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Improving Teachers' Readiness for Change Through Social-technical Organization Development Interventions: An Action Research Study of Beijing Polytechnic in China

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Abstract

The research aims to investigate the impact of Social-technical Organization Intervention, which is based on the modified GROWEF model, on Perceived Usefulness (PF), Performance Feedback (PF), and Intention to Use (ITU) to improve teachers' readiness for change during the implementation of the comprehensive evaluation system based on big data in Beijing Polytechnic. The modified GROWEF model included Goal Setting, Reality Check, Options Exploration, Way Forward Planning, Evaluation and Feedback. The sample consisted of 240 full-time teachers who were selected from 8 schools using stratified sampling. However, only 236 completed the questionnaire. A mixed-method methodology was used to collect data: quantitative method using questionnaire and the qualitative method using in-depth interview. As evidenced by the quantitative and qualitative data results, the Social-technical organization development interventions (ODIs) resulted in significant improvements across all variables. The findings of the modified GROWEF model ODIs indicated that (1) there are differences between the Pre- and Post- ODIs on Perceived Usefulness (PU), Performance Feedback (PF), Intention to Use (ITU) and (2) there was a significant difference between pre- and post- ODIs on teachers' Readiness for Change (RFC), and (3) Perceived Usefulness (PU), Performance Feedback (PF) significantly impacted teachers' Readiness for Change (RFC) and Intention to Use (ITU) as the mediator enhanced the influence of the independent variables (PU, PF) on the dependent variable (RFC).

Keywords : readiness for change, social-technical organization development intervention, action research, perceived usefulness, performance feedback, intention to use

Introduction

Background

Current and future developments and changes are inevitable for most organizations. The goal of change is to create and develop an organization. Change is an attempt to shift from the current situation to new conditions. In an organizational environment, situations are transitioning from their present state to an ideal state to enhance their effectiveness (Jones,

2010). Organizational development practitioners who implement change plans always face obstructions. Resistance is a key problem in organizations, especially during change (Ahmad & Cheng, 2018).

According to previous research, many different variables have been used to determine change readiness, such as participation, thinking, and behavior change (Charles et al., 2010; Jeremy, 2004).

Beijing Polytechnic is one of the famous higher vocational colleges in China. Previously, in Chinese vocational colleges, incentive measures were taken to attract teachers, but these incentives were not enough. Instead, schools often adopted administrative orders or annual evaluation and subjective scoring by relevant leaders, resulting in a considerable number of teachers being dissatisfied with the assessment results, which led to a series of problems, such as lack of work enthusiasm, brain drain, retarded academic development and so on. The change of teachers' evaluation in Beijing Polytechnic aims to build a comprehensive evaluation system based on big data. By establishing indicators, various data in the information systems will be automatically collected, ultimately forming a comprehensive evaluation of teachers.

Beijing Polytechnic is an independent higher vocational college sponsored by the Beijing Municipal People's Government. It has 6 secondary schools including Electromechanical Engineering, Automobile Engineering, Telecommunications Engineering, Bioengineering, Economic Management, and Art Design, as well as 2 teaching units such as School of General Education, and Marxism School. The college has 854 teaching staff, including 603 full-time teachers.

Research Problem

The organizational assessment used focus discussion, in-depth interview and SWOT analysis. Sixty-three full-time teachers provided information and understanding on the current status of the teachers' evaluation and enabled the researcher to identify the areas for improvement in BP.

According to the analysis of the preliminary diagnosis and the SWOT analysis of the present situation of the evaluation system in BP, the teachers have low opinion of the evaluation system in BP, which does not help improve teachers' readiness for change. Therefore, the research aims to investigate the factors that affect teachers' readiness for change during the implementation of the comprehensive evaluation system based on big data in BP and improve teachers' readiness for change through social-technical organization development intervention.

Research Questions

1. What is the current level of teachers' readiness for change and the present situation of the teachers' evaluation system in BP?

2. What are appropriate organization development interventions (ODIs) to effectively improve teachers' readiness for change through the comprehensive evaluation system in BP?

3. What is the relationship between Perceived Usefulness, Performance Feedback, Intention to Use and teachers' Readiness for Change, and how Intention to Use plays a mediating role?

4. What are the differences in Perceived Usefulness, Performance Feedback, Intention to Use, and teachers' Readiness for Change between the pre- and post-ODI stages in BP?

5. What is the social-technical ODIs, which is based on the modified GROWEF model, to improve teachers' readiness for change according to the quantitative and qualitative results?

Research Significance

1. Through social-technical organization development interventions, teachers' acceptance and preparation level for evaluation system reform can be improved, thereby effectively promoting educational reform.

2. The teachers' evaluation system is one of the essential indexes to measure the teaching quality.

3. The social-technical development provides strong support for digital education and using social-technical development interventions to promote the development and application of digital education and improve the effectiveness of education and teaching.

4. The social-technical ODIs, which is based on the modified GROWEF model, can better promote the practice and innovation of educational informatization and improve the level and ability of teachers 'readiness for organizational change in teachers' evaluation in the information environment.

5. The social-technical ODIs can help explore new educational management models, achieving educational resource sharing, and information sharing.

