Exploring the Stressors and Coping Mechanisms of Chinese University Instructors Amidst the COVID-19 Pandemic

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This study explores the pressures and challenges Chinese university instructors face during the rapid shift to online teaching due to the COVID-19 pandemic. Using a quantitative research methodology, the study employed a questionnaire distributed via the Qualtrics platform to gather data from instructors at over 20 top-tier Chinese universities. The results of the correlation analysis of the data show that personal factors significantly influence instructors' stress levels and coping strategies. The study underscores the need for enhanced technical training, psychological support, and improved online teaching resources. These insights inform educational reforms and support measures to enhance instructors' well-being and teaching quality in an evolving educational landscape.

Keywords: educational leadership, instructor leadership, instructor pressure, COVID-19

INTRODUCTION

In recent years, with the rapid changes in the global educational environment, college instructors in China have faced unprecedented pressures and challenges. Especially in the COVID-19 epidemic, online teaching has rapidly become the dominant mode of higher education, and this shift has not only affected instructors' teaching styles but has also had a profound impact on their psychological well-being and career satisfaction.

Instructional leadership is defined as the ability of instructors to utilize their knowledge, competence, and qualities to disseminate knowledge, concepts, and technologies through teaching methods and lectures, thereby stimulating students' enthusiasm for independent learning and improving the quality of teaching and learning. Instructional leadership was widely discussed in the literature review, research points to the importance of instructional leadership in improving the quality of student education. In China, instructional leadership has become the key to improving the quality of teaching and learning in higher education and promoting educational reform.

The COVID-19 epidemic has forced college and university instructors to quickly adapt to online teaching, and this sudden change has dramatically impacted instructors' career satisfaction and job stress. It has been found that instructors' job happiness, job performance and teaching quality are closely related, while stress and burnout are important factors affecting instructors' job satisfaction. Challenges faced by instructors in online teaching include insufficient network environments and hardware equipment, varying

quality of teaching resources, complex platform operations, and low student engagement. This study reveals the stress and challenges Chinese university instructors face during the COVID-19 epidemic, as well as their experiences and strategies in coping with these challenges.

Problem Statement

Against the backdrop of a rapidly changing global educational environment, especially during the COVID-19 Epidemic, Chinese college and university instructors faced unprecedented pressures and challenges. The epidemic forced colleges and universities to rapidly shift to online teaching, and this sudden shift had far-reaching effects on instructors' teaching styles, mental health, and professional satisfaction. Although online teaching solves the problem of continuity of teaching activities to a certain extent, its implementation has revealed many problems, such as insufficient technical support, unstable network environment, uneven quality of teaching resources, and reduced interaction between instructors and students. These problems not only increase instructors' workload, but also intensify their professional pressure and anxiety.

In addition, instructors' personal background factors (e.g., age, gender, teaching experience, online teaching experience, and work-at-home experience) may significantly impact their feelings of stress and coping strategies when faced with the shift to online teaching. For example, older instructors may face more difficulty in adapting to new technologies, while instructors who lack experience teaching online may feel uncomfortable with the use of teaching methods and tools. The complex interweaving of these factors resulted in significant differences in stress feelings and coping styles among different groups of instructors when facing changes in the teaching and learning environment brought about by the epidemic.

Study Purpose

The main purpose of this study was to provide insights into the experiences of Chinese university instructors in the face of pressures and challenges, particularly the impact of the rapid shift to online teaching in the context of the COVID-19 epidemic on them. The study will explore the stresses and challenges experienced by Chinese university instructors during the transition to online teaching during the COVID-19 epidemic. The outbreak of the COVID-19 epidemic forced university instructors to rapidly adapt to a new teaching mode, and this sudden change not only altered their teaching style, but also had far-reaching impacts on their psychological well-being and career satisfaction. This study aims to identify and analyze these stressors in order to better understand instructors' work experiences during this particular period.

Additionally, this study will assess how instructors' personal background factors affect their feelings of stress and coping strategies during the epidemic. Through quantitative analysis, the relationships between these factors and instructors' stress levels will be systematically explored. Understanding these associations will help identify which groups of instructors are more likely to feel stress when faced with the shift to online teaching and thus inform the development of more targeted support measures. The results of this study will provide an empirical basis for university administrators and educational policy makers to improve and optimize instructor support systems. By understanding instructors' real experiences and needs during the epidemic, universities can take more targeted measures, such as strengthening technical training, providing psychological support, and improving online teaching resources, so as to help instructors better adapt to the new teaching environment, reduce occupational stress, and improve teaching quality.

Significance of Study

The research importance of this study lies in its comprehensive exploration of the pressures and challenges faced by Chinese university instructors during the COVID-19 epidemic, as well as its practical guidance for improving instructors' career satisfaction and teaching effectiveness. By systematically examining these impacts, this study can help educational administrators and policy makers better understand instructors' work experiences during this special period, so that more effective support strategies can be developed to reduce instructors' work stress and improve their professional well-being.

This study also explored the effects of instructors' personal background factors on their stress perceptions and coping strategies. This research perspective is of great relevance because instructors from different backgrounds may experience stress and cope differently when faced with the same changes in the teaching environment. By assessing the relationship between these factors and instructors' feelings of stress, this study can help identify groups of instructors who are more in need of attention and support, so that targeted help and resources can be provided to enhance their adaptive capacity and teaching effectiveness. Along with the stressful feelings co-bringing the content related to the professional satisfaction and teaching effectiveness of instructors in the online teaching environment.

Finally, the results of this study will provide important practical guidance for university administrators and educational policy makers. By understanding instructors' real experiences and needs during the epidemic, universities can take more effective measures, such as strengthening technical training, providing psychological support, and improving online teaching resources, to help instructors better adapt to the new teaching environment, reduce occupational stress, and improve teaching quality. This not only helps to support college instructors in the context of the current epidemic, but also provides an important reference for future education reform and instructor support policy development.

LITERATURE REVIEW

Instructional Leadership

In China, instructional leadership (instructor leadership) had become a key focus for improving the quality of teaching and learning in universities, playing an essential role in building first-class curricula and promoting reform, and a goal for universities to work together (Liang, 2020; Li, 2020). According to the National Medium- and Long-term Education Reform and Development Plan (2010-2020), instructional leadership was a process in which instructors used their strengths, including knowledge, ability, and competence, to disseminate knowledge, ideas, and techniques through teaching methods and lectures; to activate students' passion for independent learning and develop their influence, thus achieving the goal of improving teaching quality (Li, 2020; Huang, 2019; Mesmer et al., 2012). The purpose was to enhance the quality of teaching (Li, 2020; Huang, 2019; Mesmer et al., 2012). Personalization, differentiation, high aggregation, and high level were the main characteristics of instructors' instructional leadership. Under information technology, instructors' online instructional leadership was a core element for universities to improve teaching quality, enhance international influence, and cultivate innovative talents. If online teaching had a difficult time meeting the needs of students, then weak continuous learning, inattentive learning, and poor instructor-student interaction would inevitably lead to the loss of the source of power for university development and transformation. Therefore, how to evaluate instructors' instructional leadership scientifically and effectively in an online environment and, construct a learning mechanism from the perspective of individual instructors, and then improve and optimize the overall strategy to enhance instructors' instructional leadership has become a management and evaluation issue that most universities focused on.

