fill up the gaps in the field of railway engineering. Because it is in line with the Federal Government of Nigeria's development agenda, it has considerable government support.

(2) It aims to give students with specific skills and a solid foundation for future growth and development in Engineering by providing education in basic sciences, engineering sciences, and humanities and social sciences that are important to engineering applications.

(3) To provide key manpower for the Nigerian train's development. To offer courses that focus on providing students with the knowledge necessary to enter a variety of disciplines of transportation engineering such as Highway Engineering, Railway Engineering, Airport Engineering and, Port and Harbor Engineering, Structural Engineering, Bridge Engineering, Traffic Equipment, and Control.

(4) To prepare graduates to improve their skills in relevant transportation engineering specialties.

(5) To develop high-quality engineering graduates who can adapt to the workplace and carry out their responsibilities ethically while adhering to worldwide norms.

(6) To prepare students for careers in engineering through a dual/internationalized environment.

2. Operational Principles of the Educational Cooperation

2.1 Exchange Program Coordinators

All departments participating in the Bachelor's degree student exchange program are required to nominate an exchange coordinator who is a faculty or staff member from that department [22]. The tasks of an exchange program coordinator are elaborated as follows:

- Enlighten the students in the department about the exchange system and the partner institutions.
- Maintain constant communication with the coordinators of the partner universities' exchange programs.
- To inform possible exchange students of the department, the exchange coordinator must review the regulations, academic rules, and courses of the appropriate departments in partner universities.
- Provide students with information about courses available at partner universities. Students must know how they will satisfy the requirements of their home institution with the courses they study at the host university before they left for the host nation. It is unfavourable if courses taken abroad do not count toward the home institution's degree requirements.
- Serve as a point of contact for departing students and be available for academic advice.
- When the leaving exchange students return, report the grades of the courses they took abroad to the department, maybe after converting them using an equivalency.

2.2 Credit Transfer for Bachelor's Degrees

Different institutions may have differed grading policies. As a result, some institutions only use the number of completed courses at the host university toward graduation requirements at the home institution, and the beneficiaries are exempt from equally as many courses in the curriculum of their home university. The grades earned during the exchange period, on the other hand, will not be factored into the home institution's computation of the student's grade point average. Some institutions, on the other hand, may decide to use a grade equivalency table to transfer the courses and their grades. Before going on an exchange, students should be aware of the ramifications of the exchange system and the marks they will receive overseas [22].

3. The Benefits of the Educational Cooperation

Collaborative-degree programs have had a significant impact, resulting in a stronger and longer-lasting relationship than many other internationalization strategies, as well as academic benefits such as curriculum innovation, professor and researcher exchange, and increased access to expertise and research networks.

For students who want to go on an international experience, student exchange offers a variety of perks and consequences. The majority of these are linked and combine to form the overall exchange experience [26].

The majority of international students studying in other countries come from developing countries with the goal of obtaining a high-quality education that is often superior to that available in their own country. When international students return home, they can make a substantial contribution to the growth of their home country. International students who receive an international education can contribute to their nations' economic and social development by utilizing newly acquired scientific and technological knowledge and skills [13]. The university, students, and the nation have all benefited from educational partnership.

3.1 National Benefits

Higher education international collaborations boost

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the national economy significantly. They are considered as contributing to enhanced status, competitiveness, and capacity building at the national level, which helps to improve intellectual dialogues and generate novel solutions for addressing national concerns [27]. This partnership was purely for the purpose of developing Nigeria's and Africa's infrastructure systems. This student exchange practice, according to Hallet, helps to connect students in order to foster cooperation and development on the global concerns of economic, environmental, and international relations [28].

3.2 University Benefits

Education cooperation yields a benefit to the university in helping to broaden research capacities, enhanced powers to recruit talented international students and faculty, and a more visible and global research profile.

In the past few years, educational cooperation between Chinese universities has paid off by raising the teaching and research levels of China's university teachers, hastening the development of key and new fields of study and key laboratories, assisting in the resolution of technical issues in research work, and cultivating top-notch innovative and competitive professionals [29]. A large number of countries urge their universities to expand their international student and exchange student populations, not to raise university profits, but to nurture soft power and, as a result, increase international trade between the countries [22].

However, statistics reveal that approximately 300 Chinese institutions are working together with over twenty multinational firms to produce computer hardware and software, as well as teach students in related technology and accreditation. These exchanges have increased these universities' international collaboration opportunities, improved their teaching environments, aided in the development of their information programs, cultivated software engineers, and accelerated the development of computer and networking technology in this country [29].

The enhanced usage of information technology in today's environment promotes arrangements among higher educational institutions around the world in terms of knowledge and research transfer and adaptation. An increasing number of contacts with other regions of the world are formed through university-based international relations centers, which contribute to international funding, teacher/student interaction, and the development of international exchange and master's programs [30].

The invention of educational cooperation which brings about the practice of CSU-CCECC-ABU is a great development and innovation because the host institutions (CSU) that have collaborated is the best school and the kind that have high-level quality particularly railway and transportation engineering. This cooperation will create an avenue to train engineers equipped with the appropriate knowledge and skills required for effective operation and management of the transportation industry, a key sector for the rapid diversification of the Nigerian economy and Africa at large. Also, it will foster global recognition to the institution and help to speed up development in the area of the railway research area.

3.3 Students Benefits

Graduates with degrees from two separate nations have been a step ahead of the competition in the international labor market in recent years. Students pursue double degrees for a variety of reasons, including increased employment options, international study and living experience, and the belief that earning two degrees for the price of one implies less effort [27]. Potential employers will place a high value on international experience, not just in terms of business but also in terms of life skills. Students have a more international classroom experience, which provides them with a more diverse learning experience. Educational collaboration encourages students to be more conscious of cultural diversity, embrace it, and build their cultural capital. Students also get the opportunity to go to different countries, study and master the local language, develop self-confidence, and prepare for diversity.

Students are encouraged to appreciate and understand a diverse range of cultural and community perspectives through international learning and information [26]. When it comes to dealing with global concerns, students learn a new viewpoint. Exchange programs provide opportunity for students to learn, develop, and collaborate with others to tackle common challenges and safeguard their futures. Student exchange programs develop future leaders who understand the need of international collaboration, comprehension, and empathy on an abstract level.

4. Challenges of Educational Exchange Programs

Although it is simple to plan and develop a university's physical environment to match international standards, international students studying in China nonetheless encounter a number of problems [31].

Language barrier

The most prevalent barrier for students who desire to study in China or elsewhere is the language barrier. When you study in China, you will be confronted with the difficulty of learning the Chinese language, which is one of the most difficult languages in the world [32]. Foreign students have long struggled with language obstacles,

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which make communication difficult both in the classroom and in their social lives. Furthermore, several important educational websites and materials are only available in Chinese, making it difficult for international students to access them for academic purposes. International students, on the other hand, have noted that forming friendships is difficult owing to the cultural gap. However, attempts have been made to improve connections between Chinese and international students by attempting to match students with comparable backgrounds and experiences to make it easier for them to strike up conversations and build friendships.

Cultural Shock

The culture of each country is distinct. Because China has the world's largest population, it is well renowned for its vast cultural diversity. You'll need to acclimate to the local culture in addition to learning the language and currency. This also implies the presence of a wide range of cultures [33]. Many students experience some form of "cultural shock" as a result of their studies. The cuisine offered, for example, could be the most challenging component of their stay, contributing to cultural shock. This shock may manifest as feelings of annoyance, anxiety, or rage, a lack of motivation, or a persistent feeling of illness. All of these feelings are common when transitioning to a new way of life. It's possible that the adjustment time will be difficult [22]. It is our obligation to strive to comprehend these distinctions and blend in as soon as possible. The culture here is warm and hospitable; it's a lovely country with a fascinating culture.

Separation of Chinese and international students

In terms of intercultural encounters and language interchange, the international student is disadvantaged by the separation of international and Chinese students' dormitories. Interacting with Chinese people is one of the primary goals of student mobility to China. Separating international and Chinese students, on the other hand, will make it difficult for international students to adapt to Chinese culture and improve their language skills. Having some classes together will improve the exchange of ideas and approaches, as well as allow Chinese and international students to collaborate on research. On both sides, this will serve to foster academic brilliance. However, international hostels and Chinese hostels should be partnered in such a way that they share common rooms for relaxation, interactions, and even studies to strengthen their bond, rather than sharing the same bedrooms. In addition, games and other events between the international and Chinese dorms might be held on a regular basis to improve student relations. All of these things will assist international and Chinese students better understand one other's cultures and build togetherness [31].

Changes in teaching methodology

Changes in teaching methodology influenced and affect exchange/International students by historical/ cultural and geographical/environmental factors. All of this is attributable to their diverse backgrounds and social systems.

Students' achievement and teacher evaluation are directly influenced by changes in teaching methodology. The focus and difficulty of education mechanism reform has been attributed to the reform of school teaching methods. Unlike the Chinese system of education where the emphasis is laid more on fractional theories and results that inhibit nature, the exchange students are from where a large number of students of high-end talents are under pressure and more emphasis is laid on examination-oriented education. Generally, China's teaching methodology lay more emphasis more on an understanding of knowledge, implement a strict and stable classroom organization model but the west-African laid more emphasis on student's individuality towards innovation.

In this regard, to improve the overall quality of exchange students, to cultivate and create a multi-faceted talent, the exchange students are encouraged to quickly adapt to this reform.

Those changes in teaching methodology practice help to assess the overall level of students with comprehensive quality and also eliminate the emergence of the high-score low-energy phenomenon. However, the educational exchange cooperation between institutions from different countries will bring progress and strengthen individual school involves to make up adjustments to their teaching plan in line with international practice, it will also promote the students physical and mental development, so overall essence will be achieved and they truly become the backbone of their country.

5. Recommendations in Sustaining the Practice of Educational Cooperation Programs

To make this practice a long-lasting one, the host university needs to put some sustainable measures into consideration for the progress of the program. Below are some of the measures as follows:

1) The host university should form and develop a "international office" to handle full-time overseas students

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as well as exchange students. The obligation for recruiting such students should fall to this office. It should also assist exchange students in obtaining visas or permits to stay in the country. To expedite the bureaucratic process, the student's home nation should contact the embassy of the host country. In a nutshell, the international student office should be in charge of everything pertaining to international and exchange students.

2) During the exchange students' first week, the international office should conduct orientation activities for them. Printed documents, booklets, or links to online pages that provide important information to the exchange students during their first challenging weeks should be distributed by the office throughout this program. The information package should include information about the university's history as well as information about campus life, entertainment venues, concert halls, museums, local currency, banking, food, cafes, pubs, restaurants, sports facilities, course registration methods, grading and credit systems, course registration methods, the library, computer facilities, traffic restrictions, shopping, places of worship, bookstores, safety concerns, health care, the smoking policy, medical insurance, housing, transit, parking, useful websites, and travel information are all available.

3) During the first week, the international office should host a welcoming reception. This can help exchange students get off to a good start by allowing them to meet other exchange students as well as local students

4) The international office should develop and maintain a well-maintained website for exchange students. For example, the WeChat group, which may also be used to disseminate information

5) The foreign office should plan cultural outings to adjacent locales. Archaeological sites, museums, and touristic/historic neighbouring cities or regions, for example, may be suitable options.

6) The international office should make the academic rules and regulations known to the students. They should be informed of the repercussions of examination misconduct and plagiarism.

7) The international office should educate students about the country's laws. It may not be permitted to engage in activities such as drug usage, clubbing, and so forth.

8) The university should provide international students local language classes. Instead of a complete academic language course with grammar, reading, and writing components, such courses should be intended to be useful in everyday life with an emphasis on vocabulary and pronunciation components.

9) The international office should give psychological assistance to students experiencing culture shock or other difficulties.

10) The international office should hold frequent social activities that bring together domestic and international students. Students who have already participated in foreign exchange programs may be invited to such events since they are typically more inclined to participate. It's also a good idea to plan a social farewell celebration for exchange students departing for their home countries at the conclusion of the semester.

International students have unique demands that should not be overlooked by the host university. Exchange students may have problems if there is no international office or if the international office isn't doing its job correctly. The importance of visiting students' brand awareness in establishing the university's reputation should not be underestimated [22].

6. Current Status of the CSU-CCECC-ABU Cooperation Practice

Between 2018 and 2021, 123 students have been enrolled for the undergraduate level, and 17 academic staff from the Faculty of Engineering for the MSc and Ph.D. study.

Currently, 74 students have so far graduated from this cooperation. 50 of the students currently admitted to CSU to further their Master's degree education owing to the steering performance of the students during the undergraduate. The remaining students are currently undergoing a 1-year internship program in various railway construction sites in Nigeria with CCECC.

The academic staff is also growing annually with many of them nearing completion of their various post-graduate programs.

Sequel to the outbreak of the pandemic, the two schools (CSU-ABU) involved plans to explore the possibility of a lecturer’s exchange where teachers from CSU will teach in ABU for some time and ABU teachers will also teach in CSU for the same period with a view of boosting and sustaining the existing cooperation practice between the two prestigious institutions.

The COVID-19 pandemic resulted to closure of borders by almost all the countries which brought the economy of most nations to a standstill. The rate and number of COVID-19 infections in the world forced many countries to close their schools with the sole aim of preventing the spread and transmission of COVID-19 to the university populations and eventually to the communities. To prevent a total shutdown of the educational sector, universities shift from in-person teaching activities to virtual classrooms. This also led to cancellation of many

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international and local conferences and workshops which was also turned virtual later. However, due to the adverse effect of the game-changer, COVID-19, some of the undergraduate students are running their program virtually from their home country and the program which is always conducted annually was put on hold until further notice.

With time, the Nigerian students are getting more accustomed to the life and culture of their host community and the program can be said to have been overall successful.

7. Conclusions

The Chinese government has established a number of scholarship programs to fund overseas students, teachers, and intellectuals to study and do research in Chinese institutions to foster mutual understanding, cooperation, and exchanges in different disciplines between China and other countries. The inclusion of foreign exchange students in a university classroom increases classroom diversity and student contact with people from various cultures, allowing students to build their intercultural competences and become global citizens.

Scholarships awarded by the Chinese government to international students have absolutely attracted a large number of international students, resulting in a significant growth in the number of foreign students in China.

Universities, in addition to government actions, play an important role in attracting overseas students [31]. The presence of international students and the contributions alumni make across the world, according to Rowan (1993), can boost institutions' international credibility [34]. Problem-solving, decision-making, leadership styles, thinking and reasoning processes, and communication styles are all reflected pattern that are internationally represented by foreign students [35].

CSU is among the few locations in the world that has a solid reputation and provides high-quality engineering education, notably in the areas of railway and transportation engineering. As a result, educational background can help with worldwide career prospects, which also functions as a draw factor. CSU has an established connection with international institutions and an annually signed agreement for exchange students, in addition to growing its impact. Technology advancements make studying and accessing more relevant academic material easier and more comfortable for foreign students. Most Chinese universities and other international institutions, specifically in developed nations, are expanding their exchange programs and cooperative academic research initiatives dramatically. As part of their internationalization drive, several Chinese institutions are currently holding foreign conferences, academic workshops, and seminars. These activities, as well as an understanding of other foreign universities' programs and degree requirements, allow Chinese universities to maintain the integrity of their curriculum, pedagogical approaches, and degree requirements, while also allowing them to collaborate closely with their international counterparts [31].

This paper first outlined the background concepts and explicitly analyzed the pattern of cooperation practice, research on the National, University, and Students benefits respectively. Second, it provided a comprehensive description of challenges faced by exchange students during their stay in China. Third, suggestions were also provided on how to improve and sustain the educational cooperation practice of the joint degree program. Furthermore, it provides the current status of the CSU-CCECC-ABU cooperation practice.

To summarize, because China is currently attracting a large number of international students, it is encouraged that more quality be added to higher education in the areas of pedagogy and research work in order to attract a large number of brilliant international students and strengthen international cooperation. ABU students have expressed interest in the combined degree. We are extremely lucky to be one of the beneficiaries of this collaboration practice, despite some of the obstacles. I hope the ideas offered are implemented and sustained to keep this cooperation practice going for a long time.

Future study should concentrate on strategies to improve foreign students' relationships with research supervisors, as this is preventing students from participating in academic work that might improve their abilities and widen their perspectives.

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Current Situation of International Education for International Students in China

Bin Yan Aminu Umar Faruk* Jimoh Jamiu

School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China

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ABSTRACT

Over the past decades, China has become the education hub for many international students due to its internalization policies, education standards, economic advantage and the technological advancement. However, due to the impact of COVID-19 pandemic which also affected the educational sector, the closure of boarder necessitated the transition from in-person teaching to virtual teaching for international students unable to come to China due to restrictions. This paper focuses first on the concept of internationalization, internationalization mechanism of China and the management model of international students and second on the current situation of international students within and without China. The source of the data for this study consists of previous literature and survey data collected using an online questionnaire. The findings of this study reveal that international students experienced minor difficulties in transitioning and adapting to online classes, although the level of satisfaction of the students is low. Based on the findings of the study it can be concluded that the Chinese internationalization agenda and corporations can be further enhanced by establishing online programs for international students, which will require rigorous adjustment of the curriculum to accommodate more people around the globe among other considerations.

1. Introduction

Internationalization can be defined as the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of higher education [1]. The internalization of higher education has over the years led by the key players in the west such as the US, UK, Germany, Canada etc. which left China and other developing countries behind. However, China has over the years joined the race and is quickly becoming a major player in the new century showing its prowess and global impacts in international students mobility (both in and out of China), major international initiatives (such as belt and road initiative), and the Chinese universities ascendency of major world ranking schemes [2]. The Chinese concept of internalization can be defined as the a nationally coordinated, institutionally integrated and comprehensive effort to import the Western-led world standards on teaching, research, management and facility development through the exposure of academic staff, students and administrators to Western practices, and to export the Chinese discourse, voice and cultural understanding in the international community through international student education in China and Chinese language/ culture promotion overseas [2]. Research has shown that the leading rationale for Chinese institutions to actively engage in internationalization of the education was to

**Corresponding Author:*
Aminu Umar Faruk,
School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China;
Email: umaraminu.ck@gmail.com; sunbohan_csu@csu.edu.cn

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become part of the world higher education community, achieve and strengthen international academic standards for teaching and research and build competitive world-class universities [3]. China is becoming the knowledge hub and destination for international students [4]. In less than a decade, China has emerged as a major player in global competition for international students [5]. It is the only developing country among the ten largest hosting countries in the world. Together with fast economic growth, international mobility of students from China and to China is experiencing one of the fastest-paced periods of change [6]. China has longstanding achievements in and commitment to innovation and higher learning [7].

2. Evolution of International Education in China

China's reform and opening-up has over the time enabled the country to undergo a period of economic development, political stability, cultural prosperity, and social harmony which laid the foundation for the development of foreign student studying in China. The initiation of opening-up policy of China in 1978 led to an increase in number of international students patronizing universities in China which led to China's gradual internalization of its education system. According to the ministry of education of the People's republic of China, the number of international students studying in China reached 342,000 between 1978 - 1999. By the end of 2000, the total number of international students in China reached 407,000 which are from 160 different countries. In 2017, 489,200 international students furthered their studies in China, making an increase of over 10% for the second consecutive year. The number of degree students reached 241,500 (49.38% of the total), up 15.04% year on year. Statistics from the ministry show that the number of international students who chose to study in the country for a master's or Ph.D. degree across a wide range of disciplines have increased massively over time. The Regulations of the People's Republic of China on Academic Degree promulgated in1980 officially established the "bachelor-master-doctor" three level academic degree system, which had been adopted up to today, allowing foreign scholars studying and conducting researches in China to apply for and obtain internationally recognized mainstream academic degrees of higher education in China [8]. The Chinese government makes big goals for education in order to accommodate economic, political, and diplomatic development [9].

3. Current Status of Education Levels of International Students Studying in China

The Ministry of Education of People's Republic of China implemented the 2003 - 2007 Action Plan to Invigorate Education and expand the recruitment scale based on the principle of "expanding the scale, improving the level, ensuring the quality, and standardizing the management" to attract more international students to seek undergraduate and postgraduate education in China. In recent years, the number of non - degree students amount for the largest share of China's international education market while the degree students account for 46.5% and 49.4% of the total in 2015 and 2017 as shown Figure 1. The number of international students from the different continents are; Asia - 295,043 (59.95%), Africa - 81,562 (16.57%), Europe - 73,618 (14.96%), America - 35,733 (7.26%), Oceania - 6,229 (1.27%). The total number of international students enrolled in degree programs in 2018 are 258,122 which accounts for 52.44% of all foreign students, which led to an increase of 16,579 (6.86%) on 2017. The number of international students enrolled in non-degree programs is 234,063. There are 85,0662 postgraduate-level international students, an increase of 12.28% compared to 2017, of which 25,618 enrolled as doctoral students and 59,444 in master's degrees [10]. According to the Action Plan for Invigorating Education which aimed at the significantly improving the international education by increasing the number and proportion of degree students.

International students are become diverse in their choice of specialty. In 2015, the highest portion of undergraduates in China majored in western medicine (29.02%), Chinese language (15.94%), economics (13.78%), and engineering (12.7%); for master students, the portions were management (23.01%), engineering (17.32%), and economics (11.34%); and for PhD students, 66.47% studied engineering.

Asia and Africa have a greater number of students pursuing degree programs while Europe and America prefer non - degree programs in China as shown in Table 1. The large proportion of the international students from Asia and Africa was largely due to development of high-tech industries such as industrial manufacturing, medical treatment [8], engineering break-through etc. The stable and healthy development of the market economy and the economic growth of China, the academic level of economics and management become one of the best which therefore attract the attention of most of the international students from Asia and Africa from developing countries.