Literature Review

Social-technical Intervention

Technology plays a crucial role in organizational change, improving efficiency, communication, collaboration, and so on. However, people are unwilling to accept change, so social-technical interventions should be adopted to make people accept the change brought about by technology. Social-technical Organization Development interventions refer to a planned and systematic effort to improve the effectiveness and performance of an organization by addressing both social and technical aspects. It recognizes that organizations are complex systems influenced by both personal and technological factors, and interventions are designed to create alignment and synergy between these elements Hagger & Protogerou. (2021). Due to the fact that social and technical elements must work together to complete tasks, work systems can generate both technical products and social outcomes. The critical issue is the design work to produce positive results for these two parts, which is called joint optimization.

In this research, it is proposed the social-technical ODIs (the modified GROWEF model) to intervene with the full-time teachers in BP, to improve their readiness for change of the comprehensive evaluation system.

Perceived Usefulness (PU)

The Technology Acceptance Model (TAM) is a behavioral model that explains how individuals perceive and adopt new technologies. It proposes that the main factor influencing technology adoption is perceived usefulness. Perceived usefulness refers to the degree to which a person believes that a particular technology will enable them to perform tasks more efficiently or effectively (Bhattacherjee, 2001).

Related to change is the Transtheoretical Model (TTM) which focuses on the individual's decision-making and is a model of intentional change. The Transtheoretical Model (TTM) of change posits that individuals progress through different stages, including pre-contemplation, contemplation, preparation, action, maintenance, and termination. Perceived usefulness can act as a catalyst for moving individuals from the pre-contemplation to the contemplation stage, where they begin to consider the potential benefits of the change (Selvaraj et al., 2021).

In this research, PU means teachers' recognition of the comprehensive evaluation system in BP.

Performance Feedback (PF)

Frank (2022) proposed the Performance Feedback Theory, which has been extensively studied by the research. Performance Feedback Theory suggests a positive correlation between readiness for change and performance feedback. Performance feedback can provide individuals with information about their performance, including areas for improvement, which can increase their motivation to change their behavior or approach. When feedback is perceived as credible, accurate, and relevant to an individual's goals, it can enhance their self-efficacy beliefs and give them greater control over their performance.

Social cognitive theory is a theoretical framework that explains how individuals learn and develop through interactions with the environmental and social factors. The theory highlights the role of cognitive processes, such as attention, memory, and motivation, in forming human behavior (Stajkovic & Sergent, 2019).

Goal-setting theory suggests that feedback can help individuals set specific, challenging goals and monitor their progress. This process can increase their sense of control and agency and improve their readiness for change (Claiborne et al., 2013).

In this research, PF means communication between two parties after BP's comprehensive evaluation system.

Intention to Use (ITU)

Acceptance and Use of Technology Theory is a pattern that explains how individuals perceive and adopt new technologies. It extends the Technology Acceptance Model (TAM) by incorporating additional factors that influences technology adoption (Bhattacherjee, 2001).

In Transtheoretical Model (TTM), intention to use relates to readiness for change. The model proposes that behavior change occurs in stages, and readiness for change is a crucial determinant of whether an individual moves from one stage to the next. Pre-contemplation, contemplation, preparation, action, and maintenance are included in the stages of change of TTM. Various factors, such as self-efficacy, decisional balance, and social support, influence readiness for change; on the other hand, intention to use refers to an individual's willingness or plan to use a particular technology or behavior.

In this research, ITU means the intention of teachers to use the comprehensive evaluation system in BP.

Readiness for Change

According to the Force Field Theory, change occurs when the driving forces exceed the restraining forces, creating a net force in favor of change. Conversely, if the restraining forces are stronger, the net force is against change. The Force Field Theory suggests identifying and increasing the driving forces while decreasing the restraining forces to facilitate changes. This can be achieved through various strategies, such as creating a compelling vision for change, providing incentives, removing barriers, or building support and engagement (Burnes & Cooke, 2013).

Readiness for change refers to an individual's willingness and preparedness to stomach and accept a proposed change. The readiness is "influenced by various factors, including the level of motivation and commitment, the degree of resistance to change, the availability of resources and support, and the perceived benefits and risks of the change" (Lehman et al., 2002).

Social Cognitive Theory emphasizes the role of self-efficacy in driving behavior change, and readiness for change is seen as a reflection of an individual's confidence in his ability to make changes successfully. SCT posits that self-efficacy is shaped by past experiences, vicarious experiences (observing others), verbal persuasion, and physiological states (Bruce et al., 2011).