The available research on instructors' instructional leadership and its evaluation in China, according to the classification criteria of different research topics, instructors' instructional leadership research mainly focused on three aspects (Chen, 2020; Wu, 2019). First was the construction of theoretical models. For example, Huang and Wu (2020) believed that instructors' instructional leadership consisted of teaching leadership, decision-making, organization, and effectiveness. Zhao and Zhang (2019) stated that information technology teaching ability included three aspects: environment, extracurricular learning, and classroom teaching management. Liu and Xu (2015) started from the effectiveness of classroom teaching in colleges and universities and found that instructors' teaching leadership was a tripartite aggregate of teaching environment, students, and instructors. Second, instructors' evaluation methods. For example, Zhao (2013) pointed out that questionnaires were commonly used assessment instruments, along with observation, interview, and text review methods. Chen (2020) argued that instructors' evaluation focused on their subjectivity, dynamics, and individualized characteristics rather than viewing instructors as homogenized individuals. In addition, other subjective and objective evaluation methods included case

studies and leaderless group discussions. Third was leadership building. For example, according to Rao et al. (2019), the teaching leadership of university instructors needed to meet the requirements of the era of education data and improve the information-based teaching ability from the data-driven perspective. They used informatization as a breakthrough point to improve teaching leadership from four perspectives: deepening awareness, educational reflection, building community, and obtaining university support. Sun and Liu (2015) used information technology as a breakthrough to build leadership in four areas: deepening awareness, educational reflection, building community, and gaining university support. The current research focused on the informatization of instructors' teaching ability, which aligned with the trend of modernization and digitalization of teaching.

Faculty Construction in China

Since the faculty building in China and other countries might have differed, this section briefly introduced the faculty building in Chinese universities. Significant improvements had occurred in terms of the richness of the professional background of the faculty and the diversity of employment mobility, etc., and the application of fund projects and academic achievements had achieved considerable development (Hou & Li, 2021; Wang et al., 2022). China's information science faculty had formed a professional background composition with management as the main body and engineering and science as the leading supplement. The professional composition of instructors in various institutions presented three main types: a relatively single type with a management background accounting for the vast majority, a diversified type dominated by management, and a type with solid institutional characteristics. Although there was still a particular gap compared with the rich professional background of instructors in *The iSchools* universities/colleges (Wang et al., 2022) - *The iSchools* represent an international organization of over 120 universities, it had dramatically improved compared with a single professional source of early Chinese instructors (Hou & Li, 2021). At the same time, the education level of the information science instructors had been rapidly improved. Among the 632 instructors, 80.54% of the instructors had doctoral degrees. Thanks to the expansion of the subject scale, the education level of new instructors had been dramatically improved.

The temporal change of the research topics of information science presented three main characteristics: some traditional subjects, such as information retrieval fading gradually, and emerging technologies expanding the research content of traditional subjects, such as knowledge organization and information resource management; subjects, such as information behavior and digital humanities proliferated; The research interests of information science instructors showed a trend of diversification (Chen, 2020).

The application of emerging technologies such as big data had caused scholars to discuss the relationship between data science, information science, and information science education. Both the combing of emerging technology applications in foreign information science talent training (Wang et al., 2022), and the investigation of domestic information science-oriented data science and big data professional talent training were the objects that needed to be focused on (Shi et al., 2018). Undeniably, the relevant thinking and data science methods had changed the discipline research paradigm and personnel training requirements to a certain extent. The interdisciplinary and applied characteristics of information science accelerated updating instructors' knowledge reserve. Suppose the knowledge structure of the existing teaching staff was not adjusted, and the knowledge reserve of the teaching staff was not enriched. In that case, the "big data talents" who lacked market competitiveness would be cultivated (Hou & Li, 2021; Shi et al., 2018).

Faculty Responsibilities

Instructors in Chinese universities have six major responsibilities: academic responsibility, training responsibility, teaching responsibility, guidance responsibility, service responsibility, and research discovery responsibility (Zhao, 2019). These responsible behaviors fully supported the achievement of the university's goals. Among them, the responsibility of training was mainly completed through teaching. The focus was on cultivating students' sense of responsibility through extensive general education, forming good moral character and a reasonable quality structure, and becoming a person society needs. Additionally,

Chinese universities generally believed that teaching was a meaningful way to cultivate talents, and teaching responsibility was the responsibility for students' development, which was the university's primary mission (Zhao, 2019; Zhao, 2013). From the perspective of responsibility ethics, teaching and educating people were the bounden duty of Chinese instructors. In the process of education and teaching, research and academics were closely combined with the responsibility of educating students. Instructors taught these students with active thinking and personality traits to learn how to learn, which was to truly take responsibility for students' development and practice the teaching profession's first virtue.

Combined with the current situation, Chinese university instructors upheld the teaching responsibility. The current teaching responsibilities of instructors included fully assuming the responsibility of teaching quality monitoring and incorporating recognized scientific achievements in a particular field and their latest research results into the subject knowledge system structure, guiding students to grow through teaching, lectures, etc., or compiling them into textbooks and popular books and teaching them to students (Wang et al., 2022). Instructor responsibilities mentioned above meant that college instructors needed to be fully prepared for teaching and constantly update their knowledge system before teaching to maintain a high academic level. Instructors paid attention to students' learning needs and helped them solve problems promptly. Instructors ensured academic neutrality, led students to detach from biased questions that were likely to have unfair effects, maintained certain independence, and formed independent judgment ability and awareness (Li & Su, 2021).

Additionally, the teaching responsibility of university instructors was also reflected in love for all students, and there was no preference or discrimination due to any factors (such as gender, age, race, etc.) (Li & Su, 2021). After all, the Chinese education point of view believed that the concentrated expression of the virtue of teaching was the love of teaching. But it was a love of wisdom based on responsibility, not indulgence or suppression.

COVID-19 Pandemic

According to the World Health Organization, the 2019 coronavirus outbreak in December 2019 was marked as a pandemic. The United Nations (UN) defined this international health disaster as a coronavirus disease. It impacted the country's social foundation and severely impacted humanitarian and economic aspects (United Nations, 2020). While the Global Health Organization (WHO) regularly assessed the risk of COVID-19, countries worldwide actively treated patients who had been infected with the virus. Furthermore, various levels of health and safety protection measures were adopted by various countries to try to limit and prevent this virus with a high transmission and infection rate (WHO, 2020). All nations' economic, social, educational, and health systems were significantly impacted by COVID-19 (Sen & Bati, 2020, Cited by Eşici et al. 2021). The World Economic Forum (2020) indicated that although the measures taken by many countries minimized the negative impact of the epidemic on society, they did not entirely prevent the deterioration.

According to the available case data, COVID-19 (novel coronavirus pneumonia) was characterized by fever, dry cough, and malaise. Most severe cases developed respiratory distress after one week, and severe cases progressed rapidly to critical conditions such as acute respiratory distress syndrome, septic shock, and multi-organ failure, leading to death. Health epidemiologists emphasized that the main transmission routes of COVID-19 pneumonia that could be identified were direct transmission, aerosol transmission, and contact transmission. Cai et al. (2020) found that during the COVID-19 public health emergency, people's mental and physical health suffered. They concluded that people's mental health suffered in addition to their physical health. Along with the severe psychological repercussions of living in isolation for an extended period, unfavorable socioeconomic consequences resulted from people's decline in social consumption.

