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ARTICLE

Influence of Teachers' Occupational Stress on Anxiety by Using Cross-Media Teaching Method

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ABSTRACT

This paper is to study the conditions of teachers' occupational stress and anxiety by using cross-media teaching method, and reveals the influence relationship between them. To this end, a questionnaire survey of 228 teachers using cross-media teaching method from 3 schools in Guangdong Province (China) was conducted. The conclusions are as follows: Teachers who use cross-media teaching method have high levels of occupational stress and anxiety, lack of leadership and administrative support, overloaded work, state anxiety and trait anxiety are all at a high level. Under general characteristics differences, gender does not constitute a factor causing occupational stress and anxiety of the teachers using cross-media teaching. With the increase in the use of cross-media teaching, teachers feel gradually increase of occupational stress and trait anxiety in more work tasks, and occupational stress and state anxiety shows ups and downs due to lack of school policy support. From the relationship between occupational stress and anxiety, occupational stress and sub-variables without leadership and administrative support, overloaded work, relationships with colleagues, and relationships with parents are all positively correlates with anxiety and have significant positive effects. Thereinto, whether the influence of occupational stress sub-variable on anxiety, or the state anxiety and trait anxiety of the anxiety sub-variables, overloaded work and lack of leadership and administrative support have always been the key factors that cause anxiety. Therefore, if the school or the relevant organization provides appropriate support and assistance to cross-media teaching, or appropriately reduce heavy tasks of teachers in cross-media teaching, so as to relieve occupational press and anxiety of the teachers, create good teaching quality, and promote the development of teaching technology.

KEYWORDS

Cross-media teaching; teacher; occupational stress; anxiety

1 Introduction

Since the advent of the media age, information and digital technology have been continuing to develop. This has also enabled various industries to gradually break their own fields. Cross-border behaviors emerge in an endless stream, freeing from the limitations of a single field. Therefore, diversification has become the current situation. Cultural characteristics, cross-media talent is an inevitable choice to adapt to media integration, not only means mastering different media skills, but also means having a variety of ways of

thinking, differentiation and integration of different information, this phenomenon has also appeared in education. Traditional teaching methods limits teaching information being spread and absorbed optimally. The support of multiple media technologies can enrich the teaching style and quality. This is also a common phenomenon in the educational environment in China currently, and the means of cross-media technology have begun to be integrated into the field of teaching.

Previously, cross-media was only related to advertising, economics and other fields. With the advantage of its more multi-dimensional, stereoscopic and rich information presentation method, it is no longer limited to visual and auditory senses, and further extends to the level of context-awareness and embodied and tangible interaction. This advantage can provide cognitive process better conditions, and start experiment in the field of education. Kato et al. [1] used cross-media teaching in the field of music creation in Stanford University, interacting physics and music, studying the sources of different music, and fusing computers and orchestral music, and performing interactive performances of music and vision on the stage through computers. In addition, he also opened courses with sound, influence, sculpture, language interacted, so that people of different professional backgrounds can abandon the traditional cognition in their respective fields when discussing together, which is conducive to discovering new things. For example, when discussing sound, not discussing the origin of sound, but discussing new relationships with other media, creating a certain new perception, new image, etc. It can be seen that cross-media teaching is an excellent teaching method of subject integration and information integration. It has more advantages than traditional teaching and media teaching. Because of this, the requirements of teachers' knowledge, skills, and cognition are also higher, which brings more teaching pressure to teachers. From the perspective of cross-media technology itself, this also requires teachers to spend a longer time to overcome. Therefore, if it takes a long time to use cross-media teaching, teachers may feel great pressure on their occupational work, and experience anxiety, which becomes a burden of psychological phenomenon to teachers, which also indirectly leads to the negative impact on the relationship between students and the school.

Ameer Bee Mirza Abdul Aziz Baig [2] used International Journal of Trend in Scientific Research and Development, Stress among the Teachers in the Development of Quality Teaching. Stress is the threat that the individual feels subjectively and the behavioral response or mental state triggered by the stimulus. Stress is both positive and negative. Excessive pressure causes energy expenditure and increase the burden on the individual for the sake of maintenance and protection, but it does not mean that the absence of pressure reduces the burden on the individual. Appropriate pressure can help the individual full of energy and improve efficiency. Kyriacou et al. [3] used Educational Research Teacher stress and burnout: an international view. The occupational stress of teacher refers to the multi-factor difficulties experienced by teachers at work, such as insufficient leadership and administrative staff, overloaded work, conflicts with colleagues and parents, etc., and negative emotions that can cause anxiety. Currently the duties of teachers is getting more complicated. To ensures the overall development of students and the overall improvement of the school, teachers with high-quality teaching and scientific research are urgently needed. This is equivalent to expecting teachers' high-quality services and high professional capabilities. Each state turns to stress, and even affects the emotion of teacher, threatening self-esteem or mental health. Therefore, if the occupational stress of teacher is too high, the result is counterproductive that is difficult to implement effective high-quality education.

