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The Impact of Teacher Professional Development Activities on Teacher Job Satisfaction: An Empirical Analysis Based on TALIS 2018 Shanghai Teacher Data

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Abstract

Based on the survey data of teachers in Shanghai, China in TALIS 2018, this study used the hierarchical linear regression method to explore the relationship between the three characteristics of teacher professional development activities, namely, form, theme, and participation support, and teacher satisfaction. The results showed that among the forms of professional development activities, observation visits to corporate sites, public institutions, or non-governmental organizations had a significant positive impact on teacher job satisfaction; among the themes of professional development activities, professional development activities with themes such as student assessment practice, school management and administration, and interdisciplinary skills significantly affected teacher job satisfaction; among the professional development support, non-material professional support significantly affected teacher job satisfaction.

Keywords

1. Research Background and Issues

1.1. Background of the Study

In the tide of education reform in the new era, the construction and development of the teaching staff has been placed in an unprecedentedly important position. The Opinions on Comprehensively Deepening the Reform of Teacher

Team Construction in the New Era clearly proposed the goal of achieving a sense of happiness in teachers' positions by 2035, making respect for teachers and valuing education a common practice, so that teachers can feel happy in their positions, have a sense of achievement in their careers, and have a sense of honor in society, and teachers can become an enviable profession. The realization of this goal is not only related to the career development and quality of life of teachers, but also to the quality of education and the future development of the country. In order to run education that satisfies the people, in addition to cultivating teachers who "satisfy" students and parents, it is actually necessary to work hard to create a working environment and professional atmosphere that "satisfies" the teaching group (Chen, 2017). Job satisfaction, as an important indicator reflecting teachers' professional qualities, directly affects teachers' work enthusiasm and professional development motivation (Kang & Mavrogordato, 2023); it is not only a key indicator reflecting teachers' professional happiness index, but also an important basis for measuring school management effectiveness (Wei et al., 2021). Teachers with low job satisfaction may experience occupational burnout, which affects teaching quality and causes high turnover rate (Qiu, 2018). However, improving teachers' job satisfaction is not achieved overnight. Improving teacher satisfaction requires systematic reform and multi-faceted support.

Professional development is an indispensable factor affecting teachers' professional identity. Smet (2021) believes that teacher professional development is an important way to improve teachers' job satisfaction. Research shows that high-quality teacher professional development can bring positive developmental changes in teaching practice by using key features, which can improve teachers' satisfaction with their profession and the school they work in (Wang, Li, & Luo, 2019). For example, research has found that effective teacher professional development can improve teachers' emotional commitment levels, thereby promoting teacher job satisfaction (Grinshtain, Avidov Ungar, & Barenboim, 2023); involving professional development activities in the fields of multicultural education and STEM. It has a significant positive effect on teachers' job satisfaction (Zhou et al., 2023). However, from the current research, it can be found that scholars mainly focus on the impact of teacher professional development activities as a whole or exploring a certain factor on teachers' job satisfaction. There is a lack of systematic analysis of the impact of specific factors such as the form, content, and participation support of professional development activities, as well as empirical analysis based on rigorous research design and large sample data.

1.2. Research Questions

By fully and deeply understanding the impact of teachers' professional development on job satisfaction, we can provide an empirical basis for education reform and teacher team building, and promote the comprehensive development of education. The Teaching and Learning International Survey (TALIS) test under the framework of the Organization for Economic Cooperation and Development

(OECD) further refines professional development activities, allowing us to explore how teachers' professional development activities affect teachers' job satisfaction based on big data comparison. In view of the above problems, this study selected TALIS 2018 Shanghai teacher data, and explored the impact of factors in these three characteristics of teachers' professional development activities on teachers' job satisfaction by analyzing the relationship between the three characteristics of teachers' professional development activities, namely, form, theme and participation support, and teachers' satisfaction. In theory, it is expected to provide empirical evidence for the design and arrangement of teachers' professional development activities; in practice, it is expected to provide a reference for the implementation path of professional development activities to improve teachers' job satisfaction and strengthen the construction of the teacher team in the new era.