Higher Education and the COVID-19 Pandemic

COVID-19 was the first public health crisis severe enough to cause educational institutions worldwide to be affected and forced to respond (Hodges et al., 2020). It was the first time emergency remote learning was used to describe how educational institutions worldwide moved away from conventional classroom instruction toward emergency remote learning (Hodges et al., 2020).

In China, the impact of COVID-19 was equally overwhelming and made a world of difference to faculties and students across the university (Gong, 2021; Yan, 2021). On January 23, 2020, Wuhan (a first-tier city in China) was forced to adopt a city closure strategy, and all provinces activated their Level 1 response to major public health emergencies. As a high-density public place, how to effectively use the epidemic prevention period for spring education became a question that educators had to consider and answer. It required ensuring the teaching schedule and quality while safeguarding the lives of students and instructors in Chinese universities. In 2017, during the SARS outbreak, the Chinese Ministry of Education took emergency measures to ensure that students stayed in university during the holiday break and started distance education, using television, the internet, and radio to meet the needs of millions of students for independent learning at home. The Ministry of Education issued a notice of postponement of the start of the spring 2020 academic year on January 27, 2020, which was affected by the new pneumoconiosis. On February 5, 2020, the Ministry of Education issued a guideline for organizing and managing online teaching and learning at universities during the epidemic prevention and control period, requesting that "courses be hindered, but teaching and learning not be stopped" during the epidemic.

Chinese universities in all provinces and cities used the quality online resources available to teach and learn on major online course platforms and online learning spaces (Hou & Li, 2021; Li, 2021). Taking Wuhan, the city with the most severe epidemic, for example, Wuhan University had more than 100 online education platforms for their courses and teaching materials. Instructors were encouraged to use the teaching resources already available on the platforms. The hybrid teaching method of "MOOC + SPOC" was used for the courses built online (Xu et al., 2014; Chen & Chen, 2019). The interaction between instructors and students was increased through live Q&A and online discussion. For the problem of delayed registration of general undergraduates, the university proposed to join the course QQ group (Chinese version of Facetime + Discord) and Microsoft Teams group, check the class schedule in the virtual classroom, start online teaching activities, and then register according to the university's notification (Li, 2021; Chen & Chen, 2019). Additionally, the university established many platforms to facilitate access to instructors who were not on campus. The university's information technology department provided a single sign-on remote cloud desktop to promote the smooth conduct of research projects for non-university instructors/educators. It was connected to the CARSI platform on the education network, allowing students and faculty to use domestic and international academic resources to study during the epidemic (Wang et al., 2020).

Sudden changes in living and working environments due to COVID-19 undoubtedly disrupted the university faculty's goal setting and planning for their work, especially in teaching (Wang et al., 2020; Liang, 2020; Husain, 2020; Zalaznick, 2020). Because of the dramatic shift in teaching methods, questions arose about whether the teaching mission could be carried out effectively. With doubts about the successful completion of daily teaching tasks, there was even less room to consider how to improve effectiveness. Thus, Liang (2020), Husain (2020) and other scholars believed that it could be argued that the changes brought about by COVID-19 to higher education faculty had impacted the leadership of university faculty. Whether the results of this impact were beneficial or detrimental, they required the attention of universities.

Faculty Pressure Under the COVID-19 Pandemic

In addition to changes in the form of faculty professional development, faculties also faced unique challenges in dealing with the COVID-19 epidemic. Instructors were perhaps the most affected by the epidemic, although it affected various vocations (Murphy, 2020). Universities and colleges were unexpectedly shut down with no indication of when they might reopen. No clear instructions on how the in-person lesson may be transferred to a virtual platform were provided for instructors. Instructors' anxiety levels likely rose due to the sudden change in instructional style and the lack of knowledge about how long universities would be closed (Murphy, 2020; Li, 2020).

Chinese instructors faced the same situation as other countries in the epidemic environment and had to deal with difficulties of online education. According to Fu & Zhou (2020), an online survey found that after the COVID-19 epidemic in China, many universities were particularly embarrassed by online classes regarding hardware and software equipment and network environment. Although everything was fine

before, after converting to distance learning mode, some universities found that their facilities and equipment had problems in not supporting the online platform application because of the outdated model (Fu & Zhou, 2020). Meanwhile, some universities that did not pay enough attention to the network situation may have encountered network problems, and the upload and download speed of the network could not meet the needs of IT teaching in the live mode (Fu & Zhou, 2020).

On the other hand, few platforms could guarantee course quality, adaptability, and stability. Although many high-quality online education resources, other online education resources still suffered from uneven quality (Yan, 2021). In addition, while many learning platforms had a full range of functional modules, it was not easy to meet the individual needs of online learners. Because the ease of use and interactive support of online learning platforms varied, there were often instructor and student failures to find needed learning modules or materials due to complex systems or pages, platform lag, and slow platform response (Zhang & Zhao, 2020).

The sudden change in the online education model required high comprehensive quality instructors, but the level of information technology and adaptability of instructors was "not enough." According to the survey results of several major studies, many instructors had less access to resources on the online platform - especially older instructors - and were not flexible in the use of office software to create teaching materials, record teaching micro-videos, and prepare teaching documents; The ability to use OFFICE, PS, and other software for simple processing of text, pictures, sound, animation, and other resources was insufficient; the technology of cell phone and computer with the same screen had not yet been mastered, etc. (Lv & Xiao, 2021). In addition, the great challenge that instructors faced in teaching online was the unavoidable time delay and spatial separation between them and their students when they taught. This was not only the essential difference between online education and other forms of education but also the difficulty. In a distance learning model environment likely to continue over time, instructors had to value and ensure that online education was consistent with other forms of education (Yan, 2021).

According to Yan (2021)'s study, most instructors' IT levels could handle the operation of the online platform, while some senior instructors had technical problems and resistance to online teaching. However, platform lag and network blockage were still the key factors affecting the development of online instruction at that time. According to Zhang & Zhao (2020), regarding the comparison between online and traditional instruction in terms of time and effort investment, most instructors believed that "online teaching required more time and effort than traditional teaching." Regarding the difficulties and challenges instructors encountered in the process of online teaching, 77.16% of instructors said the platform was stuck; 55.17% said they were tired of staring at the screen all the time; 54.31% said they had a low sense of participation; and 47.84% said they had little feedback. 82.76% of instructors often made some adjustments to their online teaching accordingly. Many instructors also noted that the platform was not proficient in operation; other options mainly included the inability to supervise students remotely effectively, the failure to grasp students' learning status in real-time, slow Internet speed, delayed sound, switching back and forth between different platforms, and limited interaction methods.

Faculty Pressure

Faculty stress had been demonstrated to have harmful consequences, especially when 40 to 50 percent of instructors quit after five years of service (Ingersoll & Smith, 2003). According to research, more stressed instructors were more likely to get burned out (Steinhardt et al., 2011; Martinez- Monteagudo et al., 2019). According to these results, instructors who left their jobs because of burnout were likelier to have high-stress levels. There was little doubt that instructors' stress and exhaustion had risen. Over one-third of instructors in the United States said they were considering quitting or retiring early because of the coronavirus epidemic (Riddle, 2020).

