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RESEARCH ARTICLE

The development of fear of missing out scale for early childhood teachers' work information and the influencing factors of fear of missing out

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ABSTRACT

More and more people over-rely on social software, which causes anxiety due to their failure to check work information in time. However, this type of scale has not been developed yet. The objective of this study was to develop a measurement tool for early childhood teachers' fear of missing out on work information and verify its reliability and validity. Based on the Fear of Missing Out Scale developed by Przybylski et al. this paper with the methods of interview and Delphi investigation, re-developed the Fear of Missing Out Scale for early childhood teachers' work information. The exploratory factor analysis showed that the scale was divided into two dimensions, and the confirmatory factor analysis data showed that the scale had good convergent validity. The retest results of the scale showed that the scale had high stability. The reliability and validity of the questionnaire were in line with the requirements of measurement, and it was an effective measurement tool for evaluating early childhood teachers' fear of missing out on work information. Taking 270 early childhood teachers in Guangzhou as the subjects, the data showed that the fear of missing out on work information of early childhood teachers in Guangzhou was at a moderate level. The teacher's teaching grade had no significant impact on the early childhood teachers' fear of missing out on work information, but teaching experience had a significant negative impact on the fear of missing out on work information.

Keywords: scale development; early childhood teachers; work information; fear of missing out; influencing factors

1. Introduction

In the past three years, the way of work in early childhood education has undergone major changes due to the epidemic. The regular class teaching has been replaced by a certain proportion of online teaching, and a large amount of offline information exchanges among early childhood teachers have been realized by work groups[1]. The work group has become an important channel for early childhood teachers to obtain work information, communicate with leaders and parents, and even deal with emergencies. Compared with traditional information dissemination methods, people can obtain the same information at the same time through the work group, avoiding the information loss and deviation caused by the secondary dissemination of information. The efficiency and timeliness of the work group are irreplaceable in work[2]. However, the group messages that appear at any time distract people's attention[3,4]. In order to master the work content in real time, people have to pay attention to all kinds of real-time information in the communication equipment

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at any time to meet the needs of the organization. Some teachers are even unable to focus on their work because they are worried about missing some messages. This phenomenon is known as "Fear of Missing Out (FoMO)".

The term "Fear of Missing Out" was firstly proposed by Anne Stamell in 2011. Its earliest meaning was negative emotions such as annoyance and depression caused by not grasping certain information in time[5]. Moreover, the FoMO was a new psychological phenomenon that accompanied social software, and its external manifestation was a strong desire to know what others were doing[6]. Later, different scholars supplemented the concept: for example, worrying that others had more valid information than oneself[7], or worrying about the diffuse anxiety caused by missing information[8]. Some researchers also believed that the FoMO was one of the types of anxiety, which was the anxiety of approaching social situations caused by the fear of missing information[9]. In general, academia considered that it was a subtype of the anxiety generated with the rise of social media. At present, there is little studies on the subtype of anxiety in academia, and the main research on anxiety focuses on the impact of anxiety on various diseases and occupational stability of various specific groups[10,11].

When young children enter their first early childhood education program, the first adults they come into contact with are the early childhood teachers, with whom they have direct and continuous interactions. The early childhood years, age 3–6, are a critical period for young children to build trust and socialization skills with others, so the emotional stability of early childhood teachers is closely related to young children's development[12]. Teachers who are emotionally unstable and anxious can lead to moodiness in children, which may be manifested in crying, violent intentions, or indifference[13]. What's more, it can also indirectly impair children's personality development and social behavior. Therefore, it is important to explore the factors related to the emotional stability of early childhood teachers.

A large number of studies have proved that anxiety is highly related to chronic diseases[14–16] and sub-health[17,18] of early childhood teachers, such as cardiovascular diseases, gastric ulcer[19] and frequent colds[20]. Anxiety also has a negative impact on the occupational stability of early childhood teachers[21]. Emotional health is an important indicator of teachers' occupational stability. Teachers with positive emotional health have higher occupational stability[22–24]. On the contrary, teachers with poor mental health have varying degrees of job burnout[25]and strong anxiety[26], frustration, and helplessness. Most of them escape by applying for transfers or resignation[27–29]. The academia has maintained continuous attention and research on teachers' emotional health[30,31], especially on depression and anxiety. However, there are few studies on the influencing factors of FoMO, and the FoMO and teacher's illness and occupational stability, mainly due to the lack of suitable measurement tools.

For the measurement of FoMO, the Fear of Missing Out scale (FoMOs) developed by Przybylski et al. and its revised version are widely used at present. A large number of studies have verified that the internal consistency coefficients of the scale are above 0.83[32,33], which proves that it has good reliability. Later, many other researchers developed or revised more targeted scales on this basis, such as the FoMOs for novel information[34], and the FoMOs for social media situations[35], etc. The development of the FoMOs proves that people's over-reliance on social media has been widely concerned by researchers from various countries. However, in the field of early childhood education, no tool has been developed to measure teachers' FoMO, especially teachers' FoMO on work information in the context of early childhood education in China. Therefore, it is a new direction for future educational psychology research to adapt or develop the scale, which is suitable for the Chinese cultural background. Based on this, this study refers to the FoMOs developed by Przybylski et al. to develop a FoMOs for early childhood teachers' work information, The research has specific practical value for the study of early childhood teachers' mental health, which provides a reliable research tool for measuring the FoMO on early childhood teachers' work information.