Spielberger [4] used Anxiety current trends in theory and research. Anxiety refers to the temporary or continuous feeling of fear, tension and other negative emotional states about a certain situation. The research on anxiety is mostly based on psychological research, which interprets anxiety as two forms: one is the trait anxiety of personality characteristics, another is temporary anxiety related to special environmental conditions, that is, state anxiety. The anxiety of teacher in this study specifically refers to the anxiety response using cross-media teaching, regardless of state anxiety or trait anxiety. If there is too much

intervene in the work of teacher, the educational environment and quality of education is negatively affected, especially cross-media teaching. Although more and more teachers are going to pay attention to the practice of cross-media teaching, while there are still many teaching methods were applied without it. The reason is that it requires teachers to have multiple skills and thinking. This avoidance makes students lose richer and more perfect knowledge input opportunities. In order to make good use of cross-media in teaching, besides advantages, we should also pay attention to the shortcomings. This is conducive to giving some suggestions for improvement in the field of media and teaching in the future. Therefore, the purpose of this study is to understand teachers' occupational stress and anxiety under cross-media teaching, it is necessary to understand occupational stress and anxiety of teachers using cross-media teaching, and the analysis of the relationship between them. This can provide more theoretical basis for future research. There are two research questions in this study: First, the occupational stress and anxiety of teachers using cross-media teaching; Second, the influence of occupational stress on anxiety of teachers using cross-media teaching.

Based on this study, the following four research hypotheses are proposed:

1. In cross-media teaching, the gender of teachers has no significant difference in occupational stress and anxiety factors;
2. There are significant differences in the occupational stress and anxiety factors of teachers in the frequency of use in cross-media teaching;
3. In cross-media teaching, the relationship between occupational stress and anxiety of teachers presents a significant positive correlation;
4. The relationship between occupational stress and anxiety of teachers in cross-media teaching shows a significant positive (+) impact.

2 Theoretical Background

2.1 Occupational Stress

Ikegami et al. [5] considered in modern daily life, people are generally exposed to pressure from all levels from birth. Job stress is one of the typical stress field. It refers to the perceived pressure in the process of performing their duties and excessive work. Overloaded stress causes a mental burden on organizations and individuals. It is the judgment of the individual's response to external stimuli. It can be seen as a factor that threatens the psychological stability and causes the individual's physical and psychological changes.

The occupational stress of teacher is embodied from the relevant contradictions and threats in the process of performing teaching or academic duties. At this time, teachers have an unaccommodated relationship with the working environment, leading to negative emotions, and a certain reverse function in psychology. However, appropriate occupational stress can also promote teachers' work efficiency and stimulate their own work enthusiasm. Unrelieved and overloaded accumulated stress leads to a series of symptoms. Selye [6] named the symptoms caused by stress as general adaptation syndrome, the experience against stress goes through three stages, that is alarm, resistance and exhaustion. It is related to work environment, personal interaction, and psychological imbalance, that is to say, when encountering a working environment that does not match the ability, or one's own ability is incompetent to working environment, occupational stress naturally arises.

Teachers affects school organization and student groups to a great extent in teaching activities. If there is overloaded occupational stress, it may have negative consequences for both students and school organization, such as the decline in the quality of student education and the handling of educational affairs, etc. Bjorklund [7] early research definitions of teachers' occupational stress mainly focused on the personal level, thinking that it was a combination of personal characteristics and qualities, etc. Later, more and more studies emphasized the situation of occupational stress and the interaction between the situation and the individual. Akio [8] believed that individuals easily gets a stress experience when they

have needs, constraints, and opportunities for the condition. Schuler [9] believed that occupational stress destroys physical and psychological stability of the organization member, which is a characteristic of the working environment. Beehr et al. [10] broadly interpreted occupational stress as the process of individual results and organizational results. Individual results are physical, psychological, behavioral symptoms, and physical symptoms. Physical symptom is counter-functional physiological reaction of body, usually increased blood pressure and heart rate, sweating, dyspnea, etc.; psychological symptoms refer to a variety of negative emotions such as tension, depression, fatigue; and behavioral symptoms refer to sudden behaviors such as smoking, alcohol abuse, weight change, etc. Organizational results refer to changes in work performance, increase in avoidance behavior, changes in the quality of work and life, etc.

In the first research on the influencing factors of occupational stress, researchers have put forward various explanations. Kyriacou et al. [11] believed that the reasons for teachers' occupational stress are poor working conditions, high pressure and bad atmosphere in schools. Clark [12] pointed out that interpersonal relationships and too many positions become stressors at work. Gupta [13] believed that the ambiguous role or too many roles, excessive sense of responsibility, repetitiveness, strong self-discipline, interpersonal relationship and general characteristics of school condition leads to work pressure to teacher. Travers et al. [14] refined teachers' occupational stress into factors such as teacher-student interaction, educational policy changes, teacher evaluation, management attention, lack of opportunities for improvement, job instability, and ambiguous teacher roles. Therefore, it can be seen that the occupational stress of teachers has always been regarded as an important issue. In this study, occupational stress is defined as an individual's inconsistency between work-related factors in the performance of work responsibilities, resulting in difficulty in maintaining normal functions and causing psychological and physiological negative factors. According to this, this study takes the lack of leadership and administrative support, overloaded work, relationship with colleagues, and relationship with parents as the relationship factors affecting occupational stress.

2.2 Anxiety

Anxiety is also diversified in life. They may come from objective anxiety, neurotic anxiety, or moral anxiety. Objectivity anxiety refers to the actual threat from the object and cannot constitute an individual's learning experience. Neurotic anxiety refers to the unconsciously suppressed emotional state of the individual, especially when the self cannot control the instinctive needs, the neurotic anxiety becomes more serious. And the moral anxiety refers to the state when the self feels guilty or ashamed. Other studies have made the same explanation for anxiety. Demir [15] believed that anxiety is a panic reaction when an individual is threatened under certain circumstances. Helbig [16] regarded anxiety as a mild depression, Hebb [17] believed that anxiety is the disordered state of the nervous system when the individual encounters an inevitable external threat or a certain chronic fear.

