



Exploring the Influence of Career Interests on Career Adaptability and Gender Differences Within the Groups of Rural Teachers in Hebei, China

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Abstract:

Background: The purpose of this study was to examine the role of career interests in shaping the career adaptability of educators at the primary and secondary levels in rural areas of Hebei Province, China, with a particular emphasis on defining the nuances associated with gender differences.

Methods: The Career Interest Scale and the Career Adaptability Scale were used to conduct a questionnaire survey among teachers from twenty rural schools in Hebei Province. The study sample consisted of 550 rural primary and secondary school teachers. After eliminating invalid questionnaires, a total of 509 valid responses were obtained, of which 256 were from male teachers and 253 from female teachers.

Results: The career interests of rural teachers in Hebei Province, China, have a significant and positive impact on their career adaptability, and an analysis of the differences between male and female teachers indicates that male teachers' career interests exert a greater influence on the career adaptability of male rather than female teachers. Specifically, male teachers tend to focus more on educational aspects in terms of their career interests, and they demonstrate stronger self-confidence in terms of career adaptability.

Conclusion: Hence, rural primary and secondary school teachers in Hebei Province are recommended to take the initiative to reshape their gender perspectives and enhance their career interests to improve their career adaptability and foster continuous professional development.

Keywords: Career adaptability, career interest, gender differences, Rural conditions, Rural teachers, Rural areas.

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Cite as: Li W, Chang Y. Exploring the Influence of Career Interests on Career Adaptability and Gender Differences Within the Groups of Rural Teachers in Hebei, China. *Open Psychol J*, 2024; 17: e18743501310737. <http://dx.doi.org/10.2174/0118743501310737240531062343>



Received: March 09, 2024

Revised: May 09, 2024

Accepted: May 21, 2024

Published: June 06, 2024



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1. INTRODUCTION

The progression of rural education crucially depends on the foundation provided by rural teachers, who are essential for its enduring development based on skilled and stable teams [1]. Although the natural and living environments in rural areas have improved under national assistance programmes, rural conditions remain relatively harsh compared to urban areas [2]. This environmental inequality has a direct impact on developing the career

adaptability of rural teachers, who continue to face severe challenges in this respect [3]. For example, Wu [4] found that the rural teacher workforce in Hebei, China, suffered from multiple issues, which included deficiencies in career beliefs, insufficient attention to future careers, and weak ability to explore career and development control. All of these factors reflect poor career adaptability.

Additionally, rural teachers face dual pressures professionally because they must meet the educational

needs of rural schools as well as those of rural society [5]. Rural teachers are not just rural educators but also rural developers. Furthermore, Xiao [5] emphasised that rural teachers need diverse teaching skills that include multi-disciplinary teaching, interdisciplinary teaching, teaching rural integrated practical activities, and developing and utilising rural teaching resources. In addition, improving career adaptability is especially critical for rural teachers who are coping with rural education environments, dual career pressures, and changing educational demands [6]. Hence, it is important to understand the rural career adaptability levels of the rural teachers in depth to promote the long-term development of the teaching profession, improve the overall quality of the teaching team, and enable the sustainable development of rural education [7].

Career adaptability refers to the self-regulating psychological resources used by individuals to manage work tasks and challenges [8]. Further, it is significantly influenced by career interests [9]. Career interests represent intrinsic motivations that reflect stable individual differences [10]. They influence the preferences of individuals for certain work activities or environments, and this increases their motivation for those activities. Ultimately, career interests encourage individuals to obtain relevant knowledge and skills, and this affects their behavioural patterns during their career development [11, 12]. Individuals who engage in more proactive coping behaviors tend to have richer psychological resources when facing career development challenges or setbacks [13], thereby contributing to an enhancement in career adaptability. The concept of the Career Construction Model of Adaptation represents the motivation, adaptation, behaviors, and outcomes involved in adaptation throughout the career development process [8]. It shows individual differences throughout the entire career lifespan and promotes the utilization of adaptation resources to foster successful career development [8]. This research focuses on career interest as a variable for adaptation preparation [14] and considers career adaptability as a mental resource for resilience [15]. The research is based on the career construction model of adaptation, which states that an adaptively prepared individual is capable of utilizing adaptive resources. Guided by the Career Construction Model of Adaptation, this study investigates how individuals with adaptive readiness activate adaptive resources to explore the influence of career interest on career adaptability.

