

Factors Associated with the Proportion of Pair or Groupwork After Implementation of Enhanced School Based Continuing Professional Development: A Cross-Sectional Study for Primary Schools in Parts of Central Province of Zambia

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Abstract

Original Research Article

Pair or group work is a teaching practice where learners work in pairs or small groups to complete an activity. While opinions vary on ideal group size, evidence favours grouping learners in sets of three to five. Pair or groupwork usually makes learners to feel more comfortable practising, learning and talking in pairs or small groups as compared to standing in front of the whole class on their own. This encourages learners to get involved and if pairing is properly done, it can help even the slow learners to feel more confident which eventually improves the learning outcomes. The results of this study showed that primary schools in peri-urban areas led by female head teachers reported a relatively higher use of pair or group work, at approximately 30.3%, compared to 27.7% in schools led by male head teachers. The results further revealed that, degree holders with more experience either in the teaching profession or at their current school reported the highest mean use of pair or group work, at 34.1%, followed by diploma holders at 30.4% and certificate holders at 26.5%. Finally, the correlation results indicated a weak association of 5.9% between the proportion of pair or group work and a teacher's total years of service. A slightly stronger correlation of 11.7% was found between the number of years a teacher had remained at the same school and their likelihood of using pair or group work. The strongest, though still weak, correlation was 17.5%, observed between the number of Teacher Group Meetings (TGMs) conducted at a school and the use of pair or group work

Keywords: Pair/Group work, School Based Continuing Professional Development, Teacher Group Meetings.

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1.1 INTRODUCTION

The Zambian Education School-based Training (ZEST) project was a School-Based Continuing Professional Development (SBCPD) model which was meant to support the implementation of the revised curriculum and policies for SBCPD in Zambia.

In partnership with the ministry of education, World Vision Zambia and the Open University of UK developed a set of resources with support from the Scottish Government to support active teaching and learning in Zambia. The initiative also promotes a collaborative model of school-based continuing professional development (SBCPD) among teachers.

The project was underpinned by the belief that knowledge about teaching is co-constructed through participation in, and reflection on practice (Stutchbury *et al.*, 2019). During the six years of the ZEST project implementation, the Ministry of Education supported by WVZ and the Open University of UK, implemented an enhanced version of SBCPD in Chisamba, Kabwe, Mumbwa, Mkushi and Shibuyunji districts of Central Province of Zambia. The ZEST project worked with more than 400 primary teachers to enhance their teaching skills in all subjects across the primary curriculum. The outputs from the ZEST project included a co-designed and tested SBCPD programme of resources available online and offline. The aim of the project was to

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contribute to improving the quality of teaching and learning experiences for children in primary schools in parts of central province of Zambia.

1.2 BACKGROUND

Effective teaching and using best approaches and pedagogies in primary schools are a major concern in many countries of the world if education outcomes are to be realized. According to (UNICEF, 2022), 53% of all children in low- and middle-income countries could not read with comprehension by age 10. In Zambia, the end line assessment which was conducted by World Vision Zambia of 2021 using the School-based Test About Reading (STAR) tool showed that only 23% of grade three learners could read with comprehension. To improve the number of learners who can read with comprehension, many organizations are partnering with governments to develop effective teaching approaches and methodologies that keep learners engaged throughout the lesson. One such approach is the use of pair or group work during lesson delivery. According to (Makhliyobonu, 2023), pair work is a type of learning activity where students collaborate in groups of two. On the other hand, (Hassan *et al.*, 2023) describes pair work as bringing students in small groups of two or three to complete an activity together. Learner engagement has proved to be one of the methodologies which promote participation during the lesson as it was found by (Gallastegi, 2020) that, the most reliable measure for observable active learner engagement was found to be the time learners spent talking or working in groups and pairs. Based on this ground, this study aimed to identify the key factors influencing the proportion of pair or group work in selected schools of central Province in Zambia.

2.0 METHODOLOGY

2.1 Study Design

The study design which was used in this study was a cross sectional study to establish the proportion of pair or groupwork based on the 2022 data which was collected during the end line survey for ZEST.