Xuezhi 2014 [11] predicted the rise in number of students furthering their studies in China by considering the China's GDP. He maintained that with high, medium, and low GDP predicted, the annual number of FSSC in 2020 will reach between 0.82 million to 1.09 million, and

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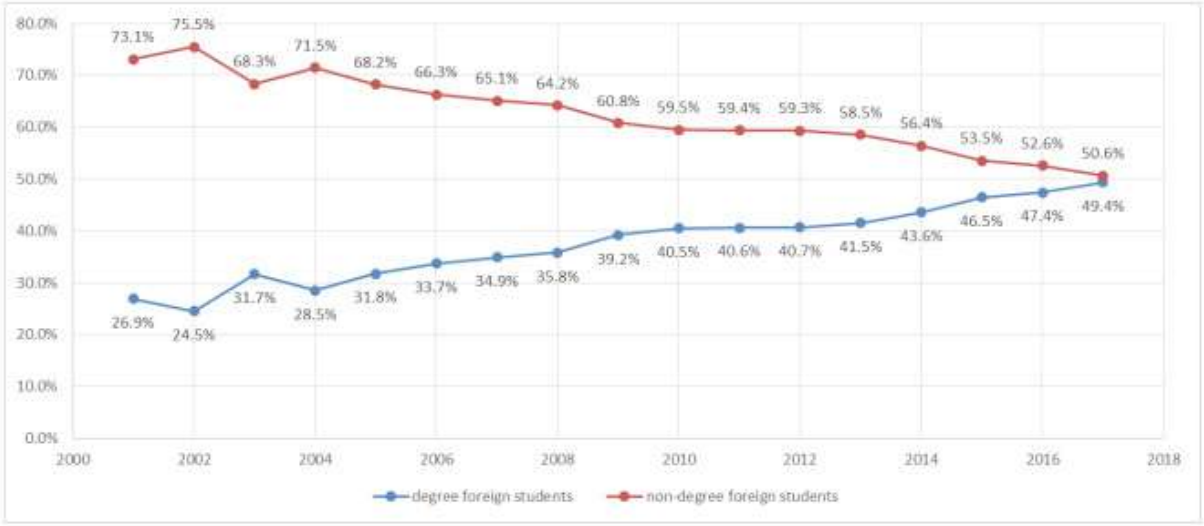

Figure 1. Trend of changes in the proportions of degree students and non-degree students [8]

the cumulative number of FSSC between 2011-2020 will reach between 5.44 million to 6.43 million as shown in the Table 2 below;

Table 1. Degree students numbers and proportions by sending continents in 2017 [8]

Continents	Degree students	Proportion
Asia	160323	54.7%
Europe	18345	24.4%
Africa	51959	70.0%
America	9047	23.1%
Oceania	1869	25.1%
Total	241543	49.4%

Table 2. The predicted Numbers of FSSC in 2011-2020 [11]

Years	High	Medium	Low
2011	323,923	321,563	316,865
2012	371,781	366,330	355,612
2013	427,295	417,843	399,481
2014	491,784	477,194	449,200
2015	566,806	545,665	505,607
2016	644,197	610,432	556,568
2017	732,980	683,482	613,062
2018	834,930	765,937	675,727
2019	952,111	859,079	745,276
2020	1,086,918	964,366	822,510

The increase in number of international students is attributed to the economy - low cost of education and access to scholarships [7,12], technological advancement as well as political, cultural, and other social factors which are summed up as environmental factors. The rapid increase in international students would greatly benefit the Chinese economic and social developments by promoting the China's international development agenda and creating a stronger tie with other countries under the Chinese Belt and Road Initiative. International students have a major role in improving diplomatic relations in which the students are human resources for Chinese enterprises oversea[13]. Reputation of higher education institution which is due to the successful enhancement and advancement of the quality of a number of first-tier universities thereby raising the institutional reputation within the region can be seen as a motivation for international students to pursue education in China [12]. In addition, economic motivations include increasing human capital (knowledge and skills) and improving better job opportunities [14,12]. Fang and Wu (2016) assumed that international students not only increase the direct economic benefits but also stimulate the growth of related service industries such as catering, transportation, and tourism [13].

4. International Student Management Model in China

There are different models of managing the international students in Chinese universities. According to W. Liu and Z. Liu [15], Three models - Differential model, semi - differential model, and non - differential model - are employed in managing the international students based on his study from 39 Chinese universities. International students are often admitted into a single faculty called 'Faculty or School of international Education (FIE)' which is the differential model. The school has a dean which is equivalent to Dean of other faculties (schools) and is in charge of recruitment, enrollment, managing, and provision of daily services.

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The FIE has to work with different academic faculties to provide academic courses as the international students are admitted into different disciplines. The advantage of this model is that they can be able to provide specialized services based on the linguistic and cross-cultural needs of international students [2].

In semi-differential model, 'International Student Office' (ISO) is established under the international office. The International office (ISO) is in charge of international student recruitment, admission, and daily services (such as scholarship, events, immigration, insurance, and career services). Teaching and research are handled by the students' respective faculties, the registrar's office and the graduate school in a non-differential way from the local Chinese students. In this model, matters and issues relating to the international students are exclusively dealt with by the ISO. The international student office is under the leadership of a director.

The third model is the non-differential model in which the international students are fully integrated with their Chinese counterparts in the management and services. However, many schools are yet to transition to this model which is partly due to the difference in admission procedures and requirements for international students. The international students are recruited and admitted based document assessment while the Chinese students are admitted through a national examination written by everyone. However, this model has been partly implemented for international students whose major is taught in Chinese. In this way, the international students attend same classes with the Chinese students and undergo the same standard evaluation and assessment method.

5. Safety and Supportive Infrastructure

Students undergoing international education in China are expected according to the provision of the law to exercise a level of safety compliance similar to the local Chinese students. The perception of safety and expectation of the international students varies. The circumstances at home mostly dictates the student's perspective about safety. Most of the students are of the opinion that Chinese government provides relatively safe environment for international students. The international students are accorded with the treatment of international guest in which they are always provided with better living conditions compared to their Chinese students counterpart [2].

6. Current Situation of International Students Studying in Chinese Higher Institutions

The COVID-19 pandemic resulted to closure of borders by almost all the countries which brought the economy of most nations to a standstill. The rate and number of COVID-19 infections in the world forced many countries to close their schools with the sole aim of preventing the spread and transmission of COVID-19 to the university populations and eventually to the communities. To prevent a total shutdown of the educational sector, universities shift from in-person teaching activities to virtual classrooms. This also led to cancellation of many international and local conferences and workshops which was also turned virtual later. However, due border closure, most of the international students that are outside of China experienced difficulties shifting from in-person to virtual classrooms. In order to ascertain the level of satisfaction of the international students a survey was conducted among international students studying in Central South University.

7. Method of Data Collection

The survey targets the international students of Central South University studying engineering courses who took online classes during the pandemic period and post pandemic period in which some students due to the boarder restrictions were not able to come to China thereby resorting to online classes. Although China was able to contain and manage the Covid-19, the cases in other countries kept on rising which make it difficult for the students that were newly admitted to come to China as such, the only available option for them is online classes. An anonymous online survey was sent to the students via discussion groups and social media accounts such as WeChat and QQ. The survey was designed to identify the challenges encountered by international students during online classes in 2020 and 2021 which include connection difficulties, lack of reliable and high-speed internet, time management during exams, balancing work with study and family engagement, lack of quiet space to study among other things.

8. Results & Discussions

8.1 Demographic and Academic Data

The characteristics of the students that took part in the survey is summarized in Figure 1 and Figure 2. A total of 131 students participated and completed the survey questionnaire. The age range that is most represented in the survey was 25 - 30 years with a (71) 54.2% from the total percentage. The number male respondent (83.21%) was higher than the number of female respondents (16.79%). From the 131 students that responded to the questionnaire, 74 (56.49%) students are currently

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in China while 57 (43.51%) represent the number of students that are outside China. The number of PhD students that completed the survey is 15 (11.45%), and those undergoing Master's degree are 65 (49.62%). Alongside the PhD and Master's students, 35 seniors, 9 juniors, 6 sophomore, and 1 freshman responded to the questionnaire. Majority of the students that responded are from school of civil engineering with 60 (45.8%) respondent and transportation engineering having 39 (29.77%) respondents. Other respondents are from mechanical engineering with 3 (2.29%) students and 1(0.76%) computer engineering student. Those that specify other departments apart from those listed in the questionnaire comprised of 28 (21.37%) students.

8.2 Respondent Satisfaction with Communication Software Used

To facilitate the continuity of knowledge due to closure of schools, a wide variety of freely available platforms used as a medium of communication for online classes during lockdown worldwide include Tencent meeting, zoom, Microsoft teams, Lark, and skype. There was a significant level of satisfaction from the student that responded to survey (M = 2.22, SD = 0.731) regarding the software (Tencent meeting) used to disseminate knowledge to the student from the teachers. The mean value of the response is above the midpoint of the scale (2) from 1 to 4.

8.4 Connection Difficulties and Interference Experienced by the Respondent

The internet speed used by students may vary depending on the location of the individual which would make it difficult for the student when taking their classes online. According to the respondent, 14 (10.69%) students reported that they experienced no connection difficulties during the online classes, 60 (45.8%) students experienced occasional difficulties, 29 (22.14%) had some difficulties while 28 (21.37%) experienced many difficulties. This result may be seen as a factor that influenced the ease with which the students adapt to the online classes. This relation has been verified using the Chi-squared statistical analysis which shows that there is evidence of significant relationship between the connection difficulties experienced by the students and the ease with which they adapted to online classes ($p<0.05$) as shown in Table 3. Moreover, the current location of the respondent maybe a contributing factor because the internet speed at different countries varies. For instance, while China has started using 5G network, some countries are using 4G network while in some remote areas in developing countries are still using 3G network. To further ascertain the relationship between the connection difficulties experienced by the students and their location, Chi-square was used to determine the relationship. The result shows that there is evidence of significant relationship between the current location of the students and the connection difficulties experienced. Those that are currently in China are might experience minor or no difficulties when it comes to connection and internet problems while those outside China were likely the ones that experienced many difficulties with regards to connectivity.

8.5 Correlation between the Student Preference of Online Learning/Teaching and the Variables Included in the Study

The correlations between the student preference to online learning to the quality of online teaching compared to in-person teaching, overall experience with online classes, student - interaction, academic level, ease of adapting to online classes, current location and nationality are presented in Table 4 below.

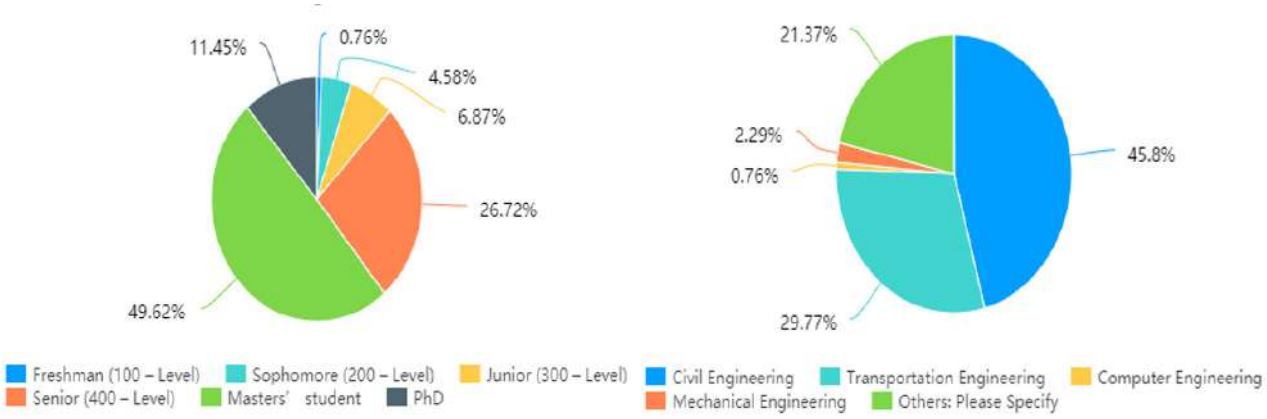

Figure 2. Demographic data from the survey

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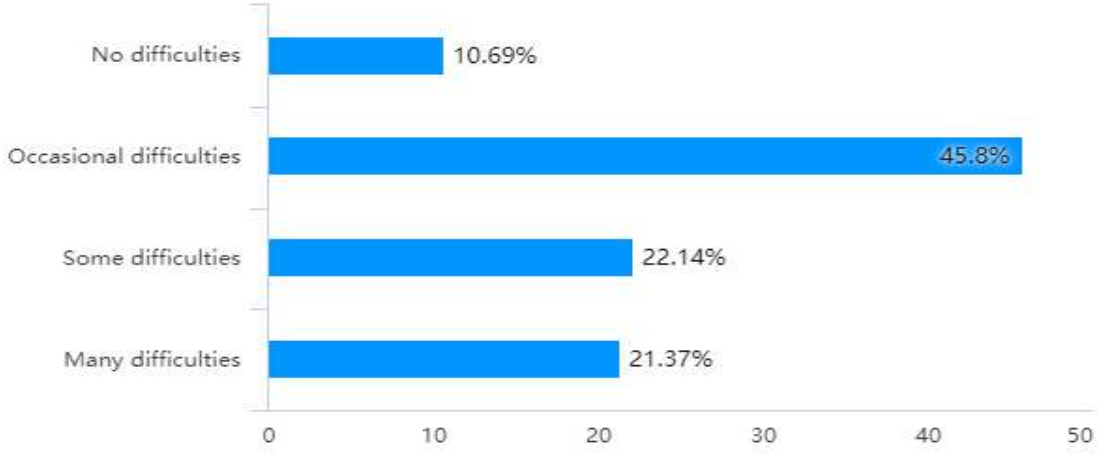

Figure 3. Difficulties experienced by the students

Table 3. Relationship between the connection difficulties experienced by the students and the ease with which they adapted to online classes

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.036[a]	12	.000
Likelihood Ratio	46.571	12	.000
Linear-by-Linear Association	.313	1	.576
N of Valid Cases	129		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .60.

The student preference to online classes compared with in-person classes was found to be positively correlated the current location of the students. It was also found that the overall experience with online classes is positively correlated with ease of adapting to online classes. Moreover, student - teacher interaction was found to be inversely correlated with the nationality of the students suggesting that the students from countries with connection problems and low internet speed find it difficult to interact with the teacher especially during the class.

8.6 Student-Student and Teacher-Students' Interaction

The communication pattern between the students and the teacher as well as student to student plays an important role. This may be among the determinants of how the students would concentrate during the classes without losing interest and becoming bored during the class which will ultimately affect the effectiveness of the process. In traditional higher education where the learning process is face -to -face, the teacher is expected to accomplish certain functional duties to ensure successful learning which requires the presence of the teacher. Teaching presence can be defined as the design, facilitation, direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes [16]. However, online learning is based more on materials (readings, videos, exercises, etc.) than on direct personal interactions (discussions, presentations, etc.). The presence of teachers in virtual teaching environment is paramount which is a major determinant of how successful the learning outcome would be. Rapanta C. et al [17] developed a tripartite frame-work considering the educators as designers, the tutors and the evaluators of the learning experience which consist of three sub-presences of the teaching presence, namely: cognitive, social and facilitatory presence. The sub-presence considers the level of preparedness of the students, introducing and maintaining ways to enhance the student-teacher and student-student interaction, and to teachers' facilitatory discourse, direct instruction embodying tools/resources and mentoring activities as shown in the Figure 4 below.

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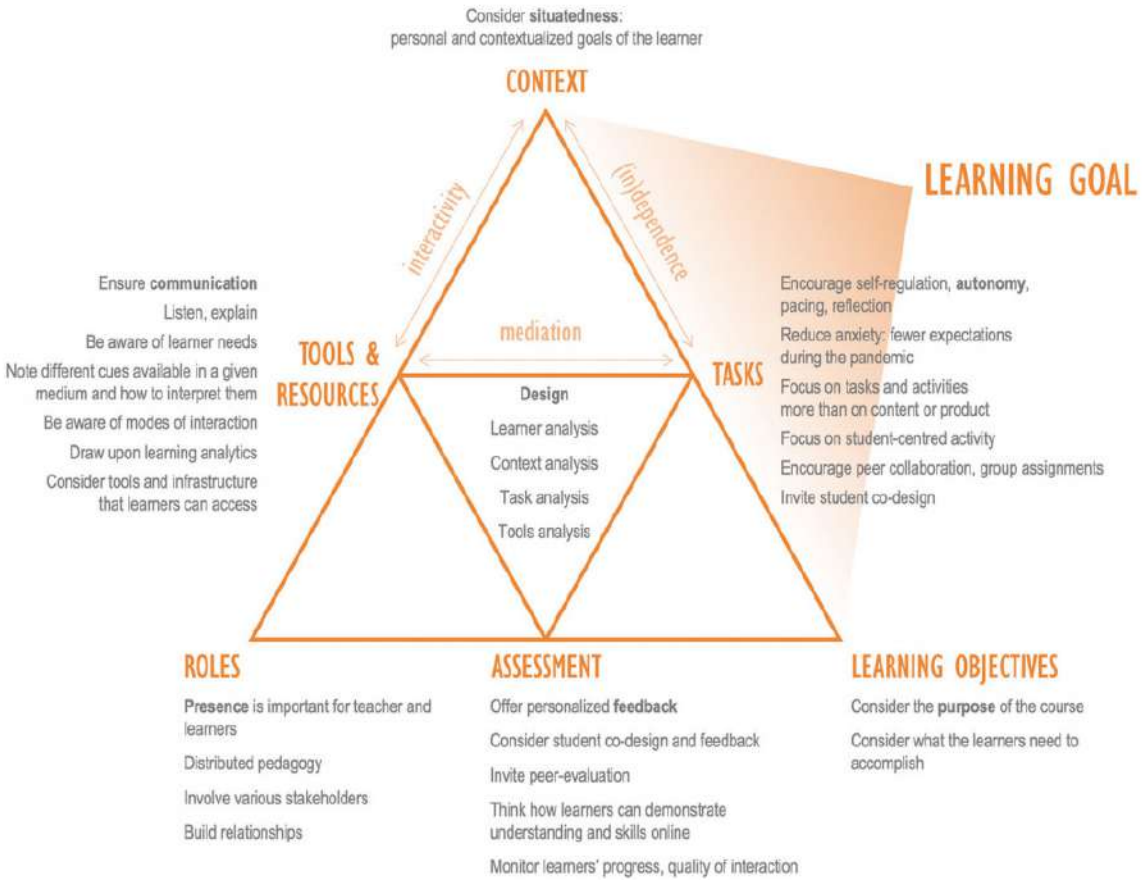

Figure 4. Emerging aspects of the online learning activity focusing on teachers as the main actors [17]

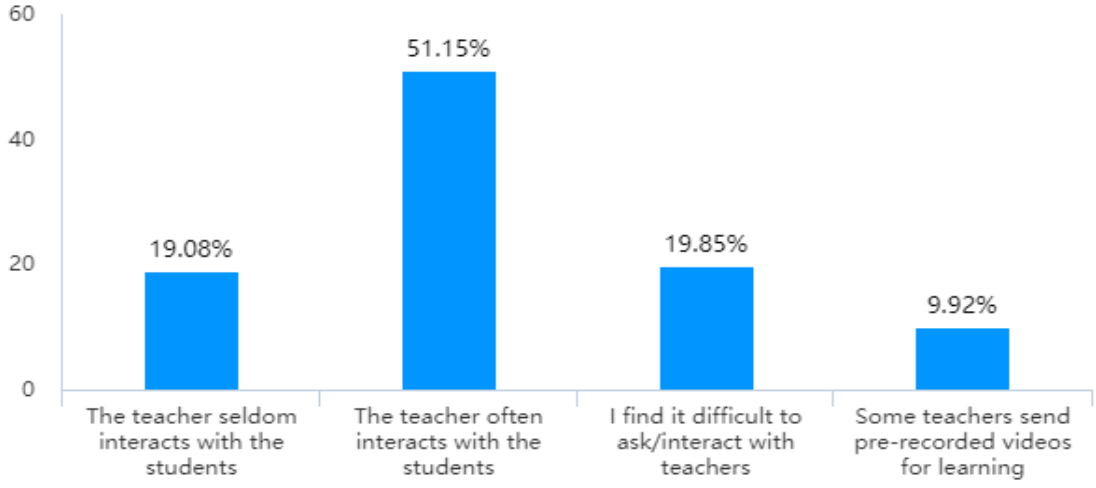

Figure 5. Students - Teacher Interaction during online teaching

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Table 4. Correlation analysis between the variables considered

Correlations									
		Student preference about online classes	Quality of online	Overall experience with online classes	Student - Teacher Interaction	Academic level	Ease of adapting to online classes	Nationality	Current location
Student preference about online classes	Pearson Correlation	1	-.163	.098	.035	.108	.009	.023	.223*
	Sig. (2-tailed)		.065	.267	.691	.225	.921	.794	.011
Quality of online	Pearson Correlation	-.163	1	.019	-.146	.058	.001	-.051	-.132
	Sig. (2-tailed)	.065		.832	.098	.516	.995	.568	.137
Overall experience with online classes	Pearson Correlation	.098	.019	1	.158	.030	.319**	.045	.101
	Sig. (2-tailed)	.267	.832		.073	.733	.000	.614	.255
Student - Teacher Interaction	Pearson Correlation	.035	-.146	.158	1	-.139	.031	-.182*	.161
	Sig. (2-tailed)	.691	.098	.073		.117	.726	.039	.069
Academic level	Pearson Correlation	.108	.058	.030	-.139	1	.077	.104	-.068
	Sig. (2-tailed)	.225	.516	.733	.117		.386	.240	.445
Ease of adapting to online classes	Pearson Correlation	.009	.001	.319**	.031	.077	1	-.054	.011
	Sig. (2-tailed)	.921	.995	.000	.726	.386		.546	.898
Nationality	Pearson Correlation	.023	-.051	.045	-.182*	.104	-.054	1	-.140
	Sig. (2-tailed)	.794	.568	.614	.039	.240	.546		.114
Current location	Pearson Correlation	.223*	-.132	.101	.161	-.068	.011	-.140	1
	Sig. (2-tailed)	.011	.137	.255	.069	.445	.898	.114	

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

8.7 Student Assessment and Performance

The assessment of the students takes various forms ranging from online examination, closed book examination, open book examination and take-home examination. Some of the courses were project based thereby students are asked to write a technical report. The respondents reported some challenges that they experienced mostly during the examination in which time management (54.96%) and reliable internet connection (34.35%) was reported as the biggest challenge to the students. Other challenges include inability of the students to focus and concentrate (29.01%), feeling of social disconnection (24.43%), and feeling of not being engaged (23.66%). These challenges are among the factors that can result to lack of motivation, physical discomfort [18] with working with poor network in a poor environment as well as feeling the stress of writing the examination online.

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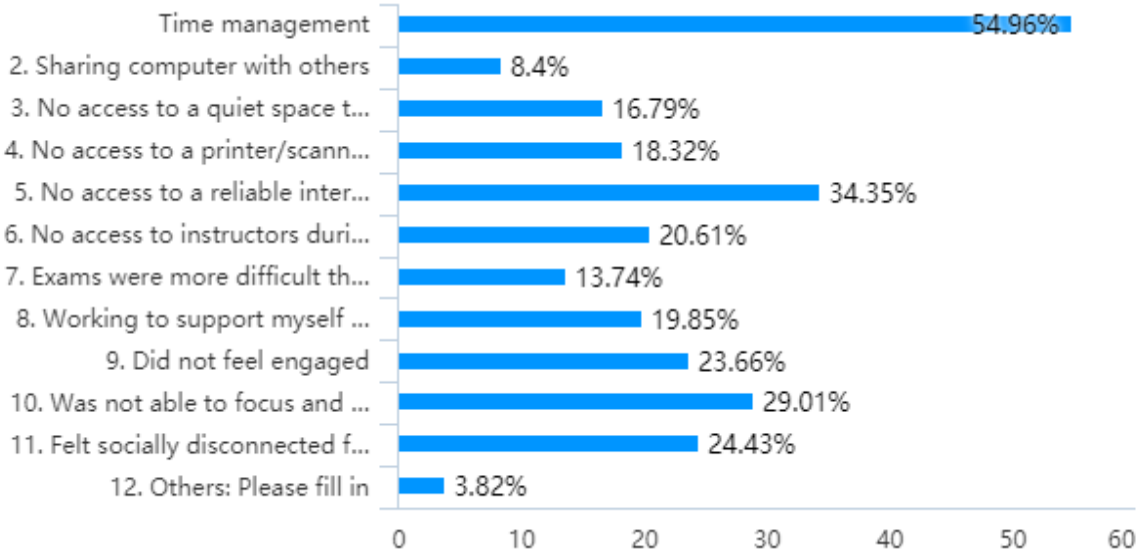

Figure 6. Difficulties experienced during online examination

8.8 Transfer of Technology

The geometric growth rate of engineering knowledge has been reflected in an accelerating rate of technology introduction and adoption [19]. With the advent of technology in 21st century, artificial intelligence (AI) and other robotic technology are gradually taking over the jobs performed by the human beings [20] which therefore necessitate the need to prepare and train the students for a job that does not exist. It is expected that engineering students upon graduation will be able to harness their potentials and create solutions to future problems which are more or less similar to the problems faced by the engineering society today. This would require an in-depth understanding of the principles and practical knowledge learned through experiments. This can only be achieved by providing, teaching, and mentoring the students the innovative, creative, and problem-solving, and critical thinking skills. However, due to the impact of COVID-19 which resulted to border closure, many international students who are not in China are unable to receive direct mentorship from experienced professors who may not be able to provide such service directly. In addition, engineering is characterized by the growing demand made on engineers in their professional lives to provide solutions to problems faced by the society and bring about new innovative and creative ideas to make life easy for the people. The education system of Peoples' Republic of China is designed to train professionals capable of realizing and achieving the objectives through rigorous training of both domestic and international students for onward transfer of such knowledge to their home country. However, with the abrupt change from in-person teaching to online teaching for some of the international students, such objectives may not be fully realized because the approach is different.