Besides, according to the Job Requirements-Control Theory, teachers' anxiety or panic is caused when they lack understanding of what they have been working on recently. The Job Requirements-Control Model explains, at a theoretical level, the source of early childhood teachers' FoMO on work information, which is the lack of control over their work. Increased work experience implies familiarity with the job content, and teachers' familiarity with the job content may reduce the missing out anxiety about unknown information. In addition, it is also worth discussing whether increasing age of young children reduces their risk in the classroom, so the researchers have included teaching experience and teaching grade in the research scope to explore whether teaching experience and teaching grade are factors that affect the early childhood teachers' FoMO.

2. Materials and methods

2.1. Research instrument

The scale used in this study is the Fear of Missing Out Scale for Early Childhood Teachers' Working Information, which was developed by the researchers based on the Job Requirements-Control Theory in conjunction with the Fear of Missing Out Scale developed by Przybylski et al. It is applicable to in-service early childhood teachers and is mainly used to measure the level of FoMO for early childhood teachers' working information. The questionnaire consisted of 12 questions, divided into 2 dimensions. The questionnaire required participants to fill in the teacher's teaching experience and teaching grade. The full scale was scored on a 5-point Likert-type scale, where the participants circled the level of compliance with each question according to his/her personal situation, ranging from 5 points for "very much" to 1 point for "never". The higher the score, the higher level of the FoMO; the lower the score, the lower level of the FoMO.

2.2. Participants

This study took 20 early childhood teachers from 10 kindergartens in Guangzhou city as sample No. 1 to conduct unstructured interviews, 4 of whom were from public kindergarten, 13 of whom were from private one and 3 of whom were from international one. It took 210 early childhood teachers from 6 kindergartens in Guangzhou city as sample No. 2 to participate the pilot test of the questionnaire, with 202 questionnaires recycled, making the recycling rate 96.2%. It took 270 early childhood teachers from 9 kindergartens in Guangzhou city as sample No. 3 to fill in the formal questionnaire, with 257 questionnaires recycled, making the recycling rate 95.2%. Participants have been teaching for 3.26 years on average, with 13 years as the longest and 1 year as the shortest. All participants were fully informed and willing to take part in this study.

2.3. Measurement method

The researcher contacted the heads of kindergartens to get their consent and support, then randomly selected 20 early childhood teachers from 10 kindergartens in Guangzhou City as sample 1 to conduct unstructured interviews. After that, the researcher, with the assistance of the heads of 6 kindergartens, managed to pick at random 20 teachers from different classes in each kindergarten and distribute envelops to these 120 teachers. Each envelop contained an invitation letter, an informed consent and the FoMOs for Early Childhood Teachers' Work Information. The invitation letter explained the purpose, principles and instructions etc. of the questionnaire. The researcher invited all participants to follow the instructions in the letter and fill in the questionnaire independently. These 210 questionnaires were the data of sample No. 2. Two weeks later, the signed informed consent and the finished questionnaires were handed back to the researcher. For those who had not handed in questionnaires on time, the researcher chose to call or e-mail or visit them in person to get the questionnaire done. Twenty days after the questionnaire was filled in, the researcher reinvited sample No. 2 to fill in the questionnaire again and analyzed the data. A final and formal questionnaire then was presented

after certain adjustments and modifications. Then, the researcher, with the assistance of the heads of 9 kindergartens, chose at random 270 teachers from different classes and distributed envelops to these 270 teachers. Each envelop contained an invitation letter, an informed consent and the FoMOs for Early Childhood Teachers' Work Information. The invitation letter explained the purpose, principles and instructions etc. of the questionnaire. The researcher invited all participants to follow the instructions in the letter and fill in the questionnaire independently. These 270 recycled questionnaires were the data of sample No.3.

This study mainly adopted interviewing method and Delphi investigation method. Considering the research objective and participants' characteristics, the researcher chose to work on the wording of the FoMOs for Early Childhood Teachers' Work Information. 3 PhD candidates were invited to translate independently the FoMOs, co-developed by Przybylski et al and work out together a best version. 5 teachers from different kindergartens were also invited to fill in the questionnaire and make further modifications on the FoMOs for Early Childhood Teachers' Work Information based on pre-analysis. Then the researcher invited another 2 PhD candidates to translate the Chinese version reversely. After a careful comparison between the back translation and the original FoMOs and multi-adjustments, the Chinese questionnaire was finally confirmed.

Meanwhile, through the unstructured interviews with 20 teachers from 10 kindergartens in Guangzhou city, the researchers invited 2 teachers from each of the 10 kindergartens for unstructured interviews through random sampling, the researcher managed to collect 12 items related to the early childhood teachers' fear of missing out on work information and re-organized them by deleting repetitive and irrelevant ones according to Co-opetition Theory[36] and Karasek's Job Requirements-Control Theory[37]. With the help of the Chinese version of the FoMOs, the number of the items was increased to 16. The research conducted exploratory factor analysis and confirmatory factor analysis on the data collected through spss 26.

Table 1. Items of fear of missing out scale for early childhood teachers' work information.

