

Teacher Professional Development Strategies and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

**Ntembe Ibrahim¹, Assoc. Prof. Nabukeera Madinah²,
Assoc. Prof. Matovu Musa³, Dr. Ssali Muhammadi Bisaso⁴**

¹Postgraduate student, Department of Educational Management and Administration, Faculty of Education, Islamic University in Uganda,

²Assoc. Prof. Department of Public Administration, Faculty of Management, Islamic University in Uganda Females' Campus

³Assoc. Prof. Department of Educational Psychology, Faculty of Education, Islamic University in Uganda.

⁴Senior Lecturer, Department of Educational Management and Administration, Faculty of Education, Islamic University in Uganda.

Abstract

The study examined the relationship between teacher professional development strategies and their performance in public secondary schools in Jinja Southern Division, Uganda. The study was steered by three specific objectives; i) To examine the relationship between training and teachers' performance, ii) To examine the relationship between mentorship and teachers' performance, and iii) To examine the relationship between self-directed learning and teachers' performance in public secondary schools in Jinja Southern Division, Uganda. The study embraced a correlational research design combined with a quantitative approach. A sample of 52 participants was used consisting of head teachers and teachers from two selected public secondary schools in Jinja Southern division. The Descriptive and correlation analysis were utilized to give answers to the study phenomenon. The results indicated a statistically strong positive and significant relationship between training and performance of teachers. Results also indicated that, there is a statistically strong positive and significant relationship between mentorship and performance of teachers. Results further indicated a statistically strong positive and significant relationship between self-directed learning and performance of teachers in public secondary schools in Jinja Southern Division, Uganda. Therefore, the study concludes that teacher professional development strategies such as training, mentorship, and self-directed learning have a positive and substantial relationship with performance of teachers in that an enhancement in the different teacher professional development strategies resultantly leads to an enhancement in performance of teachers in public secondary schools in Jinja Southern Division, Uganda. The study recommends that schools should offer specialized training to teachers in new teaching methods, classroom management, and subject-specific expertise and also encourage teachers to participate in regular training workshops, seminars, and certification programs which would influence an

improvement in the performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Keywords: Training, Mentorship, Self-Directed Learning and Teacher Performance.

INTRODUCTION

The study aims to examine the relationship between teacher professional development strategies and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Historical Perspective

Globally, the inconsistencies in teacher performance in different educational institutions has resulted into governments and ministries of education to come up with professional development strategies aimed at improving teacher performance as teachers play a crucial role in school performance over the years in different countries (Yueqin & Mohammed, 2024). During the mid-20th century as education systems expanded, in-service and ongoing training programs, mentorship programs, as well as job-embedded professional development emerged to update teachers on new pedagogical theories leading to greater improvements in teacher effectiveness. Governments and school districts also organized workshops and seminars, often focused on curriculum updates, differentiated instruction, student engagement, classroom management techniques, and assessment techniques, improving long-term teachers' performance (Korir, Kalei, Korir & Onyango, 2023).

Theoretical Perspective

The study was steered by the Change Theory established by Fullan in 1993. The theory postulates that teachers need supportive leadership, resources, and ongoing training to implement educational changes. Professional development should focus on gradual, sustained improvements rather than one-time workshops (Kirsten, 2020). According to Fletcher-Wood, Stansfield, Herwegen and Goodrich (2022) the theory is applicable to the education context in that ongoing, school-based professional development leads to long-term improvements in teaching quality. The authors assert that teachers are more successful when professional development aligns with school-wide goals and involves continuous support which resultantly leads to an enhancement in the performance of teachers (Fletcher-Wood et al., 2022). Thus, the theory was applicable as it gives a linking between professional development strategies and performance of teachers.

