An Empirical Study on the Influence of Urban-rural Consortium on Teacher Development in Poor Districts

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Abstract: Purpose and Significance: Empirically explore the impact of the urban-rural collaboration model on the development of teachers in disadvantaged regions, and that provides new ideas for the development of teachers in schools in weak regions, so as to raise the level of teachers in weak regions, narrow the gap between urban and rural areas, achieve balanced development of education, and promote education equity. In addition, the application of quasi-experimental research methods provides ideas for follow-up research on urban-rural cooperation implementation strategies. Methods: The pre-and post-period scale experimental design was adopted for the unequal experimental group and the pilot schools A and B for the digital campus construction and innovative application projects were studied. By constructing the teacher development self-evaluation table, the teachers' development in 2015 and 2017 was collected. The pre- and post-test data compare the differences between the experimental group A school (for urban-rural collaboration) and the control group B school (without urban-rural collaboration) before and after the two years. Conclusion: The development of information technology and teaching integration among teachers in both groups A and B has been improved during the 2015-2017 period. However, the difference between the A and B groups of schools is not significant between the two groups. It shows that the pattern of urban-rural collaboration between A and B schools does not play a positive role in the development of teachers in weak areas.

Keywords: urban-rural cooperation, weak areas, information technology and teaching integration, teacher development, quasi-experiment

1. Introduction

The formation of the urban-rural cooperative alliance is one of the ways to explore the model of precision poverty alleviation (Zhu Yali, & Song Naiqing, 2015). Under the mode of the Urban-rural Cooperation Alliance, excellent urban schools and rural schools have formed alliance schools and formed partnerships to jointly conduct online teaching and research among urban and rural schools, collective lesson preparation, and teacher-student mutual visits. Therefore, the help of urban schools for schools in rural areas is more manifested in the construction of teachers.

This research relies on the education informatization project. The first phase of the project has established a mobile learning support center in 50 schools across the country, aiming at transforming classroom teaching and student-centered project learning comprehensive practice activities to transform students' Learn how to develop students' 21st century skills. The second phase of the project is based on the theme of "Digital Campus Construction and Innovative Applications", which enables schools to meet the basic requirements for conducting information-based teaching. The third phase of the project is based on the investigation of "Digital Campus Construction and Innovative Applications" under the general environment of "Education Fairness" in the country. The "Urban-Rural Collaboration Alliance" has been established. Schools in urban and rural areas in each region will pair up, communicate with each other, and develop with each other to promote the development of urban and rural informatization teaching, and promote fair education among urban and rural schools. In order to study the impact of urban-rural collaboration alliances on teachers' development in weak regions, based on existing project progress results.

2. Research method

2.1 Experimental design

Strictly speaking, quasi-experimental research refers to research methods that use original groups and perform experimental processing under more natural circumstances when random subjects are not required (Mu Su, 2001). The research objects chosen in this paper are school teachers in weak areas. Among them, eight schools in weak areas (group A) for urban-rural cooperation and four schools (group B) for no urban-rural cooperation were selected. The main experimental program is shown in Figure 1.
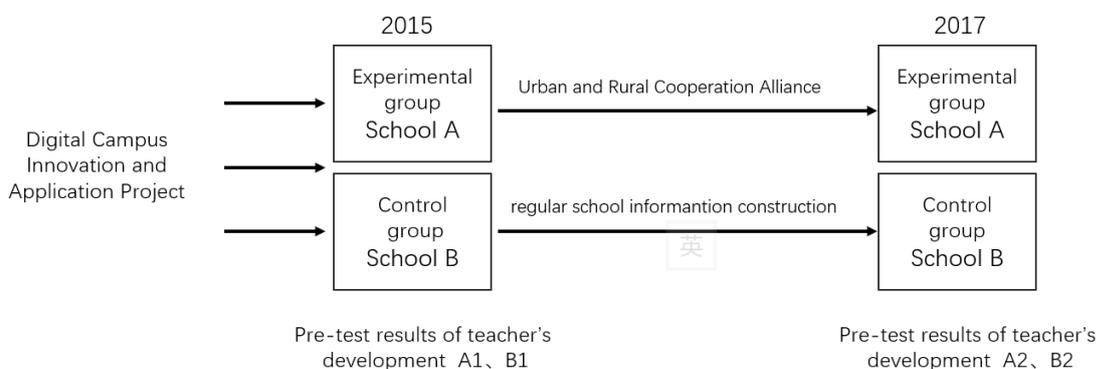