According to Wolgast and Fisher (2017), instructors' stress levels may have arisen due to their colleagues' lack of support and collaboration. Collaborative instructors reported feeling more supported two years later and less stressed four years after the first cooperation. Additionally, Klassen (2010) showed that instructors reported less stress when they believed in the university staff's ability to work together to promote student learning and conduct. They still collaborated and supported each other, but their methods

shifted radically when the university facilities were shut down. It was unclear whether cooperation and collective effectiveness still had the same advantages when individuals could not meet in person. It was possible that many instructors may have been so overwhelmed that they did not believe they could help others.

The pressure on university faculty had a ripple effect that extended far beyond the confines of the classroom. College students' behaviors and academic performance were negatively related to faculty burnout and stress levels, as was their self-efficacy (Herman et al, 2018). According to Ekornes (2017), the connection between students' mental health needs and instructors' stress. The instructors issued a high-stress level report because they realized that in the current learning environment, students might gradually develop mental health issues, which were often related to academic achievement and college behavior. They could address such needs in the classroom under ordinary circumstances, but they were more than capable of doing so in particular teaching environments.

Theoretical Foundations

Robertson and Cooper (2013) indicated that resilience is the ability to bounce back from or overcome adversity. A person's ability to cope with adversity is essential to resilience. According to the American Psychological Association, resilience was defined as the ability to successfully cope with adversity, trauma, tragedy, danger, or even significant sources of risk. A study by Silverman et al. (2015, Cited by Gimbert et al., 2023) found that people could suffer severe trauma if they had lost a loved one or lived in a conflict-ridden area. Regardless of the obstacle or unexpected event, resilience encouraged a positive response (to help mental health and other aspects return to normal) (Santoro, 2013).

As a result of COVID-19, the environment shifted dramatically and alarmingly. It continued to bring adversity, trauma, and danger to people, affecting every person and every institution. Universities and other educational institutions and instructors were among the institutions and groups that bore the brunt of this sudden outbreak of public health crisis and were greatly affected (Kim, 2019; Liang, 2020). Universities were closed, forcing instructors to shift from daily face-to-face instruction to relatively unknown distance learning within days. They had to deal with the attendant issues of quality of teaching, time management, communication, etc. Coupled with concerns for their own and their families' health and safety and the potential for financial problems (Johns Hopkins University, 2022), there was no doubt that instructors were under tremendous stress and burden in the shadow of COVID-19. At this point, resilience became critical for educators in distress because it could help them withstand more potent stimuli, have greater mental strength and stability, and present a more positive coping attitude in the face of adversity (Cai et al., 2020; Fu & Zhou, 2020), whether it was natural adversity (e.g., health threats from COVID-19) or social adversity (adverse COVID-19-induced work/life environment). According to the case study provided by Kim (2019), participants inevitably faced multiple difficulties in teaching and expressed the importance of management in coping with their teaching problems. Relevant past teaching experiences, positive experiences as motivators, and experience-based advice helped them develop self-confidence and a sense of worth, contributed to their resilience, and further facilitated their emergence from difficulties.

Resilient individuals who faced the adversity of that crisis showed their strength and resilience, seeing the potential problems as challenges and trying to move forward. Those who proactively dealt with challenges or opportunities were likely to bounce back even after setbacks. Resilient people were hopeful and realistic; they were neither depressed nor overly negative (Wasden, 2014). This trait was critical for instructors, especially those in higher education, who had to adapt to a rapidly changing environment. It was because even in non-crisis general teaching environments, instructors who failed to keep up with changes in the educational environment and society and who effectively made timely adjustments and improvements to their situation risked being left behind. This study aimed to explore how instructors may have been affected by sudden environmental changes due to the COVID-19 pandemic and what adjustments and changes instructors made in the face of these effects to help and support them to effectively break out of the status quo/struggle.

RESEARCH QUESTION

How do Chinese university instructors describe their experiences related to stress and pressure?

***H_0**: Chinese instructors disagree that shifting to teaching online impacted their stress and pressure.*

***H_a**: In a COVID-19-influenced environment rapidly shifting to online teaching, Chinese university instructors' performance and feelings about stress were significantly related to their personal experiences (including age, gender, teaching experience, online teaching experience, and work-from-home experience).*

RESEARCH DESIGN

Research Question(s) or Hypotheses

How do Chinese university instructors describe their needs for instructor-student relations related to their overall instructional comfort in an online environment?

***H_0**: Chinese instructors disagree that shifting to teaching online impacted their expertise in managing the instructor-student dynamic amidst the swift shift to online platforms.*

Research Methodology and Design

The questionnaire of this study was distributed to participants for data collection beginning on June 21, 2023, and the last questionnaire was collected on August 10, 2023, and distribution was discontinued. The methodology employed in this study encompassed the careful selection of the survey sample, the precise definition of study procedures, the meticulous determination of study measurements, and the thoughtful selection of tests to be utilized. The research was conducted using a quantitative approach, which entailed the identification of the survey sample, delineating procedures for conducting the study, specifying study measures, and determining the tests to be employed. The quantitative research was poised to provide impartial insights into faculty leadership amidst the challenges posed by COVID-19, with correlations being scrutinized and succinctly summarized using statistical data. The analytical outcomes were particularly advantageous for facilitating broad group utilization owing to the objective nature of the data, which was neither overly specific nor narrowly focused.

This quantitative study examines instructor-student relationships among college instructors during the COVID-19 pandemic. Instructor teaching practices and performance were assessed through a Qualtrics questionnaire, an online survey platform. The survey was modeled after the COVID-19 Instructor Survey from three teaching institutions, including the University of Pittsburgh, with some modifications for this study's research questions. The aim was to investigate changes in the instructor-student relationship profile of university instructors with over a year of teaching experience amid a sudden public health crisis like COVID-19. The study also delved into how instructors could adapt their classroom management and teaching strategies promptly and effectively to maintain teaching quality and student relationships amidst such disruptions. The questionnaire included both free response and multiple-choice questions, allowing respondents to provide detailed insights beyond what a purely quantitative survey could offer.

Study Population and Sample Selection

The dataset utilized for analysis was carefully selected from the Microsoft Teams instructor exchange group, comprising university instructors from more than 20 top-tier Chinese universities. These educators, who were full-time faculty members with a minimum of one year of teaching experience, had actively participated in at least one month of online teaching amidst the public health crisis, regardless of their previous exposure to emergency distance learning or online teaching. The study inclusively welcomed educators of all genders, ages, races, and teaching disciplines, while excluding administrators and university lecturers with less than a year of teaching experience. The sample size should be around 100 (±50). After

the university's authorization and the instructors' consent, the sample population answered multiple questionnaires anonymously.

Instrumentation

The questionnaire was based on the COVID-19 Faculty Survey provided by the University of Pittsburgh, the COVID-19 Institutional Response Faculty Survey 2020 provided by the Higher Education Data Sharing Consortium, and a small amount of The National Survey of Public Education's Response to COVID-19 supplied by the American Institutes for Research. The questionnaire was based on the above content and adapted to this study's research questions. The questionnaire contained free-response questions in addition to multiple-choice questions. The free-response questions allowed respondents to provide details not available from a strictly quantitative survey.