Contextual Perspective

The study was carried out in public secondary schools in Jinja Southern division examining the relationship between teacher professional development strategies and performance of teachers. This was taken into consideration as a result of limited or no research carried out in respect to teacher professional development strategies and performance of teachers explicitly in public secondary schools in Jinja Southern division. Additionally, Jinja Southern division in Jinja district was considered due to the inconsistencies in teachers' performance among public secondary schools in the overall district indicated by teachers' lack of effective lesson plans and preparation, increased absenteeism rates and late reporting for classes, irregularity in ethical and professional conduct, and limited engagement in community and extracurricular activities among others (Jinja District Local Government, 2021).

Conceptual Perspective

Teacher professional development strategies refer to structured and intentional approaches designed to enhance teachers' knowledge, skills, attitudes, and instructional practices to enhance their efficiency in

the classroom. These strategies provide continuous learning opportunities for teachers to adapt to new teaching methodologies, curriculum changes, and student needs (Yueqin & Mohammed, 2024). Performance of teachers refers to the effectiveness, efficiency, and overall quality of a teacher's work in delivering instruction, managing the classroom, and supporting student learning outcomes. It encompasses a teacher's knowledge, skills, attitudes, and professional conduct in fulfilling their educational responsibilities (Korir et al., 2023). For the case of the current study, teacher professional development strategies were conceptualized in form of training, mentorship, and self-directed learning, while performance of teachers was conceptualized in terms of lesson planning and delivery, communication skills, classroom management, assessment and feedback, attendance and punctuality, as well as collaboration and teamwork among others.

Statement of the problem

The government of Uganda in collaboration with the Ministry of Education and Sports has put in place several policies and initiatives to enhance the performance of teachers through targeted professional development strategies in different schools. For instance, the National Teacher Policy has been implemented with the objective to professionalize the teaching profession. The policy provides a comprehensive framework for teacher development and management, involving standardizing qualifications, enhancing teacher training, and addressing systemic educational challenges to improve teaching and learning outcomes (Ministry of Education and Sports, 2018).

However, despite all the outstanding policies and initiatives, the performance of teachers in most of the public secondary schools in Jinja district including Jinja Southern division is still inconsistent characterized by teachers' lack of effective lesson plans and preparation, increased late coming and missing of classes, ineffective classroom management, increased absenteeism rates, and professional misconduct (Jinja District Local Government, 2021). Evidence indicates that almost 34% of the teachers recurrently arrived at school late or left early and also 21% of teachers missed classes at least once a week in 2021 among public secondary schools in the district (Jinja District Local Government, 2021). This has consequently led to a decline in student engagement and academic performance outcomes, as well as a decline in schools' academic reputation. Hence, it is upon this basis that this study examined the relationship between teacher professional development strategies and performance of teachers in public secondary schools in Jinja Southern division.

Study Objectives

General Objective

The main objective of the study was to examine the relationship between teacher professional development strategies and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Specific Objectives

- To examine the relationship between training and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.
- To examine the relationship between mentorship and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.
- To examine the relationship between self-directed learning and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Study Hypotheses

The specific objectives were steered by the subsequent alternative hypotheses;

Ha1: There is a statistically significant relationship between training and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Ha2: There is a statistically significant relationship between mentorship and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