9. Conclusions

The pandemic caused disruption to education all over the world which deprived the international students the opportunity to interact socially with their peers from different parts of the world. One of the difficulties experienced by many universities around the world is effective transitioning from teaching in physical environment to complete digital environment. However, the case is different about China mainly because of their drastic effort in managing the impacts of the pandemic on education which resulted to smooth transition to virtual environment by employing the use of virtual teaching using different available online teaching platforms. However, even when the universities in China have re-opened and academic activities continued in all universities in China, many international students especially the new intake were not able to come to China to continue with in-person classes due to border closure which leave them with no option but to take the classes online. Although the online teaching has some advantages and most of the students experienced minor difficulties - such as unequal access to good internet connection, level of technology in their country, time management, the level of satisfaction of the students with the mode of instruction was low according to the data from the survey. The students prefer in-person classes over the online classes due to numerous advantages such as their motivation to learn and experience the cultural and social

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aspect of China, economic benefits among other things. Furthermore, with challenges comes an opportunity. With the level of internet connectivity in most of the countries in the world, this has presented an opportunity to look at the possibility for Chinese universities to offer courses online although this may not fully serve the internalization agenda of the Chinese universities which aimed at utilizing international students experience in China to promote the Chinese discourse, voice and cultural understanding to international community. However, the successful implementation of such program may require careful adjustment of the curriculum to ensure that high quality education is delivered to the international students while they stay in their country which would ultimately reduce the cost for the students especially self-sponsored students.

Possible Limitations of the study

This study of course has some limitations which should be addressed. The survey questionnaire was advertised to the students and data collection continued for only eight (10) days, it is our believe that time ought to be more so as to allow more students to have access to the questionnaire even though there was a substantial response from the students (130 International students majorly from school of Civil and transportation engineering). The investigation did not consider the faculty members perception about the online teaching who are a major stakeholder when it comes to online learning. It did not also consider and evaluate some institutional data (such as grades, financial aid, etc.) which may enhance the study therefore making it difficult to arrive at a conclusion when it comes to some issues regarding the online learning. Because of these limitations, the results obtained may not be used for generalization in China but can provide an insight about the current situations of international students. A subsequent investigation would consider and address such limitations.

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Place and Belonging: How Rural Primary School Principals can Promote Boarders' Development by Building their Sense of Belonging to School?

Dan Cheng*

Beijing Royal School, Beijing, 102209, China

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ABSTRACT

Rural boarding schools in compulsory education in China have proliferated with school merger program. This paper analyzes the relationship between school belonging and student development and the factors that influence students' sense of belonging in rural boarding schools. The paper examines how principals in rural boarding schools in China can promote student development by building a sense of belonging. The paper argues that building this sense of belonging can serve as a solution to the current problems affecting rural boarding schools, improve the quality of rural primary education, and promote student development.

1. Introduction

Boarding schools have long been recognised as an effective means of providing quality education for disadvantaged children [1,2]. More recently, the establishment of boarding schools, triggered by school consolidation programmes in rural China, has attracted increasing attention [3]. Since 2000, the number of students in China's rural schools has been rapidly declining due to mass rural-urban migration and the one-child policy [4]. To address these concerns, the Chinese State Council issued a document on basic education reform in 2001 [5], leading to the launch of a massive school consolidation programme in rural China, with the construction of rural boarding schools becoming one of the most critical projects in the programme. Primary boarding schools are expected to provide children with quality educational resources to compensate for the lack of family conditions, thus improving the quality of learning and life. However, the level of academic achievement and physical and mental development of boarding school students has not been as positive. This paper explores how headmasters in rural boarding schools in China can promote student development by building a sense of belonging. The paper argues that building this sense of belonging can be used as a solution to the current problems affecting rural boarding schools, improving the quality of rural primary education and promoting student development.

2. Literature Review

2.1 Rural Boarding Schools in China

Scholars stated that boarding school is an effective way of solving education problems in remote and mountainous

**Corresponding Author:*
Dan Cheng,
Beijing Royal School, Beijing, 102209, China;
Email: 531367172@qq.com

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areas due to the school merger program [6-8]. They believe that the construction of boarding schools will undoubtedly help improve the quality of rural education and the balanced development of urban and rural education in the long run [9].

First, scholars argue that newly constructed boarding schools are equipped with better facilities and can maximize teaching resources in the classroom [7]. Further, teachers at consolidated schools have more resources to develop a better curriculum for students. Subject areas that are not traditionally focused, such as music, physical education, and art, can be taught by professional teachers [10]. In contrast, language and mathematics teachers used to teach these out-focus subjects on a part-time basis before the school's merger.

Second, scholars believe that boarding is conducive to the physical and psychological development of rural pupils. Boarding is beneficial in developing self-care skills. Students in rural boarding schools are mainly children left-behind by their parents who migrated to urban areas for higher earnings to send home and are often under the care of grandparents. Many of them lack necessary life skills. In boarding schools, students are taught and required to practice general life skills daily, such as making beds, doing laundry, and cleaning up by themselves [11]. Boarding also helps students develop interpersonal skills as they learn to form rudimentary social contracts and learn to observe common etiquette in shared spaces such as a dormitory [12]. These are important steps for developing interpersonal relationships and cooperation skills.

However, pupils in rural boarding schools are at a critical stage in their physical and psychological development, and long periods of boarding leave them without adequate family care and support. Research shows that boarding harms pupils' academic performance and physical and psychological development.

A. Academic outcomes

Mixed conclusions on the effect of boarding on students' academic performance were drawn in China, with the overall effect tilted towards the negative. A survey exploring the impact of boarding on minority students in rural primary schools shows that boarding students' scores on Chinese and mathematics were significantly higher than those of non-boarding students [13]. In contrast, Wang and Mao [14] showed that boarders' scores on Chinese were significantly lower than those of non-boarders and that boarding had a significant adverse effect on the academic outcome of those boarders left behind by their parents. Mo et al. [3] also found that boarding had a negative impact on pupils' mathematics performance. Similarly, Guo et al. [4] found a negative effect of school boarding on fourth-grade students' mathematics performance in a large sample in rural China. In 2016, a research team from Peking University (RTPU) used the International Reading Proficiency Test to evaluate primary boarding schools. The result showed that rural boarders' literacy skills are about one year behind the global average of 46 countries and regions. The study also showed that up to 16 percent of students reported that they failed to move onto the next grade because they could not pass the current one [15].

B. Psychological problems and bullying

The merger of rural schools has led to a longer distance between home and school for some students. To save on travel costs, most students chose long periods of boarding. According to a survey [16] conducted in three provinces in the central and western regions, 40% of students went home once a week while 37% did so every two weeks. There were also 3% of the students who reported to go home only once every one to two months. While most boarding schools provide a good learning environment, care outside of the study fell short for boarding students. According to Yang and Guo's survey [16], the proportion of severely depressed students in rural primary boarding schools reaches as high as 65.7%, with boarding students scoring much higher in psychological depression than their non-boarding counterparts. At the same time, bullying in boarding schools remains common. Children left behind are the primary victims of bullying in school, with 31.7% of victims reporting being bullied at least two to three times a month [15]. Younger boarding students (grades 1 and 2) are more likely to be bullied and to bully others (ibid.).

In summary, primary boarding schools are expected to provide children with better education and improved quality of life. However, the academic performance and the level of physical and psychological development of rural boarders showed that boarding schools have not lived up to the expectation. There is an urgent need to take adequate measures to address these issues, and one such measure is to improve boarders' sense of belonging to the school.

2.2 Students' Sense of Belonging to Schools

Belonging is considered one of the basic human needs. Belonging is a sense of being somewhere where you can be confident that you will fit in and be safe in your identity [17], and a feeling of being at home in a place [18]. According to Goodenow, a sense of belonging for

students is defined as a 'sense of being accepted, valued, included and encouraged by others (teacher and peers) in the academic classroom setting and of feeling oneself be an important part of the life and activity of the class [19].

A few factors that are thought to increase students' sense of belonging to the school have been identified. These factors are consistent with many school practices and expectations [20]. Clement [20] argues that students' sense of belonging to school is promoted through a whole-school approach that includes classroom and school climate. An overall positive school climate may positively impact students' ability to cope, form relationships, and manage their behaviors [20,21]. Both good relationships between peers [22] and positive teacher-student relationships have a strong impact on children's engagement and sense of belonging. The relationship between students and teachers is identified as the most important factor influencing children's sense of belonging to the school [23]. In addition, young people's relationships with other school staff are also meaningful [24]. Given these common factors, students' sense of belonging also varies across different school settings.

A sense of belonging to the school plays a crucial role in students' development, mainly related to their academic performance and wellbeing. Research suggests that a sense of belonging to school is positively related to students' academic achievement as students with a strong sense of belonging achieving better academic outcomes than those who do not [19]. A recent study [25] suggests a strong link between children's physical and emotional 'safety' in school - an essential aspect of belonging — and their academic performance in math and science. Abdollahi and Noltemeyer [26] find that students with a stronger sense of belonging work harder to achieve their academic goals. Conversely, students with lower school belonging experience lower academic success, even though they have the knowledge and skills needed to perform better.

Researchers argue that there is also a strong association between belonging and other positive social outcomes, such as psychological health and physical wellbeing. Allen et al. [27] argue that a sense of belonging positively impacts students' wellbeing, self-esteem, behavior, emotions, and social skills. Findings [26] highlight that students' sense of belonging and psychological problems, such as depression and stress, are negatively correlated, i.e., the stronger a sense of belonging, the fewer psychological problems.

Further, students with a strong sense of belonging are more socially responsible and less likely to engage in absenteeism, violence, and bullying [28,29]. Students who feel a strong sense of belonging to their school evaluate themselves more positively and confidently, and are therefore more willing to help and support their peers [20].

However, the effects of belonging may differ among students depending on their living environment. For example, a strong sense of school belonging can significantly lower drop-out rates, disruptive behavior, and substance and tobacco use for students from low and middle-income urban families [27]. Establishing a sense of belonging to a school is even more critical and challenging for boarding students. Long-term boarding at school replaces the home environment and makes the school the most important place in a young person's life [30]. A sense of belonging to school may help relieve feelings of loneliness away from home. As a result, feeling engaged at school is instrumental for boarders' academic and social success [14].

2.3 Place and Leadership of Place

Place is both a physical reality and an emotional response to the world around us [31]. Place and belonging are inextricably linked. What makes a school a place where young people and adults want to go is whether physical and social spaces are transformed into places of belonging and learning [32]. Schools need to provide young people with 'safe and secure environments' where 'they can feel that they belong' [17].

Schools are considered places that influence students' sense of belonging [20,23] and engagement [33,21]. Schools can promote the spiritual, moral, social, and cultural development of children and young people. As a place maker, the principal should strive to make the school a place of belonging that promotes all members' acceptance and growth [24]. There are a few ways to achieve this. Firstly, the principal needs to have a range of knowledge and leadership strategies at their disposal that are central to students' sense of belonging, wellbeing, and agency. This helps make them believe that what they do can make a difference and that they have the capacity and opportunity to do so. Secondly, the principal should take a systematic approach in creating places that promote inclusion and place students at the heart of this process [17]. Finally, the principal must build trusting relationships with staff and students to ensure their needs are met.

3. Factors that Affect Students' Belonging to the School

Generally speaking, there are several factors that lead to the lack of a sense of belonging among boarding school students. First, rural boarding schools often lack sufficient funds to support their construction needs. Second, rural

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boarding schools often exert excessive academic pressure on students, which reduces important leisure time. Some also experience inadequate accommodation and insufficient school staffing, all of which negatively affect students' sense of belonging to the school.

3.1 Inadequate Funding for Rural Boarding Schools

Demand for rural boarding schools currently outweighs the State's investment in education. Although boarding schools reduce the overall cost of providing an education in the long term, the high construction cost can impede the short run. As a result, rural boarding schools require more financial support from the State compared to ordinary schools. Although rural boarding schools receive an allocation in China's education funding, there is still a severe shortage in funding, especially in more remote and poorer areas [34]. The shortage affects the construction and renovation of boarding schools and directly impacts the success in improving students' studying and living conditions [16]. A shortage of rural boarding school funding could indirectly lead to a reduced sense of belonging for students through lesser conditions.

3.2 Excessive Academic Pressure on Students

Studies on rural boarding schools show that long hours of study and rote learning lead to excessive stress, impacting students' sense of belonging to the school. Yang and Gao's research on boarding students in three provinces in central and western China show that many boarding schools not only extend classroom teaching hours but also increase the time for self-study in the morning and evening, with students studying for more than 9 hours throughout the day [16]. Subjects in rural primary boarding schools are inflexible. To receive higher scores on exams, some schools replaced P.E. and art classes with those on test subjects, and some even canceled extracurricular activities [35]. Students are physically and mentally exhausted from studies and examinations, which adversely affects their wellbeing and sense of belonging. Research [36] shows that boarding students in the sixth grade in primary schools score the lowest in school belonging. This is due to the transition from primary to middle school, which carries the highest academic stress in primary school [37].

3.3 Lack of Extracurricular Activities

Participating in extracurricular activities helps boarding students build strong relationships with their teachers and peers, which is conducive to forming a sense of belonging to the school. However, rural boarding students experience low-quality leisure time, as it is often squeezed by extra teaching hours, restricted by strict space management, and limited by a lack of activity planning and guidance.

One of the most notable problems in rural boarding schools is the poor allocation of study and leisure time, with the former frequently dominating the latter. Schools generally replace leisure activities with class hours to reduce risks and the associated liability to accidents. According to a 2008 survey conducted in the Guangxi Region and Hebei Province by the Central Institute of Education Science Research (CIESR), about 91.3% of students indicated that they would like to participate in their schools' extracurricular activities. However, only 27% of the schools organized activities regularly, and most of the schools did not meet students' demand for extracurricular activities [38]. In addition, rural boarding schools often manage students in lockdown style, severely restricting the space for activities. The lockdown style confines students to a small area on campus with limited or no exposure to the outside world, such as nature and the wider society. It affects the integrity of children's lives and suppresses their imagination and creativity [13]. Lastly, there is a lack of planning and practical guidance for extracurricular activities. Most schools let students chase and play on campus without supervision over their after-school activities, even less in the conscious design of activities [39]. A lack of general guidance for after-school activities by specialized teachers also fails to meet students' diverse needs [35].

3.4 Inadequate accommodation in boarding schools

Activities in dormitories and canteens play the role of family care in rural boarding schools [8]. However, conditions of dormitories and canteens in rural boarding schools tend to be severely inadequate and, as a result, cannot compensate for the lack of family functions for boarding students.

Dormitories in rural boarding schools are simple in design and cannot completely replace a sense of home. Dormitories are where students spend most of their time outside classrooms and should be a physical and psychological refuge for them. However, most rural boarding school dormitories only serve the most basic physical function, such as sleeping space for students [36], and facilities are often in disrepair and overcrowded. According to a survey [4], 45% of rural boarders live in dormitories with 8-16 students per room, and 23% live in dormitories with more than 16 students per room. Moreover, the dormitories look bare and are undecorated [15], making it difficult for students to feel at home. In such

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an environment, students cannot feel relaxed to develop a sense of belonging.

Canteens at rural boarding schools often face challenges in providing nutritious meals for students. Ensuring normal physical development for rural boarding students should be the central task of the canteen. However, many rural school canteens fail to provide students with adequate nutritious food [40]. The management of canteens in many schools is still at the basic level of ensuring no one is hungry, with little consideration for nutritional values in the meals. According to a survey [3] conducted on 144 primary schools in 10 counties in Shaanxi Province, principals do not recognize the importance of nutrition for students, with only 13% of them reporting to have some basic knowledge of nutrition and health [41]. Compared to those at home, meals in the canteen do not meet students' nutritional needs and preclude them from developing a sense of belonging as a result.

3.5 Unqualified Caregivers

As mentioned earlier, good relationships between students and staff on campus are an important aspect of fostering their sense of belonging. Rural boarding primary schools lack sufficient caretaking staff, making it difficult to provide students with emotional support while affecting their sense of belonging to the school.

First, there is a lack of caregivers in dormitories, leading to many teachers working as caregivers after class. However, teachers have limited energy after teaching, and devoting too much energy to caring for students may adversely affect their teaching quality [42].

Second, caregivers are often under-educated and do not have the qualification to provide needed support. According to Guo [4], 67% of caregivers on campus have a junior high school education, 22% have a high school education, and 8% have only a primary school education. They act as general dormitory managers, whose job is mainly to take care of the physical environment and urge students to sleep on time [16]. They cannot provide emotional comfort or professional counseling to help students solve psychological and behavioral problems related to long-term boarding [43], making it difficult for students to develop close emotional ties with them.

In short, in the absence of appropriate staffing, boarding students' school life is dominated by teachers who follow a learning-first strategy with activities organized around rote learning. It is difficult for students to develop a sense of belonging when full-time teachers dominate classroom and leisure time and neglect their physical and psychological development.

4. Implications-leadership of Boarding School Principals

Given funding shortfalls from government sources, principals from rural boarding schools have the ability at their disposal to foster students' sense of belonging as a way to improve their physical and psychological development and academic performance. This paper suggests the following ways for principals to foster such a sense of belonging based on the factors discussed prior.

4.1 Improve Accommodation Conditions in Boarding Schools

Since dormitories and canteens play a central role in boarding students' life after class, principals should first upgrade the schools' boarding and lodging conditions to encourage students' sense of belonging to the school. First, the principal should work to create a safe and relaxing environment in dormitories for pupils. For example, adding curtains to dormitories will make students feel safer and improve privacy [44]. Besides, dormitories should be decorated according to students' age and preference to create a relaxing environment [45].

Second, the principal should raise awareness of nutrition in meals supplied by the campus canteens to ensure a balanced diet for all students and staff. The principal should maximize nutritional value for students within the limit of funding [46]. Secondly, nutrition training for rural teachers should be provided to ensure that teachers have basic nutrition knowledge to set up nutrition courses and activities. In addition to this, teachers should also guide students to focus on a balanced diet and be less picky about food [41].

4.2 Allocate Time for Study and Extracurricular Activities to Enhance of Boarders' Lives

To improve students' sense of belonging to the school, it is necessary to properly allocate study and extracurricular time to ensure ample leisure time for students. Principals should invest more in facilities and provide guidance for extracurricular activities on the back of a trend away from test-oriented education.

Principals should realize the importance of extracurricular activities to students' development. Enriching students' leisure life means increasing after-class activities and providing a suitable environment for well-rounded development for students. The activities can lead to enhanced friendships among students, creating a healthy community in boarding school life and helping them develop physically and mentally [30]. Principals should also increase investment in leisure facilities.

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Leisure infrastructures should be constructed to provide a safe and enriching environment for after-class activities [39]. Lastly, principals should focus on guiding leisure activities. Practical guidance plays an important role in enriching the spare time for boarding students. Only by equipping the school with highly qualified caregivers and conducting dormitory activities can students' leisure time be truly guaranteed and enhanced [39].

4.3 Improving Staffing and Clarifying the Division of Responsibilities

Renovating the dormitory alone is not enough to foster a sense of belonging among boarders. Principals should also ensure that the school has an adequate number of professional caregivers, and the principal should preside over the development of specific responsibilities of the life teachers for students of different ages.

The number of staff in the dormitory should be proportional to the number of students to ensure they are adequately cared for. For example, primary boarding schools should have at least one supervisor for every 50 students [47]. The younger the students are, the more meticulous care they need. Therefore, the supervisor-to-student ratio should be higher for a younger boarding population. For this reason, Shaanxi Province has stipulated that at least one supervisor is needed for every 20 students in grades 1 to 3 in primary schools [44].

It is also important to ensure that the supervisor has the required expertise. Primary caregivers should take care of students' daily life and organize extracurricular activities for students and help them build a dormitory culture. Supervisors should be knowledgeable in education, psychology, primary hygiene, and epidemiology [45]. As it is unrealistic to recruit such high-quality supervisors in a short period given funding issues, it is more feasible to strengthen and improve the current training systems for working supervisors. Short-term intensive training for supervisors in professional knowledge and skills contributes to improved quality of life and level of physical development for boarding students [7]. Therefore, an effective and sustainable training program for supervisors can significantly benefit residential students' physical and psychological development.

Further, the specific responsibilities of supervisors for different age groups should be clearly defined. For younger boarding students, caregivers need to create a family atmosphere at the beginning to help alleviate homesickness and adjust to boarding life as soon as possible. For students in the upper grades, caregivers should focus on helping students develop good habits, and a sense of community [36]. Targeted parenting for students of different ages can compensate for the lack of family functions and enhance the students' sense of belonging to the boarding environment.

5. Conclusions

This paper explores how principals in rural boarding schools can improve students' development by fostering a sense of belonging to the school. Existing literature shows that rural boarding school students have relatively low academic performance and specific psychological and behavioral challenges. There is a strong relationship between students' academic performance, physical and psychological development, and their sense of school belonging. China's rural boarding schools have much to do to improve students' academic performance and promote physical and psychological development by enhancing a sense of belonging. The paper finds that the main factors that affect such a sense of belonging in rural primary boarding schools include financial and academic stress, lack of extracurricular activities, low-quality accommodation, and inadequate supervision. Lastly, this paper suggests that principals improve accommodation conditions, pay attention to school meal nutrition, and provide qualified caregivers to enhance students' sense of belonging and ultimately promote their personal development.

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Coping Strategies of Nigeria Higher Education Institutions during COVID-19 Lockdown

Bin Yan[1] Aliyu Yusuf Moyi[1,2*]

1. School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China
2. Department of Civil Engineering, Faculty of Engineering, Ahmadu Bello University Zaria, Kaduna State, 800242, Nigeria

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ABSTRACT

Beginning at the end of the year 2019, the novel coronavirus (COVID-19) has drowned the world into uncertainty and has threatened the continuity of traditional classroom learning that is the backbone and, in many cases, the main method of learning in most countries. This paper seeks to ascertain how Higher Institutions of learning in Nigeria have thrived during the lockdown period, based on the National policy document that spells out the guidelines for school reopening. Official documents such as newspaper reports university bulletins are used to corroborate in order to ascertain the implementation of the provisions of the policy guideline document as well as assess the efficacy of the measures on students' quality of learning.

1. Introduction

Pandemics are disease outbreaks that become widespread, across countries, as a result of the fast spread of the infection from human to human. The world has experienced series of pandemics in history, including the recent SARS, MERS, Spanish Flu, H7N9, Ebola, Hong Kong Flu, Zika and so on [2], [5-7] with far reaching effects on economy [9], health [8,1], etc. and society's response as can be seen through transportation services and consumer (passenger) behaviour and related activities have become predictable [9]. Economic data from the 20th century pandemics such as the 1918-1919 Influenza pandemic is not readily available. However, the Federal Reserve Bank of St. Louis estimated that there were several losses particularly in service-oriented ones, which rail transport falls into [23]. This is relevant in that it shows how the transport services enterprises can be affected by the modern-day pandemic [24].