Learning from the characteristics of the previous studies of anxiety, Spielberger [18] divided anxiety into state anxiety and trait anxiety. State anxiety refers to the state in which tension induces the activity of the autonomic nervous system and change with the situation under special circumstances. At this time, if the individual thinks that the higher threat, the higher state anxiety; if the individual perceives less threat, the degree of state anxiety is lower even in a dangerous environment. Trait anxiety refers to the state of feeling threatened without a direct threat. That is to say, trait anxiety is the inherent anxiety of individual. In the event of more sensitive to anxiety, and very easy to perceive dangerous information, it produces a stronger state anxiety under threat, thereby making a higher stress response. Based on this point of view, the anxiety, fear, and fatigue that teachers constantly feel about the application of technology, creativity, and methods in cross-media teaching are called state anxiety, and the commonly feeling of anxiety is referred to as trait anxiety.

2.3 Cross Media Teaching

Hean et al. [19] considered cross media is currently a relatively active strategy and concept, but there is no clear definition of the concept. It can be understood as the cross-use between media, which mainly refers to the use of a certain material in multiple media. Starting from the production stage, make content suitable for optimization between the media, respectively, and finally reflect the different effects from different results. Currently some of more popular content can easily be transferred to other media, but it is difficult to consider the characteristics of each media. For example, differences of the limitations of each media, the tendency of the audience, etc. So when disseminating the content, the characteristics of each media are extremely easy to be ignored. But on the other hand, the advantages of cross-media are also significant. It can effectively let the other party understand the outstanding creative performance, explore the scope of the content from different angles, effectively transmit the message among the target group, center on the core creativity, and let the object actively participate in the content. Among them, the use of cross-media is not only a combination of the same kind of media, but also a variety of means of combining different media.

The arrival of the current epidemic era has highlighted the importance of media. Various new media have emerged, especially in teaching activities. The use of cross-media has been kept developing. The focus of teaching activities has been shifted to the demand for teaching creativity. The transfer of knowledge has also changed from one-way transfer to a cross-media method combining new media and traditional media. For example, the teacher transfers the knowledge points of the course using completely different media combinations such as movies and broadcasts, or interpret the blunt text with image and music to make students think from different angles. This is a very effective method for shaping the teaching content.

Deng et al. [20] considered the cross-media teaching method is interpreted as an information-based virtual simulation teaching method, which can cross the interaction between images, sounds and other media, so as to realize the cross-space teaching form, break the original teaching barrier and supplement educational resources. At the same time, it is also a breakthrough to traditional teaching thinking. It also proposes a method of combining cross-media teaching and traditional teaching mode. By constructing an open classroom mode, designing teaching content, and implementing a multi-tutorial teaching for a certain topic. Because the media technology that every teacher is good at is limited, the combined teaching model can improve the effect of cross-media teaching and improve the overall creative level of teaching. For example, using cross-media means to realize the effect of individual behavior process and environment simulation in the virtual environment in the film and television media requires a three-dimensional dynamic visual and physical behavior system with multi-source information interaction, so that students can realize the interaction of employment training and performance in the multi-dimensional virtual scene, complete the practical requirements of scene simulation, and solve the problem of comprehensive practice mode.

Moreno et al. [21] believed that the cross-media teaching method is a teaching technology that integrates and transforms the text, voice, image, video and other forms of the teaching content, so that the display of the course content is multi-dimensional. In traditional teaching, people have been exploring in the concept of limited space. Driven by various new technologies and media information in other fields, people have more needs for knowledge or information input methods. Traditional teaching forms make knowledge a certain distance from students themselves, while cross-media teaching can increase the intimacy between learners and knowledge, enhance the sense of experience of applying what you have learned.

Deng et al. [22] believed that cross-media presents some characteristics that multimedia does not have in the past in terms of information transmission, storage and interaction process. Therefore, in terms of teaching differences, multimedia teaching mainly expresses information through visual and auditory channels, while cross-media is a mixed perception of multiple channels and a large-scale transmission method, including audio and video, social media, virtual reality, and augmented reality. The teaching information is a

mixture of information from different sources such as teacher or student generation, location perception, and action perception. Students do not need to receive information passively, and can actively participate in the creation and interaction of information, which has the characteristics of self-adaptive and intelligent.

Scholar Richard [23] is a simple case teaching study on the cross-media narrative classroom of the English course. First, the students were grouped. After uploading the video to the learning materials group, the students watched it and had a group discussion. At the same time, the students were asked to search for relevant materials of other network resources for sorting. Then, each group of students started to deliver a speech on the same topic, recorded a personal speech video and shared it with the group. In the process of sharing, students further enriched their themed courses, allowing students to become information hunters and collectors, integrating materials from multiple media sources, and becoming true publishers of knowledge, enabling students to independently construct and participate in cooperation learning atmosphere.