Figure 1. Pre-and post-calibration experimental design procedure for control groups with unequal experimental groups

2.2 Data Collection and Analysis

This study is based on the analysis of domestic and foreign scholars' evaluation criteria for teacher development. It is based on the evaluation indicators of teachers' development by Ye et al (Ye Lan, 2001) and builds a teacher development self-assessment questionnaire based on Likert's five-point scale from three perspectives: teachers' understanding and attitude towards information technology and teaching integration, knowledge and Skills and application skills. Among them, there are 18 questions about understanding and attitude, 19 questions about knowledge and skills, and 16 questions about application ability. The SPSS 22.0 analysis found that the KMO statistic is 0.975 and the sig value is less than 0.001, indicating that the questionnaire factor is very suitable for factor analysis.

The study uses questionnaires. The results of the teacher evaluations collected in 2015 were used as pretest data, and the results collected in 2017 were used as posttest data. Among them, 110 valid questionnaires and 90 questionnaires were recovered from schools in group A and B respectively.

According to field investigations, the school's hardware equipment, especially mobile equipment, has been widely used. Both A and B schools have carried out digital campus construction and innovative application projects. Therefore, the level of school information construction and information resource allocation are similar, and it is more suitable for the pre-and post-calibration experimental study of the unequal experimental group control group. In order to avoid the impact of the pre-test development level on the experimental results during data analysis, a covariance analysis was performed on the data. The scores of the A and B teachers in 2015 were measured as covariates. The A and B groups of teachers' assessment scores for 2017 were used as the dependent variables for analysis of covariance. The sig value of "Group*2015" is greater than 0.05. Therefore, teacher development in 2015 will have little impact on teacher development in 2017.

3. Analysis of survey results

Firstly, the scores of the teachers' understanding and attitude, knowledge and Skills and application ability in the integration of information technology and teaching are calculated. Through descriptive statistics, it can be concluded that the average scores of teachers in A and B groups before the urban-rural collaboration were not significantly different, and after a period of time, the average scores of the development of the two groups of teachers A and B have been improved to some extent, but they have not shown great differences.

In order to further explore whether the level of teacher development in the recent two years mentioned improvement, The T-tests of paired samples were performed on the 2015 and 2017 data of Group A and the 2015 and 2017 data of Group B, respectively. There was a significant difference between pre-test and post-test in group A ($P<0.01$). And There was a significant difference between pre-test and post-test in group B ($P<0.01$). The results show that in the two years, the development of A and B groups of teachers has been greatly improved.

The homogeneity of variance is the premise of analysis of variance. The study first conducted the homogeneity test of the variance of teacher development scores for the 2015 and 2017 A and B groups and found that Levene's significance was greater than 0.05. There was no significant difference in the data variance between groups A and B, which represented the homogeneity of variance. Further, the A and B data of the two groups before and after the 2015 and 2017 tests were obtained as an independent sample T test. There was no significant difference in pre-test development between group A and group B ($P>0.05$). There was also no significant difference in the post-test development of teachers between group A and group B ($P>0.05$). Therefore, in the survey sample, we can draw the following conclusion: The model of urban-rural collaboration has basically no effect on the development of school teachers in weak areas.

4. Summary and discussion

There are many reasons for this result. For example, there is a trend in the current school informatization construction. Schools in cities are adopting the latest education informatization technology. Schools in weak regions follow schools in cities. But this model has certain limitations. Due to factors such as the environment, teachers, students, parents, and funds in urban schools and rural schools, no matter how hard the schools in the weak areas work, basically follow the development of the city's schools. After all, there are many differences and disagreements between the urban and rural educators in terms of interests, hobbies, values, knowledge level, specialty and potential. Therefore, the education environment and teaching mode they are suitable for are different from those of cities. The survey found that some self-discovered schools have explored their own characteristics and explored their own development path and achieved good results. Therefore, this paper hopes to provide some reflections and suggestions for the future development of the schools in the weak areas.

References

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