2. Literature Review

2.1. The Connotation of Teachers' Professional Development

Teacher professional development refers to the activities and processes that improve the professional knowledge, skills and attitudes of educators (Guskey, 2000), and is an important part of the career development of teachers (Wu & Liu, 2023). This process not only includes the acquisition of individual knowledge, skills and emotional development of teachers, but also involves moral and political factors in broader contexts such as schools and society (Lu & Zhong, 2006). Teacher professional development helps teachers feel professional growth and self-realization by providing them with continuous learning opportunities and professional development support conditions, thereby enhancing their satisfaction with their educational work. In terms of the impact on individual teachers, research shows that formal structured professional development activities are more effective than informal activities in the overall impact on teaching quality (Li & Wang, 2023); high-quality teacher professional development activities can enhance teachers' sense of self-efficacy (Khumwong et al., 2017), and the social support felt by teachers in professional development activities also has a positive impact on their sense of self-efficacy (Chung & Chen, 2018). In terms of the impact on teaching effectiveness, research has confirmed that the degree to which teachers participate in teaching and research activities has a significant positive impact on student performance, especially teaching and research activities that focus on subject curriculum content (Wei, 2021). Through a comprehensive analysis of relevant studies, it can be concluded that specific types of teacher professional development activities have significant positive effects on teachers' personal qualities and teaching effectiveness. These activities not only directly affect teachers' professional skills and teaching methods, but also indirectly promote the improvement of students' learning outcomes.

2.2. Factors Affecting Teachers' Job Satisfaction

Teacher job satisfaction is an emotional psychological experience and cognition

of teachers towards their work and working conditions and conditions. It is an indicator for individuals to prove the value of their work by evaluating their own work achievements (Li, Dou, & Ren, 2021). Teacher job satisfaction is affected by many factors. At present, the research on the factors affecting satisfaction mainly focuses on work environment, salary and benefits, support from school leaders and colleagues, etc. In terms of work environment, a positive and supportive work atmosphere can significantly improve teacher satisfaction (Harahap & Suriransyah, 2019). Salary and benefits, as basic material incentives, have an important impact on teacher satisfaction, but Demir-Yıldız (2023) found that when basic needs are met, non-material factors such as career growth and work achievement are more critical to improving teacher satisfaction. Teachers' work autonomy and degree of participation in decision-making are considered important factors affecting job satisfaction (Li, Xue, & Liu, 2024). When teachers feel that their professional opinions are valued, they can make more comments on teaching content and methods. Their job satisfaction will be improved when making decisions (Meng, Liu, & Song, 2018). Support from school leaders (Gong, 2023) and cooperative relationships among colleagues (Wolomasia et al., 2019) are also key factors affecting teacher satisfaction. Research has found that effective school leaders can improve teacher satisfaction by clarifying school vision, providing teaching resources and feedback, and promoting cooperation among teachers (Hao & Huang, 2023).

Through these studies, we can draw some inspirations, such as non-material incentives in teacher professional development may also have a positive impact on job satisfaction, and the autonomy of teacher professional development activities will also improve teacher job satisfaction. This can help us better understand and grasp the intrinsic connection between professional development activities and job satisfaction.

3. Research Design

3.1. Data Sources

TALIS is the first large-scale international teacher survey conducted by the OECD, covering a variety of topics such as teacher professional characteristics and teacher teaching practices. This project focuses on the professional development, teaching practices and education policies of teachers and school leaders, and aims to evaluate and compare the education systems of different countries and economies by collecting and analyzing data. Given that Shanghai has performed well in the Program for International Student Assessment (PISA) and the TALIS, and that Shanghai has long been at the center and forefront of China's education reform, the data of this group is representative and forward-looking for Chinese teachers, and can reflect the characteristic trends of teaching autonomy and classroom teaching quality to a large extent (Lin & Zhou, 2022). Therefore, this study is based on the data of the 2018 Teacher Teaching and Learning International Survey (TALIS 2018) and selects the sampling data re-

sults of teachers in Shanghai, China for data analysis.

3.2. Variable Measurement

1) Independent variable

This study uses the form, theme, and participation support of professional development activities as independent variables. The form of given professional development activities includes 9 items such as online training, education expert forums, qualification certification projects, and reading professional literature. The observed variable corresponding to each item is regarded as an independent variable. The theme of given professional development activities includes 14 items such as ICT teaching skills, teaching of personalized learning, teaching of students with special needs, and cooperation between teachers and parents. The participation support of given professional development activities includes 8 items such as reimbursement of training expenses, mentor guidance, and non-material rewards. The above three types of items are all collected through 2-point scoring, where 1 represents "yes" and 2 represents "no". Therefore, the lower the score on the form and theme of teacher professional development activities, the more fully the teacher participates in professional development activities.