2.2 Study Site

This study is nested in the ZEST end line survey where data was collected from 5 target districts of Chisamba, Kabwe, Mumbwa, Mkushi and Shibuyunji in Central Province of Zambia.

2.3 Statistical Methods

The interest of this study was to establish the factors associated with pair or group work. In order to measure this mean variation, Analysis of Variance (ANOVA) was used in this study. Pearson's Correlation tests were also conducted in order to determine how strong the association between two variables of interest was.

3.2 Analysis of Variance

Analysis of Variance (ANOVA) was conducted on the factors associated with the application of pair or group work in schools where ZEST implemented the SBCPD. These factors were categorized into two parts where the first part looked at those which were related to teachers and the second part looked at the factors related to head teachers who are the immediate supervisors to teachers and also how the type of a school/location may affect the application of pair/group work methodology.

Table 1.1: ANOVA for Teacher related Characteristics

| Over | Mean application of pair or group work | Standard Error | 95% CI |
|--|--|----------------|---------------|
| Gender of the teacher | | | |
| Male | 26.5% | 0.035 | (19.6%,33.3%) |
| Female | 32.1% | 0.019 | (28.3%,36.0%) |
| Qualification of the teacher | | | |
| Degree | 34.1% | 0.034 | (27.3%,40.9%) |
| Diploma | 30.4% | 0.022 | (26.1%,34.8%) |
| Certificate | 26.5% | 0.042 | (18.3%,34.7%) |
| Teachers teaching experience | | | |
| Minimum experience | 27.7% | 0.04 | (20.0%,35.4%) |
| Medium experience | 33.5% | 0.028 | (28.0%,39.0%) |
| High experience | 30.7% | 0.024 | (25.9%,35.5%) |
| Teachers experience in the current school | | | |
| Minimum | 29.0% | 0.021 | (24.7%,33.2%) |
| Medium | 34.7% | 0.038 | (27.3%,42.2%) |
| High | 32.6% | 0.040 | 924.6%,40.5%) |

3.2.1 Gender of the teacher

As shown in table 1.1 above, the impact of SBCPD appeared to be greater among female teachers,

who reported a 32.1% application rate of pair or group work (95% CI: 28.3%–36.0%), compared to 26.5% among their male counterparts (95% CI: 19.6%–33.3%).

3.2.2 Qualification of the teacher

The results in table 1.1 shows that, the impact of SBCPD was highest among degree-holding teachers, who reported a mean application of pair or group work of 34.1% (95% CI: 27.4%–40.9%). This was followed by diploma holders, with a mean of 30.4% (95% CI: 26.2%–34.8%). Certificate holders reported the lowest use, with a mean of 26.5% (95% CI: 18.3%–34.7%)

3.2.5 Teaching experience in the current school

This study classified teacher's experience in the current school as follows: Low (0-5 years), medium (6-10 years) and high 11 years and above. Based on table 2 above, teachers with medium experience in the current school applied pair or group work methodology more at

34.7% (27.3%,42.2%). This was followed by teachers with more experience in the current school at 32.6% (CI 24.6%,40.5%). The results further suggest that the impact of SBCPD on application of pair or group work was less among teachers with low experience in the current school at 29.0% (24.7%,33.2%)

3.3 ANOVA for head teacher and school related factors

The results under this section revealed how the factors associated with the head teacher as the manager of the school impacted the application of pair/groupwork. Additionally, analysis was done to also reveal how the factors associated with the schools where SBCPD was implemented impacted the application of pair or group work and the results are presented in table 3 below.

