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Experimental Study of the Effectiveness of the Process of Training School Principals to Implement Quality Management of School Education

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Abstract: The process of preparing education managers for the implementation of the quality management model of school education has an important feature. This is its managerial orientation, which has the following aspects: on the one hand, the explicit management of the pedagogical process of the school; on the other, the design and construction of management of high-quality educational activities of the school based on appropriate approaches. In order to ensure the proper implementation of school education quality management, this article has developed a training module "School education quality management", provides analytical information on the organization and conduct of a special experiment with the participation of 74 school principals who undergo scheduled training.

Keywords: training module, experiment, competence, survey, comparative analysis, effectiveness.

I. Introduction

Pedagogical practice shows that certain conditions are required for the effective implementation of the quality management of school education, one of the main of which is the appropriate training of the school director[1]. He is the main organizer of this process in the practice of the school institution, the transmitter of appropriate quality and optimal cooperation based on the appropriate competence of the learners, the satisfaction of the needs of society, the state and specific individuals for the provided educational services; is considered to regulate leadership. [2]

Based on this, the educational module "School education quality management" was developed, and to check its effectiveness, a special pilot test was organized and conducted with the participation of 74 school principals undergoing planned professional development (Pic. 1).

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Picture 1. Gender description of the sample for testing the effectiveness of the educational module "Quality Management of School Education" (n=74)

Composition of respondents:

women - 52.7% (39 people);

men – 47.3% (35 people);

25.7% (19 people) with up to 3 years of professional experience;

45.9% (34 people) with 4 to 6 years of professional experience;

45.9% (34 people) with 7 to 9 years of professional experience;

12.2% (9 people) with 10 years or more of professional experience.

Experimental-test selection (n= 74) were divided into appropriate groups in the comparison:

Experimental group (34 training managers / 45.9%), respondents in this group were trained according to the developed module;

Control group (40 training managers / 54.1%), respondents in this group were not trained on the developed module.

In this case, the selection, as well as the formation of comparison groups in the experimental test, was carried out by randomization using a table of random numbers generated using a special function in the Microsoft Excel program. All training managers in the comparison groups were in almost the same conditions during the experimental period, that is, they took regular training courses. This condition of sample formation is also very important, it is aimed at the reduction of various artifacts (natural development of the studied character, influence of the training program on the studied character, etc.) that contribute to experimental errors (reduced validity).

II. Literature review

As it was mentioned above, during the scheduled training of the testers of the experimental group (n=34), they were trained on the developed module. At the same time, respondents of the control group (n= 40) were trained according to the current program, that is, they were not trained according to the module developed with them. In this case, the school institutions in which the respondents of the experimental (n= 34) and control (n= 40) groups operate were evaluated three times in terms of the effectiveness of school education quality management. The first assessment was carried out before conducting the prepared training module, the second assessment was carried out 4 months after the respondents completed the planned professional development, and the final (third) assessment was carried out 8 months after the respondents completed the planned professional development. Three-time evaluation, as well as time indicators (intervals) were mainly determined by the features of the structural-content model of school education quality management, the need to organize and carry out systematic work in this direction, which in practice requires a relatively long time.

III. Analysis

The evaluation of the effectiveness of the management of the quality of school education was carried out according to a pre-prepared expert questionnaire. The instrumental basis was the efficiency indicators of school education quality management. A detailed instruction was included in the questionnaire developed in order to properly organize the expert assessment and create standardized conditions. 85 experts were involved in conducting a survey for a timely and objective assessment of the effectiveness of school education quality management, including:

47 people (55.3%) are educational managers working in various general educational institutions (secondary schools) of the Republic of Uzbekistan;

38 people (44.7 %) are specialists of the regional public education departments of the city and region.

The results of all three expert (repeated) evaluations were combined in a general table after preliminary processing. This process was carried out by calculating the average statistical indicators for the relevant criterion blocks of the evaluation of the effectiveness of the management of the quality of school education for each school. These are:

educational process of the school;

organizational and administrative activities of the school;

staffing of the school;

scientific and methodical activities of the school;

providing the school with information technologies;

material and technical support of the school.

In this case, the final interpretation of the expert assessment was carried out on a ten-point scale, as in the developed expert questionnaire:

1-2 points – low level of effectiveness of school education quality management;

3-4 points - below average level of effectiveness of school education quality management;

5-6 - average level of effectiveness of school education quality management;

7-8 - points higher than average level of effectiveness of school education quality management;

9-10 points - high level of effectiveness of school education quality management.