It can be seen that, therefore, cross-media teaching means that teachers actively use multiple technologies in order to actively respond to the changing teaching environment and media environment. Based on breaking through the restrictions in the teaching form of cross-space, cross-media or cross-time, its teaching significance is to realize the enrichment of teaching resources, help students' independent and personalized learning and growth, and promote the reform of practical teaching mode by solving the low efficiency practical method of empiricism in the process of traditional media teaching. As a supplement to existing teaching behaviors, there are not many advanced studies on cross-media teaching, most of which are the combination of cross-media. Advertising and marketing, which promotes the application of cross-media technology and indirectly also has a certain influence on cross-media teaching. Because compared with advertising, marketing, and teaching, the use of individual media strategies, the execution standards, technical requirements, and creativity of mixed media becomes higher, and naturally have greater influence on the audience. Therefore, cross-media teaching in this study mainly refers to the teaching methods or behaviors of teachers using multiple technical processing of the same information.

2.4 Relationship between Occupational Stress and Anxiety

Anxiety and occupational stress have same reaction, both of which causes negative effects when they exceed the individual's tolerance range. Tension such as anxiety and fatigue due to work pressure becomes the main cause of life difficulties. It is also closely related to mental health. Office workers who are continuously exposed to work pressure are more likely to experience depression or anxiety. Horwitz [24] believed that when people fail to defend against stress, they experiences fear and sense of anxiety, even tendency of depression when the situation is getting serious. The report of Merç [25] showed that under stressful situations, people with anxiety pay more attention to hope, avoidance, and emotional resolution. Young et al. [26] revealed the characteristics of work anxiety: people with high work requirements, low individual self-discipline and high work pressure have higher level of anxiety. Therefore, there is a positive correlation between work pressure and anxiety tendency, but passive professionals shows lower anxiety, which indicates that a high degree of autonomy can easily produce negative factors such as responsibilities, which further increases the pressure in the workplace. The above research shows that occupational stress and anxiety have a positive influence and correlation, and individual autonomy drives the pressure increase, which leads to the increase in anxiety.

3 Research Methods

3.1 Research Sample

The research sample group in this study is the teachers with experience of using cross-media teaching in 3 schools in Guangdong Province, China. The questionnaires were distributed and collected by the relevant teachers. Total number of distributed questionnaires is 270, 244 were collected, and the collection rate is

90%. There are 16 invalid questionnaires, and the rest of 228 questionnaires that can be used for analysis. Table 1 summarizes the distribution of the samples used in the final analysis, including 105 female teachers (45.1%) and 123 male teachers (53.9%). 97 teachers (42.5%) who use cross-media teaching 1–2 times, 89 teachers (39.0%) who use cross-media teaching 3–5 times, and 42 teachers (18. 5%) who use cross-media teaching about 8 times or above.

Table 1: General characteristics of the research sample

Characteristics		Number of respondents	Percentage of sample (%)
Gender	Female	105	45.1
	Male	123	53.9
Number of usage	1–2 times	97	42.5
	3–5 times	89	39.0
	≥8 times	42	18.5
Total		228	100%

3.2 Research Tool

3.2.1 Occupational Stress

The occupational stress test tool used in this study is the teacher job stress measurement tool developed by Hae et al. [27] The measurement questionnaire is made in combination with the teacher occupational stress questionnaire of D'Arienzo, Morraco and Krajeski, with a total of 27 questions. The measurement tool has 4 sub-variables: lack of leadership and administrative support: 11 questions; overloaded work: 8 questions; relationship with colleague: 5 questions; relationship with parents: 3 questions. The score ranges from "completely disagree" 1 point to "completely agree" 5 points. The higher the score, the greater the occupational stress. The Cronbach's coefficient of occupational stress in this study is 0.917, the Cronbach's coefficient of insufficient leadership and administrative support is 0.855; the Cronbach's coefficient of overloaded work is 0.758, the Cronbach's coefficient of relationship with colleague is 0.806, the Cronbach's coefficient of relationship with parents is 0.794. Sub-variables question composition and credibility of different occupational stress are shown in Table 2.

Table 2: Sub-variables question composition and credibility of different occupational stress

Variable	Composition	Number of items	Credibility
Lack of leadership and administrative support	9, 10, 11, 13, 14, 16, 18, 19, 20, 22, 27	11	0.855
Overloaded work	2, 4, 5, 7, 8, 15, 23, 26	8	0.758
Relationship with colleague	3, 6, 12, 21, 24	5	0.806
Relationship with parents	1, 17, 25	3	0.794
Occupational stress		27	0.917

3.2.2 State and Trait Anxiety (STAI: State-Trait Anxiety Inventory)

State-Trait Anxiety Inventory developed by Spielberger [4], a total of 40 questions, namely state anxiety 20 questions (STAI-S), trait anxiety 20 questions (STAI-T), the score ranges from "completely disagree" 1

point to "full agreement" 4 points to form a 4-degree Likert scale, of which 1, 2, 5, 7, 10, 11, 15, 16, 19, 20, 21, 26, 27, 30, 33, 36, 39 are reverse scoring questions. The total Cronbach's coefficient of anxiety in this test is 0.952, the Cronbach's coefficient of state anxiety is 0.922, and the Cronbach's coefficient of trait anxiety is 0.895. As shown in Table 3.

Table 3: Question composition and confidence of anxiety's sub-variables

Measure	Composition	Number of items	Credibility
State anxiety	1–20	20	0.922
Trait anxiety	21–40	20	0.895
Anxiety		40	0.952

3.3 Research Procedure

This research uses the SPSS 25.0 program to analyze the data collected by teachers. Firstly, the credibility of the collected data is verified. Secondly, the research samples are analyzed for difference analysis in technical statistics and general characteristics. Finally, a correlation test and regression analysis were performed on the relationship between occupational stress and anxiety.