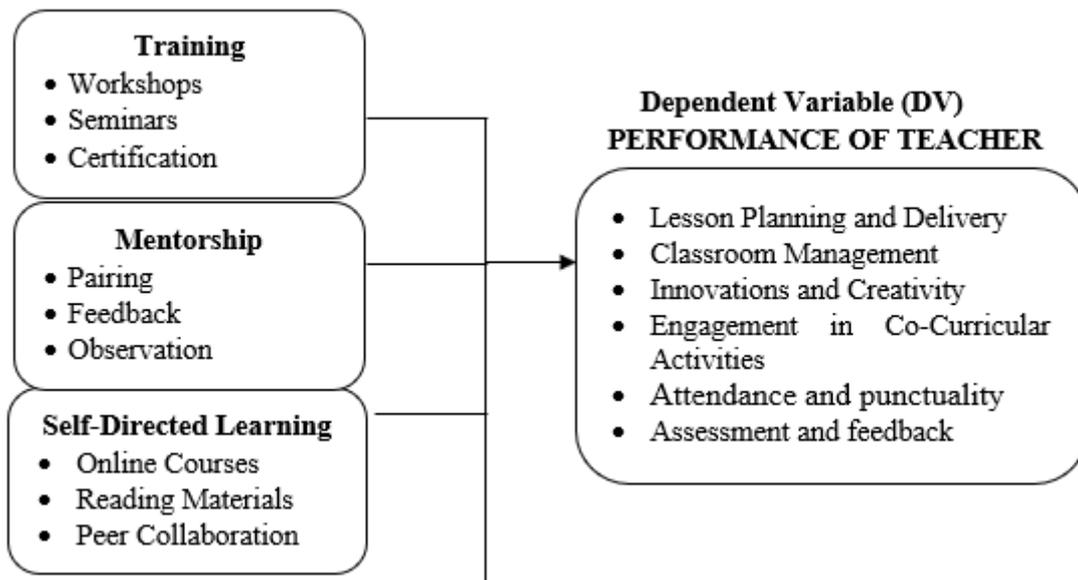
Ha3: There is a statistically significant relationship between self-directed learning and performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Conceptual Framework

The conceptual framework indicates an illustrative diagram on the linkage between teacher professional development strategies and performance of teacher.

Independent Variable (IV)

TEACHER PROFESSIONAL DEVELOPMENT STRATEGIES



Literature Review

Teacher Professional Development Strategies and Performance of Teachers

Teacher professional development strategies play a central role in enhancing teacher performance by improving their knowledge, skills, and instructional practices. When effectively implemented, these professional development strategies lead to better teaching quality, improved student outcomes, and increased teacher motivation, leading to an improvement in the performance of teachers (Pinzon, Gomez & Gonzalez, 2024). Additionally, Zhao, Yang, Long and Zhao (2019) asserts that professional development programs provide updated teaching methodologies, subject knowledge, and innovative instructional strategies. Workshops, coaching, and online courses expose teachers to modern, research-based teaching techniques, which when effectively utilized lead to an improvement in the overall teachers' performance.

Teacher professional development strategies include training on behavior management, differentiated

instruction, and student-centered learning through which teachers learn techniques to create a positive learning environment. These also facilitate an improvement in the performance of teachers leading to better discipline management and fewer classroom disruptions, increased student engagement and participation, and improved teachers' confidence in handling diverse student needs (Yueqin & Mohammed, 2024). Additionally, the authors argue that professional development strategies such as mentorship programs, peer collaboration, and incentive-based professional development provide emotional and professional support as well as encourage career growth which lead to higher teacher motivation and retention rates, increased commitment to teaching excellence, and also teachers feel valued and empowered, leading to better effort and innovation (Yueqin & Mohammed, 2024).

A study by Mduma and Mkulu (2021) found that teachers' professional development practices significantly influence teachers' performance in public secondary schools in Nyamagana district, Mwanza-Tanzania. The authors asserted that teacher professional development strategies like lesson study, peer observation, and action research help teachers assess and refine their teaching methods. Similarly, self-assessment tools and feedback mechanisms allow teachers to identify areas of growth, leading to more adaptive and responsive teaching approaches, teachers continuously seek improvement and innovation, and enhanced teachers' ability to use student performance data to adjust teaching methods (Mduma & Mkulu, 2021). In addition, the authors argued that professional development focuses on effective assessment strategies like formative and summative assessments through which teachers learn how to give constructive feedback to students leading to better student performance tracking and individualized support, more accurate grading and evaluation methods, and stronger teacher-student relationships through meaningful feedback (Mduma & Mkulu, 2021).