In addition to professional development activities, factors related to individual teachers, school conditions, and social levels also affect teacher job satisfaction. For example, teacher gender, education level, school conditions, and teacher job development opportunities all have an impact on teacher job satisfaction. In order to eliminate the interference of irrelevant variables as much as possible when exploring the relationship between professional development activities and teacher job satisfaction, this study selected teachers' gender and education level as control variables.

2) Dependent variable

In the study of teacher job satisfaction, the dependent variable was constructed into two dimensions, including two subscales: work environment satisfaction and professional satisfaction. Both subscales are composite variables and are assessed at the individual teacher level. Work environment satisfaction consists of five options: a) If possible, I would like to change to another school, b) I like working in this school, c) I would recommend this school as a good place to work, d) Overall, I am satisfied with my job, and e) I am satisfied with my performance in this school. Professional satisfaction also consists of five items: a) The advantages of being a teacher outweigh the disadvantages, b) If I could do it again, I would still choose to be a teacher, c) I regret my decision to become a teacher, d) I wonder if it would be better to choose another profession, and e) I think the teaching profession is valued in society. These items are measured using a 4-point Likert scale, where 1 represents "strongly disagree" and 4 represents "strongly agree."

First, correlation analysis was performed on the control variables, indepen-

dent variables and dependent variables. The results are shown in Table 1. There is a significant correlation between the control variables and the dependent variables, and there is a significant correlation between the independent variables and the dependent variables. This provides feasibility for researchers to use the above variables to establish a regression model.

Table 1. The mean, standard deviation and correlation coefficient of each variable.

Variable	Average (Standard Deviation)	1	2	3	4	5	6	7	8
Gender	1.260 (0.439)	1							
Education	5.120 (0.353)	−0.111**	1						
Professional development activity form	13.523 (1.992)	−0.031	−0.072**	1					
Professional development activity theme	20.127 (3.355)	−0.028	0.012	0.535**	1				
Professional development event support	14.014 (2.141)	−0.090**	−0.105**	0.350**	0.340**	1			
Working environment Satisfaction	14.120 (1.769)	0.035*	−0.010	−0.173**	−0.189**	−0.167**	1		
Professional satisfaction	12.564 (1.747)	0.015	0.008	−0.095**	−0.143**	−0.160**	0.429**	1	
Overall satisfaction	26.686 (2.888)	0.031	−0.002	−0.159**	−0.197**	−0.193**	0.857**	0.833**	1

Note: $^*p < 0.05$, $^{**}p < 0.01$, gender variable "1" represents female, education variable "5" represents undergraduate level of higher education.

3.3. Data Analysis Methods

From Based on the TALIS education measurement and evaluation framework, this study used SPSS 27.0 software and systematically explored the influence of three types of variables of professional development activities on teachers' job satisfaction and its two dimensions by controlling the two key variables of teachers' gender and education level through hierarchical linear regression method. In order to ensure the comprehensiveness and in-depth nature of the study, this study conducted hierarchical regression analysis on each type of professional development activity variable and each teacher satisfaction variable one by one, for a total of nine times. In the constructed regression model, we paid

special attention to the standardized regression coefficient β of the independent variable. The absolute value of β directly reflects the intensity of the independent variable's influence on the dependent variable and its ability to explain the variation of the dependent variable. Although the β values of the three types of professional development independent variables are negative due to the value setting (1 represents "yes" and 2 represents "no"), this does not prevent us from accurately judging their influence. The absolute size of the β value is always an important criterion for measuring the influence of independent variables. At the same time, the study also conducted a strict inspection of the variance inflation factor (VIF) in the model. In this study, the VIF values of all regression models were lower than 10, which indicated that our model was reasonable in variable selection and did not have linear overlap problems, thus ensuring the robustness of the model and the reliability of the results.

4. Research Results and Discussion

4.1. The Impact of Professional Development Activity Forms on Teachers' Job Satisfaction and Its Two Dimensions

Table 2 lists three sets of regression models on professional development activity forms and teacher job satisfaction. From a horizontal perspective, among the given professional development activity forms, observation visits to corporate sites, public institutions or non-governmental organizations have a significant impact on work environment, professionalism and overall satisfaction ($β = -0.355$, $p < 0.01$; $β = -0.283$, $p < 0.01$; $β = -0.636$, $p < 0.01$); however, other professional development activity forms have no significant impact on teacher job satisfaction and its two dimensions ($p > 0.05$).