Data Collection Procedures

The data analysis was gathered from the Microsoft Teams instructor exchange group, with the involvement of current university instructors from more than 20 leading Chinese universities. These instructors were asked to join through a document shared in a Microsoft Teams group. The data gathering process involved using Qualtrics for collecting objective data and free-form responses. Objective data and open-ended responses were collected using Qualtrics to ensure participant confidentiality. The utilization of Qualtrics safeguarded privacy and enhanced the study's credibility, thanks to the university's provision of this tool at no cost. Following the data collection phase, the gathered information was imported into IBM SPSS version 28 for detailed statistical analysis. Subsequently, the researcher moved the survey data into a Microsoft Excel spreadsheet and structured the free-form responses for additional scrutiny and analysis purposes.

Data Analysis Procedures

SPSS Statistics 28.0 was used to analyze the data. The answers collected from the questionnaire were coded using numbers as the response code (for example, the 5-point Likert scale was adapted from "strongly agree-strongly disagree" to "5-1") and then input into SPSS to get related analysis. The significance test tested the null hypothesis related to the research question. It determined whether the relationship between the variables was significant by observing the relationship between the data and the significance level (set to 0.05). Skewness/Kurtosis/Q-Q could determine whether the data follow a normal distribution. Moreover, used the chi-square test to determine whether the data was different (Creswell and Geutterman, 2019). When the data met the assumptions of normality and homogeneity of variance, parametric testing was used. According to the data situation, the study used Pearson to test the correlation of the data.

DATA ANALYSIS AND RESULTS

Descriptive Findings

The study sample was drawn from instructors at key universities in China. The Qualtrics platform was used for data collection. Data were collected over three weeks. At the end of the survey, the data were extracted into SPSS version 28.0 for Windows.

The sample consisted of 1,296 participants. Of these, seven participants did not meet the inclusion criteria for the study and were subsequently excluded. Another 335 participants met the inclusion criteria but did not answer any part of the survey. Potential outliers were then examined with standardized values or Z-values. The final sample consisted of 954 participants. Based on G* Power calculations, a medium effect size, correlation coefficient of 0.80, and significance level of 0.05 were chosen for this study, and a 20% attrition rate was added as required by university guidelines. The results entered G*Power were for a minimum sample of 68 participants (see Table 1). Based on a 15% attrition correction and a 15% nonparametric test correction, the minimum target for data collection was 97 participants. The final sample was 954 participants, which was more than the minimum calculated number of 97 participants described in the previous statement.

Descriptive Statistics

Cronbach alpha and descriptive statistics for each variable were reported in this section. Questionnaire includes Teaching and Technology, communication needs, stress measure, instructional professional development, and student relationships parts, were used to measure the effects of abrupt environmental factors on Chinese university instructors in the areas of Teaching and Technology, communication needs, stress, instructional professional development, and instructor-student relationship.

Cronbach's alpha tests were conducted for internal consistency and reliability of the five scales. the strength of the alpha values was interpreted using the guidelines proposed by George and Mallery (2016), i.e., $\alpha \geq .90$ Excellent, $.89 \geq \alpha \geq .80$ Good, $.79 \geq \alpha \geq .70$ Acceptable, $.69 \geq \alpha \geq .60$ Problematic, $.59 \geq \alpha \geq .50$ poor, and $\alpha < .50$ unacceptable. Reliability for all five scales met the acceptable threshold for internal consistency (see Table 1). These results were consistent with previous literature in which three of the survey instruments had acceptable reliabilities: instructional professional development $\alpha = .897$.

TABLE 1
CRONBACH ALPHA FOR INSTRUMENT SCALES FOR STUDY DATA

Variables	Number of items	α
Stress	15	.874

Five components included in the instrument used in this study of descriptive statistics were: 1) Teaching and Technology, 2) communication needs, and 3) stress, 4) instructional professional development, and 5) instructor-student relationship. Teaching and technology scores ranged from 28 to 112, with M = 53.61 and SD = 7.403. Communication needs scores ranged from 9 to 54, with M = 20.17 and SD = 6.720. Stress scores ranged from 21 to 90, with M = 46.44 and SD = 8.339. Instructional professional development scores ranged from 6 to 36, with M = 15.94 and SD = 5.272. instructor-student-related scores ranged from 7 to 42, with M = 26.00 and SD = 6.287.

Descriptive statistics for the continuous variables were presented in Table 3. Kline (2010) indicates that skewness should fall between ± 2.00 kurtosis values should fall between ± 3.00 to follow a normal distribution. Three scales fell in the acceptable range for skewness and Kurtosis, indicating that the data approximately followed a normal distribution.

TABLE 2
DESCRIPTIVE STATISTICS OF THE CONTINUOUS VARIABLES

		Statistic	Std. Error
Stress	Mean	46.44	.292
	Std. Deviation	8.339	
	Minimum	21	
	Maximum	90	
	Skewness	1.300	.086
	Kurtosis	6.356	.171

Data Analysis Procedures

The researcher conducted a Pearson Chi-Square test to address the research question. A Pearson Chi-Square test was deemed appropriate for this quantitative, correlational study because the main purpose of it was to compare the differences between categorical variables and categorical variables. Comparison of variables that could be used in two situations: fitness and independence tests. The Pearson chi-square test was a statistical test performed on categorical data sets to assess how likely it was that observed differences between data sets were due to chance. Before analysis, the assumptions of Pearson Chi-Square test were verified.

Data Preparation

The raw data were presented in string format, which provided all the responses in characters and words. The Likert scale data in the questionnaire had been converted from string to numeric format. Composite scores were developed by following the scoring instructions on the survey. No variables required reverse coding. All five variables of interest (Teaching and technology, communication need, stress, professional development, and instructor-student relationship) were computed through an average of the respective items comprising the scales. Listwise deletion was used to remove 342 participants who did not respond to any portion of the survey. One participant had a low outlying score for emotional intelligence and the data for this participant was removed. The final sample size consisted of 954 participants. An *a priori power analysis* conducted in G*Power yielded a minimum sample of 68 participants, with a 15% correction for attrition and a 15% for non-parametric analysis increasing the sample size requirement to 97 participants. The sample size for the research exceeded the minimum threshold.

Result

In response to the hypotheses posed in the research question, a chi-square test was conducted to test the combined predictive relationship between university instructor experience (age, gender, teaching experience, online teaching experience, and home office experience) and stress in a COVID19 pandemic setting. The research questions and their associated hypotheses were analyzed. The research questions and related hypotheses are as follows:

RQ: *How do Chinese university instructors describe their experiences related to stress and pressure?*

H_0: *Chinese instructors disagree that shifting to teaching online impacted their stress and pressure.*

Chi-square statistics were used to examine association the relation between categorical variables (Figure 3). There was positive correlation at 5% significance level between instructor experience (age) and stress of respondents (X^2 = 549.232, *df* =240, *p* = .001). There was positive correlation at 5% significance level between instructor experience (gender) and stress of respondents (X^2 = 355.963, *df* =96, *p* = .001). There was positive correlation at 5% significance level between instructor experience (teaching experience) and stress of respondents (X^2 = 320.005, *df* =240, *p* = .001). There was positive correlation at 5% significance level between instructor experience (online teaching experience) and stress of respondents (X^2 = 281.586, *df* =144, *p* = .001). There was positive correlation at 5% significance level between instructor experience (home office experience) and stress of respondents (X^2 = 473.034, *df* =192, *p* = .001).