For rural teachers, career interests refer to genuinely liking and being passionate about the education profession, teaching, and students [16]. From a psychological perspective, career interests represent teachers' intentional activities, a positive attitude, and the tendency of teachers to teach and educate with strong emotions [16]. Importantly, career interest significantly predicts career adaptability of teachers [17], and provide key resources for enhancing it, along with their personal satisfaction, higher self-concept and external opportunities [18]. Some researchers propose that career interests

represent an effort to satisfy the needs of individuals through work and they encompass cognitive, emotional, volitional and behavioural processes [19], as well as manifest adaptive personality traits associated with better subsequent career adaptability [20]. When individuals truly identify with career activities, they incorporate them into their self-concept as new interests, exhibiting fond attitudes and behaviour that improve their career adaptability [19]. Career interests enable teachers to embrace their profession with a passion, which gives them the confidence to face the future, explore and try different careers, and draw on their potential to manage career changes and tasks [1]. As a result, teachers demonstrate higher career adaptability [1]. This shows that career interests have a significant impact on the career adaptability of rural teachers in Hebei, China.

Cai *et al.* [21] pointed out that the gender imbalance in primary and secondary schools has become extremely serious as there are currently more female teachers than male. Moreover, surveys conducted by Wu and Zheng [22] in Hebei, Yunnan and Guizhou provinces in China showed an imbalanced gender ratio in rural schoolteachers. However, despite the significant feminine trend, female teachers still have unfavourable career promotion prospects due to a "women soldiers, men generals" phenomenon [21]. Hence, it is necessary to explore gender differences in career interests and career adaptability. Çizel [23] found that gender had an indirect effect on career adaptability, with women having stronger career adaptability than men. Moreover, Li *et al.* [24] found that the total career adaptability scores of male students were significantly higher than those of females, and there were significant career adaptability gender differences. Kulbaş and Kara [25] found that male special education teachers in Turkey had lower career adaptability compared to their female counterparts. With regard to career interests, Deng *et al.* [26] found significant gender differences. Deniz *et al.* [27] also identified gender as an important variable that affects career interests. Therefore, the purpose of this study was to explore the career interests and career adaptability of rural teachers of different genders in Hebei, China, with a focus on examining the influence of career interests on career adaptability. Further, the different relationship patterns between the two groups of male and female teachers were also explored.

2. LITERATURE REVIEW

2.1. Relationships between the Impact of Vocational Interests of Rural Teachers on Career Adaptability and the Gender Differences within Groups

Super and Knasel [28] defined career adaptability as the ability to adapt to work demands. It also involves flexibly adjusting work to meet personal needs. Goodman [29] described career adaptability as efforts by individuals to cope with environmental changes. Building on this, the career adaptability research pioneer Savickas [30] further revised the concept by incorporating aspects such as work roles and transitions. Savickas perceived that career adaptability is a psychological resource that helps indivi-

duals adapt to changing environments. As his research deepened, Savickas [31] defined career adaptability as the readiness and resources needed to cope with current or anticipated tasks related to career development, including attitudes, abilities, and behaviours for adapting to work roles, which helps to address career transitions, new tasks, and setbacks. Career adaptability is a core competence for long-term career success [32]. It is key for achieving employment, transitions, and smooth career development. Hence, career adaptability is seen as a psychological resource for career adaptation that covers self-regulating attitudes and abilities [33, 34]. Career adaptability also plays a core role in the career construction theory [8].

Moreover, Savickas [31] developed the Career Adapt-Abilities Scale, which includes four adaptability resources: concern, control, curiosity, and confidence. The concern involves looking forward and planning the future. Control reflects personal responsibility for shaping the future. Curiosity represents exploring possible selves and roles, while confidence is the belief in implementing choices and achieving goals. In this research, the concept of career adaptability as defined by Savickas [31] is applied, which means that teachers' career adaptability refers to the readiness and resources needed to address current or anticipated career development tasks. This encompasses the use of attitude, abilities and behaviour to adapt work roles, which helps teachers to cope with career transitions, new tasks, and setbacks.

According to Lent *et al.* [35], career interests refer to a distinct pattern of preferences, dislikes, and indifference that individuals have towards activities and tasks associated with their careers. In other words, career interests indicate how personal interests translate into active engagement in professional tasks [36]. It can reflect a proactive attitude towards career-related pursuits [37]. Within the educational sector, Schiefele *et al.* [16] defined the interests of teachers in teaching as the extent of their predilection and engagement in educational and pedagogical activities. It involves enthusiasm for both the subject matter and the broader learning environment [16]. For the purposes of this research, the definition of career interest of teachers is aligned with that of Schiefele *et al.* [16], which includes interest in subject-specific content, pedagogical engagement, and the educational field as a whole.