From a longitudinal perspective, the data from Model 1 show that the form of professional development activities that has the greatest impact on work environment satisfaction is peer or self-observation and coaching as part of the school's formal arrangements ($β = -0.58$, $p < 0.01$). Ganguly (2020) believes that in-depth professional cooperation is an effective way for teachers to develop professionally, and self-observation and coaching among peers show a strong effect size in teachers' professional development activities. The data from Model 3 show that, in addition to observation visits to corporate sites, public institutions or non-governmental organizations ($β = -0.636$, $p < 0.01$), the form of professional development activities that has the greatest impact on overall satisfaction is peer or self-observation and mentoring as part of the school's formal arrangements ($β = -0.595$, $p < 0.05$). Previous studies have lacked research on the impact of collaboration among teachers on teacher job satisfaction. Peer observation and coaching as collaborative professional development activities will increase and promote teachers' teaching practices, and will also increase teachers' systematic sharing of experience and expertise in the development community. This study fills the gap in this type of question and answers the impact of collaborative learning among teachers on their job satisfaction.

Table 2. Regression analysis of the forms of professional development activities that teachers participate in and their job satisfaction.

Independent variable	Working environment satisfaction model 1	Professional satisfaction model 2	Overall satisfaction model 3
Intercept	15.93	13.746	29.598**
Genders	0.142	0.089	0.237
Education	−0.03	−0.007	−0.028
a) In-person courses/workshops	0.053	0.021	0.088
b) Online courses/workshops	−0.04	−0.187	−0.226
c) Teachers and/or researchers present their research educational conferences to discuss educational issues	0.016	−0.002	0.016
d) Formal qualification programmes (e.g. degree courses)	−0.278	0.16	−0.108
e) Observation visits to other schools	−0.031	−0.262	−0.3
f) Observation visits to business premises, public institutions or non-governmental organizations	−0.355**	−0.283**	−0.636**
g) Peer and self-observation and coaching as part of the formal school arrangement	−0.58**	−0.01	−0.595*
h) Participate in teacher networks formed specifically for teacher professional development	−0.204	−0.046	−0.251
i) Read professional literature	0.032	−0.078	−0.043
j) Others	−0.146	−0.228*	−0.372*
F	5.777	3.516	5.637
Adjusted R^2	.030	.016	0.029
DW	1.934	1.973	1.937

Note: *$p < 0.05$, **$p < 0.01$, gender variable "1" represents female, education variable "5" represents undergraduate level of higher education.

4.2. The Impact of Professional Development Activity Themes on Teachers' Job Satisfaction and Its Two Dimensions

Table 3 lists three sets of regression models on professional development activity themes and teacher job satisfaction. From a horizontal perspective, in a given professional development activity theme, student evaluation practice has a significant impact on work environment satisfaction, professional satisfaction, and overall satisfaction ($\beta = -0.321$, $p < 0.001$; $\beta = -0.198$, $p < 0.05$; $\beta = -0.520$, $p < 0.01$), school management and administration have a significant impact on work environment satisfaction, professional satisfaction, and overall satisfaction ($\beta = -0.204$, $p < 0.01$; $\beta = -0.185$, $p < 0.01$; $\beta = -0.391$, $p < 0.01$); "teaching interdis-

ciplinary skills (such as creativity, critical thinking, problem solving) has a significant positive impact on work environment satisfaction, professional satisfaction, and overall satisfaction (β = −0.232, $p < 0.01$; β = −0.286, $p < 0.01$; β = −0.519, $p < 0.01$). However, "teaching ability to teach my subject area", "analysis and use of student assessments", "course knowledge", "teaching in a multicultural or multilingual environment", and "teacher-parent/guardian collaboration" have no direct and significant effects on overall job satisfaction and its two dimensions ($p > 0.05$). From a longitudinal perspective, the data of Model 4 shows that in addition to the above three characteristics, the "personalized learning method"

Table 3. Regression analysis of the topics of professional development activities in which teachers participated and their job satisfaction.