This generalization allowed the mathematical statistical analysis of the obtained results. For example, in order to determine the optimal way of conducting a comparative analysis (mathematical-statistical criterion), the obtained results were studied taking into account their indicators in the experimental and control groups from the point of view of their normal distribution. For this, the increasingly popular Kolmogorov-Smirnov l - nonparametric criterion was used using the SPSS-23 program. According to the obtained results, it was found that all (first, second and third) expert evaluations of school education quality management in both experimental and control groups have a statistically significant difference from the normal distribution when $r<0.05$. Considering this important situation, only non-parametric criteria were used in later mathematical statistical analysis.

For example, Friedman's □ 2 (for K-linked samples) non-parametric test was used using the SPSS-23 program for the purpose of comprehensive comparative analysis of three dimensions. The obtained results made it possible to note that expert (first, second, third) evaluations (when $r<0.05$) have a statistically significant difference only in the experimental group (n=34). In the control group (n=40), such statistically significant changes were not observed (when $r<0.05$).

The application of Wilcoxon's non-parametric E-test (for two dependent samples) made it possible to determine that in the experimental group (n=34) an increasingly significant difference is observed between:

the first final evaluation of the effectiveness of school education quality management and the third final evaluation of the effectiveness of school education quality management;

the second final evaluation of the effectiveness of school education quality management and the third final evaluation of the effectiveness of school education quality management (Table 1).

Table 1.The results of the comparative analysis of expert assessment of the effectiveness of school education quality management in the experimental group (n=34) according to Wilcoxon's T-criterion

№	Comparison marks	Asymptotic significance (bilateral)	
1	The second final assessment of the effectiveness of school education quality management (experimental group) - the first final assessment of the effectiveness of school education quality management (experimental group)	0,019	a statistically significant difference was observed (when r>0.05)
2	The third final assessment of the effectiveness of school education quality management (experimental group) - the first final assessment of the effectiveness of school education quality management (experimental group)	0,000	a statistically significant difference was observed (when r>0.05)
3	The third final evaluation of the effectiveness of school education quality management (experimental group) - the second final evaluation of the effectiveness of school education quality management (experimental group)	0,000	a statistically significant difference was observed (when r>0.05)

However, in the control group (n=40) no such statistically significant difference was observed (Table 2).

Table 2. The results of the comparative analysis of expert assessment of the effectiveness of school education quality management in the control group (n=40) according to Wilcoxon's T-criterion

№	Comparison marks	Asymptotic significance (bilateral)	
1	The second final assessment of the effectiveness of school education quality management (control group) - the first final assessment of the effectiveness of school education quality management (control group)	0,550	a statistically significant difference was observed (when r>0.05)
2	The third final evaluation of the effectiveness of school education quality management (control group) - the first final evaluation of the effectiveness of school education quality management (control group)	0,813	a statistically significant difference was observed (when r>0.05)
3	The second final assessment of the effectiveness of school education quality management (control group) - the second final assessment of the effectiveness of school education quality management (control group)	0,964	a statistically significant difference was observed (when r>0.05)

It is also important to note that according to the results of applying Mann-Whitney's non-parametric U-test (for unrelated samples):

No statistically significant difference was observed between the experimental (n=34) and control (n=40) groups before the implementation of the training on the developed training module (the first final evaluation of the effectiveness of the quality management of school education), either groups are different according to the sign being studied (when r>0.05);

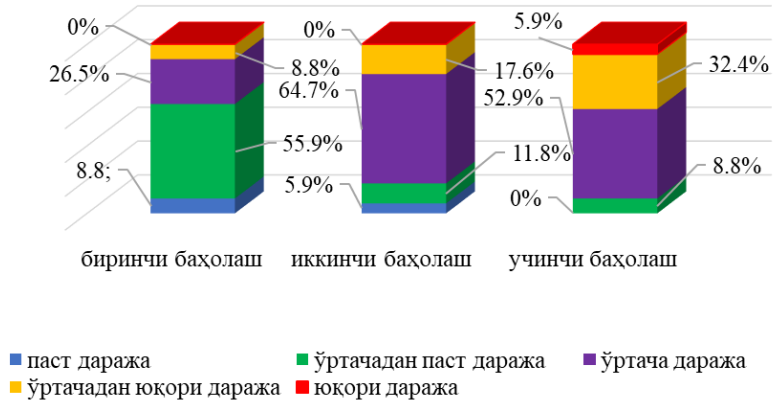
After the implementation of training according to the developed educational module (the first final assessment of the effectiveness of the quality management of school education), a statistically

significant difference was observed between the experimental (n=34) and control (n=40) groups (r >0.05).