The Novel Corona Virus Infectious Disease first occurred around the end of the year 2019 in Wuhan, China, and outbroke in January 2020, a month later [11]. Since then, the whole world has experienced massive spread of the disease and affected countries have recorded several degrees of severity, with China, Spain, Italy and the US being the most hit, amongst other affected countries [12].

Following the spread of the novel corona virus and its declaration as a pandemic by the World Health Organization in March 2020 [4,15], the world has seen unprecedented changes in the approach to doing things

**Corresponding Author:*
Aliyu Yusuf Moyi,
School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China; Department of Civil Engineering, Faculty of Engineering, Ahmadu Bello University Zaria, Kaduna State, 800242, Nigeria;
Email: 1218190101@csu.edu.cn.

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and has had to welcome the reality of the "new normal" [10]. Generally, the outbreak has severely impeded economic activities and process and transportation constraints have interrupted the supply chains of industries and enterprises, personnel quarantine has further slowed down economic activities throughout the world [38]. This has led to the inability of small and medium scale enterprises to resist the risks posed and, in most cases, with no capacity to maintain virtual functionality. To curtail the fast spread of the new corona virus infectious disease, the Chinese Government, adopted series of strict, non-pharmaceutical prevention and control measures, such as massive and strict city lock-downs and restricting people from entering and leaving their communities or using public transport infrastructure [13]. The world saw varying degrees and forms of replication of the Chinese idea toward curtailing the spread of the virus [14]. Through this bold, un-pharmaceutical and unprecedented measures, considerable results were achieved and the spread reduced significantly [12]. However, these measures have inevitably restricted the movement of people and will in the future, cause for significant modification of operational processes in the railway transportation sector, so as to implement the WHO's social distancing regulations [16-20].

As a direct consequence of social distancing measures occasioned by realities of COVID-19 pandemic, Nigeria shut down the entire education sector, e-services' consumers have experienced considerable change in consumption behavior [29], such as drastic drop in passenger travel demand due to fear of infection and as according to government regulations, significant influence on choice of travel mode; where people would prefer to avoid public transportation due to large crowds and even those who can't afford private vehicles or uncrowded modes such as taxis would prefer to travel during off peak hours that are usually characterized by low passenger turn up [28]. There has also been a paradigm shift in trading mode from physical buying and selling to internet based virtual trading accompanied with home-delivery services [30].

The onset of the disease has shut down industries, economies and has significantly changed the way people interact. But countries are already on the brink of economic collapse and are struggling to open up their economies, while implementing regulations to ensure that the people are safe. Unlocking the railway transportation sector is therefore a very crucial catalyst for rapid recovery of economic activities in these countries [21,22].

Recently, many countries have eased down the lockdown, mostly in phased quotas, to allow for controlled movement of people, toward achieving a gradual reopening of the hitherto shut economy [17].

In this work, the various coping strategies of higher education institutions in Nigeria during COVID-19 lockdown are explored. The second section of this work provides an overview of the various strategies used across the world in trying to manage the pandemic situation with a common goal of ensuring that learning and research in higher institutions of learning do not come to an abrupt end. In the third section, the coping strategies as provided in the policy document established by the related Nigerian authorities are discussed. In order to juxtapose the actual implementation of the developed policy framework, a verification survey was done to ascertain the various forms of strategies as adopted by these higher institutions. The results are presented and accordingly discussed in section four. Section five contains conclusions based on the objectives and findings of this study.

2. Coping Strategies across the Globe

In Nigeria and across the globe, COVID-19 pandemic had an impact, not only on people's health, but also on how they learn, work and lives [27]. This has prompted governments around the world to take a variety of steps to manage the outbreak, including stoppage of face-to-face teaching, closure of higher institutions there by forcing students to stay at home which might have resulted in a great deal of stress and uncertainty in their lives. More than 1.5 billion children and young people globally have been affected by school and university closures. This is what led to the development of some coping strategies during the pandemic. Some of the coping strategies adopted across the globe, especially around the education sector are as discussed as follows [3].

A) Increasing Readiness While Keeping Schools Open

This involves implementing and encouraging preventive measures in schools as done by countries like Afghanistan, establishing protocols for dealing with illnesses and possible cases in schools as adopted by countries like Egypt, Russia and Belarus; utilizing the physical and human resources of the educational system to combat the spread of illnesses in communities as done in Liberia and Sierra Leone; and minimizing social and extracurricular activities to prevent physical contact as done by countries like Singapore and Russia [3].

B) Closure of Schools Across the Nation

As the COVID-19 virus had a wider spread, an ample number of countries resolved to the closure of schools. Many policy makers were concerned that, while children and teens

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appear to be less susceptible to the virus and have a lower case-fatality ratio, they may act as disease carriers, putting older family members at danger in areas around the world where multi-generational families are common [3].

C) Selective Closing of Schools

As a temporary measure, some governments chose to segregate treatment regions by closing localized schools (for example India). These localized approaches expanded geographically to countries like Brazil, Canada and Australia [3].

D) Learning Loss Mitigation Through Remote Learning and Educational Resources

Many countries turned to distant learning to compensate for missed school time, countries such as China, Italy, France, Germany, Saudi Arabia etc. had theirs to fully online. Other countries such as Lebanon send kids home with lessons as homework. In countries like Bulgaria, more than 800,000 accounts were created for all teachers and parents, publishers were mobilized to open the digital textbooks and learning materials for grades 1 to 10, and two national TV channels will broadcast educational tv [3].

3. Coping Strategies of Higher Education in Nigeria

Cases of COVID-19 in Nigeria were confirmed in February 2020, which led to the closure of schools and all learning facilities in March 2020 so as to safeguard the health and general well-being of the children, youths, teachers, and educational personnel. This brought about an unprecedented challenge to Nigeria's education sector, as an estimated 80million children, youth, and adult learners in the system are deprived access to schools and have very limited alternative learning opportunities. The closure of schools and learning facilities during the pandemic also resulted in further deterioration in facilities and capacities for the delivery of quality education. It is expected that the longer schools are closed, the more the learning loss, the greater the severity of inequality in the education sector and the greater the risk of exploitation for the most vulnerable children [25].

The above factors were considered and a response had to be made to mitigate the negative impact the COVID-19 pandemic already had on the education sector. In order to do that, some guidelines and strategies for the safe reopening of schools and learning facilities were developed in a consultative and collaborative initiative of the Federal Ministry of Education with other bodies with the goal of supporting and enabling the implementation of the Nigeria Education Sector COVID-19 Response Strategy's objectives in a timely and safe manner. These guidelines were posed to also help learners, teachers, parents, guardians, communities, and the larger society to trust the process of reopening and be assured that learning will continue in a safe environment. In line with the Nigerian Government's drive and as explicitly defined in the final policy document, the coping strategies adopted in Nigeria were as follows [25].

A) Staying Home and Learning Safely before schools reopen

This involves students and learners staying home and learning safely, and they should be involved in learning regardless of the type of distance learning employed in the location of the learner. Ensuring that these learners are safe involves sharing public health messages about COVID-19, including its symptoms, how it is transmitted and how to prevent transmission. It also involves protecting these learners from negative online effects since they will mostly be online. This form of learning also involves training or preparing teachers to teach in a way that safeguards the health, safety, and security of the learners and to enable the facilitation of learning using twenty-first century e-learning. In order to carry out this form of learning, the learners have to be provided with printed materials, online learning, radio, or TV program [25].

B) Reopening of Schools

The reopening of schools was guided by considering the best interest of learners and overall public health, based on an assessment of the associated benefits and risks. Other countries like Ireland, Italy, and Luxembourg have proposed similar distances. The Governments of Italy and Ireland for instance, have made putting masks at learning institutions mandatory for persons greater than 6 and 13 years of age respectively [31-33]. The recommendations of the government to be followed as schools reopened are as follows.

C) Safe distancing

It was recommended in schools and other learning facilities, that learners should be supported to stay 2m apart. This is as speculated by the Nigeria Centre for Disease Control (NCDC). This implies that classrooms, dining halls, staff rooms, and offices should have sufficient space to allow for two-meter separation between all individuals. However, there are exceptions where the two-meter rule cannot be applied reasonably, in which case, other risk mitigation strategies may be adopted [25].

D) Safe Distancing Alternative Learning Models

As schools and learning facilities reopen, they started

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to implement safe distancing measures that minimize and isolate risk. So, some alternatives to safe distancing were developed to focus on flexibility in scheduling and content delivery for learners. The following were alternatives developed for flexibility in learning for learners [25].

a. **Outdoor learning:** this involves learning outside the usual classrooms so that social distancing measures are better implemented, it is necessary for the protection and safety of learners and teachers. The use of outdoor spaces as alternatives to classrooms or other enclosed spaces or implementation of phased entry or both, as strategies to overcome space limitations that may stem from the need for social distancing can limit contamination and transmission [26].

b. **Staggered attendance:** this is the case where learners do not all arrive and leave at the same time, but have large periods of overlap, or schools may reopen gradually (e.g., starting with a particular grade level before other grade levels). This is done to avoid overcrowding. Higher Education Institutions should establish and implement guidelines aimed at lessening the interactions between students in classrooms where they learn and study at night, as well as in the dormitories where they live. Johansen and Bonell et al suggested that strategies such as subgrouping, cohorting or bubbling classrooms be adopted such that in this case, lecturers go to teach students in their classrooms instead of the usual way that involves students moving from one lecture hall to the other [34,35].

c. **Alternate attendance:** this involves the school alternative attendance for all learner per week, with some learners attending the school at certain days in the week in the absence of other learners.

d. **Platooning:** this is the case where classes usually held together may be divided into morning and afternoon shifts due to overcrowding.

e. **Decreased interaction:** this is the case where learners may remain in one location with teachers coming to them.

f. **Flexible schedule:** This is the situation when classes are designed in such a way that learners and staff do not need to move between different regions of the facility.

g. **Creative delivery:** In this situation, courses could be given in a more holistic manner to accommodate for diverse learning settings for in-person learning (indoor, outdoor) and various media for distance learning (printed materials, online, TV, and radio). Learners may have set aside time to learn in each of these settings in order to alleviate the strain on indoor facilities [25].

4. Methodology

Materials

Official Documentation Released by Government Institutions.

Study Design

This research study is a questionnaire-based survey where responses from a cross-section of students in the various Nigerian Higher Institutions such as monotechnic, polytechnics and universities are collected and analyzed. Thereafter, the responses on the nature of coping strategies as standardized by the "GUIDELINES FOR SCHOOLS AND LEARNING FACILITIES REOPENING AFTER COVID-19 PANDEMIC CLOSURES" policy document produced by the Nigerian Federal Ministry of Education are then corroborated against official news channels like university bulletin releases and major newspapers in order to ascertain the veracity of the responses and the news headlines.

Study Setting

Nigeria's education system encompasses three major sectors: basic education consisting of 6 years primary education and 3 years Junior Secondary School education (nine years), post-basic/senior secondary school education (3years), and tertiary education (4 to 6 years, depending on the program of study).

The structure of Nigeria's tertiary education closely resembles that of the United States of America. The Nigerian Higher Education structure consists of Universities, Polytechnics, Colleges of Education and Monotechnics. In order to assess the coping strategies of Nigerian Higher Education institutions in general, the survey was expanded to include all of these component structures of the higher education system. Since the important aim of this study is to ascertain the different coping strategies employed by the Nigerian Higher Institutions of learning, the responses of the survey are corroborated with official print news sources within the scope of the "GUIDELINES FOR SCHOOLS AND LEARNING FACILITIES REOPENING AFTER COVID-19 PANDEMIC CLOSURES" policy document produced by the Federal Ministry of Education in line with the guidelines of the World Health Organization (WHO) and the Nigeria Centre for Disease Control (NCDC) which are the statutory organizations for the management and regulation policies in the world and Nigeria respectively.

Study sample

A total of 122 respondents filled the questionnaire. According to the Raosoft online sample size calculator, a solely survey-based study requires at least 450 respondents. But since the aim of this study is to ascertain those strategies that were implemented in higher institutions of learning in Nigeria, the results of the

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survey are validated with official information channels like university bulletin releases and major newspapers as has already been pointed out in the study design section above.

Data Collection Tool

A google form online questionnaire was developed for this study and based on print and electronic literature, possible questions were developed to fit the research objectives of the study. After review, the final draft was then entered into a Google form whose link was shared across the target sample space in order to collect responses. Cronbach's coefficient alpha analysis was run to establish internal consistency and overall reliability of the instrument and responses.

Study procedure

The link to the prepared Google form was sent to the target students of the various higher institutions of learning after obtaining the student consent. This link was shared widely using social media and word of mouth. To ensure veracity of responses, Google form by default, does not allow multiple completions.

Data Management and Analysis

After responses were collected, the spreadsheet file was downloaded and reviewed for completeness, even though it was made a requirement for completing the questionnaire, for respondents to respond to all questions. The data were cleaned and then exported to the Statistical Product and Service Solutions Software (SPSS) and Microsoft Excel where the data was further analyzed. Students' responses were summarized using descriptive statistics like frequency and percentage tables and Cronbach alpha's analysis was employed to evaluate the internal consistency of the responses.

5. Results

Socio-demographic characteristics of the higher education students

The majority of the respondents are university students (117, 95.9%), followed by students of colleges of education (3, 2.5%) and polytechnic students (2, 1.6%). Out of the entire 122 students who responded to the questionnaire, 91 (74.6%) are undergraduates while the rest (31, 25.4%) are postgraduate students involving 94 (77%) male students and 28 (23%) female students who are between 18 years and 44 years. In Table 1, the demographics of the respondent students including age, gender, level of education, place of residence during the lockdown and place of residence of the higher education institution concerned are shown in Table 1 below.

Table 1. Socio-demographic characteristics of the Higher Education Students

Characteristics	Frequency	Percentage (%)
Age (years)		
18-24	52	42.6
25-34	62	50.8
35-44	8	6.6
Greater than 44	0	0.0
Total	**122**	**100.0**
Gender		
Male	94	77.0
Female	28	23.0
Total	**122**	**100.0**
Level of Higher Education		
Undergraduate	91	74.6
Postgraduate	31	25.4
Total	**122**	**100.0**
Respondents' Current Higher Education of Learning		
University	117	95.9
Polytechnic	2	1.6
College	3	2.5
Total	**122**	**100.0**
State of Residence of the Institutions		
Kaduna	73	59.84
Kano	17	13.93
Kebbi	2	1.64
Lagos	9	7.38
Plateau	2	1.639344
Enugu	2	1.639344
Niger	3	2.459016
FCT	2	1.639344

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Characteristics	Frequency	Percentage (%)
Kwara	3	2.459016
Nasarawa	2	1.639344
Sokoto	3	2.459016
Borno	1	0.819672
Delta	1	0.819672
Gombe	1	0.819672
JIgawa	1	0.819672
Total	**122**	**100**
State of Residence during COVID Lockdown		
Kaduna	37	30.32787
Kano	19	15.57377
Kebbi	11	9.016393
Lagos	10	8.196721
Katsina	4	3.278689
Kebbi	6	4.918033
Kogi	2	1.639344
Kwara	2	1.639344
Nasarawa	8	6.557377
Niger	1	0.819672
Ogun	2	1.639344
Oyo	2	1.639344
Plateau	3	2.459016
Rivers	2	1.639344
Sokoto	1	0.819672
Zamfara	1	0.819672
Adamawa	3	2.459016
Bauchi	4	3.278689
Borno	2	1.639344
Edo	1	0.819672
Jigawa	1	0.819672
Total	**122**	**100**

In order to cope with the lockdown, Nigerian Higher Education Institutions adopted several coping strategies that best suit their situation and within the provisions of the government's guidelines. Table 2 below shows the coping strategies according to how the respondents have opined. Staggered attendance (55, 41.4%) had the highest implementation in universities (because they constitute the majority the respondent's higher education institutions) followed by creative delivery (23, 17.3%), decreased interaction (14, 10.5%), then outdoor learning and flexible schedule with 13 each or 9.8% of the total 133 (some respondents chose more options) responses.

Table 2. Coping strategies employed by universities

Coping Strategies employed by universities		
Creative delivery	23	17.3
Staggered attendance	55	41.4
Decreased interaction	14	10.5
Outdoor learning	13	9.8
Flexible schedule	13	9.8
Platooning	15	11.3
Total	**133**	**100.0**

Table 3 shows the coping strategies adopted by some of the understudied Higher institutions of learning as corroborated by official news sources. As is seen in the table, Ahmadu Bello University, Bayero University Kano and University of Lagos all adopted the decreased interaction and creative delivery strategies while Ahmadu Bello University adopted staggered attendance in addition to the strategies adopted by the other two universities.

Table 3. Coping Strategies employed by universities (official information sources)

University	Coping strategy	Source
Ahmadu Bello University, Zaria	Staggered attendance, Decreased interaction, creative delivery	University website [39]
Bayero University, Kano	Decreased interaction, creative delivery	Vanguard Newspaper [40], Premium Times online newspaper [41]
University of Lagos	Decreased interaction, creative delivery	University website [42]

In [36], Sintema posits that due to incidents of reduced teacher-student contact hour and lack of consultation with teachers when students face challenges in grasping lecture contents, academic performance will drop for class period held during the lockdown.

Table 4 below shows an assessment of the impact of COVID-19 lockdown on how the students of higher

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education thrived. From the foregoing, majority of students (60, 49.2%) reported that their academic performances compared with the pre-covid times was virtually the same, followed by 34.4% who reported that their performances became worse - a confirmation of Sintema's position. Here, it is important to note that the majority of these respondents are students of Ahmadu Bello University who had the phased resumption type of strategy for mitigating the effects of COVID-19 on their learning activities.

Majority of the respondents (53, 43.4 %) reported that they had difficulty concentrating in online learning platforms as well as the new learning approaches they were subjected to, during the lockdown, and only 16.4 % or 20 respondents reported the that they faced no difficulty, and this is anchored on the mostly physical contact students and learners had during this period. This is in line with Bao's [37] conclusion in her article as to establish the occurrence of low concentration levels in students during the lockdown and thereby, recommended the adjustment of the teaching speed so as to ensure effective learning.

39 students (32%) reported moderate feeling of lethargy, 20.5% reported anxiety, 27% reported no effect in sleep pattern and so on as the trend repeats itself throughout the assessment. No effect in sleep pattern may be attributed to the very friendly measures by the Ahmadu Bello University management where the major change occurred only in the number of students who could resume, keeping learning activities nearly the same as was obtainable pre-COVID.

Table 4. Impact of COVID-19 Lockdown on the Learning process of Higher Education Students

Variables	Frequency	Percentage (%)
Academic performance during the COVID-19 period in school		
Better	20	16.4
Worse	42	34.4
Remained the same	60	49.2
Total	**122**	**100.0**
Difficulty concentrating		
No Difficulty	20	16.4
Little Difficulty	22	18.0
Moderate Difficulty	53	43.4
Much Difficulty	19	15.6
Extreme Difficulty	8	6.6
Total	**122**	**100**
Lethargy or Lack of Motivation		
No Lethargy	13	10.7
Little Lethargy	17	13.9
Moderate Lethargy	39	32.0
Much Lethargy	33	27.0
Extreme lethargy	20	16.4
Total	**122**	**100**
Depression or Anxiety		
No Anxiety	21	17.2
Little Anxiety	25	20.5
Moderate Anxiety	41	33.6
Much Anxiety	24	19.7
Extreme Anxiety	11	9.0
Total	**122**	**100**
Sleep pattern affected		
No Effect	33	27.0
Little Effect	16	13.1
Moderate Effect	41	33.6
Much Effect	20	16.4
Extreme Effect	12	9.8
Total	**122**	**100**
Loneliness		
No Loneliness	30	24.6
Little Loneliness	17	13.9
Moderate Loneliness	31	25.4
Much Loneliness	22	18.0
Extreme Loneliness	22	18.0
Total	**122**	**100**

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Variables	Frequency	Percentage (%)
Physical Health in the COVID-19 Period		
Bad	4	3.3
Fair	11	9.0
Good	41	33.6
Very Good	40	32.8
Excellent	26	21.3
Total	**122**	**100**
Adjustment to Online Learning		
No Adjustment	33	27.0
Little Adjustment	17	13.9
Moderate Adjustment	34	27.9
Much Adjustment	21	17.2
Extreme Adjustment	17	13.9
Total	**122**	**100**
Struggle to Establish New Routine		
Extreme Struggles	21	17.2
Much Struggles	24	19.7
Moderate Anxiety	36	29.5
Little Struggles	22	18.0
No Struggles	19	15.6
Total	**122**	**100**
Logistical Problems with Online Learning		
Extreme Problems	21	17.2
Much Problems	20	16.4
Moderate Problems	45	36.9
Little Problems	11	9.0
No Problems	25	20.5
Total	**122**	**100**
Problems with Instructors		
Extreme problems	8	6.6
Much problems	24	19.7
Moderate problems	44	36.1
Little Problems	27	22.1
No problems	19	15.6
Total	**122**	**100**

Table 5 shows a concise summary of COVID-19 situation report in Nigeria. During the COVID lockdown, the situation of the different states was classified according to the tabulated risk factors and other factors like availability of test and quarantine centers. States with high, medium and low number of confirmed cases were classified as high, medium and low risk states with the consideration of availability of laboratory testing facilities. Lagos state had the highest number of confirmed cases (61122, 36.1%), followed by the Federal Capital Territory Abuja (19927, 11.75%). These records were due largely to the actual spread, but more importantly, to the availability of testing centers.

Table 5. Summary of Latest NCDC report on COVID-19 situation in Nigeria as at 18/07/2021

States Affected	No. of Cases (Lab Confirmed)	No. of Cases (on admission)	No. Discharged	No. of Deaths
Lagos	61,122	2,151	58,515	456
FCT	19,927	40	19,719	168
Kaduna	9,127	4	9,058	65
Plateau	9,068	3	9,008	57
Rivers	7,415	71	7,243	101
Oyo	6,910	43	6,739	128
Edo	4,914	4	4,725	185
Ogun	4,723	25	4,645	53
Kano	4,006	3	3,893	110
Ondo	3,497	19	3,413	65
Kwara	3,160	37	3,068	55
Delta	2,654	26	2,556	72
Osun	2,578	6	2,520	52
Enugu	2,482	18	2,435	29
Nasarawa	2,385	1	2,345	39
Gombe	2,117	12	2,061	44
Katsina	2,112	23	2,055	34
Ebonyi	2,039	5	2,002	32
Akwa Ibom	1,989	54	1,917	18
Anambra	1,909	64	1,826	19
Abia	1,693	-2	1,673	22
Imo	1,661	0	1,624	37
Bauchi	1,549	0	1,532	17
Benue	1,366	15	1,327	24
Borno	1,344	1	1,305	38
Adamawa	1,134	4	1,098	32
Taraba	1,001	0	977	24
Niger	935	5	913	17
Bayelsa	907	2	879	26
Ekiti	897	19	867	11
Sokoto	775	0	747	28
Jigawa	536	8	512	16
Yobe	499	0	490	9
Kebbi	450	42	392	16
Cross River	402	0	384	18
Zamfara	244	3	233	8
Kogi	5	0	3	2
Total	**169,532**	**2,706**	**164,699**	**2127**

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6. Conclusions

This research elaborates on the coping strategies of Nigeria Higher education institutions that were implemented to deal with the novel problems created by the emergence of the pandemic. Given the findings, we can conclude that the higher education institutions largely implemented the provision of the Government prepared national policy and guidance document on management of COVID-19 during lockdown and school reopening. Moreover, the following conclusions can be derived:

(1) Due to the current disadvantageous realities with regards to internet connectivity, access and spread, a fully online switch from traditional classroom learning style is not realistic for majority of the students in Nigeria Higher Education institutions of learning.