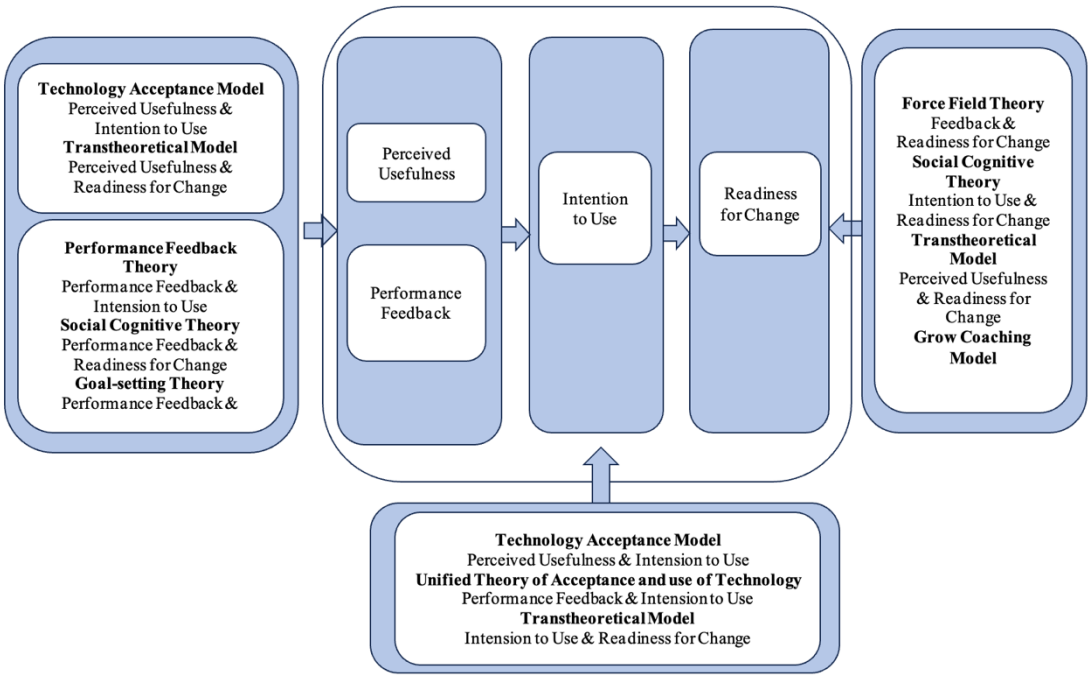
In this research, RFC means the teachers' willingness to accept changes in BP's comprehensive evaluation system.

Theoretical Framework

The theoretical framework summarizes the content of the literature review and gives ideas of relevant variables for this study, as shown in Figure 1.

Figure 1

Theoretical Framework

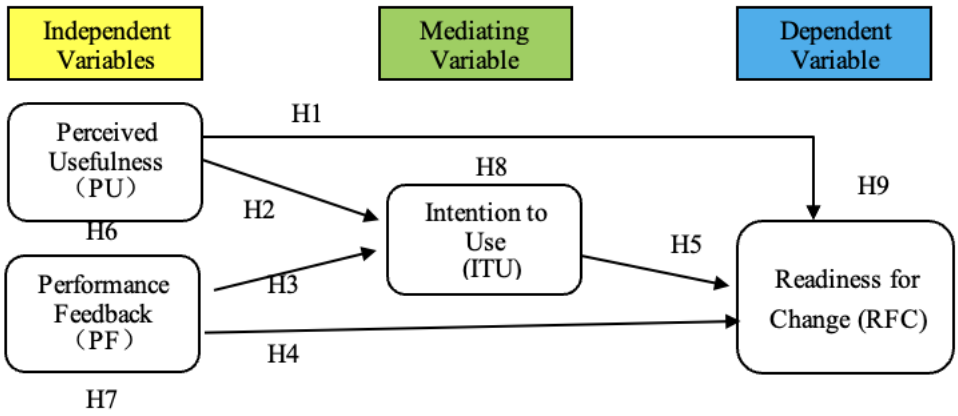


Conceptual framework

The conceptual framework includes the independent variable, the mediating variable, and the dependent variable, as shown in Figure 2.

Figure 2

Conceptual Framework



Based on the literature review, the study proposes 9 hypotheses as follows:

H1: Perceived Usefulness significantly impacts Teachers' Readiness for Change before ODI.

H2: Perceived Usefulness significantly impacts the Intention to Use the comprehensive evaluation system.

H3: Performance Feedback significantly impacts the Intention to Use the comprehensive evaluation system.

H4: Performance Feedback significantly impacts Teachers' Readiness for Change.

H5: Intention to Use the comprehensive evaluation system significantly impacts Teachers' Readiness for Change.

H6: There is a statistically significant difference in Perceived Usefulness between pre- and post-OD Intervention.

H7: There is a statistically significant difference in Performance Feedback between pre- and post-OD Intervention.

H8: There is a statistically significant difference in Intention to Use between pre- and post-OD Intervention.