Independent variable	Working environment satisfaction model 4	Professional satisfaction model 5	Overall satisfaction model 6
Intercept	16.592	13.315	29.865
Genders	0.092	0.033	0.126
Education	−0.062	0.007	−0.051
a) Knowledge and understanding of my subject area	−0.347	0.189	−0.158
b) Teaching ability to teach my subject area	0.08	0.462	0.536
c) Course knowledge	−0.126	−0.209	−0.317
d) Student Assessment Practice	−0.321***	−0.198*	−0.520**
e) ICT skills in teaching	−0.11	0.150*	0.039
f) Student Behavior and Classroom Management	−0.139	−0.202*	−0.340*
g) School Management and Administration	−0.204**	−0.185**	−0.391**
h) Personalized learning methods	−0.203*	−0.018	−0.223
i) Teaching students with special needs	−0.023	−0.076	−0.093
j) Teaching in a multicultural or multilingual environment	0.058	−0.057	−0.002
k) Teach interdisciplinary skills such as creativity, critical thinking, problem solving	−0.232**	−0.286**	−0.519**
l) Analysis and use of student assessments	0.044	0.049	0.093
m) Teacher-Parent/Guardian Collaboration	0.078	−0.045	0.028
n) Communicate with people from different cultures or countries	−0.21*	−0.028	−0.231
o) Others	−0.083	0.009	−0.07
F	10.267	7.000	11.024
Adjusted R^2	0.040	0.026	0.043
DW	1.905	1.980	1.915

Note: *$p < 0.05$, **$p < 0.01$, gender variable "1" represents female, education variable "5" represents undergraduate level of higher education.

also has a significant positive impact on work environment satisfaction (β = −0.203, $p < 0.05$); Model 5 and 6 The data show that in addition to the above three characteristics, professional development activities with the theme of "student behavior and classroom management" have a significant impact on both professional satisfaction and overall satisfaction (β = −0.202, $p < 0.05$; β = −0.340, $p < 0.05$).

4.3. The Impact of Professional Development Support on Teachers' Job Satisfaction and Its Two Dimensions

Table 4 lists three sets of regression models on support for professional development activities and teacher job satisfaction. From a horizontal perspective, in the given support for professional development activities, "non-material career benefits (such as meeting professional development requirements and improving promotion opportunities)" have a significant positive impact on work environment satisfaction, professional satisfaction, and overall satisfaction (β = −0.329, $p < 0.01$; β = −0.273, $p < 0.01$; β = −0.591, $p < 0.01$). Previous studies have also shown that teacher job satisfaction is more affected by the internal aspects of teaching, such as teacher-student interaction, student achievement, and harmonious interpersonal relationships, rather than external aspects such as teacher salary, which is consistent with previous research conclusions. However, "exemption from teaching duties when conducting activities during normal working hours", "reimbursement or payment of expenses", "non-material rewards (such as classroom resources/materials, book vouchers, software/applications)", and "salary increase" have no direct and significant positive effects on teacher overall satisfaction and the two dimensions ($p > 0.05$).

From a longitudinal perspective, the data of Models 7 and 9 show that, in addition to non-material career benefits, the support characteristics of professional development activities that have the greatest impact on work environment satisfaction and overall satisfaction are "materials required for activities" (β = −0.317, $p < 0.01$; β = −0.547; $p < 0.01$). The data of models 8 and 9 show that "material allowances for activities outside working hours" have a significant positive impact on professional satisfaction and overall satisfaction (β = −0.166, $p < 0.05$; β = −0.291, $p < 0.05$).

Table 4. Regression analysis of teachers' support for professional development activities and job satisfaction.

Independent variable	Working environment satisfaction model 7	Professional satisfaction model 8	Overall satisfaction model 9
Intercept	16.635	14.592	31.175
Genders	0.066	−0.012	0.057
Education	−0.160*	−0.065	−0.221
a) Exemption from teaching duties when activities are conducted during normal working hours	−0.029	−0.08	−0.106

Continued

b) Material support for activities outside working hours (e.g. reduced teaching time, vacation, study leave)	−0.188	−0.149	−0.327*
c) Reimbursement or payment of expenses	0.149	0.059	0.216
d) Materials required for the activity	−0.317**	−0.226	−0.547**
e) Material allowances for activities outside working hours	−0.126	−0.166*	−0.291*
f) Non-material rewards (e.g. classroom resources/materials, book vouchers, software/apps)	−0.133	−0.013	−0.159
g) Non-material career benefits (e.g., meeting professional development requirements, improving promotion opportunities)	−0.329**	−0.273**	−0.591**
h) Salary increase	−0.062	−0.114	−0.179
F	13.937	11.264	17.434
Adjusted R^2	0.033	0.026	0.041
DW	1.911	1.974	1.909

Note: $*p < 0.05$, $**p < 0.01$, gender variable "1" represents female, education variable "5" represents undergraduate level of higher education.