Table 1.2: ANOVA for head teacher related characteristics

| Over | Frequency | Mean | Standard Error | 95% C. I |
|---|-------------|---------|----------------|----------------|
| Pair or group work Vs Type of the school | | | | |
| Government school | N=43(76.8%) | 26.7% | 0.031 | (20.33%,33.0%) |
| Govt zonal school | N=10(17.9%) | 37.1% | 0.080 | (21.1%,53.1%) |
| Community schools | N=2(3.6%) | 29.6% | 0.30 | (-29.7%,88.9%) |
| Pair or group work Vs the Location of the school | | | | |
| Urban schools | N=16(28.6) | 27.4% | 0.062 | (14.8%,40.0%) |
| Peri-Urban schools | N=9(16.1) | 37.4% | 0.068 | (23.8%,51.1%) |
| Rural schools | N=31(55.4%) | 27.4% | 0.037 | (19.9%,35.0%) |
| Pair or group work Vs Sex of the Head teacher at the implementing school | | | | |
| Male Head teachers | N=27(48.2%) | 27.7% | 0.044 | (18.8%,36.6%) |
| Female Head teachers | N=29(51.8%) | 30.3% | 0.040 | (22.2%,38.3%) |
| Pair or group work Vs the qualification of the head teacher at the implementing school | | | | |
| PhD | N=1(1.8%) | Omitted | | |
| Masters' degree | N=5(8.9%) | 13.4% | 0.089 | (-4.5%,31.3%) |
| Degree certificate | N=37(66.1) | 30.8% | 0.037 | (23.4%,38.1%) |
| Diploma certificate | N=13(23.2%) | 30.6% | 0.061 | (18.3%,42.8%) |
| Pair or group work Vs head teacher's teaching experience | | | | |
| Minimum teaching experience | N=3(5.4%) | 42.7% | 0.13 | (16.5%,68.9%) |
| Medium teaching experience | N=1(1.8%) | Omitted | Omitted | Omitted |
| Maximum Teaching experience | N=52(92.9%) | 28.8% | 0.03 | (22.7%,34.9%) |
| Pair or group work Vs head teacher's teaching experience in the current school | | | | |
| Minimum experience | N=36(64.3%) | 29.3% | 0.040 | (21.4%,37.1%) |
| Medium experience | N=15(26.8%) | 26.7% | 0.060 | (14.9%,38.5%) |
| Maximum exp experience | N=5(8.9%) | 34.5% | 0.017 | (31.0%,38.0%) |

3.3.1 Pair or group work Vs Type of the school

This section looked at how the type of the school (government, government zonal, community and private schools) adopted the application of pair or group work. The results in table 1.2 above show that the interventions were more impactful in government zonal schools with the average application of pair or group work at 37.1% (CI 21.1%, 53.1%). This was followed by a 26.7% (CI 20.33%, 33.0%) application rate for government schools. The results for community schools were not statistically significant at 5% level of significance.

3.3.3 Pair or group work Vs the Location of the school

The least application of pair or groupwork was experienced in urban schools with the mean of 27.4% (CI 14.8%,40.0%) and rural areas with the mean of 27.4% (CI 19.9%,35.0%). On the other hand, the impact of the SBCPD was higher in peri-urban areas with the average application of Pair or group work with the mean of 37.4% (CI 23.8%,51.1%)

3.3.4 Pair or group work Vs Sex of the Head teacher

The results revealed that the application of pair or group work was more practiced in schools which were

headed by female head teachers with the application rate of 30.3%(CI 22.2%,38.3%) compared to schools which were headed by male head teachers with the mean application rate of 27.7%(CI 18.8%,36.6%).

3.3.5 Pair or group work Vs the qualification of the head teacher

The application of pair or group work was more impactful among teachers with degree certificates with the mean of 30.8% (CI 23.4%-38.1%). This was followed by teachers with diploma with the mean of 30.6% (CI 18.3%-42.8%). while the results for head teachers with certificates were not statistically significant at 5% level of significance.

3.3.7 Pair or group work Vs head teacher's teaching experience in the current school

This part looked at how many years the head teacher spent in the current school at the time of the survey. The results indicated that, head teachers who spent more years in the current school (11 to 35 years) supported the application of pair or groupwork with the mean of 34.5%(CI 31%,38.5%). This was followed by head teachers with minimum experience(0-5 years) in

the current school with the mean of 29.3% (CI 21.4%,37.1%) and the results further show that the impact was minimal among head teachers who spent between 6 to 10 years in the current school with the mean of 26.7% (CI 14.9%-38.5%).

3.4 Correlation between Variables

This study explored the correlations between pair or groupwork and teachers teaching experience, experience in the current school and also the correlation between pair or groupwork with the number of Teacher group meetings. The figures below show the correlation graphs for each of the factors.