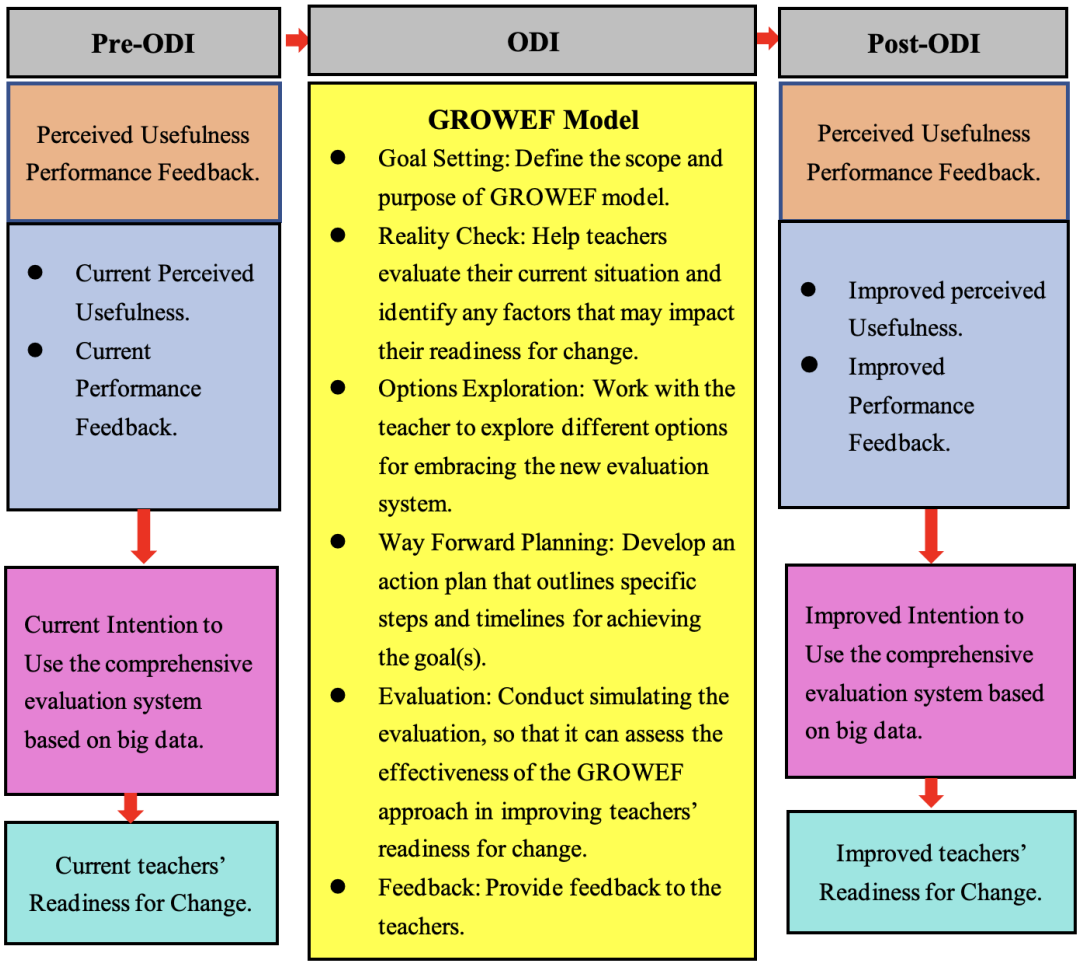
H9: There is a statistically significant difference in Teachers' Readiness for Change between pre- and post-OD Intervention.

The Action Research Framework

It is proposed the social-technical ODIs (the modified GROWEF model) to intervene with the full-time teachers in BP, to improve their readiness for change of the comprehensive evaluation system. There are three stages including Pre-ODI, ODI, and Post-ODI in the action research framework, as shown in the Figure 3.

Figure 3

Action Research Framework



Research Methodology

The study aims to investigate the factors affecting teachers' readiness for change during implementation of the comprehensive evaluation system based on big data in BP and improve teachers' readiness for change through social-technical organization development intervention. Action research is used in this study, as it focuses on improving the social issues that affect people's readiness for change through the cognition and willingness to use new technologies during intervention. The study adopted a combination of quantitative and qualitative methods, collecting and analyzing data from survey questionnaire, and in-depth interview. The modified GROWEF model was developed from May-June, 2023 and conducted on 240 participants who were from 8 schools in BP.

Pre-ODI Stage

This stage aimed to investigate the current status of perceived usefulness (PU), performance feedback (PF), intention to use (ITU), and change readiness (RFC) in the organization through quantitative and qualitative methods. The methods include in-depth interviews, and a questionnaire surveys.

Organization Development Intervention (ODI) Stage

This stage is the process of implementing social-technical interventions. Intervention activities aim to enhance teachers' Readiness for Change by improving Perceived Usefulness, Performance Feedback, and Intention to Use. The intervention started in May 2023 and ended in June 2023. This study conducted GROWEF model activities for changes, including Goal Setting, Reality Check, Options Exploration, Way Forward Planning, Evaluation and Feedback. The ODI activity was selected according to the independent and mediating variables of this study and consistent with the evaluation of teachers.

Step 1- Goal Setting

The first step is Goal Setting, which starts by identifying clear and measurable goals rela ted to the evaluation system change. These goals are specific, attainable, relevant, and timely.

Step 2- Reality Check

The second step is Reality Check, which is to help teachers evaluate their current situatio n and identify any factor that impact their readiness for change. This involves gathering collea gue feedback, conducting self-reflection,and guidelines.

Step 3-Options Exploration

The third step is Options Exploration, which is working with the teacher to explore differ ent options for embracing the new evaluation system, such as experimenting with new techno logy tools or engaging in peer collaboration.

Step4- Way Forward Planning

The fourth step is Way Forward Planning, which develops an action plan including traini ng and interactive lectures that outlines specific steps and timelines for achieving the goal(s). Training and interactive lectures should also help teachers identify needed resources, such as i nformational materials.