5. Conclusion and Recommendations

5.1. Analysis Conclusion

1) Activity form and satisfaction: the positive effects of observation visits

From the perspective of professional development activities, observation visits, as a unique form of activity, significantly improve teachers' satisfaction with their work environment, profession and overall satisfaction. Observation visits give teachers the opportunity to communicate with experts in different fields, gain new perspectives and inspiration, so that when they return to their teaching positions, they can teach in a more innovative and effective way. This immersive learning experience not only broadens their horizons, but also deepens their understanding and reflection on educational practice. By enhancing teachers' confidence in professional growth and career development, their job satisfaction is improved.

2) Topic selection and satisfaction: the positive effects of interdisciplinary skills

In terms of the topic selection of professional development activities, we found that student assessment practices and school management and administration topics had a negative impact on teachers' job satisfaction. This is because these topics may not be closely related to teachers' core teaching tasks or may not match their professional interests. In contrast, topics involving interdisciplinary skills, such as creativity, critical thinking, and problem solving, can stimulate

teachers' professional interests and enthusiasm and improve their job satisfaction. These topics are closely related to teachers' daily work and can help them more effectively cope with challenges in teaching and improve the quality of teaching. In addition, professional development activities have also shown positive effects in deepening teachers' mastery of subject knowledge and improving teaching skills, which are important factors in improving teachers' job satisfaction.

3) Support resources and satisfaction: the importance of non-material incentives

From the perspective of support for teachers' professional development, non-material incentives, such as meeting professional development requirements, providing promotion opportunities, and recognizing teachers' work, can significantly improve teachers' satisfaction. These non-material incentives meet teachers' needs for professional growth and personal achievement, and enhance their sense of professional belonging and pride. In contrast, pure economic incentives, such as expense reimbursement or payment, often fail to touch teachers' core needs and may sometimes even cause dissatisfaction or misunderstanding. Material support provided in professional development activities, such as teaching resources, research materials, and professional tools, is essential for teachers' professional growth. These resources not only help teachers improve their teaching efficiency, but also provide them with opportunities to explore new teaching methods and strategies. In addition, the provision of decision-making resources, such as the opportunity to participate in school management decisions, can make teachers feel that their opinions and expertise are valued, thereby further improving their job satisfaction.

5.2. Research Recommendations

1) Practice-oriented: Activity design to stimulate teachers' professional growth

In order to promote the professional growth of teachers, schools need to carefully plan a series of activities that are closely linked to the real working environment, including field trips to enterprises, public institutions and non-governmental organizations. In these comprehensive practical activities, in-depth dialogues between teachers and students, schools and parents not only promote teachers' self-reflection, but also help to shape their firm professional beliefs (Xue & Li, 2019). These activities can not only help teachers gain valuable on-site experience, but also deepen their understanding and knowledge of the education profession. In this way, teachers can more intuitively understand the connection between educational practice and the real world, realize the mutual transformation of theoretical knowledge and practical knowledge (Zuo, 2016), and thus enhance teachers' job satisfaction.

2) Diverse choices: customized professional development paths for teachers

It is recommended to reduce topics that may have a negative impact on teacher satisfaction, such as student assessment practices and school manage-

ment and administration. Teachers should actively communicate and share through multi-dimensional innovative practices, transforming personal teaching experience into collective wisdom, so as to achieve comprehensive improvement of their professional capabilities (Yang, 2018). Topics that can stimulate teachers' interest and enthusiasm should be increased, such as the cultivation of interdisciplinary skills, including creativity, critical thinking and problem solving. In addition, professional development activities should also focus on improving teachers' in-depth understanding of the subject area and teaching ability, which can not only enrich teachers' professional knowledge, but also improve the effectiveness of their teaching practice. Training plans for teachers should be targeted and situational to meet the real development needs of teachers (Li, 2017).