The study conducted by Li and Xue [3] regarding the career adaptability of teachers suggests that principals in rural schools should pay close attention to aspects like the professional interests of rural educators. This attention contributes to enhancing the career adaptability of teachers, thereby facilitating their professional progression in rural environments. Such enhancement can be attributed to the intrinsic motivation provided by professional interests, which play a pivotal role in quickly adjusting to teaching roles and responsibilities, ultimately strengthening career adaptability [10]. Moreover, the stability of the career motivation of individuals has a direct influence on their vocational adaptation and behaviour

[38]. Furthermore, İzzet Kurbanoğlu and Arslan [39] found a significant association between career interest and career adaptability. Generally, when the interests of individuals align with the demands of their work environment, it generally fosters their career direction, choices, personal growth, and desire for exploration and ultimately enhances their career adaptability and stability [37]. Similarly, findings from the research conducted by Ramdhani *et al.* [40] suggest that strengthening career interests substantially assists individuals in managing tasks, setbacks, and transitions experienced throughout their career development journey, ultimately leading to an improved capacity for career adaptability. These findings suggest that career interest has a positive effect on the career adaptability of rural teachers in Hebei, China. Thus, based on the preceding analysis, the following research hypothesis is proposed:

H1: For rural primary and secondary school teachers in Hebei Province, China, career interests have a positive effect on career adaptability.

While career opportunities have diversified, disparities in career adaptation between men and women persist [41]. Lu and Zhong [42] discovered that male teachers may exhibit higher levels of skill mastery and faster learning rates than female teachers. This discrepancy contributes to notable gender variations in career adaptability, particularly concerning dimensions such as professional skills and external challenges. As a result, male teachers often achieve higher scores than their female counterparts. However, Han and Rojewski [43] found gender differences in the career adaptability of adolescents entering the workforce after high school graduation, with females displaying stronger career adaptability compared to males. This is attributed to recent female college graduates receiving more familial support, which helps in influencing their career adaptability. Moreover, Kulbaş and Kara [25] pointed out that in special education schools in Turkey, the vocational adaptability of male teachers is lower than that of female teachers. The reason is that women in special education possess greater patience and a spirit of sacrifice in developing student care and are skilled at applying these traits to their professional development. This results in a higher level of career planning among female teachers, leading to greater career adaptability in female teachers. In response to these findings, the current investigation sought to examine gender variations in the career adaptability of rural educators in Hebei Province, China. Therefore, the following hypothesis is proposed:

H2: There are gender differences in the career interest of rural primary and secondary school teachers in Hebei Province, China.

Furthermore, existing research indicates potential differences in career interests between male and female teachers [44]. For example, Drudy [45] pointed out that in the field of teaching, male and female teachers exhibit strong differences in career interests. Notably, Sikora [46] revealed significant gender differences in the teaching interests of young teachers, which persist regardless of

their experience. Moreover, Evans and Diekman [41] argued that there are gender disparities in the interpretation of career interests, which is partly due to varying professional objectives associated with male-dominated and female-dominated professions. Therefore, the following hypothesis is proposed:

There are gender differences in the career interest of rural primary and secondary school teachers in Hebei Province, China.

Moreover, considering the gender variations observed in factors like professional interests and career adaptability, it is plausible that gender differences could influence the relationship between professional interests and career adaptability among rural educators in Hebei Province, China. In line with social gender theory, the establishment of separate gender roles within societal norms results in diverse levels of self-regulation among individuals, subsequently giving rise to differences in attitudes and behaviors based on gender [47]. In their research, Wu and Zheng [22] observed that female teachers exhibit a greater susceptibility to losing their professional interests and encountering challenges in adapting to rural education when compared to their male counterparts. This susceptibility is attributed to various factors including demanding work environments, conflicting family duties and job responsibilities, and safety concerns. Research on newly hired teachers by Xing *et al.* [48] further strengthened this notion by revealing that women tend to prioritise factors like working with children, job stability, and personal development, whereas men prioritise salary, status, and career advancement. It can be observed that individuals tend to seek work environments that align with their vocational interests, thereby demonstrating different levels of career adaptability. Thus, based on the preceding analysis, the following research hypothesis is proposed:

There are differences between different genders of rural teacher groups in the influence relationship between career interest and career adaptability.

In summary, starting with vocational interests, analysing which aspects are prioritised more by male and female teachers in adapting to rural school environments can lead to enhancing their career adaptability from different perspectives. Further, understanding gender roles in the field of professional development of teachers is likely to foster the continuous growth of the teaching profession.

