DEVELOPMENT AND USE OF PROFESSIONAL LEARNING SCHEME TO IMPROVE TEACHERS' COMPETENCE AND STUDENTS' ACHIEVEMENT IN MATHEMATICS IN ABEOKUTA, OGUN STATE

BY

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A thesis in the International Centre for Educational Evaluation (ICEE) submitted to the Institute of Education In partial fulfilment of the requirements for the Degree of

DOCTOR OF PHILOSOPHY
of the
UNIVERSITY OF IBADAN

FEBRUARY, 2020

ABSTRACT

Over the years, examination bodies have observed low achievement in demanding mathematical questions such as mensuration, trigonometric-graph and construction. Past studies investigating the effect of teaching strategies on enhancing students' achievement in ~~m~~Mathematics suggest that teaching competence is low among teachers. This study therefore developed a Professional Learning Scheme (PLS)into two packages: the Professional Learning Scheme with Enhanced Supportive Skill (PLS+ESS) and Professional Learning Scheme Only (PLS ONLY).The packages were tried on teachers after assessing the level of their teaching competence. Moderating effects of teachers' dispositionand years~~and years~~ of teaching were also examined.

The study wasanchored to Social Cognitive Theory. It adopted descriptive and pretest-posttest control group quasi-experimental designs. Thirty schools from two Local Government Areasin Abeokuta metropolis were randomly selected with 15 schools from each from each LGA~~,with 15schools from each LGA~~.Ten selected ~~selected~~ schools were assigned to each of ~~the~~ two experimentalgroups and one control group.All the SSS1teachers (33) and their students (1552) participated in the study.The PLS was administered on teachers who used it to teach students concurrently for eight weeks.The instruments used were the ~~The instrumentsedwere the~~ Professional Learning Scheme Content Essential Scale (CVI=0.91), Teachers' Competence Observational Tool (π=0.73), Teacher Disposition Scale (r=0.61) and Student Mathematics Achievement Test (KR-20=0.83). D~~D~~ata were subjected to descriptive statisticsand analysis of covariance at 0.05 level of significance.

Content validity indices of the components of the PLS ranged between 0.53 and 0.99. There was a significant main effect of treatment on teachers' competence ($F_{(2, 26)}$=32.51, partial η^2=0.71) and students' mathematics achievement ($F_{(2,1535)}$=51.52, partialη^2=0.63). Teachers in PLS ONLY had the highest mean competence score (82.19), followed by PLS+ESS (81.80) and the control (39.60) groups. Students in PLS ONLY had the highest mean achievement score (21.26), followed by PLS+ESS (18.32) and the control (16.02).There was a significant main effect of the ~~the~~teachers'years of teaching ($F_{(2,1535)}$=7.60,partial η^2=0.01)and disposition ($F_{(2,1535)}$=2.21,partial η^2=0.001) on students' mathematics achievement.Teachers with high years of teaching had the highest students' achievement score (20.09), followed by moderate (18.15) and low

Comment [C1]: Truism should be avoided

Comment [C2]: Poor, since it doesn't really say much

Comment [C3]: Make it clear that there are 30 schools

Comment [C4]: It is not clear or obvious how many groups were involved. Distinguish them.

Comment [C5]: As stated it is not clear why 33 teachers should emerge out of 30 shcools or where 1552 students emerged from.

Comment [C6]: Incomplete. You may use only this word when speaking or after stating it in full. "disposition towards…

years of teachingyears of teaching (18.01). The students taught by teachers with "high" disposition had higher achievement score (18.83) relative to those taught by teachers with "low" disposition (18.58). Teachers' disposition and years of teaching had no significant effect on teachers' competence. The two-way interaction effects of treatment and years of teaching ($F_{(4,1535)}$=6.02, partial η^2=0.02), treatment and disposition ($F_{(2, 1535)}$=5.85, partial η^2=0.01) as well as years of teaching and disposition ($F_{(2,1535)}$=9.82,partial η^2=0.01) were significant on students' mathematics achievement. Apparently, Tthe provision of ESS became a distraction tolimited teachers's input, explaining why PLS ONLY recorded the highest achievement score. The three-way interaction effect of treatment, years of teaching and disposition was significant on students'mathematics achievement ($F_{(2,1535)}$=25.40, partial η^2=0.03).