3) Resources and incentives: building a solid foundation for teachers' professional development

Non-material incentives, such as meeting the intrinsic needs of teachers' professional growth and providing promotion opportunities, have been shown to have a significant positive impact on improving teachers' job satisfaction. Therefore, schools and educational institutions should explore and develop more such incentives to stimulate teachers' enthusiasm and loyalty. At the same time, excessive reliance on financial incentives, such as expense reimbursement or payment, should be avoided, as these measures may not bring the expected positive effects and may even have negative effects. On the contrary, by providing sufficient teaching resources and materials, teachers' professional growth can be supported and teaching effectiveness can be improved. Explore the driving effect of preferential compensation or professional development opportunities on teachers, use honorary titles as a teacher motivation tool, and stimulate the professional development vitality of the teaching staff (Chen & Fan, 2022).

4) Comprehensive considerations: a comprehensive plan for teachers' professional development

It is important to note that when planning and implementing teacher professional development programs, the diversity and complexity of the educational environment must be fully assessed. In addition to the needs of education itself, many other factors, such as student needs and feedback, school culture and values, and evaluation and feedback mechanisms, also have a significant impact on the effectiveness of the project. Therefore, when formulating relevant plans, these key factors should be taken into consideration to ensure that the project can fully and effectively meet the needs of teacher development. For teachers, a stable and promising career development path, a positive impact on the next generation, job stability, and contribution to society constitute the four core driving forces of their career choices. Viewing the construction of the teaching team with diverse motivations for teaching, providing opportunities and platforms for teachers' professional development, and making teaching a truly enviable profession.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Chen, C. (2017). An Empirical Study on the Factors Affecting Job Satisfaction of Middle School Teachers: An Analysis Based on PISA 2015 Teacher Survey Data. *Teacher Education Research, No. 2,* 84-91+41.

Chen, J., & Fan, Y. (2022). Can Rotation Exchange Policy Promote Teachers' Professional Development?—An Empirical Investigation Based on Six Provinces and Cities in the East, Middle and West. *Teacher Education Research, No. 3,* 91-99+128.

Chung, T., & Chen, Y. (2018). Exchanging Social Support on Online Teacher Groups: Relation to Teacher Self-Efficacy. *Telematics and Informatics, 35,* 1542-1552. https://doi.org/10.1016/j.tele.2018.03.022

Demir-Yıldız, C. (2023). Unveiling Job Satisfaction of Teachers through a Blend of Methodologies. *Sustainability, 15,* Article No. 13986. https://doi.org/10.3390/su151813986

Ganguly, R. (2020). *Reflection on the Roles of Instructional Leaders within Schools and Instructional Leaders in the Districts.*

Gong, J. (2023). The Impact of Distributed Leadership on Teacher Job Satisfaction: The Mediating Role of Teacher Collaboration and Teacher Self-Efficacy—Based on TALIS 2018 Shanghai Teacher Data. *Global Education Outlook, No. 5,* 105-118.

Grinshtain, Y., Avidov Ungar, O., & Barenboim, E. (2023). Job Satisfaction and Professional Development among Teachers Working under Two Parallel Top-Down Reforms. *Teacher Development, 27,* 214-233. https://doi.org/10.1080/13664530.2023.2169748

Guskey, T. R. (2000). *Evaluating Professional Development.* Corwin Press.

Hao, Y., & Huang, X. (2023). The Impact of Principals' Teaching Leadership on Teachers' Job Satisfaction and Its Mechanism: An Analysis Based on the Chain Mediation Model. *Contemporary Education Forum, No. 6,* 40-49.

Harahap, M. E., &Suriransyah, A. (2019). Relationship of Instructional Leadership, Organizational Climate and Teacher's Commitment to Job Satisfaction. *Journal of K6 Education and Management, 4,* 260-270.

Kang, H., & Mavrogordato, M. (2023). Examining the Relationship between Multiple Facets of Professional Development and Teacher Job Satisfaction in the United States. *Educational Studies.* https://doi.org/10.1080/03055698.2023.2256921

Li, G. (2017). What Kind of Training Do Teachers Need under the New Normal? Questioning and Thinking Based on the Logical Starting Point of Teacher Professional Development. *Primary and Secondary School Management, No. 6,* 23-25.