(2) In assessment of the impact of the COVID19 lockdown on the learning process of the subject students, there was mild effect on academic performance, students' motivation to learning, sleeping pattern, problems with instructors and the overall measure of how students thrived in learning, in trying to cope with the new changes. And this is largely due to the phased resumption model of the policy document proposed by the Government, amongst other auxiliary COVID measures like social distancing, face mask wearing, hand washing practices, and so on.

(3) In the near future and as a matter of urgency, it is recommended to the Nigerian authorities to prioritize the provision of online learning facilities for tertiary education students in preparation for future occurrences of similar situations that may again put students in a dilemma. No country can survive without educating their young ones and a threat to education and learning in any guise, must be confronted firmly.

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The Internal Examination of Ideology and Politics Education in Colleges and Universities under the Perspective of Social Subject Research Method

Duanxian Wang*

College of Civil Engineering, Xi'an University of Technology, Xi'an, Shanxi, 710048, China

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ABSTRACT

Human is the subject of social and historical development process. The essence of human is the sum of social relations, and the masses are the creators of history. This is the basic content of social subject research methods, and also an important principle that must be followed by the subject category in ideology and politics education in colleges and universities. From the perspective of social subject research methods, the internal examination of the thought and politics education activities in colleges and universities should include three basic dimensions: adhering to examine the ideological and political moral construction activities via communicative practice, adhering to the principle of "all members, whole process and all dimensions (three-all principle)" to examine the "macro ideological and political" education concept, and adhering to the examination of the innovation of the ideology and politics education method system in higher education for the promotion of students' subjectivity.

1. Introduction

"Subject" is the important category in ideology and politics education. Just like social and historical process is realized by social historical subject, the ideology and politics education is realized by the subject in thought and politics education. Examining the inner activity of ideology and politics education must look into the subject effect and subjects themselves in the ideology and politics education activity. The basic foundation of "real people" and "people as subject" must be held. Basing on this, insist to give inner look to thought and politics education in universities from the point of view of Marxism social subject method has theoretical and realistic importance.

2. People is the Subject of Historical Development: Adhering to Examine the Ideological and Political Moral Construction Activities via Communicative Practice

People is the subject of historical development, which means "people" must be considered as the initial concept in any of the social and historical researches, which of course include the ideology and politics education. In the Marxist research method of social subject, the people as social historical subject is not metaphysical and abstract, but "real people" which are in the certain communicative relationship. As the basic and general category built by Marx and Engels, "Communication" represents for the unity of activity of the interaction and development of real person and community mentally and physically and the interactive relationship based on those activities in certain historical conditions [1]. Correspondingly, thought and politics education in universities is a constructive activity of ideological and political morality, which itself is the unity of relationship of educator and the educated in certain

**Corresponding Author:*
Duanxian Wang,
College of Civil Engineering, Xi'an University of Technology, Xi'an, Shanxi, 710048, China;
Email: 412216700@qq.com

DOI: http://dx.doi.org/10.26549/jetm.v5i2.8392

historical conditions, which is though mainly mental. Based on that, the universities must examine the ideological and political moral construction via communicative activity, instead of peaching.

Examine the ideological and political moral construction via communicative activity requires the universities regard the educated as independent subject, constructing interactive relationship and process in education, unifying dominance and subjectivity. This requires that the educator in universities apply the principle of communicative activity through all the process of the ideological and political construction, which includes the stimulation of ideological and moral development needs and the acquisition and comparison of ideological and moral information, the integration and renewal of ideological and moral concept system, and finally the performance and reflection of ideological and moral behavior, thus build a positive interactive relationship between teachers and students. Fundamentally, it is essential to abandon the use of object-oriented thinking to explore the whole process of ideology and politics education, instead, examining the whole process of ideology and politics education activities with the thinking of communicative practice, so as to keep the elements of the process of ideology and politics education and their relationships effective, and then guide the effective operation of the process of ideology and politics education [2]. Secondly, in the moral construction activities of thought and politics education, universities must take the task of stimulating the self-moral construction ability of educational objects as the core practice orientation. That"s because the essence of thought and politics education is the activity of constructing ideological and political moral of the educated in the instruction of the educator's sense of value, and evoke the realistic and possible subjectivity of students in the process [3]. In this sense, the ideology and politics education in universities promotes the realization of the subjectivity of the students.

3. The Essence of Human Beings is the Summation of Social Relations: Adhere to the "Three-all Principle" to Examine the "Macro Ideological and Political" Education Concept

Under the method of social subject, human is not only an abstract person in concept, nor an abstract person as a single person, but the sum of social relations that are interrelated and interact with each other. In terms of each educational object in the thought and politics education activities in colleges and universities, it is not only an abstract person representing individuals, but the sum of its social relations. In the sum of this social relationship, at least the relationship between teachers, parents, friends, classmates and other personnel of the education object is involved, that is, the multiple relationships such as family, school and society must be included in the consideration of relationship in thought and politics education in colleges and universities. In this sense, the ideology and politics education in colleges and universities should adhere to the education concept of "macro ideology and politics education", holding a general view and general method to strengthen and improve the ideology and politics education in colleges and universities from the overall situation and fundamental condition, emphasizing wide range of educating participation, the extensive use of space and time, the pertinence and openness of the content system as well as the complementarity of virtual reality in the use of platforms [4]. In short, participate, concern and work for all the members, in the whole process and from all the dimensions. From above, it's necessary for the universities to examine the "macro ideological and political "education concept through the "three-all principle" of all members, all the process and all the dimensions.

The "three-all principle" is not merely theoretical repetition. Although "three-all principle" and "macro ideological and political" education concept emphasize multiple subjects, various situations and unified education, highlighting the epitaxy of traditional class equally, [5] "three-all principle" actually provides a instruction for the realization of "macro ideological and political " education concept. Controversially, in order to solve the problem of weak coupling, the "three-all principle" in colleges and universities in the new era must concentrate on the "macro ideology and politics education", planting the line of thought and politics education in the whole process of education and teaching, constructing the working pattern of "macro ideology and politics education" and highlighting the traction of education [6].

Insist examining the "macro ideological and political" education concept with "three-all principle" represents in three dimensions of subject, time and space. For the subject, the universities have to effect as the instructor of ideological and political course, the core participator as tutor and the teacher in charge, the server of administrator in teaching, and cooperate with social education, family education and self-education to construct the sound environment of "macro ideological and political" education concept. For time dimension, the universities should insist thought and politics education through all the process of student's growth and progress form admission to graduation, scientifically distribute the weight of family, school and society in the growth of students, influencing the student with the right sense of value in

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explicit and explicit education. For the space dimension, the universities should make good use various situations, such as research, campus, consultation, activities and administration, to conduct the ideology and politics education.

4. People Create the History: Emphasizing the Subjectivity of Students in the Examination of the Innovation of Ideology and Politics Education Method in Higher Education

"People create the history" is a basic principle of historical materialism, the recognition of decisive power of people in the development of society and history. In the ideology and politics education in colleges and universities, on the one hand, the construction and development of ideology and politics education relies on the layout and intensive cultivation of ideological and political educators. On the other hand, it relies on the self-absorption of the thought and politics education content and the self-construction of the ideological and political moral value of the educated students. The former must ultimately rely on the latter in order to truly realize the goal of thought and politics education. In this process, in order to continuously improve the pertinence and timeliness of thought and politics education, colleges and universities must solve, promote and innovate according to the issues, the time and the situation, in order to stimulate students' subjectivity in thought and politics education activities, and constantly innovate the method system of thought and politics education. Only in this way can students strengthen their self-absorption ability of thought and politics education content and self-construction of ideological and political moral value. At the same time, the students' ideological and moral development level is also the measurement of thought and politics education method system innovation. Based on the analysis above, we should examine the innovation of ideology and politics education method system based on the subjectivity of students.

Chinese President Xi Jinping pointed out in his speech at the "Teacher's Seminar on Ideological and Political Theory Courses in Schools' that "The education of ideological and political courses cannot be separated from the teacher's guidance. In the meantime, we should adhere to the student-centered principle, enhance the research on the cognitive development and acceptance characteristics, and make it effective of the role of students' subjectivity [7]. And examine the ideology and politics education method system innovation, via students' subjectivity requires to strengthen the research of students' cognitive law and acceptance characteristics, and take it as the theoretical basis for the thought and politics education method system innovation. In the meantime, it is essential to establish the subjective evaluation system of students in the thought and politics education in colleges and universities scientifically, so as to provide a correct direction for the innovation of the method system in thought and politics education. In addition, colleges and universities should adhere to the practical education as an important model for the innovation of the system of thought and politics education methods, so as to realize the return of practice, value rationality and social reality in thought and politics education activities at the cognitive level [8]. This is because only when the thought and politics education is integrated into the "knowledge and will" of individuals and transformed into the spirit of practicing which guides individual action, can it truly reveal the vitality of the students in the process of ideology and politics education.

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Research by Online Education for a New Era on the Dependence of Vocational Students on Mobile Phones and Their Loneliness

Weiwei Zhou[1,2] Renfang Han[1*] Faming Pan[1]

1. School of Public Health of Anhui Medical University, Hefei, Anhui, 230032, China
2. Department of Medicine of Huaibei Vocational & Technical College, Huaibei, Anhui, 235000, China

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ABSTRACT

More and more problems have been arisen from higher social development level and more and more terminal devices, especially addictive devices have been exposed to the education field during the constant development of cutting-edge techniques, thus making students more and more dependent on mobile phones and other terminal devices. In this process, students tend to more depend on mobile phones, which will make students sort out the exchange and communication with other persons by taking mobile phones as the core and be lonely. It is very important for the current vocational education to research the dependence of students on mobile phones and their loneliness, and break the deadlock. Therefore, in this paper, the online education is researched, and the dependence of vocational students on mobile phones as well as their loneliness are solved based on online education.

1. Introduction

Most of vocational students didn't perform well in the previous study, so they are immature in their body and mind. After access to fresh things, these students may be highly desirable for exploration, much curious and dependent on fresh things over time, sort out the persons and things around them gradually, and trigger strong loneliness eventually, making students lose the desire to communicate and exchange with other persons in study and lives. With a view to address such dependence of students on mobile phones and their loneliness in vocational education work, the online education is described in the paper, and the dependence of vocational students on mobile phones as well as their loneliness are solved through online education.

2. Concept and Advantages of Online Education

2.1 Concept of Online Education

Online education is a novel mean of education derived from the rapid development of information technology and multimedia technology in the new era and traditional teaching class is transformed to online teaching platform to enable students to access to knowledge and question answers based on a more open and freer teaching platform. In the new era, the indoctrination of more concepts and ideas makes students more and more curious about new things; due to immature body and mind, there are a lot of problems for students to identify emerging things and new concepts, impacting the judgement of future development of students. Through online education,

**Corresponding Author:*
Renfang Han,
School of Public Health of Anhui Medical University, Hefei, Anhui, 230032, China;
Email: peca@163.com

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students can learn more about current new technical theories, cognize surrounding emerging things and new concepts correctly, grasp right outlook on life, world outlook and values, solve the problems arising from their study, enhance utilization of emerging things and achieve all-round progress with students as the core [1].

2.2 Advantages of Online Education

Firstly, online education breaks the traditional concept of education. The education concept held by online education is novel and contains a lot of teaching methods as well as design methods different from traditional education. The backward concepts and unscientific actual methods in traditional teaching incur a lot of problems in actual teaching. The preliminary research purpose is to address the problems in the traditional teaching. The teaching concepts and teaching means are very novel and complied with the student requirements and student characteristics in the new era. For instance, the introduction of new teaching platforms and new teaching concepts during education enables teachers to grasp new teaching techniques, spontaneously take up research on online education, carry out education based on actual characteristics of students and achieve targeted teaching [2].

Secondly, online education carries out teaching embarked on specific characters of students. As the specific characters of students are fully embodied in online education, teachers can fully understand the characters of all students, build more targeted teaching means as well as communication means, and completely activate personal interests as well as personal merits of students. In particular, in the new century, online education stresses to respect the dominant position of students and play the dominant role of students. Therefore, the work platforms and teaching means based on online education enable students to fully exhibit themselves in a freer and more open environment and select courses embarked on their actual requirements [3].

Online education is an inevitable requirement of education and teaching reform in the new century and an inevitable development trend of future education, so education and teaching work shall be changed toward online education mode, and teachers shall constantly update their teaching mode and concept and enhance the storage of all knowledge as well as skills relating online education through self-learning.

3. Dependence of Vocational Students on Mobile Phones and Loneliness

Mobile phone dependence, also known as mobile phone syndrome, refers to that individuals are out of control in use of mobile phones, obviously hurt in personal physiology, psychology and social functions and addicted to mobile phones for long. The dependence on mobile phones isn't a dependence on the devices but the contents in mobile phones such as network games, messages, shooting and other functions. Such a dependence will make students absent in study and even impact their psychological health development. Therefore, mobile phone dependence is not behavioral addiction in essence, and is a universal phenomenon in the current vocational colleges in China. Many users who forget to carry mobile phones will feel uncomfortable and even intolerable [4], and they have to keep mobile phones around them. It is found from the survey that the vocational students who cannot receive messages for long may even have phonism. With the constant sci-tech development, mobile phones are a kind of tools for information exchange in essence and used by more and more persons. Why the students are dependent on mobile phones is that students are deficient in characters such as introversion, solitariness and social withdrawal or are nervous and stressed in work.

In special cases, the excessive utilization of mobile phones will incur certain negative emotional experience as well as psychological changes, and the excessive dependence on mobile phones will dissimilate the mobile phone users, thus objectifying subjects. Among the vocational students, as girls are richer in emotional experience than boys, girls will be richer in emotional activities than boys. It is discovered from the survey on vocational students that girls bear more campus stress as well as negative events and feel lonelier than boys. Though this phenomenon cannot prove that gender has direct relations with mobile phone dependence and loneliness, it can fully prove that the excessive use of mobile phones will incur addiction, further form dependence and eventually evolve to loneliness [5].

4. Causes of Mobile Phone Dependence and Loneliness of Vocational Students

Firstly, because they didn't perform well in the previous study, the vocational students may be diffident in the colleges. These students will take mobile phones as the only channel to communicate with and learn from the external world during use of mobile phones, so they are more dependent on mobile phones than other students. In addition, during use of mobile phones, the students will be gradually attracted by the fresh things and phenomenon in mobile phones, gradually sort out the persons and things around, stay in the worldlet formed by interconnection of students with mobile phones and pay less and less

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attention to external things.

Secondly, loneliness is produced by illusion. As a mobile terminal, a mobile phone will transmit false information. Some information is evolved based on reality but may be exaggerated during communication. It is certainly difficult for these students to identify the information and make accurate judgement on the trueness of information, so they may be misled by these information and have wrong feelings. In particular, certain network we-media agencies get profit by spreading the illusory and untrue information. Therefore, most of these information are transmitted to cater for the youngers. The students may be attracted by these information and more dependent on mobile phones. Moreover, the students may be immersed in these untrue and illusory information, and may have psychological gap and feel lonely and frustrated after exposure to the real life [6].

5. Solution of Mobile Phone Dependence and Loneliness of Vocational Students Based on Online Education

5.1 Strengthen Basic Research

Before conducting online education, teachers shall learn and grasp the design requirements reflected by the existing students in routine teaching; in particular, the dissatisfaction and problems of the students to the teaching in traditional classes need to be solved by online education. Therefore, teachers shall enhance the understanding of students; in particular, the odd students are unable to express their dissatisfaction or problems to the teaching, so the teachers shall observe these students and collect the questions of the students in study. Then teachers shall design the work contents and teaching plans of online education combined with the differences among students and enable students to be attracted by teaching contents and activities designed by teachers in this way.

5.2 Enhance the Optimal Combination of Teaching Elements

When the causes of mobile dependence and loneliness of students are analyzed during previous study by vocational students, it is discovered that some students are not very interested in the study or the teaching contents, making them shift their interests to other things. With a view to enable to alleviate the mobile phone dependence and resulted loneliness of students, all elements of teaching shall be effectively integrated. The main purpose of online education, especially the new education concepts and teaching modes proposed based on the reform of teaching in the new era is to enable students to fully express themselves during study and improve their interests in study, so teachers shall combine the teaching elements embarked on the study interests and characters of students to activate the interests and desires of students in study so that the students can be much curious in the teaching contents. To this end, teachers shall really understand students during teaching and optimally combine the teaching elements and activity elements they grasp to enable students to be attracted by the teaching contents during study and actively participate in the links of teaching [7].

5.3 Build a Professional Teaching Platform

Online education is the main development direction of future teaching and the main development trend of current education. With a view to enable online education to give play to their advantages, a professional teaching platform shall be built to enable students to full express themselves, make a speech during online study, conduct efficient communication and exchange with teachers based on the online education platform, get out of the worldlet and really fit in colleges. The vocational colleges shall build a professional online education platform based on IT development trend and development status in education work and constantly consummate the module of the education platform. Teachers shall explain and distinguish the importance of mobile phones as well as other electronic devices and existing study/work for students, enable students to cognize that they can relax and entertain through mobile phones and other mobile terminal electronic devices in spare time, study is the main task at present [8], the significance of friendship and cooperation with classmates during study to future development of students and what the current focus is.

6. Conclusions

To be concluded, students are facing more and more lures in study and life with social progress and rapid development in the new era. If students are unable to exactly identify these external influencing elements, they may be much impacted during study. Mobile phones are the main means to influence the current study. Most of the students are very curious and eager in emerging things, but excessive curiosity or exploration may produce dependence and even loneliness. Therefore, vocational colleges shall alleviate the dependence of students on mobile phones through online education and enable students shift their focus onto study.

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Research on Railway Engineering Experiment Teaching Principles Based on Virtual Simulation Experiment Teaching——Taking the Floating Slab Vibration Damping Track Virtual Experiment as an Example

Zhihui Zhu[1,2] Zhiping Zeng[1,2*] Jing Liu[1,2] Lili Liu[1,2] Lei Xu[1,2] Wei Chen[1,2] Wei Li[1,2] Jianyang Luo[1,2] Joseph Eleojo Victor[1,3]

1. School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China
2. Experimental Teaching Center of Civil Engineering Virtual Simulation, Central South University, Changsha, Hunan, 410075, China
3. Department of Civil Engineering, Faculty of Engineering, Ahmadu Bello University, Zaria, Kaduna State, 800242, Nigeria

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ABSTRACT

Virtual simulation teaching is an addendum to the experimental teaching mode of railway engineering, and the two teaching methods complement each other and merge with each other. In view of the current research, there is little discussion about the integration path of the two above. Based on the connotation and design of virtual simulation teaching, this research systematically expounds the integration of the real path and path optimization problems, and puts forward the railway engineering experimental teaching principles based on virtual simulation teaching. On the basis of this research, a virtual simulation experiment platform for vibration mechanics and its application in the floating slab vibration damping track was developed to make full use of three-dimensional modeling, virtual reality, human-computer interaction and other technologies, which can realistically simulate the vibration law and vibration damping effect of the rail transit system, and in the hope that the virtual simulation teaching can be widely used in the experimental teaching mode of railway engineering in the future.

1. Introduction

The development of computer networks and information technology has caused an exponential growth of global information in the form of information entropy. With the advent of the information age, blended learning modes such as online learning, mobile learning, and ubiquitous learning have gradually innovated the traditional railway engineering experimental teaching accepting learning [1]. The new learning model triggered by the fragmentation of information has had a great impact on the experimental teaching of railway engineering [2]. Virtual simulation experiment teaching uses technologies such as virtual reality to construct illusory scenes, experimental conditions,

**Corresponding Author:*
Zhiping Zeng,
School of Civil Engineering, Central South University, Changsha, Hunan, 410075, China; Experimental Teaching Center of Civil Engineering Virtual Simulation, Central South University, Changsha, Hunan, 410075, China;
Email: 1877043690@qq.com

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realistic operation objects and learning content, as well as flexible and diverse interactive links, enabling students to simulate operations and independent learning anytime and anywhere, which is the modernization of railway engineering experimental teaching, and is a kind of new teaching mode for the development of railway engineering experimental teaching informatization [3,4].

2. The Scientific Connotation of Virtual Simulation Teaching

2.1 The Concept of Virtual Simulation Teaching

Virtual simulation teaching combines virtual experiment technology with experiential teaching, where the learners use the human-computer interaction interface to adjust the parameter variables in the virtual experiment, and obtain the corresponding knowledge and skills by observing, summarizing and summarizing the results of computer simulation, which is similar to the more common expert system in teaching [5].

2.2 The Characteristics of Virtual Simulation Teaching

Virtual simulation teaching can not only realize difficult or dangerous teaching experiments in reality with its good human-computer interaction interface and dynamic simulation program, but also save a lot of time, manpower and material resource costs that need to be spent in real experiments. The technical route of virtual simulation teaching mainly relies on computer technology and microcomputer technology, and the use of intelligent tools makes virtual simulation teaching have the characteristics of perception, interaction and immersion.

For example: for the steel spring floating slab vibration damping track in engineering, it is difficult for students to have a more intuitive understanding of the vibration law and dynamic characteristics in all directions after actual driving. The vibration transmission and the damping effect under different parameter conditions are also difficult to understand effectively. Due to the high traffic density, the dynamics test on the line is very dangerous, and it is difficult to carry out on-site experiments. At this time, the virtual simulation experiment teaching method can be used to achieve the effect of experimental teaching.

2.3 Technical Methods for Realizing Virtual Simulation Teaching

The technical methods for realizing virtual simulation teaching mainly include static models, virtual animations, simulation software, and software/ hardware interactive programs. The static model includes the construction of two-dimensional plane and three-dimensional model, and the available software includes Pro/E, Solidworks, etc. Virtual animation is the creation of frames or similar frames on the basis of static models, and the available software includes Unity3D, etc., with devices such as IE browsers, it can realize real-time remote login and use, and has low hardware and software requirements.

3. Principles of Virtual Simulation Teaching Design

3.1 Principles of Scientific Inquiry

The design of virtual simulation teaching follows the principles of scientific inquiry and experience. The principle of scientific inquiry means that teachers should pay attention to learners' ability to explore nature and society when designing virtual simulation teaching, and give full play to learners' logical reasoning and creative imagination of the external world. By creating situational problems that meet the teaching goals in the virtual situation, learners can make guesses and hypotheses centered on the problem, summarize and verify the results of their own observations, thereby construct a knowledge and skill system that meets their own language characteristics [6].

3.2 The Experiential Principle

The experiential principle means that when learners participate in virtual simulation teaching, they can personally experience the virtual situation and understand and explore the surrounding things in a practical way. It includes three levels, namely the cognitive experience layer, the behavior experience layer and the emotional experience layer. The experiential principle emphasizes that learners should not only have cognitive and emotional input, but also pay attention to the impact of practical participation at the behavioral level on the learner's spirit of inquiry. Learners are not passive knowledge receivers, but active discoverers and sharers of knowledge.