4 Research Results

4.1 Technical Statistics of Variables

In order to understand the main variable levels of this study, a descriptive statistical analysis was carried out. The comparison of average, standard deviation, skewness and kurtosis are shown in Table 4. The average calculation result is: occupational stress average is M = 3.94, the standard deviation is 0.50, which is at the mid-to-high level. The average of lack of leadership and administrative support M = 3.94, and the standard deviation is 0.57, which is at the mid-to-high level. Overloaded work average is M = 3.87, and the standard deviation is 0.57, which is at a mid-to-high level. The average of relationship with colleague is M = 3.04, standard deviation is 0.52, and is at a middle level. The average of relationship with parents is M = 3.02, and standard deviation is 0.58, which is at middle level. Anxiety average M = 3.84, standard deviation is 0.57, which is at a mid-to-high level. State anxiety average is M = 3.85, standard deviation is 0.61, and is at a mid-to-high level. Trait anxiety average is M = 3.84, the standard deviation is 0.56, which is at a mid-to-high level. After verification of skewness and kurtosis, both are less than 3, verifying that the data is approximately at normal distribution.

Table 4: Technical statistics

Measure	Average	Standard deviation	Skewness	Kurtosis
Occupational stress	3.94	0.50	−0.989	0.725
Lack of leadership and administrative support	3.94	0.57	−0.120	0.199
Overloaded work	3.87	0.57	−0.704	0.162
Relationship with colleague	3.04	0.52	−0.642	0.208
Relationship with parents	3.02	0.58	−0.672	0.593
Anxiety	3.84	0.57	−0.251	0.478
State anxiety	3.85	0.61	−0.221	0.373
Trait anxiety	3.84	0.56	−0.339	0.169

4.2 Difference Analysis of Independent Variables under General Characteristic

4.2.1 T-Test Analysis Results between Gender and Measurement Factors

The t-test analysis results of the individual sample for the difference observation between gender and measurement factors are shown in Table 5: Different genders are in occupational stress (t = −1.307, p = 0.192), lack of leadership and administrative support (t = −0. 858, p = 0.392), overloaded work (t = −1.669, p = 0.096), relationship with colleague (t = −0.280, p = 0.780), relationship with parents (t = −0.642, p = 0.521), anxiety (t = −1.223, p = 0.223), state anxiety (t = −1.202, p = 0.231), trait anxiety (t = −1.176, p = 0.241), the difference is not statistically significant ($p > 0.05$). This result shows that gender is not an influencing factor of occupational stress and anxiety.

Table 5: T-test analysis between gender and each factor

Measure	Average + Standard Deviation		t	*P*
	Male (N = 123)	Female (N = 105)		
Occupational stress	3.90 ± 0. 53	3.99 ± 0. 47	−1.307	0.192
Lack of leadership and administrative support	3.91 ± 0.59	3.97 ± 0.55	−0.858	0.392
Overloaded work	3.82 ± 0.60	3.94 ± 0.53	−1.669	0.096
Relationship with colleague	3.02 ± 0.51	3.04 ± 0.54	−0.280	0.780
Relationship with parents	2.99 ± 0.60	3.04 ± 0.55	−0.642	0.521
Anxiety	3.80 ± 0.59	3.89 ± 0.54	−1.223	0.223
State anxiety	3.81 ± 0.64	3.90 ± 0.57	−1.202	0.231
Trait anxiety	3.80 ± 0.58	3.88 ± 0.53	−1.176	0.241

4.2.2 Variance Analysis Result between Different Usage Times and Various Factors

The difference between different usage times and measurement factors was observed using ANOVA variance analysis and the results are shown in Table 6: Different usage times have significant differences in following: occupational stress (F = 3.876, p = 0.018), lack of leadership and support (F = 3.293, p = 0.026), overload work (F = 3.139, p = 0.032), anxiety (F = 2.966, p = 0.043), state anxiety (F = 4.200, $p < 0.001$), trait anxiety (F = 3.655, p = 0.024), but do not have statistical significance in following: relationship with colleague (F = 1.087, p = 0.339), and relationship with parents (F = 0.176, p = 0.839) ($p > 0.05$).

The comparison results show that in occupational stress, teachers who use cross-media teaching 3–5 times (M = 3.98) are the highest, followed by teachers who use cross-media teaching about 8 times or more (M = 3.74), and the last is teachers who use cross-media teaching 1–2 times (M = 3.56). In the occupational stress sub-variable lack of leadership and administrative support, teachers who use cross-media teaching 3–5 times (M = 4.00) are higher than teachers who use cross-media teaching more than 8 times (M = 3.82), and those who use cross-media teaching 1–2 times (M = 3.53) were the lowest. In the sub-variable overloaded work of occupational stress, teachers who use cross-media teaching about 8 times and above (M = 3.89) are the highest, followed by teachers who use cross-media teaching 3–5 times (M = 3.68), and teachers who use cross-media teaching once (M = 3.43) is the lowest.