3. METHODS

3.1. Participants

Rural teachers in this study refer to primary and secondary school teachers in county towns, townships, villages, and other areas outside the urban built-up areas in Hebei Province [49]. The research object of this study is rural primary and secondary school teachers in Hebei Province, China. It is an empirical study using the questionnaire survey method. Informed consent was obtained from all primary and secondary school teachers

participating in the study before the questionnaire survey, and the research ethics committee (DPU_BSH 110866/2565) approved the study before data collection. The study employed a convenience sampling method. In April 2023, QR codes for questionnaires on career interest and career adaptability were generated. The researchers attempted to contact relatives, alumni, friends, and classmates who were engaged in rural teaching, explained the purpose and use of the questionnaire survey in detail, and asked them to introduce the questionnaire to their colleagues and forward the QR codes separately. The researchers explained the title, objectives, and the entire research process to the participants to ensure that they fully understood the background and purpose of the study. The researchers informed the participants that if they were busy but still wanted to participate in the study, they could contact the researchers by email, they had the right to cancel or withdraw from the survey at any time, and their personal interests would not be harmed in any way. They should answer the questions based on their actual situation and not conceal information or provide random answers. Participations in this research project were voluntary, and if they did not want to participate voluntarily, they could withdraw at any time. If they withdraw from the research plan, they would not have any impact.

According to Gandek and Ware [50], the most suitable sample size for formal questionnaires in regional research is between 500 and 1000 people. This study conducted questionnaire surveys in 20 primary and secondary schools in 11 counties and towns in Hebei Province, with approximately 30 teachers in each school, and a total of 550 questionnaires were recovered. After the questionnaire was recovered, a filling check process was carried out. During the check, questionnaires with filling times too short and more than 10 consecutive questions with the same answer were considered invalid. After excluding invalid questionnaires, 509 valid questionnaires remained, with a valid recovery rate of 92.5%, including 256 male teachers and 253 female teachers.

3.2. Career Interest Scale

The Teacher Career Interest Scale used by Eren [51] was adopted to measure career interests in this study. This scale includes three dimensions: subject interest (5 items), didactic interest (4 items), and education interest (6 items). This is a 15-item scale that uses a 4-point Likert rating standard, from 1 ("strongly disagree") to 4 ("strongly agree"), with higher scores representing a higher degree of interest. Cronbach's α for this scale is 0.907. A confirmatory factor analysis (CFA) was used to test the scale, and the factor loadings for each item were 0.513, 0.363, 0.205, 0.708, 0.761, 0.777, 0.838, 0.839, 0.805, 0.774, 0.724, 0.754, 0.802, 0.797, and 0.806, respectively. Items with factor loadings <0.500 were deleted, so the second and third items were deleted. The composite reliability (CR) of the scale was 0.948, which exceeds the evaluation standard of 0.600, indicating that the scale has good composite reliability [52]. The average

variance extracted (AVE) was 0.586, which exceeds the evaluation standard of 0.500, indicating that the scale has good discriminant validity [53].

The results showed that the fit indicators of this scale were $\chi^2/df = 4.887$, RMSEA = 0.084, GFI = 0.914, and AGFI = 0.874. According to MacCallum and Hong [54], AGFI values greater than 0.800 are acceptable. RMR=0.020, SRMR =0.0409, NFI =0.926, NNFI=0.924, CFI =0.940, RFI=0.907, IFI = 0.940, PNFI =0.736 and PGFI = 0.623, indicate that the scale fit the adaptation standards [55].

3.3. Career Adaptability Scale

Career adaptability was measured using the 12-item short form of the Career Adaptabilities Scale developed by Maggiori *et al.* [56], which covers four dimensions: concern (3 items), control (3 items), curiosity (3 items), and confidence (3 items). The overall Cronbach's alpha was 0.890. The 5-point Likert scale ranged from 1=“strongly disagree” to 5=“strongly agree”. A confirmatory factor analysis showed adequate factor loadings from 0.751 to 0.893 for all items. The reliability (composite reliability =0.961) and validity (average variance extracted =0.674) were good based on the established standards [52, 53]. The Fit statistics ($\chi^2/df = 5.486$, GFI = 0.920, AGFI = 0.869, RMR = 0.020, SRMR =0.0416, NFI = 0.941, NNFI =0.933, CFI = 0.951, RFI =0.919, IFI = 0.951, PNFI = 0.685, and PGFI = 0.566) met the acceptable criteria [54, 55].

Table 1. Descriptive statistics of variables.