Step 5- Evaluation

The fifth step is evaluation, which is to implement simulating evaluation and assess the e ffectiveness of the GROWEF approach in improving teachers' readiness for change.

Step 6- Feedback

The last step is feedback, which is to provide feedback for the teacher. This involves offe ring guidance, providing feedback on progress, and being available for questions or concerns. Ensure the coach and teacher have regular check-ins to review progress towards goals and ad just plans as needed.

Post ODI stage

The researcher uses the same set of questionnaires at the pre-ODI stage to collect data and had conversations with some teachers to seek their opinions and collect in-depth information. The purpose at this stage was to explore the effect of the intervention measures designed in this study on variables, as well as compared them with the pre-ODI stage and discussed improvement measures.

Data Collection and Analysis

The sample for the study are the full-time teachers in BP. The researcher's purpose is to obtain perspectives from different colleges in BP. The stratified sampling method is used to determine the sample for the study. A structured questionnaire survey was administered to 240 full-time teachers from different schools in BP.

All questionnaires were translated into Chinese and tested for content validity by five Peer reviewers. In this study, Cronbach's Alpha reliability analysis was applied, to test the reliability of the questionnaire. The Cronbach Alpha value ranged from 0.827 to 0.875 based on the pilot test of 30 full-time teachers. Cronbach Alpha, greater than 0.7 is considered reliable (Gokarn, 2017). Therefore, the questionnaire is reliable (Sekaran & Bougie, 2017). The survey questionnaire tool uses the 5 Likert scale based on relevant literature, including Gefen and Keil (2000); Clifton (2014); Sharma and Strivastava (2019); and Hagger & Protogerou. (2021). The results are shown in Table 1.

Table 1

Comparing the Number of Measurement Items before and after Pilot Testing

Variable	Number of Measurement Items		Cronbach's Alpha
	Before Pilot Test	After Pilot Test	
Perceived Usefulness	5	5	0.827
Performance Feedback	4	4	0.875
Intention to Use	4	4	0.850
Readiness for Change	8	8	0.873
Total	21	21	

Several methods and different instruments were used to analyze the data. The Mean, Paired T-Test, and Regression were used to analyze the quantitative data. At the pre- and post-ODI stage, the researcher distributed 240 copies of the questionnaire to 240 full-time teachers in BP and retrieved 236 copies. Parametric statistical tools were used to analyze quantitative data because the number of the respondents was large (N=236). The data have normal distribution. The researcher used SPSS program as a computing tool for the data analysis in this study. A content analysis was used to analyze the qualitative data sets to validate the statistical analysis.

Result and Discussion

Demographic Profile of Participants

Out of 236 participants, 101 participants are aged 40 years and above, accounting for 42.8%; 135 participants are under 40, accounting for 57.2%; 103 participants hold senior professional titles, accounting for 43.6%. 133 participants have non-senior professional titles, accounting for 56.4%; 55 participants hold doctoral degrees, accounting for 23.3%; 181 participants have non-doctoral degrees, accounting for 76.7%; 23 participants come from the Art Design School, accounting for 9.7%. 36 participants come from the Automobile Engineering School, accounting for 15.3%. 24 people come from the Bioengineering School, accounting for 10.2%. 24 participants come from the Economic Management School, accounting for 10.2%. 44 participants come from the Electromechanical Engineering School, accounting for 18.6%. 8 participants come from Marxism School, accounting for 3.4%. 46 participants come from the School of General Education, accounting for 19.5%; 31 participants come from the Telecommunication School, accounting for 13.1%. The results are shown in Table 2.

Table 2

Profiles of Participants

Basic Information	Categories	Frequency	Percent
Department	Electromechanical Engineering	44	18
	Automobile Engineering	36	15
	Telecommunications Engineering	32	14
	Bioengineering	24	10
	Economic Management	24	10
	Art Design	24	10
	Basic School	48	20
	Marxism School	8	3
Age	40 Years and above	101	42.8
	Under 40	135	57.2
Profession Title	None-senior Title	133	56.4
	Senior Title	103	43.6
Education Background	None-doctor Degree	181	76.7
	Doctor Degree	55	23.3

The results show that all variables improved after the organization development interventions (ODIs). There was a statistical significance on the mean score of perceived usefulness (PU), performance feedback (PF), intention to use (ITU) and readiness for change (RFC) at the Post-ODI stage. According to the results, the mean of the perceived usefulness scale is 4.34, the mean of performance feedback scale is 4.22, the mean of intention to use scale is 4.36, and the mean of readiness for change scale is 4.6, which all significantly improved compared to the pre- ODI data. All variables improved after organizational development intervention (ODI) evidenced by the results. Based on the results of regression analysis, Perceived Usefulness, Performance Feedback, and Intention to Use significantly impact Readiness for Change, respectively. Perceived Usefulness and Performance Feedback significantly impact Intention to Use, respectively. According to the result of paired t-test, there is a statistically significant difference in Perceived Usefulness, Performance Feedback, Intention to Use and Teachers' Readiness for Change between pre- and post-OD Intervention. In addition, the qualitative data results obtained through in-depth interviews with 8 teachers from 8 schools are consistent with the quantitative results.