In anxiety, teachers who use cross-media teaching about 8 times had the highest anxiety (M = 3.89), followed by teachers who use cross-media teaching 3–5 times (M = 3.74), and teachers who use cross-media teaching 1–2 times (M = 3.54). In the sub-variable state anxiety, teachers who use cross-media teaching about 3–5 times were the highest (M = 3.91), followed by teachers who use cross-media

teaching about 8 times (M = 3.66), and the last is teachers who use cross-media teaching 1–2 times (M = 3.33). In the sub-variable trait anxiety, the teachers who use cross-media teaching about 8 times (M = 3.88) are the highest, followed by teachers who use cross-media teaching 3–5 times (M = 3.63), the last is the teachers who use cross-media teaching 1–2 times (M = 3.46).

Table 6: ANOVA variance analysis between the number of usage and each factor

Measure	Average + Standard deviation			F	*p*	LSD
	1–2 times (*N* = 97)	3–5 times (*N* = 89)	≥8 times (*N* = 42)			
Occupational stress	3.56 ± 0. 60	3.98 ± 0. 45	3.74 ± 0. 51	3.876	0.018	2 > 3 > 1
Lack of leadership and administrative support	3.53 ± 0. 69	4.00 ± 0. 50	3.82 ± 0. 59	3.293	0.026	2 > 3 > 1
Overloaded work	3.43 ± 0. 65	3.68 ± 0. 60	3.89 ± 0. 52	3.139	0.032	3 > 2 > 1
Relationship with colleague	2.98 ± 0. 53	3.09 ± 0. 53	3.03 ± 0. 49	1.087	0.339	
Relationship with parents	2.99 ± 0. 59	3.03 ± 0. 52	3.05 ± 0. 68	0.176	0.839	
Anxiety	3.54 ± 0. 68	3.74 ± 0. 57	3.89 ± 0. 51	2.966	0.043	3 > 2 > 1
State anxiety	3.33 ± 0. 77	3.91 ± 0. 56	3.66 ± 0. 57	4.200	0.001	2 > 3 > 1
Trait anxiety	3.46 ± 0. 62	3.63 ± 0. 59	3.88 ± 0. 49	3.655	0.024	3 > 2 > 1

This result shows that as the use of cross-media teaching increasing, occupational stress and professional anxiety of teacher also increase. Teachers who use cross-media teaching 3–5 times have the highest occupational stress. Teachers who use cross-media teaching 3–5 times have the highest occupational stress, lack of leadership and administrative support of state anxiety. Teachers who use cross-media teaching 8 times have the highest overload, anxiety, and trait anxiety. And teachers who use cross-media teaching 1–2 times occupational stress and anxiety are relatively low.

4.3 Correlation Analysis

The relationship between the main variables of the collected survey data is sorted into Table 7, the relationship between occupational stress and anxiety, occupational stress and anxiety (r = 0.836), state anxiety (r = 0.829), characteristic anxiety (r = 0.798), presenting a positive correlation. The sub-variables lack leadership and administrative support has positive correlation with anxiety (r = 0.805), state anxiety (r = 0.775), trait anxiety (r = 0.793). The sub-variables have positive correlation with overloaded work and anxiety (R = 0.770), state anxiety (r = 0.794), trait anxiety (r = 0.701). The relationship with colleagues has positive correlation with anxiety (r = 0.628), state anxiety (r = 0.717), trait anxiety (r = 0.738). The relationship with parents has positive relationship with anxiety (r = 0.614), state anxiety (r = 0.706), trait anxiety (r = 0.622). It shows that with the occupational stress increasing, anxiety also increases. There is a high degree of correlation between the two variables and sub-variables.

Table 7: Correlation analysis

Measure	1	2	3	4	5	6	7	8
1 Occupational stress	1	0.742**	0.820**	0.739**	0.804**	0.836**	0.829**	0.798**
2 Lack of leadership and administrative support	0.742**	1	0.789**	0.632**	0.819**	0.805**	0.775**	0.793**
3 Overloaded work	0.820**	0.789**	1	0.706**	0.703**	0.770**	0.794**	0.701**
4 Relationship with colleague	0.739**	0.632**	0.706**	1	0.605**	0.628**	0.717**	0.738**
5 Relationship with parents	0.804**	0.819**	0.703**	0.605**	1	0.614**	0.706**	0.622**
6 Anxiety	0.836**	0.805**	0.770**	0.628**	0.614**	1	0.776**	0.671**
7 State anxiety	0.829**	0.775**	0.794**	0.717**	0.706**	0.776**	1	0.794**
8 Trait anxiety	0.798**	0.793**	0.701**	0.738**	0.622**	0.671**	0.794**	1

Note: **. At the 0.01 level (two-tailed), the correlation is very significant.

4.4 The Influence of Occupational Stress on Anxiety

In order to test the influence of occupational stress on anxiety, a multiple regression analysis was performed. The results are shown in Table 8. Occupational stress is used as an independent variable and anxiety is used as a independent variable. The overall regression is significant F = 525.95 ($p < 0.001$), and the statistics are β = 0.836, t = 22.934 ($p < 0.001$), with significantly positive (+) influencing factors. The descriptive power of the regression model is about 69.9%, indicating that occupational stress has a positive influence on anxiety.