-	Career Interest	Career Adaptability
Male Teachers	3.3534	4.2181
Female Teachers	3.3475	4.1689
Overall	3.3505	4.1934

4. RESULTS

4.1. Descriptive Statistical Analysis

The average scores for career interest and adaptability are presented in Table 1. The mean score for career interest was 3.3505 (SD = 0.52), with male and female

teachers exhibiting similar averages (3.3534 and 3.3475). The gender difference for career adaptability was slightly larger, with males averaging 4.2181 (SD = 0.48) and females averaging 4.1689 (SD = 0.46).

4.2. Test of Common Method Bias

To ensure the absence of a significant common method bias, the potential bias was assessed using Harman's single-factor test by conducting a factor analysis on all the questionnaire items. The results revealed that the first factor explained only 24.685% of the variance, which fell below the recommended threshold of 40%. This finding suggests that common method bias was not a significant concern in this study.

4.3. Structural Equation Model (SEM) Analysis

In the section on the overall model analysis, separate path analyses were conducted for male and female teachers.

4.3.1. Male Teachers

The model fit indices in Table 2 indicate a good overall model fit for male teachers, which suggests there was a good correlation between the theoretical model and the observed data. For example, the absolute fit indices (GFI = 0.929, RMR =0.025, SRMR =0.056) fell within the acceptable range, and the incremental fit indices (NFI, NNFI, CFI, IFI > 0.900) and the parsimonious fit indices (PNFI, PCFI > 0.500) further supported a good model fit. The AGFI of 0.847 further supported a good model fit. MacCallum and Hong [54] pointed out that AGFI greater than 0.800 is considered acceptable. This finding aligns with the recommendations of Bollen [57] for an acceptable model fit in an SEM analysis. Hence, based on the analysis of absolute, incremental, and parsimonious fit indices, the model demonstrates an acceptable fit that indicates a good correlation between the theoretical model and the observed data for male teachers.

Fig. (1). It can be seen that the path coefficient from career interest to career adaptability is 0.744 ($p < 0.001$), which indicates that career interest has a significant and positive influence on career adaptability for male teachers.

Table 2. Model fit indices.

-	Discriminant Item	Fit Index	Male Teacher	Female Teacher	Model Fit
Absolute Fit	GFI	>.900	.929	.931	Fit
	AGFI	>.900	.847	.851	Acceptable
	RMR	<.050	.025	.012	Fit
	SRMR	<.050	.056	.043	Acceptable
Incremental Fit	NFI	>.900	.945	.940	Fit
	NNFI(TLI)	>.900	.925	.921	Fit
	CFI	>.900	.953	.951	Fit
	RFI	>.900	.911	.904	Fit
	IFI	>.900	.954	.951	Fit
Parsimonious Fit	PNFI	>.500	.585	.582	Fit
	PGFI	>.500	.590	.589	Fit

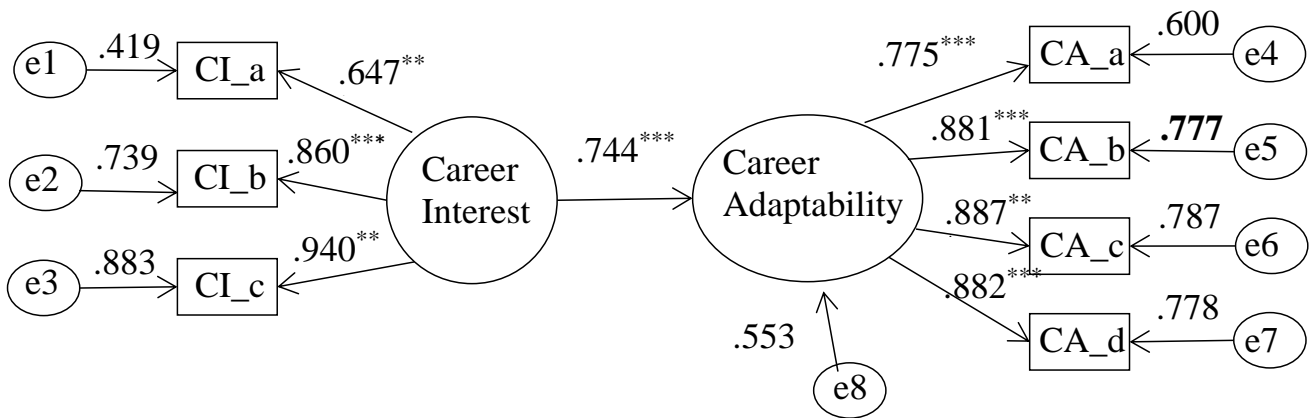


Fig. (1). SEM structural model diagram (male teachers).