4. Establishment of Experimental Teaching Plan for Railway Engineering Based on VR Technology

4.1 Adhere to the Principle of Combining the Virtual with the Real

Although virtual simulation experiment has many advantages, it can only be in the position of supplementary and auxiliary teaching. If the physical experiments are replaced by virtual simulation experiments, it will not

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only weaken the students' true feelings of the equipment, but also cause the students to have low eyesight and low hands, which will greatly reduce the training of practical skills. Thus, the virtual simulation project should always correspond to the various characteristics of the particular type of physical experiment in railway engineering.

For teaching effects that are not available or difficult to achieve in real situations (for example: floating slab vibration damping track vibration field test experiment, rail transit noise test experiment), or involving high-risk, extreme environment inaccessible, irreversible (for example: rail temperature experiments in severe cold areas, high-speed railway wheel-rail force test experiments), or high-cost, high-consumption teaching content (for example: track fatigue test experiments), it can be taken into consideration to build a virtual simulation experiment teaching laboratory or set up experimental projects [7,8].

4.2 Establish Two Working Modes of Practice and Assessment

Based on virtual simulation teaching resources, on the one hand, students can independently learn online and perform simulation operations; on the other hand, teachers can also assess students and assess their mastery of this knowledge. Therefore, in resource construction, we should ensure that they have exercises and the two working modes of assessment.

The practice mode means that students carry out various training, experimental operations or simulation measurements under guidance or reminders, for the software will not give scores for experimental operation results, but based on the background management, it can record user operations, online time, etc. The test mode refers to the various trainings, experimental operations or simulation measurements that students independently carry out within a specified time. During this period, there will be no guidance or reminders. At the end, the system will automatically score and give experimental results, the user operations and online time will also be recorded by the system [9].

4.3 Establish Standardized and Comprehensively Designed Experiments with Appropriate Proportions

The virtual simulation experiments developed at present are basically broadcast and single-threaded, lacking the arbitrariness, randomness and expansibility of interaction, which is not conducive to cultivating students' comprehensive design ability and innovation ability. Therefore, the construction of comprehensive design experiment projects should be increased [10].

4.4 Establish Technical Standards for Teaching Resource Development

Resource performance requirements. The model should be realistic, optimized, and occupy a small space; the experimental project should retain the source code, engineering files, and executable files to facilitate later maintenance and upgrade; the experimental project should involve appropriate interaction links, decision-making judgments, and design considerations; It runs on computers, tablets and mobile phones; it is easy to integrate into a variety of applications and management platforms, which is conducive to access and sharing [11]. For example, when the virtual simulation experiment teaching system "Vibration Mechanics and Its Application in Floating slab Vibration Damping Track" was developed, the above-mentioned technical points were integrated, and a good teaching technology effect was achieved (Figure 1).

Figure 1. Railway Engineering Virtual Simulation Experiment Teaching

4.5 Establishing Threshold access Standards for Teaching Resources

The essence of the construction of the virtual simulation experiment teaching center, is the sharing of high-quality teaching resources. The open sharing of high-quality teaching resources is conducive to mobilizing students' enthusiasm for learning, leading demonstrations and radiating demonstrations. For this reason, it is necessary to establish a threshold access system for teaching resources, only high-level and high-quality teaching resources can be put on a public platform for open sharing.

5. Application of Virtual Simulation Teaching in Experimental Teaching Mode of Railway Engineering

5.1 Basic Modes of Teaching

Virtual simulation teaching belongs to the modern

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teaching mode, which is different from the experimental teaching mode of railway engineering. The difference between the two is reflected in the guiding ideology of teaching, the theoretical basis of teaching, the focus of teaching and the teaching methods. The modern teaching model emphasizes on student-centered use of network and multimedia systems in teaching, and its teaching theory follows modern management and other models, and conforms to the characteristics of activity teaching. While, the experimental teaching mode of railway engineering emphasizes teacher-centered and classroom-based teaching. In the process of teaching, teachers need to monitor students' learning at all times (Figure 2).

Figure 2. Railway Engineering Virtual Simulation Experiment Teaching

In the course of the experiment, the inquiry teaching method is adopted, with guidance and inquiry, students are motivated to actively explore the problems, so that students can form an independent construction of knowledge in the process of inquiry learning. Virtual simulation experiment of vibration mechanics and its application in floating slab track vibration reduction, is a comprehensive experimental project, that requires students to master and understand the knowledge of vibration mechanics courses and experimental technology. It can be combined with the vibration reduction of rail tracks in engineering. It makes the students to understand and feel that they can apply what they have learnt, and earnestly complete the inquiry process of the problem. With the help of the dynamic characteristics analysis, parameter analysis, and simulation functions of this experimental system, you can feel the impact of the vibration reduction design on the operation of rail tracks, so that students can have an in-depth understanding of vibration problems and solutions in the project, stimulate professional learning interest, and get in touch with industry background demand.

5.2 Teaching Content

With the virtual simulation experiment system, students can quickly build a three-dimensional scene of rail track, and intuitively feel the complex spatial relationship between the vehicle and the floating slab track vibration damping system, and understand the dynamic characteristics of the floating slab damping track system and the influence of different parameters on the damping effect.

With the computer technology, virtual simulation technology and Internet technology, the three-dimensional scene modeling, vibration analysis, vibration test, and vibration damping design experiment simulation of the steel spring floating slab vibration damping track system under different operating environments can be realized. Students can log on to the website of this virtual simulation experiment system to carry out online experiments and submit experiment reports. As shown in Figure 3, Students can start the sports car, excite the track, obtain the wheel-rail force function curve, the acceleration response curve of the ordinary track and the floating slab track, etc., and perform data processing, save the experimental data, and judge the floating slab track based on the measurement and data analysis results Whether driving safety, vibration reduction, and environmental vibration meet the requirements.

Figure 3. Start the train running experiment on the floating slab vibration damping track

For the experimental operation, the virtual experiment includes the vibration modeling of the steel spring floating slab track, the configuration of the vibration force source, the design of the vibration damping system and the analysis of the influence of the parameters on the vibration damping effect. When organizing experimental results and writing experimental reports, students are required to conduct a comprehensive analysis of the vibration isolation plan based on virtual experimental data and determine the recommended plan; according to the analysis of the experimental data, the impact of different parameters on the vibration damping effect and the

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surrounding environment is obtained.

5.3 Teaching Experiment Effect

For traditional track vibration experiments, the test components are required to be installed in advance during the field test, which has a long test cycle, large area, high cost, and affects line operation. By incorporating virtual simulation experiment teaching into railway engineering experiment teaching, the construction of three-dimensional full-scale track system simulation models in different scenarios can transform high-cost, risky, and time-consuming field experiments into zero-cost virtual simulation experiments.

In the process of virtual simulation experiment teaching, students do not need to go with the time-consuming and safety-related field tests, nor do they need to carry out vibration mechanics and floating slab track vibration reduction design with expensive and difficult indoor tests. With the test process of virtual simulation, they can deeply understand and master the necessary knowledge points; with the design of the vibration reduction scheme comparison process and the train-track-tunnel/viaduct/station-stratum structure vibration propagation simulation process, and comprehensive engineering and operation effects, which can improve students' ability to compare and select rail vibration reduction schemes in real time

With the comparison and selection of vibration reduction design schemes, students can deeply understand that urban rail transit is a project that comprehensively considers complex factors such as engineering technology, operational safety, project cost, and harmonious environment, and has a significant impact on the production and life of residents along the line. The design process embodies a wealth of comprehensive values, strengthens and cultivates students' sense of mission and responsibility to learn mechanics well, and serve engineering practice, craftsmanship for excellence, and overall thinking and decision-making ability.

6. Conclusions

(1) To realize the adaptation of railway engineering experimental teaching to the new learning model and avoid the cognitive problems caused by the new learning model, it is necessary to improve and innovate the railway engineering experimental teaching model.

(2) Virtual simulation teaching, as an innovative teaching method that combines virtual experiments and experiential learning, not only expands the application of information technology in railway engineering experimental teaching, and makes the teaching environment no longer limited to the classroom. Based on the learner's knowledge and skills, it generates a teaching process that conforms to the learner's personality characteristics, so it is more suitable for the new learning mode under the background of educational information than the railway engineering experimental teaching.

(3) Although virtual simulation teaching has the incomparable advantages of the railway engineering experimental teaching mode, it is unable to trace all the indirect experience formed in the railway engineering experiment as the traditional railway engineering experimental teaching mode. Instead of the actual railway engineering experimental teaching mode, the integration of virtual simulation experiments with actual railway engineering experiments is the development trend of railway engineering experimental teaching in the new era.

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Exploration on the Construction of Online and Offline Blending Teaching Mode in the Introduction to Earth Science

Xiehui Li*

School of Atmospheric Sciences, Chengdu University of Information Technology, Chengdu, Sichuan, 610225, China

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ABSTRACT

The course “Introduction to earth science” is a basic general course integrating science and interest run by the School of Atmospheric Sciences in Chengdu University of Information Technology. It is also a public elective course for the cultivation of college students' scientific quality. With the development of Internet plus education and the promotion of information technology, the paper combines the traditional offline teaching mode with the online teaching mode adopted during the spring semester in 2020 because of the COVID-19, giving full play to the advantages of the two teaching modes. According to the school's teaching environment and teaching objectives, the online and offline blending teaching mode is constructed by introducing the recording of course video + MOOC + SPOC + online resources of high-quality open courses + Flipped Classroom + Rain Classroom + QQ group + WeChat + Tencent meeting, in order to improve the comprehensive teaching performance, and provide an important reference for the educational reform of similar courses in the post epidemic era.

1. Introduction

The Internet, which appeared in the twentieth century, has not been developing for a long time, but its development speed is amazing. With the rapid development of computer and Internet, the era of the “Internet plus” has made the online learning popular all over the world. In the early spring of 2020, influenced by the COVID-19, all primary and secondary schools in China delay the spring semester in order to prevent the epidemic spreading in the campus. At the same time, the Ministry of Education requires all schools to ensure the "classes suspended but learning and teaching continue" and "online and offline teaching qualities are equivalent" in the "guidance on the organization and management of online teaching in colleges and universities during the epidemic prevention and control period" [1]. Under this severe situation, colleges and universities have made full use of various modern information techniques to realize online teaching, which not only brings great challenges and new development opportunities, but also promotes the construction and reform of online teaching platforms and resources. In the fall semester of 2020 with the epidemic under control, although the online teaching mode fully demonstrated some advantages that offline teaching could not meet in the past, it also reflected some matters of online classroom and the necessity of offline classroom. This makes the online and offline blending teaching mode integrating the two modes recognized, explored and practiced by many colleges and universities. Taking the course “Introduction to earth science” as an example, this paper summarizes the previous offline and online

**Corresponding Author:*
Xiehui Li,
School of Atmospheric Sciences, Chengdu University of Information Technology, Chengdu, Sichuan, 610225, China;
Email: lixiehui325328@163.com

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teaching modes, and explores the construction of online and offline blending teaching mode of the course in our university in the post epidemic era, in order to improve the comprehensive teaching effect and provide reference for the similar situations.

2. Overview and Objectives of the Course

The course "Introduction to earth science" is the foundation for comprehensively understanding several subjects including the basic principles of coordinated development of human and environment, synthetic geology, geography, geophysics, atmospheric science, oceanography, environmental science, and ecology. It is not only a basic general course integrating science and interest but also a public elective course for the cultivation of college students' scientific quality. The study of this course can enable students majoring in natural science, engineering science, humanities and social sciences to establish a scientific view of nature, dialectics and sustainable development. The course is a professional elective course for students majoring in Atmospheric Science and Applied Meteorology in the School of Atmospheric Sciences, Chengdu University of Information Technology. At present, the course is planned to be offered in the second semester, with a total of 24 theoretical class hours. Daily performance accounts for 20% of the course assessment results and final examination accounts for 80%. The textbook is the *Introduction to Earth Science*, a Curriculum Textbook for 21st Century, edited by Benpei Liu and Yunlong Cai published by Higher Education Press. The main contents of the course include the basic astronomical knowledge of the planet earth, the layer surrounding the earth (atmosphere), the structure and function of the earth surface system (including stratosphere, geomorphology, hydrosphere, soil sphere, biosphere, etc.), and the earth environment and resources as the basis of human development. The textbook strictly emphasizes the universality of the content and tries to comprehensively introduce the relevant knowledge of the whole earth system, especially the relationship and overall role of various elements [2].

Before the epidemic, this course mainly adopted the traditional teacher-centered teaching method. Scheduled to start in the second semester of freshman year, the course is the first professional course for students, who are relatively enthusiastic and have high expectations. As the high-quality course of our university, although it is an elective course, almost all students take it every year. The total number of students in the last two years has reached 760. The course is expected to make students grasp some realistic principles and methods, discuss the past based on the present, and discuss the present and the future based on the past on the basis of understanding relevant knowledge. In combination with their majors, students should clarify the position of the atmosphere in earth science and its relationship with other spheres, establish individual and overall, micro and macro dialectical thinking, inspire students to take the initiative in research and exploration, encourage innovation, enhance their interest in learning atmospheric science, cultivate students' materialistic view of nature and cosmology and promote the harmonious development of human and the earth. The course is expected to provide necessary background knowledge for subsequent professional courses by expanding students' knowledge vision and overall concept. Therefore, as the foundation to guide students into the palace of atmospheric science, the course is relatively important in the college education.

3. Exploration on the Construction of Online and Offline Blending Teaching Mode

Traditional offline teaching mode often has the following problems: teachers play the leading roles in class; students lack initiative in learning; various teaching methods are need; teaching evaluation methods are simple, etc. Instead, online teaching mode can make up for it with the characteristics that students are not limited by time and space; autonomous learning environment can be established; more interaction opportunities in classroom are available; classroom resources and evaluation methods are richer, etc. The online and offline blending teaching mode combining the two modes is more multidimensional, diverse, flexible and practical. At present, the commonly used online teaching modes can be summarized as synchronous and asynchronous online teaching mode, online flipped classroom teaching mode, accurate teaching mode based on learning situation analysis tools, theme exploration teaching mode based on learning resources website, autonomous learning mode based on subject tools and interactive teaching mode based on Internet. Various online teaching modes have their own advantages and disadvantages. When selecting, students need to combine the characteristics of the courses, the school environment and their own situation. Students can adopt one of the modes, or blending teaching modes through numerous attempts, summarize and practice the appropriate teaching mode, so as to achieve the mutual satisfaction of teachers and students and obtain a great teaching effect [3].

3.1 Online-only Teaching Mode during the Epidemic

In the early spring of 2020, influenced by the COVID-19, the course "Introduction to earth science"

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mainly adopts the online-only teaching mode, and the textbook is the electronic materials corresponding to the paper version. Considering the network environment and the continuity of teaching, the online-only teaching mode is realized by adopting the recording of course video + MOOC + SPOC + online resources of high-quality open course + QQ group + Tencent meeting. The whole teaching procedures are as follows: (1) Before class, the teacher shall record the short video of each lesson (20-30 mins), and select the open course online resources corresponding to the teaching content from MOOC, SPOC and high-quality open course. Online course resources are relatively rich because there are many colleges and universities offering the course. However, these online resources come from different majors, curriculum and textbooks, so the contents of each chapter and emphases are different. In order to correspond to, complement and add zest to our course, the course taught by Yilai Zhao in Guilin university of technology on MOOC, the course taught by Qingzhong Chu in Yanshan University on SPOC and the sharing course taught by Danping Yan in China University of Geosciences on high-quality open courses platform are selected. Teachers will send these learning resources and courseware to students through QQ groups in advance to facilitate them to prepare lessons before class. (2) In the class, teachers first set up multiple-choice questions to answer, which can reflect not only the attendance rate of students, but also their learning performances, letting students who have not finished learning can continue to study. Generally, students' problems encountered in learning are mainly answered through QQ groups. There are three classes learning this course, with the number of about 130. During the 24 classes, students actively exchange various questions in QQ groups, and all students can participate in. Besides answering students' important and difficult problems, this method also expands knowledge region, improves students' learning interest and participation enthusiasm, and broadens their mind, receiving better learning effect and students' recognition. (3) After class, students can consolidate and deepen the understanding of the course and further expand their knowledge through homework assigned in QQ groups. In addition, teachers will introduce the course content in the first class, consolidate the key and difficult points in the middle of the course, and summarize and answer questions in the last class by broadcasting in Tencent classroom.

3.2 Construction of Online and Offline Blending Teaching Mode in Post-epidemic Period

Given the disadvantages of traditional offline teaching mode including students' low interest and participation in learning, inefficiency, inadequate attention, and monotonous classroom teaching and evaluation, and the advantages of pure online teaching during the epidemic period, the online and offline blending teaching mode is constructed under the background of "Internet plus education". By introducing the recording of course video + MOOC + SPOC + online resources of high-quality open courses + Flipped Classroom + Rain Classroom + QQ group + WeChat + Tencent meeting, the online and offline blending teaching mode provides services for students' self-study before class and auxiliary learning in class by integrating various teaching resources in the learning process, realizing the teaching design idea of "online self-study before class, offline discussion in class, and consolidation and extension after class". The whole teaching procedures are as follows: (1) Before class (online self-study): Teachers upload micro-lectures (recorded course videos) and teaching resources such as MOOC, SPOC, quality open courses, courseware, key and difficult contents previously selected for online-only teaching to QQ groups. Students download course materials and learn in advance through computers, iPads, mobile phones and other mobile devices. In the process of pre-class learning, students can interact with teachers and other students through QQ and WeChat at any time, and summarize the important, difficult and doubtful problems they encounter. (2) In class (offline discussion): With the help of the intelligent teaching tool "rain classroom", teachers first pose questions for students to answer, learn about the results of students' online self-study, then explain the knowledge in detail, and solve the difficult questions encountered and put forward before. In this process, according to the students' learning status, some important and difficult problems can be discussed in group. (3) After class (consolidation and extension): Teachers assign homework in QQ group and upload learning resources related to knowledge learned in class. With the help of QQ, WeChat and other learning groups, students and teachers can put forward questions about their homework and get answers at any time. Through the communication and discussion, the learned knowledge in class can be consolidated and expanded [4]. During this process, the common problems can also be exchanged, solved and discussed in real time through Tencent meetings.

4. Conclusions

Blending teaching is an open and pluralistic educational practice, which is not a simple superposition of traditional classroom and online learning, but an integration of diversified teaching modes and different teaching objects,

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teaching contents and teaching needs [5]. In the new era of Internet plus education, online and offline blending teaching mode is suitable for the new demand of online teaching resources development represented by MOOC and the new requirements of undergraduate teaching reform in colleges and universities. The blending teaching mode will become the new normal in the post epidemic era, and is also an inevitable trend of future development. Based on the offline and online teaching practice of the course "Introduction to earth science" and the actual situation and curriculum objectives of the University, conforming to the trend of teaching reform, this paper puts forward the idea of blending teaching mode combining the advantages of the two teaching modes, applies it to the following practical teaching, in order to improve the teaching quality and achieve the ultimate goal of education.

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Research on Government Responsibility for the Protection of Intangible Cultural Heritage in Minority Areas

Leibin Lan*

School of health and tourism, Nanning College for Vocational Technology, Nanning, Guangxi, 530008, China

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ABSTRACT

The protection of intangible cultural heritage is a long and arduous systematic project. It not only protects the heritage itself, but also protects its surroundings, including its historical, scientific, and emotional connotations and the elements of cultural heritage formation. In the protection of intangible cultural heritage, the local government will play a leading role and bear unshirkable responsibility for the success or failure of the construction. In the process, however, local governments are often affected by various factors, resulting in adverse phenomena such as government undertaking the whole things and protective damage. This paper takes minority areas as the research district to study the government responsibility for the protection of intangible cultural heritage.

1. Introduction

China is an ancient civilization with its five thousand years' splendid culture. All ethnic minorities have jointly created China's rich and precious cultural heritage. The intangible cultural heritage of Chinese ethnic minorities has its own uniqueness. It is the manifestation of their national characteristics and spirits, and the important symbol that distinguishes one nation from another. However, with the acceleration of modernization, more attention has been focused on economic development, and the protection of intangible cultural heritage in ethnic minority areas is undervalued, leading that problems such as imperfect laws, insufficient funds, improper management, and inadequate protection have appeared. One of the main reasons is that the governments in some ethnic minority areas pay more attention to development than protection, resulting in the lack of government responsibility. Therefore, it is necessary to optimize the government's responsibility in protecting the intangible cultural heritage in minority areas, and better rescue and protect the intangible cultural heritage.

2. Analysis of Government Responsibility in the Protection of Intangible Cultural Heritage

2.1 Make and Implement Relevant Laws and Policies

The protection of intangible cultural heritage is not just a short-term act, but a long and arduous systematic project. First, relevant government departments need to formulate scientific and reasonable development plans. Therefore, government relevant departments and agencies should pay attention to, coordinate and cooperate with each other, deeply understand the value contained in intangible cultural heritage and the significance of long-term protection; establish the concept of "promoting development by protection, and promoting protection

**Corresponding Author:*
Leibin Lan,
School of health and tourism, Nanning College for Vocational Technology, Nanning, Guangxi, 530008, China;
Email: 237552220@qq.com

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by development" according to the suggestions of relevant scholars, formulate practical new policies, and strengthen management; draw up a long-term plan, organize and implement carefully to carry out protection and inheritance work step by step. In order to bring the protection of intangible cultural heritage into the track of legalization, government departments at all levels should actively formulate reasonable construction plans and local rules and regulations based on the actual conditions of the region. Provide a strong legal basis for the protection of intangible cultural heritage by establishing relatively perfect legal protection. In August 2021, the general office of the CPC Central Committee and the general office of the State Council issued the "Opinions on Further Strengthening the Protection of Intangible Cultural Heritage", emphasizing that intangible cultural heritage is an important part of Chinese excellent traditional culture, a vivid witness of the continuous inheritance of Chinese civilization, and an important basis for connecting national feelings and maintaining national unity [1].

2.2 Maintain and Improve the Environment of Heritages

When protecting intangible cultural heritage, the governments of ethnic minority areas should also upgrade and build the cultural ecological environment accordingly. Therefore, the governments in ethnic minority areas should invest a lot of financial resources in the construction of hardware facilities around the intangible cultural heritage, which mainly involves the corresponding renovation of the surrounding residential buildings and the natural environment, in order to coordinate well with the atmosphere of intangible cultural heritage. At the same time, it is necessary to shape the local humanistic environment, and create an atmosphere for all people to participate in the protection of intangible culture. The government should encourage people to freely express their creativity, and let them provide assistance for the protection of intangible cultural heritage in a relatively relaxed environment. The governments of ethnic minority areas should also mobilize the enthusiasm of relevant departments, such as organizing large-scale exhibition activities, setting up cultural heritage days, or holding cultural festivals to publicize intangible cultural heritage, so as to form an atmosphere of cultural heritage protection with all people participating. In recent years, China has attached great importance to the protection of intangible cultural heritage and established "Cultural Heritage Day" specially. Every year on this day, celebrations and publicity will be widely carried out across the country and this opportunity will be taken to show some rescue and protection achievements of folk culture. These activities can effectively improve the people's attention to intangible cultural heritage and lay a good mass foundation for the protection of intangible cultural heritage in the future.

2.3 Provide Funds for Protection of Intangible Cultural Heritage

The protection of intangible cultural heritage requires a large amount of financial, material and human resources. In the entire process, abundant funds are needed from the census to data archiving, from the cultural heritage rescue to the publicity and protection. At present, China is still on the initial stage of socialism with relatively limited financial resources. Especially in ethnic minority areas, local governments often spend more efforts to poverty alleviation and do not invest sufficient funds in cultural construction. Take the Dragon Boat Festival along the Miluo River as an example. In the past, Chinese people just rowed dragon boats and ate rice dumplings to memorize the festival, which was not paid enough attention. However, South Korea's successful declaration of the Dragon Boat Festival has attracted great attention from the Chinese government and provincial and municipal departments. In order to build the dragon boat racing course in Miluo River, the local government allocated 20 million yuan and built a special viewing platform.