3.4.1 Correlation between the experience of a teacher Vs usage of Pair or group work

The correlation examines the relationship between a teacher's years of experience and how frequently they use pair or group work as instructional strategies. It explores whether more experienced teachers are more likely to apply collaborative learning methods in their classrooms compared to less experienced teachers. Correlation analysis was done as shown in figure 1 below.

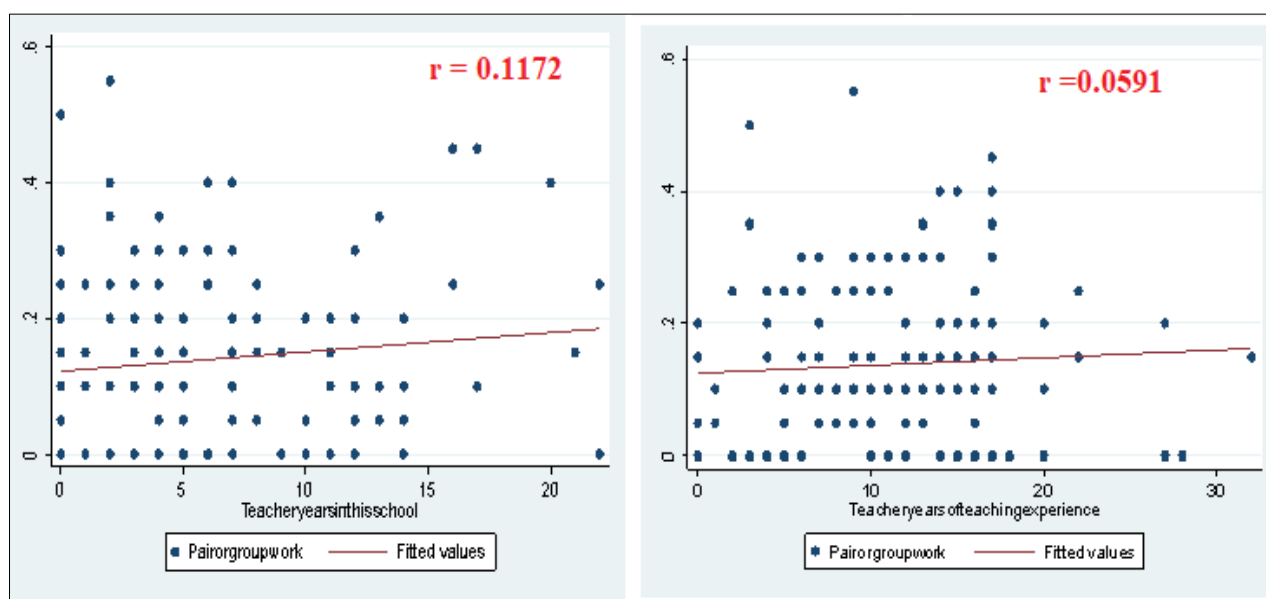


Figure 1: Correction between teachers experience and usage of pair/group work

The results in figure 1 above indicate that the correlation between the experience of the teacher in the current school and them using pair or group work was about 11.7%. On the other hand, the correlation between the experience of a teacher in the teaching service and them using pair or group work was 5.9%.

3.4.2 Correlation between Number of TGMs and application of pair or group work

This correlation investigates the relationship between the frequency of Teacher Group Meetings (TGMs) held at a school and the extent to which teachers use pair or group work during lessons. It aims to understand whether increased participation in TGMs is associated with greater adoption of collaborative teaching methods. The results for this correlation are shown in figure 2 below.