Table 3

Summary of the Comparison between Quantitative and Qualitative Results

Variable (5-Point scale)	Descriptive Statistical Result		Summary of Qualitative Result after ODIs
	Pre-ODI Mean	Post-ODI Mean	
Perceived Usefulness	**2.01**	**4.34**	All teachers believe that the comprehensive evaluation system is very useful. -Achieving objective evaluation. -Not increasing the burden at all. -Helping not only support improvement, but also contribute to future development planning.
Perceived Usefulness1	1.97	4.33	
Perceived Usefulness2	2.28	4.19	
Perceived Usefulness3	1.88	4.36	
Perceived Usefulness4	2.02	4.42	
Perceived Usefulness5	1.89	4.41	
Performance Feedback	**2.52**	**4.22**	All teachers believed that timely feedback from supervisors through the comprehensive evaluation system is very useful. -Help teachers recognize the problem.
Performance Feedback1	2.48	4.44	
Performance Feedback2	2.57	4.07	
Performance Feedback3	2.54	3.97	

Variable (5-Point scale)	Descriptive Statistical Result		Summary of Qualitative Result after ODIs
	Pre-ODI Mean	Post-ODI Mean	
Performance Feedback4	2.47	4.41	-Help find solutions to problems. -Be helpful for future development. -Enhance readiness for change.
Intention to Use	2.52	4.36	All teachers expressed willingness to use the comprehensive evaluation system for evaluation. -Be very useful. - Not increase the burden on teachers. -Be helpful for future development.
Intention to Use1	2.57	4.45	
Intention to Use2	2.55	4.46	
Intention to Use3	2.47	4.44	
Intention to Use4	2.49	4.08	
Readiness for Change	1.43	4.6	All teachers expressed readiness to participate in the change. -After training, the teachers understood the benefits of the comprehensive evaluation system and were willing to participate in this change. - After interactive lecturing, the teachers mastered the comprehensive evaluation system's usage methods and were ready for change. -After simulation evaluation, the teachers became familiar with the evaluation process using the comprehensive evaluation system and increased their interests in participating in change.
Readiness for Change1	1.35	4.42	
Readiness for Change2	1.38	4.62	
Readiness for Change3	1.39	4.62	
Readiness for Change4	1.47	4.62	
Readiness for Change5	1.41	4.72	
Readiness for Change6	1.51	4.61	
Readiness for Change7	1.46	4.53	
Readiness for Change8	1.49	4.66	

Hypothesis Testing

Hypothesis 1-5 were formulated, and Regression Analysis was used to test these hypotheses. Hypothesis 6-9 were formulated, and Paired T-test was used to test the hypothesis. The results are shown in Table 4 and Table 5.

Table 4

Hypothesis Testing-regression analysis

Hypothesis	N	Test Statistics		Results
		Standard B	Sig.	
H1: Perceived Usefulness significantly impacts teachers' Readiness for Change.	236	0.433	<0.001	H01 is rejected and Ha1 is accepted.
H2: Perceived Usefulness significantly impacts the Intention to Use the comprehensive evaluation system.	236	0.439	<0.001	H02 is rejected and Ha2 is accepted.
H3: Performance Feedback significantly impacts the Intention to Use the comprehensive evaluation system.	236	0.301	<0.001	H03 is rejected and Ha3 is accepted.
H4: Performance Feedback significantly impacts Teachers' Readiness for Change.	236	0.482	<0.001	H04 is rejected and Ha4 is accepted.
H5: Intention to Use the comprehensive evaluation system significantly impacts Teachers' Readiness for Change.	236	0.133	0.003	H05 is rejected and Ha5 is accepted.

Table 5

Hypothesis Testing-paired T-test

Hypothesis	N	Test Statistics		Results
		t	Sig. (2-tailed)	
H6: There is a statistically significant difference in Perceived Usefulness between pre- and post-OD Intervention.	236	79.51	<0.001	H06 is rejected and Ha6 is accepted.
H7: There is a statistically significant difference in Performance Feedback between pre- and post-OD Intervention.	236	41.15	<0.001	H07 is rejected and Ha7 is accepted.
H8: There is a statistically significant difference in Intention to Use between pre- and post-OD Intervention.	236	50.77	<0.001	H08 is rejected and Ha8 is accepted.
H9: There is a statistically significant difference in Teachers' Readiness for Change between pre- and post-OD Intervention.	236	60.16	<0.001	H09 is rejected and Ha9 is accepted.

Hypothesis 1: Perceived Usefulness significantly impacts Teachers' Readiness for Change.

According to the results of linear regression analysis, the standard regression beta value is 0.433, which is less than 1, indicating a small correlation between independent variables. The p value of Perceived Usefulness is less than 0.001, which is less than the alpha value of 0.05. Therefore, Perceived Usefulness significantly impacts teachers' Readiness for Change ($b=0.433$, $p<0.001$). According to the theory of Transtheoretical model (Selvaraj et al., 2021), perceived usefulness can act as a catalyst for moving individuals from the pre-contemplation to the contemplation stage, where they begin to consider the potential benefits of the change. The quantitative analysis results confirm this theory.

Hypothesis 2: Perceived Usefulness significantly impacts the Intention to Use the comprehensive evaluation system.