Table 8: The influence of occupational stress on anxiety

Dependent variables	Independent variables	B	β	t	*p*	R2	F(p)
Anxiety	(Constant)	0.099		0.599	0	0.699	525.95 (0.000***)
	Occupational stress	0.950	0.836	22.934	0.000***		
Anxiety	(Constant)	0.471		2.333	0.021*	0.697	128.12 (0.000***)
	Lack of leadership and administrative support	0.353	0.355	5.913	0.000***		
	Overloaded Work	0.524	0.525	8.728	0.000***		
	Relationship with colleague	0.219	0.268	4.172	0.000***		
	Relationship with parents	0.127	0.128	3.600	0.000***		
State anxiety	(Constant)	−0.126		−0.699	0.485	0.687	495.59 (0.000***)
	Occupational stress	1. 009	0.829	22.262	0.000***		
State anxiety	(Constant)	0.224		1.023	0.308	0.689	123.44 (0.000***)
	Lack of leadership and administrative support	0.422	0.395	6.472	0.000***		
	Overloaded work	0.514	0.483	7.927	0.000***		
	Relationship with colleague	0.011	0.009	0.196	0.845		
	Relationship with parents	0.018	0.017	0.369	0.713		

(Continued)

Table 8 (continued)

Dependent variables	Independent variables	B	β	t	*p*	R2	F(p)
Trait anxiety	(Constant)	0.323		1.817	0.071	0.637	396.08 (0.000***)
	Occupational stress	0.891	0.798	19.902	0.000***		
Trait anxiety	(Constant)	0.717		3.343	0.000***	0.645	101.36 (0.000***)
	Lack of leadership and administrative support	0.392	0.497	4.028	0.000***		
	Overloaded work	0.626	0.639	9.806	0.000***		
	Relationship with colleague	0.207	0.206	2.752	0.032*		
	Relationship with parents	0.336	0.338	3.123	0.003*		

Note: ***$p < 0.001$ *$p < 0.05$.

In the sub-variables lack of leadership and administrative support, overloaded work, relationship with colleagues, and relationship with parents as independent variables, anxiety as a dependent variable, the overall regression model is significant F = 128.12 ($p < 0.001$). The analysis results are: Lack of leadership and administrative support β = 0.355, t = 5.913 ($p < 0.001$) has significant positive (+) influence; Overloaded work β = 0.525, t = 8.728 ($p < 0.001$) has significant positive (+) influence; relationship with colleagues β = 0.268, t = 4.172 ($p < 0.001$) has significant positive (+) influence; relationship with parents β = 0.128, t = 3.600 ($p < 0.001$) has significant positive (+) influence; with an explanatory power of 69.7%, indicating that lack of leadership and administrative support, overloaded work, relationships with colleagues, and relationships with parents all increases anxiety. Especially overloaded work has the greatest influence on anxiety, the second is the influence of lack of leadership and administrative support on anxiety, the third is the influence of the relationship with colleagues on anxiety, and the last is the influence of the relationship with parents on anxiety.

In the regression of occupational stress and state anxiety, occupational stress is used as an independent variable, and state anxiety is used as a dependent variable. The overall regression is significant: F = 495.59 ($p < 0.001$), β = 0.829, t = 22.262 ($p < 0.001$), and the statistics are β = 0.829, t = 22.262 ($p < 0.001$), which has significant positive (+) influences. The descriptive power of the regression model is about 68.7%, indicating that occupational stress has a positive influence on state anxiety. In the sub-variables lack of leadership and administrative support, overloaded work, relationship with colleagues, and relationship with parents as independent variables, state anxiety as a dependent variable, the overall regression model is significant F = 12.444 ($p < 0.001$). The analysis results are that lack of leadership and administrative support β = 0.395, t = 6.472 ($p < 0.001$) has significant positive (+) influence; overloaded work β = 0.483, t = 7.927 ($p < 0.001$) has significant positive (+) influence. Neither the relationship with colleagues nor the relationship with parents has a significant effect on state anxiety, with an explanatory power of 68.9%, indicating that lack of leadership and administrative support, and overloaded work increases state anxiety. Wherein overwork has the greatest impact on state anxiety, followed by the influence of lack of leadership and administrative support on anxiety, but the relationship with colleagues and parents will not increase state anxiety.

In the regression of occupational stress and trait anxiety, occupational stress is used as an independent variable, and trait anxiety is used as a dependent variable. The regression is overall significant F = 396.08 ($p < 0.001$), the statistics are β = 0.798, t = 19.902 ($p < 0.001$), which has significant positive (+) influence. The descriptive power of the regression model is about 63.7%,

indicating that occupational stress has a positive influence on trait anxiety. The sub-variables lack leadership and administrative support, overloaded work, and colleagues, relationship with parents and the relationship with parents are used as independent variables, and trait anxiety is used as a dependent variable. The overall regression model is significant $F = 101.36$ ($p < 0.001$). The result of the analysis is the lack of leadership and administrative support $\beta = 0.497$, $t = 4.028$ ($p < 0.001$) has significant positive (+) influence, overloaded work $\beta = 0.639$, $t = 9.806$ ($p < 0.001$) has significant positive (+) influence, relationship with colleagues $\beta = 0.206$, $t = 2.752$ ($p = 0.032$) has significant positive (+) influence, relationship with parents $\beta = 0.338$, $t = 3.123$ ($p = 0.003$) has significant positive (+) influence. With an explanatory power of 64.5%, it indicates that lack of leadership and administrative support, overloaded work, relationships with colleagues, and relationships with parents all increases trait anxiety. Wherein overloading has the greatest influence on trait anxiety, and the second is the influence of lack of leadership and administrative support on trait anxiety; the third is the influence of relationship with parents on trait anxiety, and the last is the influence of relationship with colleagues on characteristic anxiety.