TABLE 3
PEARSON CHI-SQUARE STATISTICS OF STUDY VARIABLES FOR H_0

		Value	df	Asymptotic Significance (2-sided)
Age	Pearson Chi-Square	549.232[a]	240	<.001
Gender		355.963[a]	96	<.001
Teaching experience		320.005[a]	240	<.001
Online teaching experience		281.586[a]	144	<.001
Home office experience		473.034[a]	192	<.001

The following conclusions can be drawn from the above process:

H_a: *In a COVID-19-influenced environment rapidly shifting to online teaching, Chinese university instructors' performance and feelings about stress were correlated positively to their personal experiences (including age, gender, teaching experience, online teaching experience, and work-from-home experience).*

Discussion and Interpretation

Research question addressed the chi-square test for the combined predictive relationship between university instructors experience (age, gender, teaching experience, online teaching experience, and home office experience) and stress in the COVID19 pandemic environment. The results of the data analysis showed that There was positive correlation at 5% significance level between stress of respondents and instructor experience includes age(X^2 = 549.232, *df* =240, *p* = .001)*;* gender (X^2 = 355.963, *df* =96, *p* = .001); teaching experience (X^2 = 320.005, *df* =240, *p* = .001); online teaching experience (X^2 = 281.586, *df* =144, *p* = .001); home office experience (X^2 = 473.034, *df* =192, *p* = .001). Thus, in a COVID-19-influenced environment rapidly shifting to online teaching, Chinese university instructors' performance and feelings about stress positively correlated to their personal experiences (including age, gender, teaching experience, online teaching experience, and work-from-home experience).

The results of this study supported the conclusions drawn by Murphy (2020), Li (2020), and Wang et al. (2020) that instructors' anxiety levels may rise as the university suddenly closes and does not know when it will reopen. There were also no clear instructions for instructors on transferring live instruction to a virtual platform. Murphy (2020) also stated in his study that instructors may be the most affected in this COVID-19 pandemic. The findings from Zhang & Zhao (2020), Fu & Zhou (2020), and Yan & Zhang (2020) were also supported by the results of this study. The conclusions of their study indicated that the work environment of emergency distance learning due to COVID-19 required instructors to spend significant additional time preparing and delivering lessons due to the delivery environment, network delays, and many other unforeseen circumstances, which in turn increased instructor stress. Fu & Zhou (2020) concluded in their study that many university network environments and hardware and software equipment could not support instructors in successfully completing their instruction, which became part of the source of instructor teaching stress. Zhang & Zhao's (2020) findings indicated that many instructors found the selection of quality online learning resources to be a point of headache for them as well. Yan (2021) and Zhang (2020) also concluded in their studies that although Chinese universities have some high-quality fine course resources, the quality of other online education resources still varies. In addition, the results of this study were consistent with the findings of Yan (2021) that most of the faculty members had the IT level to be able to master the operation of the online platform, while some of the senior faculty members had technical problems and were resistant to online teaching. Zhang and Zhao's (2020) study stated that although faculty members felt some pressure in teaching online, they indicated that they were able to cope with it and were willing to largely accept the challenge.

CONCLUSIONS AND LIMITATIONS

The Theoretical Significance and Future Recommendations

Based on the current study, future research should further explore and address the challenges Chinese university faculty face during the epidemic and in the post-epidemic era. Faculty from different backgrounds showed significant differences in adapting to online teaching transitions, and research needs to explore the differences in coping with stress and adaptation strategies among faculty members of different ages, genders, teaching experience, and online teaching experience. It is crucial to assess the effectiveness of existing psychological support measures, including counseling and stress management training, to understand their effectiveness in reducing instructors' anxiety and improving their psychological well-being. At the same time, it is important to examine the need for long-term psychological interventions and to establish an ongoing mental health support system to ensure instructors' mental health in different teaching environments.

Optimizing online teaching platforms and resources is another important direction for future research. By studying different platforms' user experience and functions, we will identify the key factors affecting

teaching effectiveness and students' learning experience, assess the quality and usability of existing online teaching resources, and explore how to integrate and optimize these resources more effectively.

Research on support at the policy and management levels is equally important, examining the effectiveness of government and education management policies in supporting online education, and exploring how to improve instructors' professional satisfaction and teaching quality through policy adjustments and resource investment. The best practices of university management in providing technical support, psychological support, and professional development opportunities also need to be studied in depth to develop more effective faculty support strategies. To study the long-term impact of the epidemic on university education, including the impact on instructors' professional development and students' learning outcomes, and to explore the development trends of future education models, such as the feasibility and effectiveness of the blended teaching model, so as to provide reference for future innovation in education models.

Practical Implications and Future Recommendations

In response to the enormous challenges and pressures posed by the COVID-19 epidemic, Chinese university faculty have taken a series of measures to ensure the smooth running and improved quality of online teaching. Instructors have quickly adapted to the online teaching mode and have adopted various platforms, such as MOOC, QQ, and Microsoft Teams, to ensure the continuity of teaching and the richness of learning resources for students. Many universities have strengthened technical training for instructors, especially for older instructors and those lacking online teaching experience. These trainings have helped instructors to better master online teaching tools and techniques and improved their teaching capacity and efficiency. To alleviate instructors' psychological stress due to the epidemic and online teaching, some universities provided psychological support services, including psychological counseling and stress management training, to help instructors cope with anxiety and occupational stress and maintain their mental health. Some universities have ensured the quality of their courses by sharing course resources and conducting joint teaching, such as the "cloned classroom" jointly organized by Huazhong University of Science and Technology and Tsinghua University, which allows students from different schools to participate in the same course together, thus improving the efficient use of teaching resources. Instructors have also increased instructor-student interaction through online Q&A and discussion forums to enhance student engagement and learning, which not only helps students better understand the course content and strengthening their interest in learning.

To further reduce instructors' pressure and improve the quality of online teaching, it is recommended that regular technical training and support be provided in the future, especially for older instructors, to help them become proficient in a variety of online teaching tools and platforms, and that the hardware facilities and network environment of schools be improved to ensure stable technical support. Second, psychological counseling and career development services are strengthened to help instructors cope with stress and anxiety and maintain a good psychological state, and career development seminars and trainings are organized to enhance instructors' professional skills and satisfaction. Optimizing online teaching resources and platforms is equally important. Improvements in the quality of resources, streamlining the platform's operating procedures, and increasing interactive functions can help university instructors enhance their teaching effectiveness. In addition, establish and improve the teaching evaluation and feedback mechanism, regularly collect instructors' and students' opinions and suggestions, continuously improve the online teaching mode, and carry out instructors' satisfaction surveys to understand instructors' needs and difficulties, and provide timely and targeted support. Finally, the government and education administration should increase policy support and financial investment in online education, provide special financial support, improve school infrastructure and technical equipment, and ensure the smooth operation of online teaching. Through these measures, they can further help Chinese university instructors better adapt to the online teaching environment, reduce professional pressure, and improve teaching quality and student satisfaction.