According to the results of linear regression analysis, the standard regression beta value is 0.439, which is less than 1, indicating a small correlation between independent variables. The p value of Perceived Usefulness is less than 0.001, which is less than the alpha value of 0.05. Therefore, Perceived Usefulness significantly impacts Intention to Use ($b=0.439$, $p<0.001$). Perceived Usefulness in this model is supposed to be associated with the acceptance behavior of the information system. It has been proven to consistently affect intention to use during the time period of information system use (Bhattacherjee, 2001). The quantitative analysis results confirm this theory.

Hypothesis 3: Performance Feedback significantly impacts the Intention to Use the comprehensive evaluation system.

According to the results of linear regression analysis, the standard regression beta value is 0.301, which is less than 1, indicating a small correlation between independent variables. The p-value of Performance Feedback is less than 0.001, which is less than the alpha value of 0.05. Therefore, Performance Feedback significantly impacts Intention to Use ($b=0.301$, $p<0.001$). Goal-Setting Theory suggests that feedback can help individuals set specific, challenging goals and monitor their progress. This process can increase their sense of control

and agency and improve their readiness for change (Claiborne et al., 2013). The quantitative analysis results confirm this theory.

Hypothesis 4: Performance Feedback significantly impacts Teachers' Readiness for Change.

According to the results of linear regression analysis, the standard regression beta value is 0.482, which is less than 1, indicating a small correlation between independent variables. The p value of Performance Feedback is less than 0.001, which is less than the alpha value of 0.05. Therefore, Performance Feedback significantly impacts Teachers' Readiness for Change ($b=0.482$, $p<0.001$). Social cognitive theory emphasizes the role of self-efficacy in determining an individual's readiness for change. Feedback perceived as credible and relevant can increase an individual's confidence in their ability to make changes, enhancing their motivation and willingness to try new approaches (Nickerson & Koski, 2023). The quantitative analysis results confirm this theory.

Hypothesis 5: Intention to Use the comprehensive evaluation system significantly impacts Teachers' Readiness for Change.

According to the results of linear regression analysis, the standard regression beta value is 0.133, which is less than 1, indicating a small correlation between independent variables. The p value of Intention to Use is 0.003, which is less than the alpha value of 0.05. Therefore, Intention to Use significantly impacts Teachers' Readiness for Change ($b=0.323$, $p=0.003$). In Transtheoretical Model (TTM), there is a relationship between intention to use and readiness for change. The model proposes that behavior change occurs in stages, and readiness for change is a crucial determinant of whether an individual moves from one stage to the next Hagger & Protogerou. (2021). The quantitative analysis results confirm this theory.

Hypothesis 6: There is a statistically significant difference in Perceived Usefulness between pre- and post-OD Intervention.

Based on the result of paired t-test, using Perceived Usefulness data at pre- and post-ODI for paired t-tests, it is found that the p-value is less than 0.001, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Perceived Usefulness between pre- and post-OD Intervention ($t=79.51$, $p<0.001$). In the Technical Acceptance Model theory, significant change in perceived usefulness before and after intervention can be reflected by improving the system's functionality and performance and providing relevant training and support. These interventions can lead to changes in users' satisfaction, intention to use, and behavioral intention towards the system (Mouakket, 2015; Wu & Chen, 2017). The quantitative analysis results confirm this theory.

Hypothesis 7: There is a statistically significant difference in Performance Feedback between pre- and post-OD Intervention.

Based on the result of paired t-test, using Performance Feedback data at pre- and post-ODI for paired t-tests, it is found that the p-value is less than 0.001, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Performance Feedback between pre- and post-OD Intervention ($t=41.15$, $p<0.001$). In the Performance Feedback theory, significant change in performance feedback before and after intervention can be manifested through improved performance, goal attainment, and behavioural adjustments. If there is a notable improvement in employees' performance, goals are achieved, and observable behaviour adjustments occur, it signifies the significant changes

brought by performance feedback intervention (Frank, 2022). The quantitative analysis results confirm this theory.

Hypothesis 8: There is a statistically significant difference in Intention to Use between pre- and post-OD Intervention.

Based on the result of paired t-test, using Intention to Use data at pre- and post-ODI for paired t-tests, it is found that the p-value is less than 0.001, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Intention to Use between pre- and post-OD Intervention ($t=50.77$, $p<0.001$). In the Technology Acceptance Model, significant changes in Intention to Use before and after intervention can be demonstrated through transforming user attitudes, enhancing perceived usefulness, and guiding behavioural changes. By implementing interventions that alter user attitudes, improve perceived usefulness, and align with behavioural adjustments, substantial changes in users' intention to use can be observed (Bhattacherjee, 2001). The quantitative analysis results confirm this theory.

Hypothesis 9: There is a statistically significant difference in Teachers' Readiness for Change pre- and post-OD Intervention.