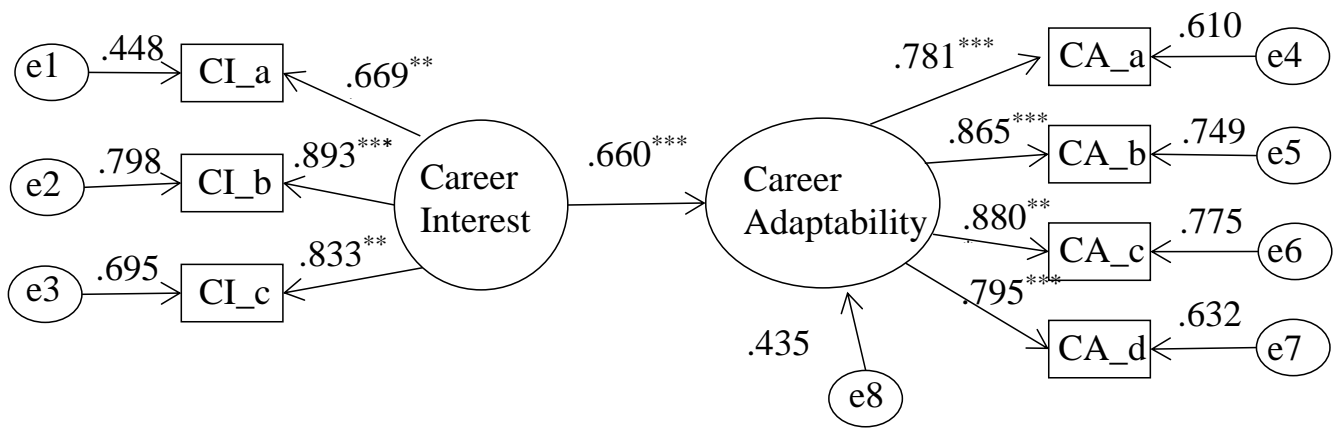


Fig. (2). SEM structural model diagram (female teachers).

4.3.2. Female Teachers

The model fit indices in Table 2 indicate a good overall model fit for female teachers, which suggests there was a good correlation between the theoretical model and the observed data. For example, the absolute fit indices (GFI = 0.931, RMR = 0.012, SRMR = 0.043) fell within the acceptable range, while several incremental fit indices (NFI, CFI, IFI > 0.900) and the AGFI of 0.851 further supported a good model fit. Moreover, MacCallum and Hong [54] suggested that AGFI greater than 0.800 is considered acceptable. The parsimonious fit indices (PNFI = 0.582, PCFI = 0.589) also surpassed the standard of 0.500, which suggested an adequate model fit. There was a satisfactory match between this theoretical framework and the criteria in the empirical study conducted by of Hair *et al.* [52].

The path coefficient linking career interest to career adaptability for female teachers was significant at 0.660 ($p < 0.001$) (Fig. 2), indicating one of the most substantial positive influences in the model. As depicted in Figs. (1

and 2), the professional interests of male and female teachers in Hebei Province have a significant and positive impact on their career adaptability, and the influence of male teachers' professional interests on their career adaptability is greater than that of female teachers.

4.3.3. Comparison of Path Relationships and Standardised Estimates for Career Interest and Career Adaptability Variables between Male and Female Teachers

As can be seen from Table 3, the path coefficient from the subject interest of male teachers to their career interest was 0.674, while it was 0.669 for females. This indicated that the explanatory power of subject interest on career interest was 0.005 higher for males. The path coefficient from teaching interest to career interest was 0.860 for males and 0.893 for females. Therefore, males had 0.033 lower explanatory power of teaching interest over career interest. The path coefficient from education interest to career interest was 0.940 for males and 0.833

Table 3. Comparison of path relationships and standardised estimates for career interest and career adaptability variables between male and female teachers.

Path Relationship	Male Teachers Standardised Estimate	Female Teachers Standardised Estimate	Difference in Standardised Estimate
Career Interest → Career Adaptability	.744	.660	+0.084
Subject Interest → Career Interest	.674	.669	+0.005
Teaching Interest → Career Interest	.860	.893	-0.033
Educational Interest → Career Interest	.940	.833	+0.107
Concern → Career Adaptability	.775	.781	-0.006
Control → Career Adaptability	.881	.865	+0.016
Curiosity → Career Adaptability	.887	.880	+0.007
Confidence → Career Adaptability	.882	.795	+0.087

for females. Hence, males had 0.107 higher explanatory power of education interest over career interest. In terms of career adaptability, the path coefficient from concern was 0.775 for males and 0.781 for females. Males had 0.006 lower explanatory power of concern over career adaptability. The path coefficient from control was 0.881 for males and 0.865 for females. Therefore, males had 0.016 lower explanatory power of control. The path coefficient from curiosity was 0.887 for males and 0.880 for females. Males had 0.007 lower explanatory power of curiosity. Finally, the path coefficient from confidence was 0.882 for males, but 0.795 for females. Males had 0.087 higher explanatory power of confidence over career adaptability. Overall, the greatest gender differences in explanatory power were for education interest in career interest and confidence in career adaptability, with males being 0.107 and 0.087 higher than females, respectively.