Ethical Considerations

The questionnaire was sent to the instructors participating in the survey by email. The survey included the purpose of the study and confidentiality statement in the instruction. It adopted an anonymous mode to ensure the autonomy and privacy of the participating instructors. The investigator kept the data collected for three years, and the data held (and backup) were destroyed after three years.

Participating instructors responded with identification in digitization or pseudonym, and identifiable information was hidden, and participated in the survey anonymously (Creswell & Geutterman, 2019). Questionnaires for participating faculty came from a pre-designed script to ensure consistency in the survey (Creswell & Geutterman, 2019).

Peer debriefing and audit trails were used to reflect, track, and verify the reliability and verifiability of the data analysis process. In addition, if the software was used to assist in analyzing data in the research process, the analysis report marked the type of quantitative data analysis software used to help identify critical information.

Research Limitations

Despite the certainty and credibility of the findings, limitations remained regarding the transparency and accuracy of human responses to the survey questions and the participants' relative understanding and interpretation of the survey questions. There is always a risk that participants in a careless and untruthful manner would answer survey measures. However, most of the participants in the sample were highly educated instructors who were experienced, licensed, educated, and trained in education. Due to their role in teaching and learning in a university setting and their familiarity with the concepts in the questionnaire, the sample population's responses were likely to be credible, thus adding to the credibility of the results of this study.

Declarations

- No funding was received for conducting this study.
- The authors have no relevant financial or non-financial interests to disclose.
- No conflict of interests.
- The authors declare that there are no conflicts of interest that relate to the research, authorship, or publication of this article.
- Data availability statement: the data underlying this article will be shared on reasonable request to the corresponding author.

REFERENCES

Cai, X., Fu, J., Lu, Y., Tang, X., & Zhong, S. (2020, June 24). Assessing inequality in the school closure response to COVID-19. *SSRN*. http://dx.doi.org/10.2139/ssrn.3632103

Chen, L. (2020). "互联网+"背景下高校在线课程管理有效性探讨 [Discussion on the effectiveness of online course management in colleges and universities under the background of "Internet +"]. *Policy Research & Exploration*, (6), 43–44. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7101207516&from=Qikan_Search_Index

Chen, S., & Chen, L. (2019). Construction and practice of SPOC teaching mode [C]. *Proceedings of 2019 International Conference on Advanced Education Research and Modern Teaching (AERMT 2019)*, (35), 125–128.

Creswell, J.W., & Gutterman, T.C. (2019). *Educational research: Planning, conducting, and evaluating, quantitative and qualitative research* (6th Ed.). Pearson. Kindle version. ASIN: B07R79M5B5.

Ekornes, S. (2017). Teacher stress related to student mental health promotion: The match between perceived demands and competence to help students with mental health problems. *Scandinavian Journal of Educational Research*, *61*(3), 333–353. https://doi.org/10.1080/00313831.2016.1147068

Eşici, H., Ayaz, A., Yetim, D., Çağlar, S., & Bedir, N. (2021). Teachers in COVID-19 period: Psychological effects, practices and career needs. *Turkish Journal of Education*, *10*(2), 157–177. https://doi.org/10.19128/turje.855185

Fu, W., & Zhou, H. (2020). 新冠肺炎疫情给我国在线教育带来的挑战及应对策略 [Challenges brought by 2019-nCoV epidemic to online education in China and coping strategies]. *Journal of Hebei Normal University (Educational Science Edition)*, *22*(2), 14–18. https://doi.org/10.13763/j.cnki.jhebnu.ese.2020.02.004

Gimbert, B.G., Miller, D., Herman, E., Breedlove, M., & Molina, C.E. (2023). Social emotional learning in schools: The importance of educator competence. *Journal of Research on Leadership Education*, *18*(1), 3–39. https://doi.org/10.1177/19427751211014920

Gong, N., Sun, P.F., Zhong, L., Zhang, J.X., & Li, M. (2021). 疫情背景下高校教师视域中的线上教学实践与思考 [Online teaching practices and reflections in the context of the epidemic in the university faculty's perspective]. *The Chinese Journal of ICT in Education*, (9), 68–71. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7104684751&from=Qikan_Article_Detail

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. Retrieved from https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remoteteaching-and-online-learning

Hou, C., & Li, Z. (2021). 全球疫情背景下线上教学对高校教师的影响及角色重塑之思考 [Reflections on the influence of offline teaching on university teachers and their role reconstruction under the global epidemic situation]. *Journal of Higher Education*, *7*(18), 1–39. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7105011895&from=Qikan_Search_Index

Huang, Y., & Chen, X. (2019). 大学教师教学能力: 内涵、困境与实践路向 [Teaching ability of university teachers: Connotation, dilemma and practice direction]. *Forum on Contemporary Education*, (6), 49–54. Retrieved from https://d.wanfangdata.com.cn/periodical/ddjylt201906006

Husain, N. (2020). The COVID crisis will radically transform the higher education experience for students according to new RingCentral Research. [Blog]. *RingCentral Research*. Retrieved from https://www.ringcentral.com/us/en/blog/the-covid-crisis-will-radically-transform-the-higher-education-experience-for-students-according-to-new-ringcentral-research/

Ingersoll, R.M., & Smith, T.M. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, *60*(8), 30–33. Retrieved from https://www.gse.upenn.edu/pdf/rmi/EL_TheWrongSolution_to_theTeacherShortage.pdf

Institute for Educational Leadership, Inc. (2016). Chapter 23: Leadership for student learning: Redefining the teacher as leader. *Counterpoints*, *466*, 197–213. http://www.jstor.org/stable/45157477

John Hopkins. (2022). *Coronavirus resource center*. Retrieved from https://coronavirus.jhu.edu/

Kim, Y. (2019). The causal structure of suppressor variables. *Journal of Educational and Behavioral Statistics*, *44*(3), 367–389. https://doi.org/10.3102/1076998619825679

Li, X., & Su, Q. (2021). 责任伦理视域中大学青年教师的学术担当 [The academic responsibility of young university teachers in the perspective of responsibility ethics]. *Education Research Monthly*, (10), 75–82, 90. Retrieved from https://cstj.cqvip.com/Qikan/Article/Detail?id=7106240611&from=Qikan_Search_Index

Li, Y. (2020). 小学教师信息化领导力模型构建与应用 [Construction and application of informatization leadership model for primary teachers]. *China Educational Technology*, (2), 94–101. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7101059883

Liang, H. (2020). 后疫情时期大学教师教学发展将逐步走向自觉 [The teaching development of university teachers in the post-epidemic period will gradually move towards self-consciousness]. *Higher Education of Sciences*, (04), 15–16. Retrieved from https://www.cqvip.com/qk/83162x/202004/7102580182.html

Liu, Y., & Xu, G. (2015). 教师教学领导力：高校课堂教学有效性视域 [Teachers' teaching leadership: The perspective of classroom teaching effectiveness in colleges and universities]. *Journal of Educational Science of Hunan Normal University*, *14*(1), 80–84. Retrieved from https://library.ttcdw.com/dev/upload/webUploader/202209/166268538255c2b3d057284b54.pdf