No.	Items
1	I am afraid that my colleagues have more useful information than I do.
2	I am afraid that my colleagues will get new information before I do.
3	I become very anxious when I find out that my colleagues do not share information with me.
4	I become very nervous when I don't know anything about what I have been working on.
5	It is very important for me to handle what I am working on.
6	I also browse work groups during breaks to see if there are updates.
7	I become very anxious when I miss attending meetings about the latest work schedule.
8	I become very nervous when I miss a discussion meeting about kindergarten teaching and research.
9	When given an update on a work assignment, I share the details of its online (e.g., posting updates).
10	When I am away on a trip, I still keep a close eye on workgroup updates.
11	I stay online so I don't miss any work-related information.
12	I feel that I spend too much time browsing group messages.

This study used the Delphi investigation method to refer these 16 programs to six experts in the field of early childhood education for two rounds of evaluation, including 4 associate professors and 2 professors. After expert discussion, the researchers combined "I think that I spent too much time browsing my cell phone and computer for information" and "I think that I spent too much time getting working information" into "I think that I spent too much time browsing group messages", and deleted "I become very anxious when I realize that my colleagues are not communicating with me", "I become very anxious when I miss kindergarten meetings", and "I am very afraid of missing any messages from parents". And finally, 12 questions were

retained. The experts agreed that the scale was reasonable and easy to understand and could be used as a suitable measurement tool. The questionnaire was scored on a 5-point Likert scale, the same as the developed by Przybylski et al. 1–5 are indicated as 1=none, 2=mild, 3=fair, 4=very high, and 5=extreme. The higher the score, the stronger the fear of misinformation at work is felt. **Table 1** showed the 12 items of the scale.

3. Results

3.1. Analysis of questionnaire structure

3.1.1. Validity analysis

Validity was to analyze whether the scale was reasonable or meaningful, and validity analysis was conducted by using exploratory factor analysis. The researcher used KMO, commonality, variance explanation rate, and factor loading coefficients to verify the validity. The KMO value was to determine the suitability of information extraction, the commonality was to exclude unreasonable research items, the variance explanation rate was to indicate the level of information extraction, and the factor loading coefficient was to measure the correspondence between factors (dimensions) and question items.

The researcher conducted an exploratory factor analysis on the collected data by using spss 26. Firstly, KMO and Bartlett's tests were performed on sample 2.

The KMO value was to determine whether the data was suitable for extracting information[38]. A KMO higher than 0.8 meant the data was perfect for extracting information (validity was very good); KMO between 0.7 and 0.8 meant the data was good for extracting information (validity was good); KMO between 0.6 and 0.7 meant the data was suitable for extracting information (validity was average); KMO less than 0.6 meant the data didn't not suit for extracting information (validity was poor)[39]. The result showed that the KMO of this scale was 0.90 > 0.8, and the approximate chi-square value of Bartlett's Spherical Test was 1349.154, which was significant at the 0.01 level and suitable for exploratory factor analysis. The researcher used principal component analysis, and 2 factors were extracted from the 12 question items with an Eigenvalue greater than 1. The Variance Explanation Rate (Rotated) of these two factors was 35.194% and 25.827 respectively and the Cumulative Variance Explanation Rate (Rotated) was 61.021%. The factor loading of each question item were shown in **Table 2**.

Factor loading coefficients indicated the correlation between the factors and the analyzed items, and the standard loading coefficient values usually indicated the correlation between the factors and the items. If an item showed significance and the standardized loading coefficient value was greater than 0.7, it indicated a strong correlation; if an item didn't not show significance or the standardized loading coefficient was lower than 0.4, it indicated a weak relationship between the item and the factor. According to **Table 3**, the corresponding coefficients of A4 and A5 were less than 0.4, which meant that the relationship between the factors and the two items was quite weak and the factors couldn't extract the information from the study items effectively. And A7 was multiple loading, thus these 3 items should be removed and analyzed again after removal.

Table 3 showed that after deleting A4, A5, and A7, the scale ended up with 9 items including two dimensions, factor 1 was for work control and factor 2 was for colleague competition.

Table 2. Fear of missing out scale for early childhood teachers' work information factor loading.

Factor loading (Rotated)			
Items	**Factor loading**		**Communality**
	Factor 1	**Factor 2**	
A1	0.281	0.832	0.772
A2	0.309	0.816	0.76
A3	0.143	0.719	0.538
A4	0.472	0.385	0.371
A5	0.285	0.519	0.35
A6	0.851	0.142	0.745
A7	0.432	0.477	0.414
A8	0.746	0.264	0.626
A9	0.779	0.267	0.678
A10	0.82	0.315	0.772
A11	0.655	0.439	0.622

Table 3. Delete A4, A5 and A7 Factor loading (Rotated).

Items	**Factor loading**		**Communality**
	Factor 1	**Factor 2**	
A6	0.85	-	0.74
A10	0.83	-	0.80
A9	0.80	-	0.70
A12	0.76	-	0.70
A8	0.74	-	0.60
A11	0.67	-	0.64
A1	-	0.85	0.82
A2	-	0.82	0.78
A3	-	0.75	0.58
% of Variance	58.28%	12.38%	-

3.1.2. Discriminant validity

AVE (Average Variance Extraction) and CR (Combined Reliability) were used for the analysis of convergent validity; AVE was greater than 0.5 and CR was greater than 0.7, which indicated high convergent validity[40]; discriminant validity test was conducted on sample 2, Pearson correlation and AVE were calculated, and the results were showed that the AVE square root value for factor 1 is 0.797, which is greater than the maximum value of the inter-factor correlation coefficient of 0.619, implying that it has good discriminant validity. The AVE square root value of factor 2 is 0.796, which is greater than the maximum value of the inter-factor correlation coefficient of 0.619, implying its good discriminant validity.