2.4 Integrate with All Forces

The protection of intangible cultural heritage involves a wide range of fields. It needs to coordinate multiple forces, and at the same time requires a large amount of financial, material and human resources to be invested to support the smooth development of the entire process. At the same time, because it shoulders the burden of maintaining historical continuity and involves a wide range of knowledge, the local government is needed to play a leading role in the whole process. On the basis of determining the protection of intangible cultural heritage, the forces of all social parties are fully integrated through the establishment of a long-term and effective operating mechanism, so that they can actively and extensively participate in the process of intangible cultural heritage protection. Judging from past experience, the participation of news media, business, academia, and cultural organizations at all levels is of great practical significance to the protection of intangible cultural heritage. Therefore, the governments of ethnic minority areas should give full play to their own organization and coordination function to integrate various forces, so as to promote the protection of local intangible cultural heritage. In China, there are

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currently more than 3,000 cultural centers and mass art centers, 1,500 museums of various types, nearly 4,000 cultural stations and 200 institutions and universities that conduct research on intangible cultural heritage across the country. In the face of so many institutions and organizations, only the government exerts its organizational function, can it effectively integrate social forces, make a concerted effort and promote the research and protection of intangible cultural heritage.

3. Problems of Government's Performance in the Protection of Intangible Cultural Heritage

3.1 Government-led "Protective Damage"

The protection of intangible cultural heritage needs to be led by the government, especially effective measures should be taken for the historical and cultural factors in the heritage. However, the current situation is not optimistic. There are many problems in the government's protection activities, such as weak protection awareness and inaccurate positioning of protective measures. These actions have led to "protective damage" to some extent. For example, Donglan County, Hechi City, the birthplace of the bronze drum culture, put forward the slogan "red Donglan, the hometown of bronze drums" [2] to develop tourism with cultural attraction. It is certainly conducive to improve the influence of the bronze drum culture, but due to involving economic interests, it will inevitably cause damage to the aboriginality of bronze drum culture. Bronze drums, as the spiritual totems and soul symbols, used to be the sacred sacrifice of some ethnic minorities in Donglan county. Except for major festivals and special moments such as sacrifice, the bronze drum can not be used. However, Donglan County is now making great publicity about bronze drums in order to develop the tourism industry. Bronze drums are performed frequently everywhere and government leaders often inspect. As a result, the bronze drum culture has lost its original solemn and sacrificial meaning.

3.2 "Arranged" Behavior of Government Intervention

The protection of intangible cultural heritage is a huge social project that requires the leadership of the government and the assistance of all sectors of society to complete it. The government is the main part controlling the direction and progress of this project. Its responsibility is to establish a management system for intangible cultural heritage protection, promulgate relevant operating systems, regulations and rules, and provide guiding opinions and suggestions on some cultural heritage protection problems. However, at present, there is too much government intervention in the protection of intangible cultural heritage. Some local governments have undertaken the protection of intangible cultural heritage as much as possible in an administrative way, ignored the opinions of the people, and even excluded them from the protection work. This overstepping treatment makes the protection inefficient and inconsistent with the people's expectations. For example, the traditional festivals in the past were hosted by the nongovernmental organizations, and government personnel could attend as guests or put forward relevant suggestions and support, but the strong intervention of the government would turn this folk celebration into a vanity project of the government. The original organizers lost the right to host the activities, and could only helplessly watch the ancient idolatrous procession become a standardized government meeting including guest introduction, leader's welcome speech, awards and summary.

3.3 Favouring Declaration over Protection

The declaration and protection of intangible cultural heritage are two steps in the same procedure, belonging to different levels. Declaration means to state and apply for intangible cultural heritage rights. The acquisition of intangible cultural heritage rights depends on its unique cultural deposits and social value, and the ultimate goal is to make the existing intangible cultural heritage obtain the corresponding rights and get sufficient protection. The protection of intangible cultural heritage is management and protection literally. On the one hand, it needs the support of the government and society, and on the other hand, it needs people to stick to it consciously. The purpose of protection is to prevent the intangible cultural heritage from being infringed and damaged and maintain it in the raw for a long time. However, at present, the problem of emphasizing declaration over protection of intangible cultural heritage is very serious, which is because of the lack of ideological understanding. For local governments, the declaration of intangible cultural heritage is an investment, because successful declaration is the government's record, which is not only related to the image and honor of the government, but also closely related to the promotion of relevant personnel, and can also bring inexhaustible economic benefits. Therefore, for the declaration of intangible cultural heritage at the national level and in the autonomous region, government personnel at all levels provide the greatest support in terms of human, financial, spiritual and material resources. Similar to public welfare activities, the protection of intangible culture requires to invest funds and resources, but it's difficult to see the return. Moreover, the protection needs long-term persistence and implementation, which is easily overlooked, and no one cares about its success or failure.

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3.4 Uncoordinated Multisectoral Cooperation

The protection of intangible cultural heritage led by the government is associated with many departments, such as the Ministry of Culture and Publicity, the Department of Religious Affairs, the Department of Personnel, the Department of Urban Construction, and the Department of Tourism. Multi-department participation in construction will lead to unclear responsibilities, poor coordination, numerous contradictions and low efficiency, which are mainly reflected in mouthing empty slogans, while prevaricating each other and no one cares about the specific work that needs to be implemented. The Bronze Drum Cultural and Ecological Protection Zone has established a provincial and municipal leadership group headed by the mayor. The deputy mayor in charge is the deputy team leader and the members include the department heads of the Municipal Culture, Development and Reform Commission, Education, Ethnic, Finance, Construction, Tourism, Land and Resources and the main leaders of the counties in the protected area. The leadership group has offices under it [3]. Although the leading group has been established on the whole, the responsibilities of each member department have not been detailed, and the comprehensive coordinating mechanism has not been established. The construction of Cultural and Ecological Protection Zone is basically still in a state of single-handedly fighting by the Department of Culture. In 2011, the local people in Donglan County, Hechi reported to the public security bureau that a bronze drum handed down from ancient times had been stolen. The public security bureau did not file a case on the grounds that the value of the bronze drum is difficult to assess, and recommended to go to the cultural and sport bureau, which thought that it had no function of tracing the stolen cultural relics. As a result, the matter was left unsettled. Although Hechi City has established the intangible cultural heritage protection center, as the implementation department for the management and coordination of the whole protection work, the center is located in the municipal mass art museum, which makes the protection work bound to be restricted and interfered to a great extent [4].

4. How to Optimize the Government's Responsibility

4.1 Strengthen the Sense of Responsibility of the Administrative Subject

4.1.1 From “Government-centered” to “Society-centered” and “Citizen-centered”

In the process of protecting intangible cultural heritage, what the government should do most is ideological transformation, that is, to form an awareness of government leading and broad public participation. In terms of administrative mode, government officials should change the traditional concept that officials are above the people, truly recognize the equality of officials and the public ideologically, dare to delegate power to the people and integrate into the people's life. In terms of the governing idea, the concept of “government-centered” should be gradually transitioned to “society-centered” and “citizen-centered” as soon as possible. That is, change the ruling idea of the government and allow the public to participate in the development of national management. In terms of management mode, it is necessary to shift from "culture cultivation" in the era of planned economy to "culture management ". Various trainings can be used to strengthen the ideological and moral education of officials, and cultivate the awareness of serving the people wholeheartedly and benefitting the public. Through various cultural propaganda, government officials can consciously integrate into the social family, so as to better contribute to the construction of the family. At the same time, corresponding rules and regulations must be formed to restrain officials' behavior, and those officials with inadequate ideological understanding and misconduct must be resolutely dealt with and serve as a warning.

4.1.2 Government's Change from Power-oriented to Responsibility-oriented

Changing administrative idea will help to change the current situation of unclear responsibilities, chaotic functions, mutual prevarication, and poor coordination. It is undeniable that governments at all levels should have corresponding power, which is not only the basis of governance, but also to meet the needs of national healthy development and improving people's living standards, but the government should also bear the responsibilities corresponding to power. The government is to serve the people. Only when those in power realize this can they keep a low profile, change the bureaucratic style of procrastination from top to bottom, and serve the people conscientiously and responsibly. Power and responsibility are interdependent and with great power comes great responsibility is big. The governments of ethnic minority regions have the power of intangible cultural heritage protection and enjoy the relevant benefits brought by this power, so they should assume corresponding responsibilities. Powers and responsibilities are closely related and restrict each other. In the ruling process, the governments of ethnic minority areas must seek the coordination of "power" and "responsibility" [5]. When

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enjoying the personal and group interests brought by power, the government can not ignore the responsibilities and obligations that should be undertaken and performed.

4.2 Clear Boundary of Government Behavior

4.2.1 Make the Government's Remit Clear

Making the scope of their rights and responsibilities clear is the key for government departments to handle state affairs well. The protection of intangible cultural heritage is led by the national cultural and tourism administration and completed with the cooperation of local governments at all levels. The main functions of the government participating in the construction of ecological reserves include guiding the establishment and improvement of the leadership mechanism; timely promulgating relevant regulations, policies and specific implementation rules related to the protection of intangible cultural heritage; establishing a scientific system of decision-making institutions under the support of rigorous analysis and research; and increasing strengthen efforts to call on relevant experts and social enthusiasts to participate widely. At the same time, carry out publicity and education to make the protection of intangible cultural heritage deeply rooted in the hearts of the people. The government should accurately "position", that is, in the protection of intangible cultural heritage, it should clearly understand its own functions and responsibilities. In other words, there must be a clear understanding of what the government should do and what the government should not do. What should be done by the government should not be passed on to the people or the market; What should not be done by the government should not be taken over, overstepped and arranged by the government. The personnel responsible for implementation shall ensure the professional construction of the project, and the government does not need to participate in all aspects of protection activities.

4.2.2 Standardize Administrative Approval

The government's participation in the protection of intangible cultural heritage will inevitably formulate relevant protection measures, which will clearly stipulate the administrative approval procedures, such as the declaration of the heritage list and the application for protection funds. The declaration is a cumbersome process. Although the application is successful, the allocation of funds is also a long process, which not only delays the effective protection of intangible cultural heritage, but also provides approval departments with a way to get off-the-books income. Therefore, it is necessary to learn from foreign experience, strictly supervise the administrative examination and approval process, and make it more standardized. At the same time, simplify the application procedures for cultural projects, and protect and rescue endangered heritage projects in time. In addition, the funds for successfully declared projects must be allocated in time, and the supervision department must strengthen supervision. The administrative department in charge must be open and transparent in the use of funds, and use more market means such as bidding, listing and transfer to allocate resources, so as to reduce and solve the power rent-seeking.

4.2.3 Apply Exit Mechanism at the Right Time

The role of the government in each stage of the intangible cultural heritage protection is different. In the initial stage, the government, as the leader, should actively participate in the protection work, and promote community participation and give full play to the main role of the community and the indigenous residents. While the protection work is on the right track, the government should apply the exit mechanism to weaken the leading role, and give full play to its role of coordination and service. For example, for some folk activities supported by the government, when these activities are on the right track, the government can gradually fade out and let folk activities develop their spontaneity.

4.3 Optimize the Performance Appraisal System of Local Governments

4.3.1 Clarify the Public Opinion Orientation of the Governments' Performance Appraisal

Government's record is the manifestation of the achievements of the government and ruling party. Although the law in China stipulates that the ruling power belongs to the Communist Party of China and the government, in ethnic minority areas, the ruling power is sometimes manipulated by administrative personnel, and they often imposed their will upon the people, which leads that the people's will is largely determined by the ruling personnel and public opinion has been distorted to a certain extent. Therefore, when assessing the managers and supervisors responsible for the intangible cultural heritage protection, it is necessary to strengthen the democratic construction within the government, adopt various channels to be in touch with public opinion, set up suggestion boxes, and include public opinion in the inspection indicators, so as to re-establish the public opinion orientation of the governments' performance appraisal. For example, the scoring of managers by the inheritors of intangible cultural heritage can be used as one

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of the criteria for the annual assessment of managers. Only in this way can we truly eliminate the various problems that exist in the performance evaluation of local governments.

4.3.2 Diversification of Performance Appraisal Items

Under the guidance of taking economic construction as the central task, the government's record is linked to the economic index. Therefore, it's inevitable to encounter conflicts between economic interests and moral responsibilities in the protection of intangible cultural heritage. Given this, it is necessary for local governments to implement a diversified assessment system, listen more to the public opinions, learn from other social organizations, and take the social indicators as the main standard of the assessment so that the people can participate in the evaluation of political performance. Especially in the protection of intangible cultural heritage, the government's performance evaluation should gradually transit from single evaluation that only depends on economic indicators to a comprehensive evaluation. , including politics, economy, culture, society, ecology, etc. A systematic evaluation system will be established to meet the requirements for cultural inheritance and protection and the needs of the development of times.

4.3.3 Highlight the Differences in the Government's Performance Appraisal Items

Local governments undertake different responsibilities, so the evaluation methods should also be different. By analyzing and studying foreign experience, a new evaluation system can be established, which includes both general evaluation index of all departments and personalized ones reflecting departments' characteristics. The general evaluation index can be used to compare the performance of different departments to make them have competitive pressure and driving force for reform; the personalized index is to adapt to the different situations of each department, so that the performance evaluation is more convincing. Especially in the protection of intangible cultural heritage, based on the its particularity, in addition to the common comprehensive evaluation indexes, some personalized cultural factors should also be added in the process of governments' performance evaluation.

4.4 Improve the Government's Supervision Mechanism

4.4.1 Judicial Supervision

In the protection of intangible cultural heritage, it's essential to implement legal supervision, further refine the "Intangible cultural heritage law of the People's Republic of China", and clarify the scope of rights and responsibilities of governments at all levels in the protection of intangible cultural heritage through explicit provisions of the law. On the one hand, the judicial departments need to be given sufficient judicial supervision power. On the other hand, an effective legal basis for supervision needs to be provided. At the same time, according to the local folk culture and the ruling characteristics of the local government, combined with the "Intangible cultural heritage law of the People's Republic of China", relevant local policies, a systematic and complete legal protection system and judicial supervision mechanism are established to restrain the expansion of government power.

4.4.2 Administrative Supervision

To reverse the current situation of excessive government power and its rapid expansion, in addition to external containment, it also needs to form mutual restraint and supervision through internal decentralization. Specifically, the decision-making power, supervision power, and execution power are allocated to different departments, and each department performs its own responsibilities, so as to give full play to the effect of administrative supervision. However, the power distribution is difficult because no department is willing to give up its power, so it needs to be enforced by administrative legislation. At the same time, an accountability system shall be established to subcontract the responsibility to the person. The person in charge can be found whenever there is a problem. The combination of administrative supervision and accountability mechanism can eliminate the randomness of supervision and ensure the rationality of the governance.

4.4.3 Social Supervision

First of all, the government's ruling information must be made public, and at the same time, the authenticity of the information must be ensured. Give full play to the role of the news media and the supervision of government's conduct must be increased. Secondly, the rights, procedures and related rules of social supervision must be established through legislation to ensure that the rights of social supervision institutions are not violated. The essence of the intangible cultural heritage development is to pursue profits. Excessive commercialization is harmful to the protection. Therefore, it is necessary to establish a monitoring and regulation mechanism to standardize and manage the development of intangible cultural heritage industry. In

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response to this problem, experts on intangible heritage protection in China have proposed a mechanism of "cultural early warning". That is, before the intangible cultural heritage project attracts social attention, the research institutions should first take protective measures to prevent destructive development. This "cultural early warning" mechanism can restrain the disadvantages of blind development to a certain extent, and thus plays a positive role in guiding the intangible cultural heritage protection.

5. Perfect the Social Participation Mechanism

5.1 Arouse People's Cultural Consciousness

Government alone is not enough to solve the problem of intangible cultural heritage protection. It is essential to arouse people's cultural consciousness, make them feel proud of the national culture and cultivate their desire to protect it. The government needs to encourage and guide people to participate in the protection of intangible cultural heritage through a variety of channels, so as to obtain strong support in the arduous construction tasks. In short, let people integrate into the trend of intangible cultural heritage protection, shorten the distance between the government and the people, and truly form a coordinated and orderly whole. Everyone is the cell that makes up this country, and culture is the hub connecting each cell. Everyone should consciously use various channels to learn cultural knowledge, understand the procedures of intangible cultural heritage protection, and actively participate in it and contribute their own strength. In the protection of intangible cultural heritage, it may cause certain losses to the interests of people. In the face of this problem, we should make a rational analysis. Although this huge project itself is a free economic expenditure, it will leave the most precious treasure to future generations. Therefore, the people also need to understand the difficulties and take the initiative to make concessions on some interest issues to ensure the smooth progress of the great construction.

5.2 Encourage Non-profit Organizations to Participate in the Construction

Although the government has enough power to support it, the ruling personnels are also ordinary people, and they are not omnipotent. In the construction of intangible cultural heritage protection, the governments of ethnic minority areas are mainly responsible for planning and construction, coordinating various resources, and macro-control. The specific details and the problem of government failure require the participation of various non-profit organizations. Dongba Paper in Lijiang is in the national intangible cultural heritage list. However, in recent years, with the development of tourism and driven by economic interests, Dongba Paper has been used as a souvenir. The craftsmanship only mastered by veterans in Dongba has been imitated indiscriminately. False advertising has seriously infringed on the rights and interests of Dongba paper. In September 2006, the establishment of the Dongba Papermaking Traditional Resources Co-management Association effectively curbed the unhealthy momentum, protected the rights of Dongba papermakers, and achieved good social benefits.

6. Conclusions

In the 21st century, cultural competitiveness plays an increasingly important role in comprehensive national power. Culture reflects the spiritual outlook and national cohesion of a country, and intangible cultural heritage is the most important treasure of a nation and the spiritual sustenance left to future generations. However, economic globalization has led to the infiltration of western culture, so protecting intangible cultural heritage has become the bounden responsibility of every Chinese. From the perspective of government responsibility, combined with the current status of intangible cultural heritage protection, this paper points out the shortcomings and defects of the government in the intangible cultural heritage protection, and puts forward countermeasures and suggestions to optimize the government's responsibility in ethnic minority areas, in order to better protect intangible cultural heritage and improve Chinese people's cultural confidence.

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Compiling Textbook of Elastic-plastic Mechanics for Major of Oil and Gas Storage and Transportation Engineering

Yanfei Chen* **Yufeng Yan** **Heng Ni** **Mingchang He** **Zhihao Wang** **Zuming Wu**

National Engineering Laboratory for Pipeline Safety/MOE Key Laboratory of Petroleum Engineering/Beijing Key Laboratory of Urban Oil and Gas Distribution Technology, China University of Petroleum (Beijing), Beijing, 102249, China

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ABSTRACT

"Elastic-plastic mechanics" is a required course for engineering postgraduates in petroleum colleges and universities, such as students who major in oil and gas storage and transportation engineering. It is the basis for personnel engaged in structural safety assessment. In the past teaching process, the teaching effects of this course were unsatisfactory. There are many reasons for this phenomenon, such as the strong theoretical nature of this course, the need for a large number of formula derivation, the high requirements for students' mechanical foundation and mathematical foundation, the lack of appropriate teaching materials and the slackness of students' minds. Based on years of teaching experience, the teaching team has reformed the existing teaching materials of "Elastic-plastic mechanics" to meet the needs of petroleum colleges and universities. In this reform, we have referred to a large number of published textbooks of "Elastic-plastic mechanics" and the experience of textbook construction at home and abroad. The newly compiled textbook of "Elastic-plastic mechanics" plays a certain role in improving the teaching quality of "Elastic-plastic mechanics" in petroleum colleges and universities.

1. Introduction

Under the background of the continuous advancement of economic globalization and the rapid development of science and technology, great changes have taken place in the oil and gas industry [1]. The global oil market and geopolitical pattern are undergoing profound changes with the rapid rise of new energy such as solar energy and wind energy and the shale gas revolution in North America [2]. Since the international crude oil price fell sharply in 2014, major oil companies have responded to the impact of low oil prices by reducing investment, divesting assets, laying off staff and cutting wages [3-6]. At the same time, the oil industry responded to the crisis by constantly innovating technology, with new ideas and technologies emerging one after another. In the face of such great changes, it is a serious problem for Petroleum Colleges and Universities to improve students' competitiveness and cultivate innovative and research-oriented talents to meet the needs of enterprise development. As one of the "double first-class" universities, China University of Petroleum (Beijing) has always upheld the idea that graduate education is the concentrated embodiment of national talent competition, scientific and technological competition, and one of the core elements of building an innovative country [7]. In recent years, with the rapid increase in the scale and growth rate of graduate students

**Corresponding Author:*
Yanfei Chen,
National Engineering Laboratory for Pipeline Safety/MOE Key Laboratory of Petroleum Engineering/Beijing Key Laboratory of Urban Oil and Gas Distribution Technology, China University of Petroleum (Beijing), Beijing, 102249, China;
Email: chenyfvip@163.com

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in China, many problems have emerged in graduate education, such as quality decline, lack of innovation and disconnection between teaching and engineering practice [8,9]. Accordingly, the teaching team of the safety course of oil and gas storage and transportation engineering major carried out investigation and research on the teaching situation and effects of several courses, and actively carried out the reform and exploration of teaching materials to improve the teaching quality.

As the carrier of petroleum, natural gas and other fossil fuel transportation, the strength of oil and gas pipelines are very important. In view of the frequent occurrence of oil and gas pipeline leakage, explosions and other safety accidents at home and abroad, oil and gas storage and transportation engineering safety courses have been paid more and more attention by petroleum universities. As an extension of engineering mechanics, elastic-plastic mechanics is an essential part of the knowledge structure of higher engineering talents. It is an important basic theoretical course for graduate students majoring in oil and gas storage and transportation engineering, safety science and engineering, offshore oil and gas engineering and mechanical engineering in petroleum universities. It provides important theoretical support for students to learn finite element methods, pipeline structure design and other courses, as well as scientific research in the field of pipeline strength assessment. Elastic-plastic mechanics is an important branch of solid mechanics, which is specialized in studying the stress, strain, displacement and their distribution laws of deformable solid under the influence of external factors. Based on the assumption of continuity, uniformity, isotropy, small deformation and no initial stress, starting from statics, geometry and physics, and through a series of rigorous mathematical derivation, the basic equations such as equilibrium equation, geometric equation and physical equation are obtained as the basis for solving the problems of elastic-plastic mechanics [10-12]. It can be seen that "Elastic-plastic mechanics" is a theoretical course, which needs a solid foundation in mathematics and mechanics. In the past teaching process, the learning materials of our students in learning this course are mainly PPT used by teachers in class, supplemented by books related to elastic mechanics, plastic mechanics and elastic-plastic mechanics published by relevant experts such as Yang Guitong, Xu Zhilun and Xu bingye. Although these materials have their own merits, they are generally theoretical and not closely combined with engineering (especially Oil and Gas Engineering). In addition, students generally have a bad impression of "not understanding in class and not doing homework after class" in mechanics courses and they usually have their own scientific research tasks. As a result, the teaching effects of this course are not satisfactory. In view of this situation, the teaching team first carried out a series of investigations and found that most of the domestic mechanics textbooks borrowed from the textbooks of Britain, America and the Soviet Union at the beginning. After more than 60 years of construction, many high-quality textbooks such as curriculum textbooks for the 21st century and national planning textbooks from the tenth five-year plan to the 13th five-year plan have emerged. Even so, the construction of mechanics textbooks in China still lags behind the development of science and technology, can not keep up with the pace of the development of the times, and can not form a high-level mechanics textbook system with the characteristics of the times [13].