5. DISCUSSION

The research findings indicated that the career interest of rural male and female teachers in Hebei Province, China, had a positive impact on their career adaptability, suggesting that the stronger the career interest of primary and secondary school rural teachers, the stronger their career adaptability. This reinforces previous research by İzzet Kurbanoglu and Arslan [39], Song [37], Ramdhani *et al.* [40], and Park and Park [58], who also highlighted the crucial role of career interest in career adaptability of educators.

It was found in this study that teachers with enduring preferences for related subjects and teaching activities (*e.g.*, enjoying participating in the subject matter, helping students to develop, and cultivating learning habits) have higher readiness. They are better able to adapt to unexpected career tasks and problems (*e.g.*, preparing for the future, taking responsibility, doing work carefully, and applying their abilities). Furthermore, rural teachers in Hebei are very interested in the teaching profession, including subject and teaching interests. Faced with rural challenges like the school environment, lack of training, and poor organisation, they demonstrate strong adaptation [59]. Curiosity motivates them to explore the future, while confidence enables them to adapt to rural education. In summary, increasing career interests can enhance career adaptability for rural teachers in Hebei,

China, because their interest in the profession, subjects, and teaching helps them to positively adapt and respond to rural education demands despite the challenges involved.

The path analysis in this study revealed that career interest has a greater direct effect on career adaptability for male rural teachers in Hebei Province (0.744) than for female teachers (0.660). This difference can be partly attributed to the various motivations for career interests for each gender. Research suggests that, while male teachers tend to prioritise intrinsic factors like achievement and recognition, the female teachers in this study reported placing greater emphasis on the specific aspects of working conditions and job security offered by the educational system [60, 61]. Currently, the challenging environment, lack of resources, and low wages in the rural areas of Hebei Province result in a lack of career motivation among rural female teachers, which diminishes their professional interest and prevents them from being proactive and taking the initiative in their work as educators, thereby reducing their career adaptability [62]. However, this is not only related to career interests and the work environment of individual teachers, but it is also significantly influenced by traditional gender role constraints and the pressure and effect of the societal division of labour. From the perspective of social gender roles, specifically in the context of the workplace, the assertiveness and ambition associated with masculine traits lead male teachers to have stronger task orientation, a greater focus on task completion and problem-solving, and a stronger interest in the teaching profession [63], thereby further enhancing their career adaptability. In conclusion, in addition to the unique environment of rural education, the traditional gender division of labour and differences in gender roles, the career interest of male teachers has a greater impact on their career adaptability compared to female teachers.

Additionally, from the perspective of career interest and career adaptability dimensions, the results of the path analysis showed that within the career interest dimension, the explanatory power of educational interest for male teachers (0.940) was significantly higher than that for female teachers (0.833), with a difference of 0.107. This disparity can be attributed to the inclination of male teachers to respect the inherent nature and natural

progression of the physical and psychological development of primary and secondary school students. They focus on the overall qualities of developing students, think deeply about educational goals, appreciate the core of education, and care about the long-term growth of students. Conversely, female teachers often prioritise the academic success of primary and secondary school students but overlook the true worth of education. This observation underscores the proficiency of male teachers in educational roles and highlights their indispensable role in foundational education research within rural settings. As a result, the gender imbalance among teachers in rural Hebei, China, represents a huge loss for the education field.

Additionally, the path analysis revealed a significant disparity in the explanatory power of self-confidence in the dimension of career adaptability. Male teachers were found to exhibit considerably higher self-confidence (0.882) than their female counterparts (0.795), showing a difference of .087 points. This suggests that male teachers have a distinctive advantage over female teachers when navigating professional challenges due to their self-assurance. This disparity can be attributed partly to the inherent masculine traits often associated with male teachers, such as a strong propensity for embracing challenges and a steadfast belief in their capabilities. Based on the survey data, male teachers excel in acquiring new knowledge and demonstrate greater resilience in the face of external environmental pressures during their professional pursuits. Their steady concentration on the current task helps them to use their skills better, and this boosts their confidence in facing career challenges.