Usually, the HTMT value is less than 0.85 (sometimes 0.9 is used as a criterion), which indicates the discriminant validity between the two factors, Discriminate validity analysis was performed for HTMT values, all the HTMT in **Table 7** were less than 0.85, It shows good discrimination between the factors and the data discriminant validity of the study is well.

3.1.3. Convergent validity

AVE and CR were used for for convergent validity analysis. Under normal circumstances, an AVE was greater than 0.5 and a CR was greater than 0.7, which indicated high convergent validity. This confirmatory factor analysis (CFA) was conducted for 2 factors and 9 items. The result showed that all AVEs corresponding to the two factors were 0.62 and 0.62 which were greater than 0.5 and all CRs were 0.91 and 0.83, which were higher than 0.7, implying that this data has good convergent validity.

3.1.4. Model fitting metrics

Referring to Lu's study on the application of validating factor analysis in questionnaire development[41], confirmatory factor analysis was conducted using Amos 21.0 to explore the structural stability of the FoMOs for Early Childhood Teachers' Work Information. SEM analysis revealed that the fit indices of the scale are shown in **Table 4**.

Table 4. Model fitting metrics.

Indicators	Cardinality of freedom ratio χ^2/df	GFI	RMSEA	RMR	CFI	NFI	NNFI	TLI	IFI	SRMR	RMSEA 90% CI
Judgment Standard	<3	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9	>0.9	>0.9	<0.1	-
Valve	2.679	0.94	0.09	0.02	0.96	0.94	0.95	0.95	0.96	0.04	0.07–0.12

A model was considered to fit the data: (χ^2)/df < 3.0, GFI > 0.90, CFI ≥ 0.90[42,43], RMR: 0 ≤ SRMR ≤ 0.05. RMR between 0.00 and 0.05 indicates a good fit to the data, and between 0.05 and 0.10 indicates an acceptable fit[44]. **Table 8** showed that the Fear of Missing Out Scale for Early Childhood Teachers' Work Information (χ^2)/df = 2.679 < 3.0, RMR = 0.019, GFI = 0.935 > 0.9, CFI = 0.961 > 0.9, NFI = 0.939 > 0.9, TLI = 0.946 > 0.9, IFI = 0.961 > 0.9. Through the fit index of the model, it's clear that the structure of the Fear of Missing Out Scale for Early Childhood Teachers' Work Information had good stability, and the data fit the model in a good condition, which was in line with the fit index of the structural equation model test proposed by Wen[45]. Additionally, each item's factor loading ranges between 0.566 and 0.904 (**Figure 1**).

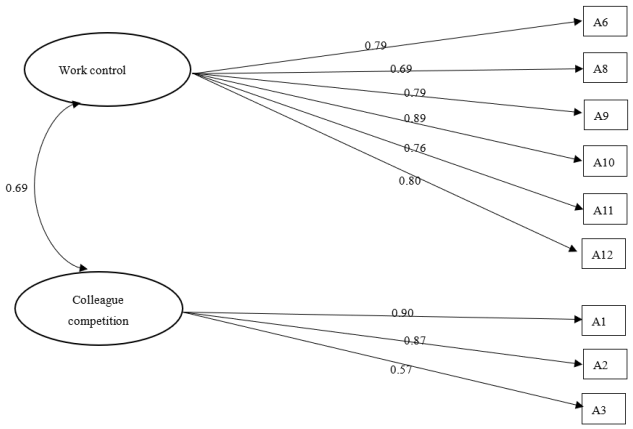

Figure 1. SEM of fear of missing out scale for early childhood teachers.

3.2. Reliability analysis

After completing the questionnaire, the researcher conducted a preliminary study on sample 2, and properly estimated the workload, time and manpower required to complete the study. At the same time, the questionnaire quality was analyzed based on the preliminary study results. Sample 2 was retested after 20 days the first questionnaire was completed. The statistical results showed that the retest reliability of the

questionnaire was 0.955, which was significant at the level of 0.01. The Cronbach coefficient among the 9 items was 0.906, indicating that the retest reliability of FoMOs for early childhood teachers' work information was good and stable. It could be used as a research tool to measure the FoMO of early childhood teachers.

3.3. Analysis of status quo and influencing factors of the early childhood teachers' FoMO

In this study, the operation of fear of missing out for early childhood teachers' work information was defined as the degree of FoMO for early childhood teachers' work information, the measurement tool was the self-designed "FoMOs for Early Childhood Teachers' Work Information". The explanation of scale and level was shown in **Table 5**.

Table 5. Explanation of Scale and Level[46].

Perception	Score	Range	Explanation
None	1	1.00–1.50	Very low
Mild	2	1.51–2.50	Low
Fair	3	2.51–3.50	Medium
Very high	4	3.51–4.50	High
Extreme	5	4.51–5.00	Very high

3.3.1. Descriptive statistics of the early childhood teachers' FoMO

The researchers formally tested sample 3 with the self-designed "FoMOs for Early Childhood Teachers' Work Information". The mean and standard deviation of the measurement results were calculated, the situation of FoMO for early childhood teachers was as follows:

Table 6. The mean and standard deviation of FoMOs for early childhood teachers' work information.