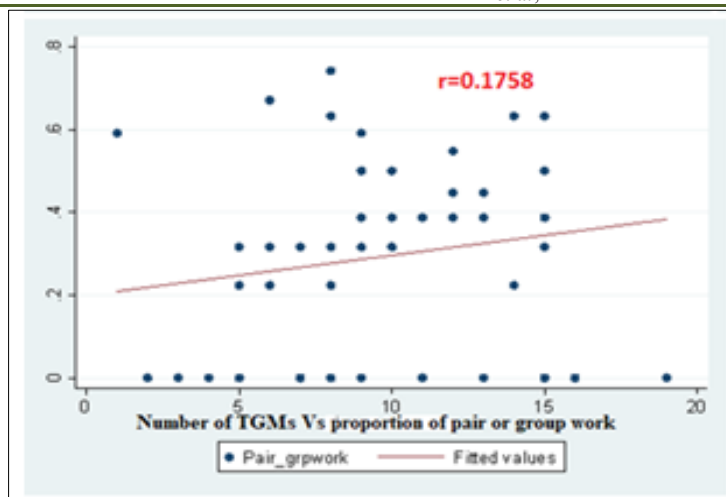


Figure 2: Correlation between number of TGMs vs Application of pair or group work

Figure 2 above shows a weak positive correlation of 17.6% between the number of Teacher Group Meetings (TGMs) conducted and the application of pair or group work during lessons. This suggests that schools holding more TGMs tend to have slightly higher usage of collaborative teaching methods, although the association is modest

4.0 DISCUSSION

The results reviewed that the rate of application among female teachers was higher than that of male teachers. A study by (Hussain *et al.*, 2018) indicated that, generally female teachers are more patient when teaching which produces better education outcomes as compared to male teachers. The results of this study revealed that the SBCPD interventions on the application of pair or group work were more impactful among teachers with medium teaching experience. The findings by (Alimi *et al.*, n.d.) also revealed that the impact of experience is strongest during the first few years of teaching; after that, marginal returns diminish. The results showed that the application of pair or group work in schools which were headed by female head teachers was higher than in schools which were headed by male head teachers. In line with this factor, it was revealed in a study by (Elias, 2013) that, students in primary schools under the leadership of female head teachers performed significantly better than those led under male head teachers. However, the results for this study showed that, there was a minor difference of only 0.2% in terms of the application of pair or group work among schools headed by diploma holders and those which were headed by degree holders.

The results of this study showed that the impact of the SBCPD on the application of pair or group work in government zonal schools was much higher than government schools and community schools. The findings from a study which was done by (Dickson, n.d.) in Mumbwa district revealed that the factors that affect the provision of quality education in community schools

included lack of qualified teachers, teacher motivation for teachers not on government payroll, limited learning materials and school infrastructure.

The correlation tests which were conducted on teacher related factors showed that the correlation between the experience of a teacher in the current school and the application of pair or group work was 11.7%. This may suggest that there is some relative weak association between how long a teacher has stayed in the current school and them using pair or group work during lesson delivery. On the other hand, there was a weak association of 5.9% between the general experience of a teacher in the teaching profession and them using pair or group work. The results showed that there was very correlation of 2.5% between the experience of the head teacher and a school they were managing using pair or group work. On the other hand, there was a slight increase on the level of association between the experience of the head teacher in the current school and the proportion of application of pair or group work in their respective schools of 8.3%.

5.0 CONCLUSION

The results further showed that, the SBCPD on supporting pair or groupwork was more impactful among head teachers with the more teaching experience as compared to those with minimum and moderate experience. On the other hand, teachers with moderate experience supported pair or group work more than those with lower and higher experience in the teaching profession and also in their respective current schools. The correlation results showed weak positive association between the experience of teachers and head teachers versus the application of pair or groupwork. The correlation for the number of TGMs and application of pair or group work was slightly higher than experience of teachers and head teachers but due to weak correlation, the quality of the TGMs may be compromised.

RECOMMENDATIONS

Based on the results from this study, there is need to encourage government, community and private schools to learn from the government zonal schools on how they are managing to apply pair or group work during lesson delivery. On the area of the experience of the teachers, mentorship of teachers with low teaching experience should be enhanced because the results showed that there was low application of pair or group work among teachers with low experience. Mentorship should also be extended to teachers who may have been transferred from other schools or newly deployed. Mentorships should also be enhanced to teachers with low or no qualification.

LIMITATIONS OF THE STUDY

The study had limitations as the data which was used was collected for the purpose of the ZEST end line survey in line with the project indicators and not specifically to answer the research questions in this study. As a result of this, problems encountered included having missing variables/factors such as the age of the teachers and head teachers.

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