Li, J., Xue, E., & Liu, Y. (2024). The Chain Mediating Role of Teachers' Job Stress in the Influence of Distributed School Leadership on Job Satisfaction: Evidence from China, the United States, England, and Australia. *Behavioral Sciences, 14,* Article No. 279. https://doi.org/10.3390/bs14040279

Li, S., Dou, Z., & Ren, P. (2021). The Relationship between Distributed Leadership and Teacher Job Satisfaction: The Mediating Role of Teacher Cooperation and Teacher Professional Development—Based on TALIS2013 Shanghai Teacher Data. *Teacher Education Research, No. 4,* 44-50+75.

Li, Y., & Wang, M. (2023). Can Participating in Professional Development Activities Help Teachers in Weak Compulsory Education Schools "Teach Better"? A Quasi-Natural Experimental Study Based on a Survey of 202 Weak Compulsory Education Schools in X City. *Journal of Education, No. 5,* 130-144.

Lin, Q., & Zhou, B. (2022). Does Increasing Teachers' Teaching Autonomy Help Improve Classroom Teaching Quality? An International Comparison and Local Analysis Based on TALIS 2018. *Journal of Educational Science of Hunan Normal University, No. 2,*

41-51.

Lu, N., & Zhong, Y. (2006). Teacher Professional Development in an International Perspective. *Comparative Education Research, No. 2,* 71-76.

Meng, J., Liu, S., & Song, T. (2018). Facilitator or Hindrance: An Empirical Study on the Impact of School Organizational Structure on Teacher Job Satisfaction. *Modern Education Management, No. 12,* 79-84.

Pinit Khumwong, C., ChaninanPruekpramool, P., & Nason Phonphok, N. (2017). The Impact of STEM Education Professional Development Workshop on Secondary Teachers' STEM Teaching Efficacy. *Journal of Education, Mahasarakham University, No. 3,* 108-121.

Qiu, H. (2018). Research on the Burnout of High School Teachers Based on Teacher Professional Development. *Open Journal of Social Sciences, 6,* 219-229. https://doi.org/10.4236/jss.2018.612019

Smet, M. (2021). Professional Development and Teacher Job Satisfaction: Evidence from a Multilevel Model. *Mathematics, 10,* Article No. 51. https://doi.org/10.3390/math10010051

Wang, K., Li, Y., Luo, W., & Zhang, S. (2019). Selected Factors Contributing to Teacher Job Satisfaction: A Quantitative Investigation Using 2013 TALIS Data. *Leadership and Policy in Schools, 19,* 512-532. https://doi.org/10.1080/15700763.2019.1586963

Wei, X., Qian, X., & Su, N. (2021). Research on Factors Affecting Job Satisfaction of Junior High School Teachers in Shanghai. *Global Education Outlook, No. 9,* 92-107.

Wei, Y. (2021). An Empirical Study on the Impact of Teachers' Participation in Professional Development Activities on Students' Academic Performance: An Analysis Based on High School Students in Beijing. *Education and Economy, No. 1,* 74-82+96.

Wolomasi, A. K., Asaloei, S. I., & Werang, B. R. (2019). Job Satisfaction and Performance of Elementary School Teachers. *International Journal of Evaluation and Research in Education (IJERE), 8,* Article No. 575. https://doi.org/10.11591/ijere.v8i4.20264

Wu, J., & Liu, Z. (2023). Practical Paths and Experience Enlightenment of Faculty Team Building in World Top Universities—An Analytical Framework Based on "Concept-System-Technology". *Journal of Zhejiang University (Humanities and Social Sciences), No. 12,* 118-130.

Xue, H., & Li, C. (2019). The Value and Cultivation of Teachers' Beliefs in Comprehensive Practical Activities. *Teaching and Management, No. 24,* 14-16.

Yang, M. (2018). Construction of a Professional Development Model for Science Teachers Based on the Generation of Scientific Creativity. *Teaching and Management, No. 33,* 56-58.

Zhou, X., Padrón, Y., Waxman, H. C., Baek, E., & Acosta, S. (2023). How Do School Climate and Professional Development in Multicultural Education Impact Job Satisfaction and Teaching Efficacy for STEM Teachers of English Learners? A Path-Analysis. *International Journal of Science and Mathematics Education, 22,* 447-468. https://doi.org/10.1007/s10763-023-10381-y

Zuo, L. (2016). Bridging the Gap between Theory and Practice: An Analysis of the Professional Development Model Based on Excellent Teachers. *Global Education Outlook, No. 1,* 39-47.