Lv, H., & Xiao, S. (2021). 后疫情时代高校教师线上教学能力培训策略研究 [Research on online teaching ability training strategies for university teachers in the post-epidemic era]. *Economic Research Guide*, (33). Retrieved from https://www.zhihu.com/market/paid_magazine/1657613612851113984/section/1657613668555812864

Mesmer, H.A., Cunningham, J.W., & Hiebert, E.H. (2012). Toward a theoretical model of text complexity for the early grades: Learning from the past, anticipating the future. *Reading Research Quarterly*, *47*(3), 235–258. https://doi.org/10.1002/rrq.019

Murphy, J. (2020, March 20). Schools work on a range of solutions for 'remote learning' during the coronavirus outbreak. *Democrat & Chronicle*. Retrieved from https://www.democratandchronicle.com/story/news/education/2020/03/20/remote-learning-in-rochester-ny-schools-rcsd-closed-due-to-coronavirus/2874640001/

Rao, S., & Yang, X. (2016). 高校新教师岗前培训效果评估体系优化研究 [Research on the optimization of the evaluation system of university faculty pre-service training effect]. *Chinese Geological Education*, *25*(3), 5–9. Retrieved from https://lib.cqvip.com/Qikan/Article/Detail?id=670356199&from=Qikan_Article_Detail

Riddle, R. (2020, September 17). Survey: 1 in 3 teachers considering exit, early retirement due to coronavirus. *Education Dive*. Retrieved from https://www.educationdive.com/news/survey-1-in-3-teachers-considering-exitearly-retirement-due-to-coronoavir/585380

Robertson, I., & Cooper, C. (2013). Stress & health. *Journal of the International Society for the Investigation of Stress*, *29*(3), 175–176. https://doi.org/10.1002/smi.2512

Santoro, D. (2013). Teacher demoralization and teacher burnout: Why the distinction matters. *American Journal of Education*, *119*(3), 346–347. Retrieved from http://www.journals.uchicago.edu/toc/aje/current.html

Sen, F., & Bati, F. (2020). COVID-19 pandemic crisis and possible effects on management and political economy. *Journal of Management, Economic and Marketing Research*, 4(2), 71–84. Cited by Eşici, H., Ayaz, A., Yetim, D., Çağlar, S., & Bedir, N. (2021). Teachers in COVID-19 period: Psychological effects, practices and career needs. *Turkish Journal of Education*, *10*(2), 157–177. https://doi.org/10.19128/turje.855185

Shi, Y., Si, L., Yao, R., Li, X., Wang, D., & Wu, D. (2018). 国外iSchools图情学科教师队伍结构与研究领域调研及启示 [Investigation and enlightenment on the faculty construction and research fields of library and information science in iSchools abroad]. *Documentation, Information & Knowledge*, *35*(5), 33–40. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7000855669&from=Qikan_Search_Index

Steinhardt, M.A., Smith-Jaggars, S.E., Faulk, K.E., & Gloria, C.T. (2011). Chronic work stress and depressive symptoms: Assessing the mediating role of teacher burnout. *Stress and Health*, *27*, 420–429. https://doi.org/10.1002/smi.1394

United Nations (UN). (2020). Everyone included: Social impact of COVID-19. United Nations (UN). Retrieved from https://www.un.org/development/desa/dspd/everyone-included-covid-19.html

Wang, H., Hu, S., & Xu, J. (2020). 新冠肺炎期间"停课不停学"高校在线教学案例分析 [Case analysis of online teaching in colleges and universities during the COVID-19 pandemic]. *Modern Business Trade Industry*, *41*(15), 163–165. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7101411638&from=Qikan_Search_Index

Wang, W., Cao, S., Liang, J., & Yang, J. (2022). 我国情报学师资队伍建设多元分析 [Multi-perspective analysis of the faculty construction of information science in China]. *Journal of the China Society for Scientific and Technical Information*, *41*(8), 872–883. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7107878635&from=Qikan_Search_Index

Wasden, S.T. (2014). A correlational study on transformational leadership and resilience in higher education leadership. *ProQuest Dissertations & Theses Global*. Retrieved from http://cucproxy.cuchicago.edu/login?url=https://www.proquest.com/dissertations-theses/correlational-study-on-transformational/docview/1552969464/se-2

Wolgast, A., & Fisher, N. (2017). You are not alone: Colleague support and goal-oriented cooperation as resources to reduce teachers' stress. *Social Psychology of Education*, *20*, 97–114. https://doi.org/10.1007/s11218-017-9366-1

World Economic Forum. (2020). *Global competitiveness reports special edition 2020: How countries are performing on the road to recovery*. World Economic Forum. Retrieved from https://www.weforum.org/reports/the-global-competitiveness-report-2020

World Health Organization (WHO). (2020). *Coronavirus disease (COVID-19)*. World Health Organization (WHO). Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019

Wu, X. (2019). 愿景、决断、执行:教师教学领导力的外显核心 [Vision, decision, and execution: The explicit core of teachers' teaching leadership]. *JICHU JIAOYU YANJIU*, (9), 38–41. Retrieved from http://cnki.cqgmy.edu.cn/KCMS/detail/detail.aspx?filename=JCJY201909010&dbcode=CJFD&dbname=CJFD2019

Xu, W., Jia, Y., Fox, A., & Patterson, D. (2014). 从 MOOC 到 SPOC——基于加州大学伯克利分校和清华大学 MOOC 实践的学术对话 [From MOOC to SPOC: Lessons from MOOC at Tsinghua and UC Berkeley]. *Modern Distance Education Research*, (4), 13–22. Retrieved from https://people.iiis.tsinghua.edu.cn/~weixu/Krvdro9c/fromMOOCtoSPOC.pdf

Yan, Y. (2021). 疫情下高校教师绩效考核存在问题及优化建议——基于 BSC 理论 [Problems and optimization suggestions of university faculty performance assessment under epidemic]. *Business and Management*, (31), 18–20. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7105795422

Zalaznick, M. (2020, July 9). College faculty actually liked online learning, survey finds. *University Business*. Retrieved from https://universitybusiness.com/faculty-actually-liked-online-learning-mostly-survey-finds/

Zhang, J., & Zhao, J. (2020). 疫情防控下高校教师在线教学现状调查研究——以河南工学院为例 [Investigation on online teaching status of college teachers under epidemic prevention and control-case: Taking Henan Institute of Technology as an example]. *China Modern Educational Equipment*, (7), 11–13, 20. Retrieved from https://qikan.cqvip.com/Qikan/Article/Detail?id=7101538272

Zhao, D. (2013). 教学领导力:内涵、测评及未来研究方向 [Teaching leadership: Connotation, evaluation and future research directions]. *Studies in Foreign Education*, *40*(4), 96–103. Retrieved from https://web.shnu.edu.cn/mprtc/b8/4f/c21655a637007/page.htm

Zhao, L., & Zhang, R. (2019). 教师信息化教学领导力:内涵、影响因素与提升路径 [Teachers' information-based teaching leadership: Connotation, influencing factors and promotion paths]. *Chongqing Higher Education Research*, *7*(3), 86–97. https://doi.org/10.15998/j.cnki.issn1673-8012.2019.03.007