In summary, an important finding of this study is that when enhancing career adaptability by improving the career interest of rural teachers, it is essential to consider the gender differences between male and female teachers [64]. This recognition is based on the different work and social demands of female teachers in rural education. In contrast, following the traditional social norms, male teachers often have more career expectations and support. These factors greatly affect how male and female educators behave and work, influencing their passion for teaching and their ability to adapt in their careers. Further, this could hinder the progress of rural education. Therefore, it is crucial to consider gender differences in education in order to enhance the career adaptability of teachers while fostering their career interests.

CONCLUSION

Among the rural teachers in Hebei Province, China, both male and female teachers' career interests have a positive impact on career adaptability. However, it is noteworthy that the influence of male teachers' career interests on career adaptability is significantly greater than that of female teachers. In the specific dimension of professional interests, male teachers demonstrate a higher interest in the field of education, which is significantly higher than that of female teachers. Meanwhile, in the confidence dimension of career adaptability, male

teachers also exhibit more pronounced self-confidence, scoring higher than female teachers in this aspect. These findings not only reveal the important role of gender differences in the professional development of rural teachers but also provide a new perspective for us to understand and support their professional development.

RECOMMENDATIONS

The findings of this study demonstrate that the career interest of rural teachers in Hebei, China, has a positive impact on their career adaptability due to gender differences. These findings offer valuable practical guidance for enhancing the construction of rural teacher teams.

Firstly, rural primary and secondary school teachers should move beyond a binary mindset, rethink their views of gender, and find suitable roles for themselves. Male teachers should acknowledge their significance in primary and secondary education, affirming the strengths of masculine qualities, such as willingness to take on challenges and unwavering self-belief. They should actively create favourable conditions for their own development and face the various pressures and tests from society and family with a proactive mindset. Female teachers should fully appreciate the positive qualities they bring to their teaching, such as patience and gentleness, prioritise the holistic development of students, actively engage in teacher training, and fully tap into their potential, thereby fostering the awakening of female self-awareness. Therefore, we need to consider gender characteristics in order to promote the sustainable development of teachers.

Secondly, In advancing gender equality, administrators of rural schools should fully acknowledge and respect the differences in career interests and adaptability among different genders. They should encourage teachers of various genders to leverage their respective strengths and potentials by providing equal professional opportunities and resources. Additionally, they should create a suitable working environment with conditions for rural teachers and closely monitor their career adaptation status. Specifically, timely humanistic care should be extended to female teachers to fully motivate their autonomy, initiative, and creativity. Furthermore, the enhancement of their subject expertise and educational knowledge will cultivate stable and enduring career interests, ultimately improving their career adaptability.

Thirdly, from the perspective of long-term and sustainable career development, both male and female teachers need a deep understanding of their career interests and work environment. They should be able to clearly recognise the relationship between their career motivation, career interests, personal hobbies, temperament type, and the teaching profession. Similarly, they should integrate their career interests, including subject-specific interests, passion for education and enthusiasm for teaching, into the educational and teaching process to establish a strong foundation for their teaching activities. By doing so, they can overcome challenges in

the rural educational environment and enhance their career adaptability.

In conclusion, career interest serves as a motivational factor in the educational and teaching endeavours of teachers, empowering them with psychological resources and enhancing their career adaptability [10]. Hence, it is crucial to focus on stimulating, maintaining and developing the career interests of primary and secondary school teachers in Hebei Province. This includes cultivating subject-specific interests and a passion for education and teaching. By effectively guiding the career activities of individuals, the career adaptability of rural teachers can be elevated, the career sustainability of the teaching profession can be achieved, and the quality of rural education can be improved, thereby contributing to efforts to alleviate poverty during the process of rural revitalisation.

LIMITATIONS

This study was based on a quantitative analysis. Subsequent researchers could embrace a mixed-methods methodology, integrating both qualitative and quantitative analyses, and assimilating interview data. More detailed and profound insights can be gleaned from the acquisition of data *via* interviews, fostering a deeper comprehension of facets pertaining to nurturing the career interests of male and female rural elementary and high school teachers, as well as tactics to bolster their career adaptability.

AUTHORS' CONTRIBUTIONS

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

LIST OF ABBREVIATIONS

CR = Composite Reliability
CAAS-SF = Career adapt-abilities scale-short form

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The research ethics committee at Dhurakij Pundit University (DPU_BSH 110866/2565) approved the study.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all primary and secondary school teachers participating in the study before the questionnaire survey.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

All the data and supporting information are provided within the article.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest financial or otherwise.

ACKNOWLEDGEMENTS

Declared none.

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