The Professional Learning Scheme package designed improved the teachers' competence and students' achievement in Mmathematics. Mathematics teachersare,therefore, encouraged to adoptthe Professional Learning Scheme Only to improve their competence in order to produce students with better achievement in Mmathematics.

Keywords: Professional learning scheme, Students' achievement in mathematics, Mathematics teachers' competence.

Word count: 491

DEDICATION

To God Almighty

To My Late Parents

- **Alhaji Kareem Adedoyin**

and

- **Mrs Wosilatu Aduke Adedoyin**

To all the preachers of the truth

ACKNOWLEDGEMENTS

I give God all the glory, for His unfailing mercies and faithfulness received through His Only Son, my Lord Jesus, in the course of this study.

Deep appreciation goes to my supervisor, Dr. J. O. Adeleke, who graciously availed me the benefit of his great intellectual endowment which helped in no small way to ensures the successful completion of this project. I will always remain grateful to you, sir, for many insightful comments and suggestions that improved the work.

To all my lecturers in the Institute; Prof. F. V. Folajogun, Prof. E. A. Okwilagwe, Prof. G. A. Adewale, Prof. J. A. Adegbile and Prof. M. N. Odinko, Dr. B. A. Adegoke, Dr. J. A. Abijo, Dr. M. Metibemu, Dr. I. O. Jinadu, Dr. S. F. Akorede, Dr. E. O. Babatunde, Dr. F. O. Ibode, Dr. (Mrs.) Omole and Dr. Oladele. I am really grateful for all your support and contributions.

Sincere gratitude to all my colleagues in the Institute. I thank Dr. Nathan Olaniyan, Mrs. Arowojolu, Mrs. Deborah Fajimi, Mrs. R. Lawal, Mr. Oladimeji Seyi, Dr. Afeez Jinadu, Dr. Segun Ojetunde and my friend and brother, Mr. Johnson Olabode. God bless you all.

I want to appreciate all my research assistants for the un-relenting efforts to ensure the fieldwork was a success. Worthy of mention are Mr. Johnson Olabode, Phillip Oklu, Yinka Sobande, Adebori Adebayo, Sola Fatoki and Mosaku Taiwo. I equally appreciate the staff of the Research Unit, Ogun State Ministry of Education and those of the Teaching Service Commission for the opportunity given to me to train the teachers of senior secondary schools for my fieldwork.

My gratitude goes to my co-workers in the Department of Mathematics, FCE, Abeokuta for their prayers and support. They are Mr. I. A. Awe, Dr. S. O. Ogunrinade, Dr. C. A. Akintade, Mr. B. J. Akinbo, Mrs. F. A. Olaore, Mrs. O. V. Adeaga and Oriola, B. M. I also thank my siblings – Pastor and Mrs. Aderemi Adedoyin, Mr. and Mrs. Mojisola Peter Adewale.

Finally, to my dear spouse, Prof. A. R. Popoola, there is no gainsaying that God has placed you there for me in terms of everything. Your assistance is inestimable as well as the prayers and understanding of our children.

CERTIFICATION

I certify that POPOOLA, BOLAJI AJIBOLA has fulfilled all the requirements for the award of the PhD in Education.

This thesis is as a result of the research work carried out by her during the course of her PhD degree in the Institute of Education, University of Ibadan, Ibadan, Nigeria.

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Date

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LIST OF ABBREVIATIONS

AAAS	- American Association for the Advancement of Science
ESS	- Enhanced Supportive Skill
INTASC	- Interstate New Tri- Assessment and Support Consortium
MDG	- Millennium Development Goal
NCLB	- No Child Left Behind
NCTE	- National Council for Teachers Education (NCTE)
NERC	- National Educational Research Council
NRC	- National Research Council
NSDC	- National Staff Development Council
PLG	- Professional Learning Group
PLS	- Professional Learning Scheme
SEDL	- South West Educational Development Laboratory
SSSCE	- Senior Secondary School Certificate Examination
TC	- Teacher's Competence