According to Festus, Valentine and Esther (2019) professional development provides teachers with modern teaching methodologies, curriculum updates, and subject mastery. Professional development strategies like workshops, peer collaboration, and mentoring expose teachers to innovative, learner-centered approaches, which leads to better lesson planning and content delivery, more interactive and engaging teaching methods, and increased student participation and comprehension. The authors also assert that teacher professional development includes training on classroom discipline, conflict resolution, and student motivation techniques through which teachers learn effective behavior management strategies that foster a positive learning environment, leading to improved classroom control and organization, reduced student disruptions and disciplinary issues, and greater student interest and active participation in lessons (Festus et al., 2019).

Teacher professional development programs such as trainings provide career growth opportunities, incentives, and peer support. Teachers who receive continuous training feel valued and empowered in their profession which results into higher job satisfaction and motivation, lower burnout and attrition rates, leading to increased commitment to improving student learning outcomes (Gore, Lloyd, Smith, Bowe, Ellis & Lubans, 2017). The authors also argued that teacher professional development strategies like lesson study, action research, and self-reflection help teachers assess and refine their teaching methods increasing exposure to new educational technologies and pedagogical trends which enhances adaptability. This leads to greater teachers' willingness to experiment with new teaching techniques, improved problem-solving and critical thinking abilities, and more effective adaptation to curriculum changes, resultantly improving teachers' performance (Gore et al., 2017).

According to Padillo, Manguilimotan, Capuno and Espina (2021) professional development strategies train teachers in effective student assessment, feedback delivery, and differentiated instruction. Teachers

learn how to monitor student growth and modify their teaching accordingly, leading to more accurate grading and performance evaluation, stronger teacher-student relationships through meaningful feedback, and better identification and support for struggling students, improving students' learning and academic outcomes. Additionally, the authors also assert that professional development strategies such as teacher training help teachers develop new skills and adapt to changing educational demands which effectively shapes teachers' abilities to manage classrooms, deliver lessons, and foster positive learning outcomes (Padillo et al., 2021).

Methodology

Research Design

This study embraced a correlational research design combined with only a quantitative approach. A correlational research design concentrates on examining for a relationship between variables in the particular study population (Kassu, 2019). Thus, this research design assisted the researcher in scrutinizing the relationship between teacher professional development strategies and performance of teachers in public secondary schools in Jinja Southern division. A quantitative approach aided the researcher to acquire quantitative data used to offer an understanding to the study concepts.

Target Population and Sample Size

Due to the time constraint the researcher considered 2 public secondary schools in Jinja Southern division from which a sample was obtained that took part in the study. The study focused on a sample of 52 participants which consisted of head teachers and teachers that were selected from the chosen public secondary schools in Jinja Southern division to provide quantitative data that was utilized to provide an understanding to the study objectives.

Sampling Procedure

The researcher engaged simple random sampling to choose participants who took part in the study. Simple random sampling was engaged to choose both head teachers and teachers from the various public secondary schools to take part in the study. Simple random sampling offers an equal chance of selection to every individual in the population to be included in the sample (Elfil & Negida, 2017). Both the head teachers and teachers were selected to provide quantitative data that was used in the study.

Data Collection Methods

Questionnaire Survey Method

A questionnaire survey method is an approach of getting information through a variety of questions with the objective of gathering information from participants (Mathiyazhagan, 2018). The questionnaire survey method was important so as to obtain unvarying information which warranted the comparability of data using easy to apprehend well-planned questions. Hence, this technique supported the researcher to gather quantitative data from the participants in the different selected public secondary schools in the shortest time possible.

Data Collection Instruments

Structured Questionnaire

A structured questionnaire is an instrument used to gather information from participants comprising of closed-ended answers to the queries from which participants are indebted to choose (Acheung, 2019). The study utilized structured questionnaires to gather quantitative data from both the head teachers and teachers

which constituted of closed-ended queries and encoded responses that were self-administered to participants in the various selected public secondary schools in Jinja Southern division. The structured questionnaires were utilized as they need little time and collect a great deal of information on the study phenomenon.