5 Conclusion and Suggestions

This study aims to understand the influence of occupational stress and anxiety of teachers using cross-media teaching. To this end, a questionnaire survey of teachers who uses cross-media teaching in three schools in Guangdong Province was conducted. From the collected data, study occupational stress and anxiety and the relationship of the teachers using cross-media teaching and the influence relationship between the two variables. The summary and suggestions of this research are as follows:

First, in order to understand the occupational stress and anxiety of teachers using cross-media teaching, a technical statistical analysis was carried out. The results of the study showed that the occupational stress and anxiety of teachers using cross-media teaching are both higher, and the mean value of occupational stress is higher than anxiety. In terms of sub-variables of occupational stress, the highest mean value is lack of leadership and administrative support, and the second highest mean is overloaded work. But the mean value of relationship with parents and colleagues is at a middle level. In terms sub-variable of the anxiety, state anxiety and trait anxiety are also at the middle-to-high level, indicating that the current teachers using cross-media teaching have higher occupational stress and anxiety. Due to the lack of relevant policy of school support to develop cross-media teaching, tasks at work are very heavy, which leads to high occupational stress for teachers. Therefore, in this case, they all have short-term or continuous negative emotions such as fatigue, tension, and depression of teaching work when using cross-media teaching which causes anxiety state. This result is consistent with part of previous studies.

Secondly, in the t-test and ANOVA of the two general characteristics of gender and number of usages, it shows that among teachers who use cross-media, gender does not constitute a factor that affects occupational stress and anxiety, but the number of usages will affect occupational stress and anxiety. In the term of number of usages, occupational stress, lack of leadership and administrative support, overloaded work, anxiety, state anxiety, and trait anxiety all have significant differences. The relationship with colleagues and the relationship with parents are not statistically significant. The comparison results show that in occupational stress, lack of leadership and administrative support, and state anxiety, teachers who use cross-media teaching 3–5 times are the highest, followed by teachers who use cross-media teaching about 8 times and above, and the last is the teachers who use cross-media teaching 1–2 times. In overloaded work, anxiety, and trait anxiety, the teachers who use cross-media teaching about 8 times and above are highest, followed by teachers who use cross-media teaching 3–5 times, and the teachers use cross-media teaching 1–2 times are the lowest, indicating that teachers do not have overloaded occupational stress or anxiety when using cross-media technology teaching 1–2 times. This may be a phenomenon caused by experiencing new technology for the first time or maintaining a kind of enthusiasm in the face of new teaching methods. With the increase in the use of cross-media teaching methods, teachers feel that the

tasks are too heavy and overloaded in the work. And with anxiety increasing, it easily causes trait anxiety in the long run. It is notable that the occupational stress, lack of leadership and administrative support, and state anxiety of teachers who use cross-media teaching 3–5 times are higher than those of teachers who use cross-media teaching about 8 times and above. This may be caused by the gradual adaptation to the current environment after experiencing work stress and anxiety for a long period of time. This result is consistent with part of previous studies.

Finally, from the correlation analysis and regression analysis of occupational stress and anxiety, it can be seen that in term of the correlation, occupational stress and sub-variables lack leadership and administrative support, overloaded work, relationship with colleagues, and relationship with parents are all positively correlated with anxiety. This means that with occupational stress increasing, the level of anxiety also increases. In term of the regression analysis, it also shows that occupational stress and sub-variables lack leadership and administrative support, overloaded work, relationships with colleagues, and relationships with parents all significantly increase anxiety. Wherein overloaded work has the greatest influence on anxiety, followed by lack of leadership and administrative support, third is the relationship with colleagues, and the last is the relationship with parents. From further observation, occupational stress also has a significant influence on the two sub-variables of anxiety, state anxiety and trait anxiety. Wherein the influence on state anxiety, lack of leadership and administrative support, and overloaded work has a positive and significant influence. Wherein the influence on trait anxiety, lack of leadership and administrative support, overloaded work, and relationships with colleagues and parents have significant positive effects. The highest influence on the regression of state anxiety and trait anxiety is overloaded work, followed by lack of leadership and administrative support. Therefore, regardless of the regression of anxiety or anxiety sub-variable state anxiety and sub-variable trait anxiety, overloaded work and lack of leadership administrative support is the key to causing anxiety all the time. reducing the burden of work or giving active policy support can well guide teachers' mental problems in the application of cross-media technology. Reducing the burden of work or giving active policy support provides guide to teachers' mental problems in the usage of cross-media technology. This result is consistent with part of previous studies.

As a conclusion, from the above analysis, there are two most important factors that cause professional stress and anxiety for teachers using cross-media teaching. One is the lack of leadership and administrative support, and another is overloaded work. Therefore, school should pay more attention to the teachers and provide specific help and support to for better teaching work operation and development of teaching technology in the future. Arranging teachers appropriate tasks also helps reduce the difficulty of using cross-media teaching. On the other hand, cross-media teaching is a new technology field, therefore there may be fewer teachers who are able to use it. The teachers using cross-media teaching have to face the technical problems in teaching alone without help from others, which also causes overloaded stress and anxiety. Therefore, in the following research, it is suggested to study anxiety and stress under the comparison of team work and individual operation in using cross-media technology to provide more reliable basis for the future.

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