IV. Discussion

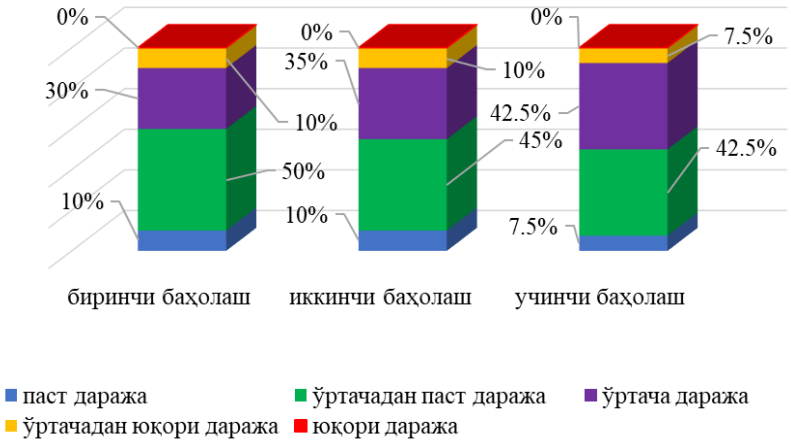
In essence, these positive statistically significant data make it possible to maximally exclude background effects on the development of the studied symptom during our pilot study.

Based on the above, a specially organized pilot study (n=74) made it possible to conclude that the educational module "Quality Management of School Education" has sufficient practical effectiveness. Thus, in the experimental group (n=34), the number of schools with a low level of school education quality management as a result of using the development increased from 8.8% (3 schools) in the first assessment to 5.9% (2 schools) in the second assessment and reduced to 0% in the third assessment (no such school was recorded; the number of schools with below-average school education quality management decreased from 55.9% (19 schools) in the first assessment to 11.8% (4 schools) and decreased to 8.8% in the third assessment (3 schools); the number of schools with average school education quality management increased from 26.5% (9 schools) in the first assessment to 64.7% in the second assessment % (22 schools) and had a positive change of 52.9% (18 schools) in the third assessment; the number of schools with above-average school education quality management was 8.8% in the first assessment (3 schools) increased to 17.6% (6 schools) in the second assessment and 32.4% (11 schools) in the third assessment; nih verse, the number of schools with a high level of school education quality management increased from 0% in the first assessment (no such school was recorded) to 5.9% (2 schools) in the third assessment (Picture 2).



Picture 2. The dynamics of expert assessment of the effectiveness of school education quality management in the experimental group (n=34) according to the frequency of occurrence of the sign

At the same time, such positive changes were not observed in the control group (n=40) (Pic. 3).



Picture 3. Dynamics of expert assessment of the effectiveness of school education quality management in the control group (n=40) according to the frequency of occurrence of the sign

Quality management of school education: the number of schools with a low level did not change significantly (10% - 4 schools in the first assessment, 10% - 4 schools in the second assessment, 7.5% - 3 schools in the third assessment); the number of schools with a below-average level slightly decreased (50% - 20 schools in the first assessment, 45% - 18 schools in the second assessment, 42.5% - 17 schools in the third assessment); the number of schools with an average level increased slightly (30% - 12 schools in the first assessment, 35% - 14 schools in the second assessment, 42.5% - 17 schools in the third assessment); the number of schools with an above-average level did not change significantly (10% - 4 schools in the first assessment, 10% - 4 schools in the second assessment, 7.5% - 3 schools in the third assessment); schools with a high level of school education quality management were not identified.

V. Conclusion

All of the above were statistically confirmed by Friedman's 2 (K for linked samples), Wilcoxon's Ye (for 2 linked samples) and Mann Whitney's nonparametric U-test (for unlinked samples).

All this indicates that the educational module "Quality Management of School Education" has sufficient practical effectiveness and is the basis for recommending it for practical use.

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