Based on the result of paired t-test, using Readiness for Change data at pre- and post-ODI for paired t-tests, it is found that the p-value is less than 0.001, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Teachers' Readiness for Change between pre- and post-OD Intervention ($t=50.77$, $p<0.001$). Lewin's Change Management Model suggests that change involves three stages: unfreezing, changing, and refreezing. OD interventions are designed to facilitate these stages by providing support and resources to help individuals adapt to new practices (Mcguigan & Macdonald, 2008). The quantitative analysis results confirm this theory

Conclusion

The research focuses on improving Teachers' readiness for change through Social-technical ODI. According to the analysis of the preliminary diagnosis and the SWOT analysis of the present situation of the evaluation system in BP, the teachers have low awareness of the evaluation system in BP, which does not help improve teachers' readiness for change. Therefore, the research aims to investigate the factors that affect teachers' readiness for change during the implementation of the comprehensive evaluation system based on big data in BP and improve teachers' readiness for change through social-technical organization development intervention.

This study aims to investigate the changes in the acceptance of teachers (individuals) towards a comprehensive evaluation system (new technology). The quantitative and qualitative data indicated that the social-technical ODIs are very effective in the change process. The researcher designed and proposed a modified GROWEF model ODIs including Goal Setting, Reality Check, Options Exploration, Way Forward Planning, Evaluation and Feedback, which enhanced teachers' perceived usefulness, performance feedback, and intention to use the comprehensive evaluation system, thereby improving teachers' readiness for change.

The findings indicated that (1) there are differences between the Pre- and Post- ODIs on Perceived Usefulness (PU), Performance Feedback (PF), Intention to Use (ITU) and (2) there was a significant difference between pre- and post- ODIs on teachers' Readiness for Change (RFC), and (3) Perceived Usefulness (PU), Performance Feedback (PF) significantly impacted teachers' Readiness for Change (RFC) and Intention to Use (ITU) as the mediator enhanced the influence of the independent variables (PU, PF) on the dependent variable (RFC).

Research Innovation

This study is a comprehensive research topic that integrates social psychology and information technology and provides reference for the comprehensive evaluation system change of Chinese vocational colleges. Firstly, it provided an empirical case for the change of teachers' evaluation in Chinese vocational colleges. Teachers' evaluation is a very important content for vocational colleges and plays a crucial role in improving the performance of teachers and schools. The research focuses on improving Teachers' readiness for change with Social-technical ODI. It aims to investigate the factors that affect teachers' readiness for change during the implementation of the comprehensive evaluation system based on big data in BP and improve teachers' readiness for change through social-technical organization development intervention. This study provides a large amount of reference data through qualitative and quantitative analysis and provides a reference basis for the reform of other schools. Secondly it proposed a modified GROWEF Model ODIs. The researcher proposed a modified GROWEF Model ODIs, including Goal Setting, Reality Check, Options Exploration, Way Forward Planning, Evaluation, and Feedback processes, and carefully designed part of the content. After two months of intervention, the researcher found significant improvements in the performance of teachers and their awareness of the comprehensive evaluation system. The researcher has transformed the organizational development intervention method into a project that will be promoted among teachers throughout BP, in conjunction with the college's change action of the comprehensive evaluation system.

Recommendations

The researcher finds that the organization's teachers are unsatisfied with the traditional evaluation system. However, because the reform of the teachers' evaluation system is not simple, the organization needs help to solve these problems. After a period of practice, it has proven that the comprehensive evaluation system can change the unfairness and subjective evaluation to a certain extent.

Although this research has achieved certain results, improvements are still necessary for various reasons. First, the comprehensive evaluation system still needs improvement. The change in BP's comprehensive evaluation system is huge, therefore, it cannot be completely improved at once, and continuous adjustments still need to be made based on teacher feedback. It is necessary to accelerate the development of the information platform to achieve automatic acquisition of all data and adjust the indicator system continuously. Second, the comprehensive evaluation system's change should be sustained in the long term. Third, the modified GROWEF Model ODIs project should be implemented in the long term. The comprehensive evaluation

system is still constantly being adjusted. To not affect teachers' use of the comprehensive evaluation system, it is necessary to continue sustaining the modified GROWEF model ODIs project to enhance teachers' intention to use, performance feedback, and intention to use, thereby improving teachers' readiness for change. Fourth, the modified GROWEF Model ODIs project could still be improved. Although the model has been proven effective in improving teachers' readiness for change, the corresponding training and interactive lectures content need to be adjusted due to the continuous adjustment of the comprehensive evaluation system. As the new system's function become increasingly powerful, teachers need to follow up on their readiness for the changes in the new system in real time. Inquiry Workshop, Team Building and other methods can be added in goal setting and Reality check to make teachers more willing to accept the modified GROWEF Model ODIs project. In short, the modified GROWEF Model ODIs project needs to be continuously improved according to the actual situation to produce better results. At last, the modified GROWEF Model ODIs project should be implemented in vocational colleges outside of BP. The change of the comprehensive evaluation system is imperative, and various vocational colleges in China need to undergo reforms. The GROWEF Model ODIs project can help other colleges improve their teachers' readiness for change in teachers' evaluation system reform.

Recommendation for Further Research

The implementation of the comprehensive evaluation system aims to improve the performance of teachers and ultimately achieve the overall performance of the college. Therefore, further research is needed to observe the performance of teachers and colleges compared previous performance.

This study focuses on teachers from BP. Further research could be done based on the comprehensive evaluation system, by adding data on changes in other colleges. Therefore, further research needs to implement the modified GROWEF Model ODIs project in other colleges to conduct empirical research.

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