Items	Mean	Standard deviation
A1	2.78	0.63
A2	2.71	0.56
A3	3.00	0.59
A6	2.71	0.70
A8	2.92	0.45
A9	2.77	0.60
A10	2.69	0.70
A11	3.49	0.87
A12	2.87	0.71
Total	2.88	0.43

As could be seen from **Table 6**, the mean of the early childhood teachers' FoMO was 2.88, the standard deviation was 0.428, indicating that FoMO for early childhood teachers' work information in Guangzhou was at a medium level. The mean of factor 1 for work control was 2.91, slightly higher than the total mean of 2.88. The mean of factor 2 for colleague competition was 2.83, lower than the total mean of 2.88. The mean of question 11 "I stay online so I don't miss any work-related information" was 3.49, which was higher than 3.

3.3.2. Influencing factors of the early childhood teachers' FoMO

According to the Job Requirements-Control Theory, pressure from work could be relieved if the sense of uncertainty related to work was reduced by increasing control over work. The researchers speculated that the

children in small classes were the youngest, there may be more uncertain factors, and early childhood teachers' teaching experience was directly related to the control level of work, and the operational definition of work experience was reflected by the teaching age. Therefore, this study focused on the influence of teaching grade and teaching years on FoMO.

According to **Tables 7** and **8**, there was no significant in changing teaching grade and FoMO's F value ($p = 0.443 > 0.05$), indicating that teaching grade had no significant influence on fear of missing out. And no matter the big class, middle class or small class, the teachers' FoMO level did not have a significant impact. Therefore, it was concluded that the teaching grade did not have a significant impact on Early Childhood Teachers' FoMO. Then the regression analysis between teaching age and FoMO was conducted:

Table 7. Summary of teaching grade and FoMO's regression analysis model.

Model	R	R^2	Adjusted R^2	R^2 Variation	F Variation	Significance F variation
1	0.090a	0.08	−0.002	0.01	0.82	0.44

a Predicted variable：(constant), big class, small class.

Table 8. Teaching grade and FoMO's Coeff.a.

Model		B	t	Significance
1	(Constant)	-	62.22	0.000
	Small class	−0.08	−1.25	0.21
	Large class	−0.01	−0.29	0.77

a Dependent variable: fear of missing out.

According to **Table 9**, there was a significant in changing teaching age and FoMO's F value ($\beta = -0.721$, $p = 0.000 < 0.001$), indicating that teaching age had a significant negative influence on FoMO.

Table 9. Summary of teaching age and FoMO's regression analysis model.

Model	R	R^2	Adjusted R^2	R^2 variation	F variation	B	t	Sig
1	0.72a	0.52	−0.52	0.52	216.23	−0.72	−14.71	0.00

a Predicted variable：(constant), teaching ages; a Dependent variable: fear of missing out.

4. Discussion

4.1. Status of the early childhood teachers' FoMO

This research paper took early childhood teachers in Guangzhou as the research object and obtains data through a questionnaire to conduct a quantitative analysis of the reliability and validity of the FoMO for early childhood teachers' working information. The scale was divided into 2 dimensions: work control and colleague competition. The overall internal consistency coefficient of the questionnaire was 0.90, and the Cronbach's alpha coefficients of the 2 subscales were between 0.86 and 0.92, with fair reliability. The standardized loading coefficients of the 12 question items were in the range of 0.67–0.85 in absolute value, which were all greater than 0.4. In terms of convergent validity, the AVE values of the two dimensions of work control and colleague competition were 0.8 and 0.62, both of which were greater than 0.5, indicating good convergent validity. According to Wen et al., the minimum requirement for GFI, NFI, CFI, TLI and IFI was greater than 0.85, preferably greater than 0.9, and the RMSEA was less than 0.10. The model fit indices of this scale showed that GFI = 0.94 > 0.85, CFI = 0.96 > 0.9, NFI = 0.94 > 0.85, TLI = 0.95 > 0.9, IFI = 0.96 > 0.9, and RMSEA = 0.09 < 0.10, the model basically meet the measurement requirements.

This study managed to work out the FoMOs for early childhood teachers' work information containing

12 items via interviewing method. The reliability of the re-test of the questionnaire was 0.955 on the significance level of 0.01 and the Cronbach coefficient among 9 items was 0.901, all of which indicated a sound reliability and validity of the scale. As a result, it can be used as the measure tool for early childhood teachers' FoMO.

This study has not yet found literature of similar kind in the field of pre-school education because of a lack of proper measurement tools. When the FoMOs for early childhood teachers' work information was used in kindergartens in Guangzhou city, the mean value of the FoMO was 2.88, indicating a psychological stability of early childhood teachers in Guangzhou city as they were checking and dealing with work information. No apparent anxiety was aroused because of their worrying about missing out on work information. The mean value of Work control, Factor No.1, was 2.91, a little more than 2.88, the general average value. While the mean value of work competition, Factor No.2, was 2.83, less than 2.88, the general average value. The results showed that anxiety related to missing out on work information was more caused by insufficient control over work than by competition which did not significantly make teacher anxious. This, to some extent, painted a rosy picture of interpersonal relationships in a professional environment of Guangzhou's kindergartens. But the mean value of the item "I am always online to avoid missing out on any work information" was 3.49, higher than 3, indicating a higher-than-normal anxiety of missing out on work information. Research has shown that the work control of early childhood teachers[47], time control in particular is at a low level[48], this paper also mentioned that: "that teachers lose control over work contributes to their pressure and anxiety"[49]. An insufficient control over work is associated with more pressure and anxiety. New teachers in particular have to invest more time and energy[50]. Previous researches share similar results with this one. It is worth noticing that the average teaching years of the participants were 3.26 years, while other researches of similar kind failed to provide average teaching years of their participants. According to Job Requirements-Control Theory, avoiding missing out on information, being afraid of job contents and sharing information have everything to do with work control. When taking the average teaching years into consideration, this study concluded that the FoMO of early childhood teachers, especially of those work for less than 3 years, mainly comes from the fear of losing work control because of missing out on work information.