Based on the poor teaching effects of "Elastic-plastic mechanics" and the insufficient construction of domestic mechanics teaching materials and graduate teaching materials, the teaching team reviewed the teaching content of this course in combination with the advantages of excellent published textbooks on elastic-plastic mechanics at home and abroad, taking into account the students' mastery of their own mechanics foundation, and compiled the textbook of elastic-plastic mechanics for Petroleum Colleges and Universities - *Basic Theory and Engineering Application of Elastic-plastic Mechanics* [14].

2. Exploration and Attempt of Textbook Reform

Graduate education is very different from any form of education that students have received before. This stage is the golden period for students to change from receptive learning to research-based and autonomous learning [15]. In order to cultivate the research ability of students engaged in structural analysis and help them learn the course of "Elastic-plastic mechanics" well, the teaching team integrated the existing teaching and scientific research materials, compiled elastic-plastic mechanics textbooks suitable for graduate students in Petroleum Colleges and universities, and achieved some results.

2.1 Pay Attention to Basic Knowledge Explanation

For engineering graduate students in colleges and universities with obvious industry characteristics, such as petroleum colleges and universities, the foundation of mechanics and mathematics is generally weak. Even some interdisciplinary graduate students have not studied mechanics subjects such as statics and material mechanics during their undergraduate years. This not only makes it

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more difficult for students to learn the course, but also for teachers to teach the course. Therefore, the teaching team pays special attention to the explanation of basic knowledge when compiling teaching materials.

The textbook consists of 12 chapters, which can be roughly divided into three parts: explanation of basic theoretical knowledge, solution of elastic-plastic mechanics in both the rectangular coordinate system and polar coordinate system, and solution of specific elastic-plastic mechanics problems. As the cornerstone of the whole elastic-plastic mechanics, the basic theory accounts for more than one third of the space. The students are introduced in detail and systematically to the contents of stress analysis, strain analysis, elastic-plastic constitutive relationships and yield criterions. As a course with strong theoretical derivation, formula derivation is essential. This part is also one of the most difficult parts for students in the past teaching process. This is because in the process of deriving formulas, once some intermediate derivation steps are skipped, they will not form a complete knowledge chain and lose interest in the following learning. So, in the process of textbook compilation, we give detailed derivation steps as much as possible. For example, when solving the elastic-plastic mechanical problem of thick-walled cylinders with displacement solution, the equilibrium equation expressed by displacement component is $\frac{\mathrm{d}^2u}{\mathrm{d}r^2}+\frac{1}{r}\frac{\mathrm{d}u}{\mathrm{d}r}-\frac{u}{r^2}=0$. The formula needs to be deformed in the process of solving specific problems. In the common textbook of "Elastic-plastic mechanics", the final result will be directly given as $\frac{\mathrm{d}}{\mathrm{d}r}\left[\frac{1}{r}\frac{\mathrm{d}(ru)}{\mathrm{d}r}\right]=0$. This is difficult for students who are not very good at mathematics. In this textbook reform attempt, in order to make it easier for students to master the knowledge, we give the detailed derivation steps of this result, that is $\frac{\mathrm{d}^2u}{\mathrm{d}r^2}+\frac{1}{r}\frac{\mathrm{d}u}{\mathrm{d}r}-\frac{u}{r^2}=0\Leftrightarrow\frac{\mathrm{d}}{\mathrm{d}r}\left(\frac{u}{r}+\frac{\mathrm{d}u}{\mathrm{d}r}\right)=0$, $\frac{u}{r}+\frac{\mathrm{d}u}{\mathrm{d}r}=\frac{1}{r}\frac{\mathrm{d}(ru)}{\mathrm{d}r}$. Examples like this can be seen everywhere in this textbook to help students easily master the derivation process. In the process of using the textbook, through interview and investigation, many students think that the derivation process is not as difficult as expected.

2.2 Closely Combined with the Characteristics of the Petroleum Industry

As a basic subject of engineering technology, "Elastic-plastic mechanics" is a required course for many science and engineering majors, such as civil engineering, safety engineering, marine engineering, etc. It is valued by colleges and universities. In order to meet the needs of all schools, the focus of elastic-plastic mechanics textbooks on the market is not very prominent. Thus, these textbooks generally include the elastic-plastic analysis of members, the elastic-plastic analysis of rectangular section beams, the elastic-plastic analysis of thick-walled cylinders, the elastic-plastic analysis of rotating disks, the bending of plates and the ultimate bearing capacity analysis of geotechnical structures and so on. For the oil industry, it has obvious industrial characteristics. Most of the common structures in oil and gas engineering are cylindrical. For example, the sucker rod used in drilling engineering, the oil and gas transmission pipeline used in oil and gas gathering and long-distance transmission, and the oil storage tank for storing crude oil and product oil in the oil depot are cylindrical structures. In the elastic-plastic analysis of cylindrical objects, if the rectangular coordinate system is still used, it is difficult to clearly describe the boundary conditions and other related problems. At this time, if the polar coordinate system is used to solve the problem, the boundary conditions will be presented in a very simple form, which will greatly simplify the solution of elastic-plastic problems of cylindrical structures. Therefore, when compiling this textbook, the teaching team focused on the polar coordinate solution of plane problems, elastic-plastic analysis of thick wall cylinders and other contents closely combined with the petroleum industry. The contents that are not closely related to the oil industry are appropriately simplified.

2.3 Rich Examples to Consolidate Learning Achievements

Only by theoretical teaching, students can never master relevant knowledge, let alone a highly theoretical course such as "Elastic-plastic mechanics". In addition to classroom teaching, doing a lot of exercises is also a necessary way to master relevant knowledge. For students who are beginning to learn elastic-plastic mechanics, it is not practical to do exercises with the just learned theory at the beginning. Moreover, for engineering students, learning this theoretical knowledge is to solve practical engineering problems. Thus, we have specially selected a large number of practical examples related to oil and gas storage and transportation engineering to provide students with problem-solving ideas. For example, when analyzing the elastic-plastic problems of thick-walled cylinders, the common textbooks basically analyze the distribution of stress, strain and displacement of thick

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walled cylinders under uniform internal and external pressure. In practical engineering, it is more common for cylindrical pressure vessels to be subjected to non-uniform pressure, such as buried pipelines. Based on this, according to the superposition principle, the non-uniform pressure is decomposed into uniform pressure, cosine load and sinusoidal load, and then the results of elastic-plastic analysis of thick wall cylinder under trigonometric function load can be obtained according to the results and inverse solution (or semi-inverse solution) of elastic-plastic analysis of thick wall cylinder under uniform pressure. These examples closely combined with practical engineering problems have laid a solid theoretical foundation for students to engage in relevant work in the future.

2.4 Keep up with the Forefront of Scientific and Technological Development

Graduate education is closely related to the development of modern science and technology. Hence, introducing scientific research into the teaching process is the most significant difference between graduate education and other levels of education. Therefore, graduate textbooks should highlight the latest research results, research hotspots, new technologies and new methods in specific disciplines or fields at home and abroad [16]. The teaching team specially introduced the elastic-plastic analytical solution of pressure pipeline under combined load to the students according to the research trend of ultimate bearing capacity of complete pipeline and pipeline with corrosion defects at home and abroad in recent years and the achievements of the research group in these aspects. The latest research progresses on pipeline safety assessment, such as the influencing factors of ultimate bending moment of penstock under different combined loads and the analytical solution of ultimate load of pipeline with different shapes of corrosion defects under combined loads.

2.5 Integration into Ideological and Political Education

In recent years, with the continuous enrollment expansion of colleges and universities, the scale of students in colleges and universities has risen sharply, which leads to a dramatic decline in the quality of students. Many students don't listen to the lectures attentively, and only rely on a few nights before the exam to complete a semester of course learning tasks. In addition, for most graduate students, they will publish some papers in some journals and magazines. Especially when they graduate, they are also required to write graduation papers. In recent years, academic misconduct such as paper fraud and plagiarism have often been exposed, which has a very bad social impact. All these reflect that it is urgent for colleges and universities to carry out ideological education for students. In 2020, the Ministry of Education issued the "Guideline for the Ideological and Political Construction of Higher Education Curriculum", which requires schools to integrate ideological and political education into the talent training system. In particular, it is necessary to comprehensively carry out the reform of ideological and political education in higher education and improve the talent training quality in all aspects. In order to solve the fundamental problems of talent training of "what kind of people to train", "how to train people" and "for whom to train people", the teaching team specially selected 12 outstanding scientists who have made outstanding contributions to New China in the fields of physics and mechanics, such as Qian Xuesen, Qian Sanqiang, Deng Jiaxian, Li Siguang and Yu Min, to tell the students about their full enthusiasm for learning, rigorous scientific attitude and full of patriotism, so as to encourage students to work hard and make achievements in the future to serve the motherland.

3. Conclusions

"Elastic-plastic mechanics" is an important basic course for graduate students, and it is an indispensable part of oil and gas storage and transportation safety courses. In view of the current teaching situation, industry characteristics and teaching materials, the teaching team has carried out exploration on teaching materials construction mainly from the aspects of basic knowledge, industry characteristics, engineering examples, scientific and technological frontier and ideological and political education, so as to improve the teaching quality of this course. The results obtained have made some achievements in graduate classroom teaching practice, and also provided a direction for how to help students master this course in the future.

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Psychometric Performance of Learning Burnout Scale for Undergraduates (LBSU) in Guangdong

Yongmei Hou* **Yiyang Wang**

Department of Psychology, School of Humanity and Administration, Guangdong Medical University, Dongguan, Guangdong, 523808, China

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ABSTRACT

To analyze the psychometric performance of Learning Burnout Scale for Undergraduates (LBSU) in Guangdong province. LBSU was used to conduct the survey involving 1628 undergraduates who were selected with stratified random sampling from 7 colleges in Guangdong province. *Cronbach's* α coefficient and split-half reliability were used to analyze the internal consistency of the questionnaire. Convergent validity, discriminant validity and factor analysis were used to evaluate its structural validity. Ceiling and floor effect were used to analyze its sensitivity. *Cronbach's α* coefficient of the total questionnaire was 0.89 and *cronbach's α* coefficient of 3 dimensions were 0.73-0.78, which met with the requirements of the group comparison. Spearman - Brown split-half coefficient of the total questionnaire and 3 dimensions were 0.90, 0.85, 0.81, 0.79, respectively, which also met with the requirements of the group comparison. Both the calibration success rate of convergent validity and discriminant validity of each dimension were 100%. Four components obtained from 20 items which cumulative variance contribution rate was 51.924%. The total score and score of each dimension were all normal distribution, without any floor or ceiling effect in dimensions. The psychometric performance of LBSU for assessing undergraduates in Guangdong province is valid and reliable.

1. Introduction

Learning burnout refers to a kind of behavior that students feel frustrated, tired, depressed or tired because of long-term strong psychological pressure or lack of learning motivation or interest in learning. Learning burnout is a common learning problem of college students, with the detection rate of 9.9-40.3% beyond seas [1,2], 24.8-51.3% at home [3-5], and increasing year by year [6]. Learning burnout reduces learning enthusiasm [7], leads to physical and mental fatigue [8] and psychological syndrome [9,10], hinders academic [11] and career development [12]. As learning burnout is of great significance to college students' physical and mental health, it is increasingly concerned by social public.

For the study of learning burnout, foreign countries carried out earlier, and developed many assessment tools, which are widely used for students of all ages (children, adolescents and adults, etc) [13,14]. However, Western measurement tools do not cover the content of Asian learning burnout and the unique way of Asian behavior [15]. Therefore, it is necessary to develop a localized measurement tool for Asian learning burnout.

Learning Burnout Scale for Undergraduates (LBSU) [15]

**Corresponding Author:*
Yongmei Hou,
Department of Psychology, School of Humanity and Administration, Guangdong Medical University, Dongguan, Guangdong, 523808, China;
Email: 2184456621@qq.com

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is a local scale compiled by Lian Rong (2005). It has simple items, clear structure, and its content is suitable for the life and learning conditions of Asian college students. Since its preparation, it has been more and more widely used. But what is the psychometric performance of LBSU applied to college students? At present, there is a lack of relevant evidence.

Based on the above analysis, this study intends to explore the psychometric performance of LBSU applied to college students in Guangdong Province by using a large sample and multi center survey model.

2. Objects and Methods

2.1 Objects

2.1.1 Sample Size Estimation

The minimum sample size is calculated by G * power 3 [16]. As the detection rate of learning burnout among domestic college students is 24.8-51.3% [3-5], the test effective value is medium level [3-5], that is, the d value is 0.50-0.80 [17]. In this study, we set the effect value d = 0.70, the statistical test power of 1 - β = 0.80, the type I error probability α = 0.05, and the minimum sample size is calculated as 634. The minimum sample size is determined as 761 due to a 20% of possible follow-up loss rate.

2.1.2 Sampling

By stratified random sampling, undergraduates from freshmen to fifth year from 7 universities including Sun Yat-sen University, Guangdong University of Finance and Economics, Guangzhou College of South China University of Technology, Guangdong Medical University, Guangdong Ocean University, Guangzhou Institute of Physical Education, as well as Guangzhou Academy of Fine Arts were selected as the research objects. 1800 questionnaires were distributed and 1628 valid questionnaires were collected, with an effective rate of 90.4%. The average age was (20.8 ± 3.9) years. There are 900 boys and 728 girls; 683 urban students and 939 rural students; 422 freshmen, 389 sophomores, 407 juniors, 317 seniors and 93 fifth year students; 663 engineering students, 357 science students, 391 liberal arts students, 135 art students and 82 sports students.

2.2 Tools

2.2.1 Learning Burnout Scale for Undergraduates (LBSU) [15]

It is complied by Lian Rong and Yang Lixian according to Maslash Job Burnout scale, which is belonged to self-evaluation scale and used to evaluate the learning burnout of college students. There are 20 items, divided into three dimensions: low mood (LD), improper behavior (IB) and low sense of achievement (LSA). The 5-point scoring method is used to score from 1 to 5 points corresponding to "completely inconsistent" to "completely consistent". The higher the score, the more obvious the tendency in the item, dimension or learning burnout.

2.2.2 Self-compiled Personal Information Questionnaire

It includes 4 items, namely, gender, grade, origin, college.

2.3 Collection and Arrangement of Data

Before the investigation, the researchers who participated in the survey were trained uniformly, and the investigation process and evaluation standard were unified. The consistency test (kappa = 0.81- 0.90) meets the test requirements.

The questionnaires with scores of more than 50% of the items missing were eliminated. The missing values of the valid questionnaires were estimated and filled with the average. Two researchers independently input the same data using Epidata3.0 software and conduct a unified logic check to ensure the accuracy of the data.

2.4 Statistical Methods

Data were exported from epidata3.0 to SPSS 20.0 for statistical analysis. First, the original score of the total scale and each dimension are calculated. The second step is to get the average score and standard deviation of the total scale and each dimension. In the third step, the floor and ceiling effect were evaluated, and then, cronbach's α coefficient and Split half reliability were calculated. Finally, convergent validity, discriminant validity and principal component factor analysis was condu cted.

Table 1. Scoring method of LBSU

Dimension	item number	item distribution	range of original score
Low mood (LM)	8	2,4,5,7,9,12,17,20	1-40
Improper behavior (IB)	6	1,8, 10,14, 16, 19	1-30
Low sense of achievement(LSA)	6	3, 6, 11, 13,15, 18	1-30

3. Results

3.1 The Distribution of LBSCU Scores

The ceiling / floor effect is one of the psychological test

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effects, which refers to the phenomenon that when a test is too simple / complex, the scores of most objects are close to or reach the upper / lower limit of scores, which makes the evaluation and prediction performance of the test decrease [17]. Table 2 shows that the total score of LBSU and the scores of 3 dimensions all tend to be normal distribution, without any floor effect or ceiling effect.

3.2 Reliability Analysis of LBSU

3.2.1 Split Half Reliability

The 20 items of LBSU are divided into two parts with 10 items each, and the correlation coefficients of these two parts is 0.77 (P<0.01). According to Sperman Brown formula, the split half reliability of total scale is 0.90. The correlation coefficients of the two halves of 3 dimensions are 0.77, 0.75 and 0.71, and the split half reliability are 0.85, 0.81and 0.79, respectively.

3.2.2 Internal Consistency Reliability

Generally speaking, when *Cronbach's α* coefficient is greater than 0.7, the internal consistency reliability is better. It can be seen from table 3 that the *Cronbach's α* coefficient of the total scale is 0.89, and those of the 3 dimensions are 0.78, 0.73, 0.75, respectively. There is a low to moderate correlation between each dimension, and a moderate to high correlation between each dimension and the total score of the scale. (P < 0.01).

3.3 Validity Analysis of LBSU

3.3.1 Content Validity

The correlation coefficient (R) between each item and its dimension is used to represent the convergent validity. Generally, when $R\geq$ 0.4, it can be considered that the convergent validity is better. Discriminant validity is expressed by the correlation coefficient between the item and other dimensions. If these correlation coefficients are lower than the correlation coefficient between the item and its dimension, the discriminant validity is better. The results show that the correlation coefficient between each item and its dimension was > 0.4, which was higher than those correlation coefficients between the same item with other dimensions. The calibration success rates of convergent validity and discriminant validity were all 100%. See Table 4.

Table 2. Descriptive Analysis of LBSU (n=1628)

Dimension Celling[n(%)]	X±s	Min	Max	P25	P50	P75	Floor[n(%)]
LM	21.72±5.35	8.0	37.0	18.0	22.0 25.0	7(0.4)	1(0.05)
IB	17.97±3.93	6.0	30.0	15.0	18.0 21.0	2(0.1)	1(0.05)
LSA	17.04±3.77	6.0	28.0	15.0	17.0 19.0	1(0.05)	0(0)
Total score of LBSCU	56.73±9.84	23.0	93.0	51.0	57.0	63.0	0(0)

Table 3. *Cronbach's a* Coefficients and Pairwise Correlation Coefficients (n=1628)

Dimension	*Cronbach's α*	1	2	3	4
1.LM	.78				
2. IB	.73	.54**			
3.LSA	.75	.17**	.30**		
4 total score of LBSU	.89	.83**	.81**	.59**	

** P <0.01

Table 4. convergent validity and discriminant validity of LBSCU (n=1628)

Dimension item number	Discriminant vality			Discriminant vality		
	range of R	success	success rate(%)	range of Rx	success	success rate(%)
LD 8	.445~.682	8/8	100	.029~.469	16/16	100
IB 6	.416~.684	6/6	100	.010~.498	12/12	100
LSA 6	.559~.654	6/6	100	.012~.242	12/12	100

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3.3.2 Construct Validity

As KMO value is 0.857, Bartlett's spherical test value is 6280.069 (df=190), $P<0.001$. Therefore, the data is suitable for factor analysis. According to the eigenvalue value greater than 1, four principal components are extracted. The factor load of each item is 0.57-0.71, and the cumulative contribution rate is 51.924%.(the load of each dimension and eigenvalue are shown in Table 5, and the gravel diagram of each dimension and eigenvalue is shown in Figure 1.

4. Discussion

This study finds that the psychometric performance of LBSU applied to college students in Guangdong Province is good, which is consistent with the results of previous similar literature [3-5,9-12,15], suggesting that LBSU is suitable for the assessment of learning burnout of college students in Guangdong Province.

First, the results of internal consistency reliability, split half reliability, construct validity (convergent validity, discriminant validity, principal component analysis) and ceiling / floor effect show that LBSU has good psychometric performance. The internal consistency reliability of the total scale and each dimension of LBSU are above .73; the split half reliability of the total scale was 0.90, and the split half reliability of each dimension is 0.79-0.87, which is consistent with the results of previous studies [3-5,15,19-21]. It is suggested that the split half reliability and internal consistency reliability of LBSU applied to college students in Guangdong Province are good.

Second, we find that each item of LBSU is highly correlated with its dimension, and each dimension is also

Table 5. principal component analysis and dimensional load of 20 items (> 0.5)

1st principal compnnent		2nd principal compnnent		3rd principal compnnent		4th principal compnnent	
item	dimension load	item	dimension load	item	dimension load	item	dimension load
4	.694	1	.579	3	.670	2	.591
5	.549	8	.535	6.	559	13	.504
7	.693	10	.644	11	.565	15	.548
9	.585	14	.516			18	.573
12	.592	16	.590				
17	.569	19	.649				
20	.522						

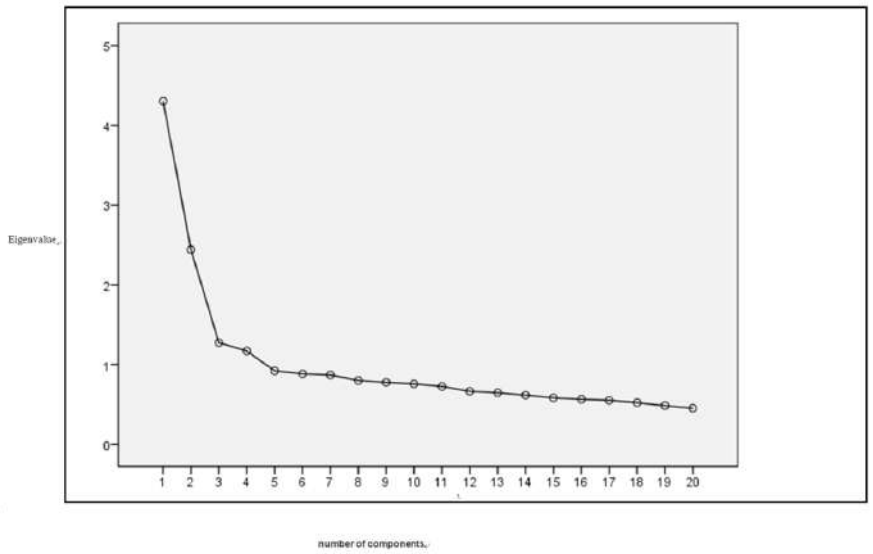

Figure 1. Results of principal component analysis for 20 items in LBSU

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highly correlated with the total scale, which is consistent with the results of previous study [15]. Principal component analysis is used to analyze the scores of 20 items of LBSU, and four principal components are extracted, with a cumulative contribution rate of 51.924%, indicating that LBSCU has good construct validity. However, the structure of the four principal components extracted in this study is not consistent with the theoretical conception of the three dimensions of the original scale. The reason is that the 2nd item in the first dimension of the original scale, "I think what I am learning is useless", and the three items in the third dimension, "I am very interested in my major", "it is easy for me to get a bachelor's degree" and "I am full of energy when I study" are classified into a new dimension (the fourth dimension) in this study. Further examination of the above four items shows that they can better reflect the connotation of "learning adaptability", rather than just "low mood" or "low sense of achievement".

Third, this study finds that the correlation coefficient between each item and its dimension is ≥ 0.4, and the correlation coefficients between each item and other dimensions are less than the correlation coefficients between the same item and its dimension. Both the calibration success rate of convergent validity and discriminant validity are 100%, indicating that LBSU has good convergent validity and discriminant validity.

Final, the total score of LBSU and the score of each dimension of this group of college students are normal distribution, without any ceiling effect or floor effect, which is consistent with the results of previous literature [15,18,20], indicating that the items of LBSU are properly selected (typical behavior sampling), and the scale is reasonable and responsive, so the scores tend to be normal distribution.

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