4.2. Influencing factors of early childhood teachers' FoMO

Previous researches have confirmed many factors that influence individual FoMO, such as psychological factors, personalities[51], negative moods, habits of using social media, and demographic factors such as gender, age etc.[52]. This study has found that the teachers' grade had no significant impact on the early childhood teachers' FoMO while the teaching experience had a significant negative impact on the latter. It can be explained by Job Requirements-Control Theory. Job requirements refer to the workload and the degree of difficulty of the work in working settings. Work control means that employees are capable of imposing impacts on themselves. According to previous researches, be it large, medium or small class, teachers are faced with same job requirements—to ensure children's safety and to promote an all-round development mentally and physically. There is also no obvious difference among different classes. This study has shown that the significance level of teachers' FoMO from different classes exceeded 0.05, therefore, teachers' grade had no significant impact on their FoMO. What this study found is aligned with the previous findings.

Data has shown that the teaching experience had a significant negative impact on the early childhood teachers' FoMO ($p = 0.000 < 0.05$), which is in line with other research findings. Previous literature proved that teaching experience had a significant impact on the work control[53]. Teaching experience helps improve teachers' control over work because of the repeatability of the job. New teachers need more time to respond to and deal with work information due to a lack of teaching experience[54]. Experienced teachers perform better than new ones when it comes to work control and coping strategies[55]. As a result, whether experienced

teachers check the work information on time or not, it imposes insignificant impacts on them. It is advisable that executives provide new teachers with more professional help to improve their control over work, thus reducing their FoMO.

5. Conclusion

Based on the current early childhood education background, this study developed the FoMOs for early childhood teachers' work information. As far as the current information is concerned, there is a lack of literature on the impact of lack of work information on the psychology of early childhood teachers, especially new teachers. Therefore, this study has certain theoretical value in enriching the literature on factors affecting early childhood teachers' mental health. The results of this study provide a measurement tool for research on the impact of missing work information on the mental health of early childhood teachers, and at the same time prove that early childhood teachers' work experience has a significant impact on FoMO.

According to the research results of this paper, the FoMO on work information of early childhood teachers, especially new teachers, mainly comes from unfamiliarity with the work content. So, the suggestions are as follows: First of all, kindergarten managers should attach importance to and strengthen pre-job training for early childhood teachers, and form written documents of the daily work arrangements of the kindergarten, which will be distributed to each new teacher as training materials. Before the new teachers officially take up their posts, a certain period will be arranged to follow the post according to the actual situation of the kindergarten. An experienced teacher will be responsible for training and guidance to help the new teachers get familiar with the daily work of the kindergarten as soon as possible. Secondly, the head of kindergarten and the person in charge should organize teachers to carry out teaching and research activities in a planned way, invite experienced teachers to share their experience, especially the prevention and emergency handling of childcare and child safety issues, so as to enrich the strategies of early childhood teachers for dealing with various emergencies in kindergarten, which will improve teachers' work control level, thereby reducing the anxiety caused by missing out work information. Thirdly, the manager should make reasonable overall plan for the work of the kindergarten, such as sending the work schedule for the next week every weekend to avoid sending various temporary notices frequently. Finally, teachers should take the initiative to communicate with colleagues and leaders, establish a good work information circulation environment, avoid the formation of information "islands", and at the same time develop the habit of regularly checking work information. Never put off till tomorrow what can be done today.

There are still deficiencies in this study. Since the teaching experience of the tested samples is mostly within 5 years and there are few samples with more than 5 years, the results may not be extended to experienced teachers or expert teachers. After controlling the variable of teaching experience, the influencing factors of FoMO on working information of experienced teachers or expert teachers need to be further explored.

Author contributions

Conceptualization, JW and QZ; methodology, JW; software, QZ and PW; validation, JW, QZ and PW; formal analysis, JW and PW; investigation, JW, QZ and PW; resources, JW and QZ; data curation, JW and QZ; writing—original draft preparation, JW, QZ and PW; writing—review and editing, JW and QZ; visualization, JW; supervision, QZ; Project administration, QZ. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

References

1. Hu CM, Chia MS, Qin Y, et al. The relationship between social network use and sleep quality and daily cognitive lapses among early childhood teachers. Chinese occupational medicine. 2018, 45(02): 269-272.
2. Chai HY, Niu GF, Chu XW, et al. Fear of missing out: What have I missed again? Advances in Psychological Science. 2018, 26(3): 527.
3. Zhou SL. Attention symptoms and educational measures for adolescents in the "micro era". China Moral Education. 2021, (23): 11-16+30.
4. Zhang B, Tang XY. A study on the current situation of attention allocation in college students' Internet use. Science and Technology Information. 2013, (17): 50-51.
5. Stamell A. FoMO, the fear of missing out. The HuffPost. Available online: http://www. huffingtonpost.com/annie-stamell/fomo-the-fear-of-missing-_b_817253.html?utm_hp_ref=black-swan (accessed on 12 November 2023).
6. Elhai JD, Levine JC, Dvorak RD, et al. Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. Computers in Human Behavior. 2016, 63: 509-516. doi: 10.1016/j.chb.2016.05.079
7. Vaughn J, Mack AM. Fear of Missing Out (FOMO). Trend Reports. J. Walter Thompson Company; 2012.
8. Wegmann E, Oberst U, Stodt B, et al. Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder. Addictive Behaviors Reports. 2017, 5: 33-42. doi: 10.1016/j.abrep.2017.04.001
9. Fox J, Moreland JJ. The dark side of social networking sites: An exploration of the relational and psychological stressors associated with Facebook use and affordances. Computers in Human Behavior. 2015, 45: 168-176. doi: 10.1016/j.chb.2014.11.083
10. Lopes JL, Oliveira CR. Inclusive Education in Portugal: Teachers' Professional Development, Working Conditions, and Instructional Efficacy. Education Sciences. 2021, 11(4): 169. doi: 10.3390/educsci11040169
11. Henry AJL, Hatfield BE, Chandler KD. Toddler teacher job strain, resources, and classroom quality. International Journal of Early Years Education. 2021, 31(4): 844-858. doi: 10.1080/09669760.2021.1892596
12. Lee MH, Hwang YK, Lee CS. The Effect of Job Stress, Emotional Commitment, and Job Satisfaction on Child-care Center Teachers' Turnover Intention: The Moderated Mediation Effect of Grit. European Journal of Molecular & Clinical Medicine. 2021, 8(2): 1570-1584.
13. Jeon L, Buettner CK, Grant AA, et al. Early childhood teachers' stress and children's social, emotional, and behavioral functioning. Journal of Applied Developmental Psychology. 2019, 61: 21-32. doi: 10.1016/j.appdev.2018.02.002
14. Darius S, Hohmann CB, Siegel L, et al. Relationship between Burnout Risk and Individual Stress Processing Strategies in Kindergarten Teachers. Psychotherapie, Psychosomatik, Medizinische Psychologie. 2021, 71(6): 230-236.
15. Boyd D, Grossman P, Ing M, et al. The Influence of School Administrators on Teacher Retention Decisions. American Educational Research Journal. 2011, 48(2): 303-333. doi: 10.3102/0002831210380788
16. Stauffer SD, Mason ECM. Addressing Elementary School Teachers' Professional Stressors. Educational Administration Quarterly. 2013, 49(5): 809-837. doi: 10.1177/0013161x13482578
17. Santamaría MD, Mondragon NI, Santxo NB, et al. Teacher stress, anxiety and depression at the beginning of the academic year during the COVID-19 pandemic. Global Mental Health. 2021, 8. doi: 10.1017/gmh.2021.14
18. Buskila Y, Chen-Levi T, Buskila D, et al. Effects of Workplace-Related Factors on the Prevalence of Fibromyalgia among Israeli Kindergarten Teachers. Aloisi AM, ed. Pain Research and Management. 2020, 2020: 1-8. doi: 10.1155/2020/3864571
19. Buskila Y, Buskila D, Jacob G, Ablin JN. High prevalence of fibromyalgia among Israeli school teachers. Clinical and Experimental Rheumatology. 2019, 37(116): S21–S6.
20. Rodenburg-Vandenbussche S, Carlier I, van Vliet I, et al. Patients' and clinicians' perspectives on shared decision-making regarding treatment decisions for depression, anxiety disorders, and obsessive-compulsive disorder in specialized psychiatric care. Journal of Evaluation in Clinical Practice. 2019, 26(2): 645-658. doi: 10.1111/jep.13285
21. Gong X, Niu CX. The current situation, sources and influencing factors of occupational stress among rural kindergarten teachers. Preschool Education Research. 2020, (2): 18-31.
22. Burns RA, Machin MA. Employee and Workplace Well-being: A Multi-level Analysis of Teacher Personality and Organizational Climate in Norwegian Teachers from Rural, Urban and City Schools. Scandinavian Journal of Educational Research. 2013, 57(3): 309-324. doi: 10.1080/00313831.2012.656281
23. Collie RJ, Shapka JD, Perry NE. Predicting teacher commitment: The impact of school climate and social–emotional learning. Psychology in the Schools. 2011, 48(10): 1034-1048. doi: 10.1002/pits.20611
24. McGinty AS, Justice L, Rimm-Kaufman SE. Sense of School Community for Preschool Teachers Serving At-Risk Children. Early Education & Development. 2008, 19(2): 361-384. doi: 10.1080/10409280801964036

25. Schonfeld IS, Bianchi R. Burnout and Depression: Two Entities or One? Journal of Clinical Psychology. 2015, 72(1): 22-37. doi: 10.1002/jclp.22229
26. Bergström M, Fransson E, Fabian H, et al. Preschool children living in joint physical custody arrangements show less psychological symptoms than those living mostly or only with one parent. Acta Paediatrica. 2017, 107(2): 294-300. doi: 10.1111/apa.14004
27. Kwon KA, Ford TG, Jeon L, et al. Testing a holistic conceptual framework for early childhood teacher well-being. Journal of School Psychology. 2021, 86: 178-197. doi: 10.1016/j.jsp.2021.03.006
28. Neuenschwander R, Friedman-Krauss A, Raver C, et al. Teacher Stress Predicts Child Executive Function: Moderation by School Poverty. Early Education and Development. 2017, 28(7): 880-900. doi: 10.1080/10409289.2017.1287993
29. Cao R. A study on the current situation of occupational stress among Changchun early childhood teachers [Master's thesis]. Northeast Normal University; 2012.
30. Whitaker RC, Dearth-Wesley T, Gooze RA. Workplace stress and the quality of teacher–children relationships in Head Start. Early Childhood Research Quarterly. 2015, 30: 57-69. doi: 10.1016/j.ecresq.2014.08.008
31. Brown M, Ralph S, Brember I. Change-Linked Work-Related Stress in British Teachers. Research in Education. 2002, 67(1): 1-12. doi: 10.7227/rie.67.1
32. Buglass SL, Binder JF, Betts LR, et al. Motivators of online vulnerability: The impact of social network site use and FOMO. Computers in Human Behavior. 2017, 66: 248-255. doi: 10.1016/j.chb.2016.09.055
33. Oberst U, Wegmann E, Stodt B, et al. Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. Journal of Adolescence. 2016, 55(1): 51-60. doi: 10.1016/j.adolescence.2016.12.008
34. Alt D. Students' Wellbeing, Fear of Missing out, and Social Media Engagement for Leisure in Higher Education Learning Environments. Current Psychology. 2016, 37(1): 128-138. doi: 10.1007/s12144-016-9496-1
35. Tresnawati FR. Hubungan antara the big five personality traits dengan fear of missing out about social media pada mahasiswa. Intuisi: Jurnal Psikologi Ilmiah. 2016, 8(3): 179-185.
36. Tjosvold D. Cooperation Theory and Organizations. Human Relations. 1984, 37(9): 743-767. doi: 10.1177/001872678403700903
37. Karasek RA. Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. Administrative Science Quarterly. 1979, 24(2): 285. doi: 10.2307/2392498
38. Shrestha N. Factor Analysis as a Tool for Survey Analysis. American Journal of Applied Mathematics and Statistics. 2021, 9(1): 4-11. doi: 10.12691/ajams-9-1-2
39. Li J, Qin J. Effect of Teachers' Knowledge Sharing Behavior on Students' Entrepreneurial Motivation in Social Media Environment. International Journal of Emerging Technologies in Learning (iJET). 2022, 17(02): 143-157. doi: 10.3991/ijet.v17i02.28553
40. Yan Q, Li D, Yin X, et al. Development and validation of a maternal anxiety for neonatal jaundice scale in China. BMC Psychiatry. 2022, 22(1). doi: 10.1186/s12888-022-04161-1
41. Lu XF. A study on the application of validating factor analysis in questionnaire development. Educational Measurement and Evaluation: A Theoretical Edition. 2008, (11): 8-12.
42. Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin. 1980, 88(3): 588-606. doi: 10.1037/0033-2909.88.3.588
43. Bollen, K. A. (1989). A new incremental fit index for general structural equation models. Sociological Methods & Research. 1989, 17(3): 303-316. doi: 10.1177/0049124189017003004
44. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal. 1999, 6(1): 1-55. doi: 10.1080/10705519909540118
45. Wen ZL, Ye BJ. Mediated effects analysis: Methodology and model development. Advances in Psychological Science. 2014, 22(5): 731.
46. Wu H, Leung SO. Can Likert Scales be Treated as Interval Scales?—A Simulation Study. Journal of Social Service Research. 2017, 43(4): 527-532. doi: 10.1080/01488376.2017.1329775
47. Liu LQ. A study on the relationship between job stressors, job control experiences, and job burnout among early childhood teachers [Master's thesis]. Shanxi University; 2007.
48. Li Q. A Study on the Current Situation of Early Childhood Teachers' Occupational Stress in Saihan District, Hohhot City [Master's thesis]. Inner Mongolia Normal University; 2015.
49. Zhu YR. The effects of preschool teachers' job stressors, job control experiences on job burnout--a multi-factor ANOVA as an example. Journal of Northwest Institute of Adult Education. 2015, (03): 87-91.
50. Blackwell D, Leaman C, Tramposch R, et al. Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. Personality and Individual Differences. 2017, 116: 69-72. doi: 10.1016/j.paid.2017.04.039

51. Ye LL. A case study of early childhood teachers' work time allocation [Master's thesis]. Zhejiang Normal University; 2015.
52. Xie FC. Fear of missing out and adolescent depression: The role of online social load and offline social support. Huazhong Normal University; 2020.
53. Xu SW, Su HW, Hsiao JA. A study on the correlation between job control and requirements, job satisfaction, organizational commitment, and turnover tendencies of international tourism hotel supervisors: Using work experience as a disruptive variable. Hospitality and Tourism. 2012, 9(2): 91-111.
54. Mu YZ, Shen J. Practical knowledge management and professional growth of early childhood teachers. Education Guide: Second half of the month. 2008, (2): 32-34.
55. Ren P. Influencing factors and coping strategies of professional adaptation of new kindergarten teachers. Journal of Shaanxi Preschool Teachers' College. 2014, 30(5): 10-14.