Data Analysis

The study engaged both descriptive and correlation analysis techniques in evaluating the quantitative primary data gathered. Descriptive analysis was employed when evaluating participants’ bio-data presented as frequencies and percentages. To examine the relationship between the independent and dependent variables, Spearman’s rank correlation analysis was engaged to provide the practical evidence on the study hypotheses at a 0.01 significance level. Spearman’s Rank Correlation quantifies the association between two ordinal variables (Jerrold, 2016).

Ethical Consideration

The researcher obtained an introductory letter from Islamic University in Uganda as a requirement for acquiring permission from administrators in the various schools to carry out the study in their schools before undertaking the study.

The researcher also requested for participants’ consent to take part in the study prior to questionnaires being administered to them.

Additionally, the researcher warranted confidentially to respondents and their information provided as this is a crucial ethical aspect in research.

Study Findings

The findings covered in this section constitute descriptive statistics on the demographics of participants and correlation analysis to offer answers to the study objectives.

Findings on the Demographic Compositions

The study evaluated the demographics of participants who were involved in the study from the various selected public secondary schools in Jinja Southern Division, Uganda and the results are provided in Table 1;

Table 1: Demographic Composition of Respondents

Demographic Composition			
Category	Items	Frequency	Percentage
Gender	Male	30	57.7
	Female	22	42.3
	Total	52	100.0
Age Bracket	25-30 years	6	11.5
	31-35 years	11	21.2
	36-40 years	13	25.0
	Above 40 years	22	42.3
	Total	52	100.0
Level of Education	Certificate	1	1.9
	Diploma	5	9.6
	Bachelors	40	76.9
	Masters	6	11.6
	Total	52	100.0

Marital Status	Married	34	65.4
	Single	16	30.8
	Widowed	2	3.8
	Total	52	100.0
Period of Work at the Secondary School	1-3 years	9	17.3
	4-5 years	13	25.0
	Above 5 years	30	57.7
	Total	52	100.0

Source: Primary data, 2025

As of Table 1, the results revealed that majority of participants 30 (57.7%) who were involved in the study were male and 22 (42.3%) of participants who were involved in the study were female. The study findings also shown that a bigger proportion of participants 22 (42.3%) were aged above 40 years, followed by 13 (25.0%) of participants who were aged 36-40 years, then 11 (21.2%) of participants who were aged 31-35 years, and the least proportion of participants 6 (11.5%) were aged 25-30 years.

The study findings shown that majority of participants 40 (76.9%) had achieved a bachelors' level of education, followed by 6 (11.6%) of participants who had achieved a masters' level of education, then 5 (9.6%) of participants who had achieved a diploma level of education, and only 1 (1.9%) of participants had achieved a certificate level of education.

In accord to marital status, the study findings shown that majority of participants 34 (65.4%) were married, followed by 16 (30.8%) of participants who were single, and a few 2 (3.8%) of participants were widowed. The study findings further shown that majority of participants 30 (57.7%) had a working experience of above 5 years at the respective schools, followed by 13 (25.0%) of participants who had a working experience of 4-5 years at the respective schools, and the least proportion of participants 9 (17.3%) had a working experience of 1-3 years at the respective schools.

Findings on the Objectives of the Study

This segment provides findings according to the specific study objectives.

Relationship between Training and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

The study tried to examine the relationship between training and performance of teachers in public secondary schools in Jinja Southern Division, Uganda. The relationship was examined using Spearman's Rank correlation analysis and the findings are provided in Table 2.

Table 2: Correlation Results on the Relationship between Training and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

		Training	Performance of Teachers
Training	Spearman's Correlation Coefficient	1.000	.640**
	Sig. (2-tailed)	.	.000
	N	52	52
Performance of Teachers	Spearman's Correlation Coefficient	.640**	1.000
	Sig. (2-tailed)	.000	.
	N	52	52

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data, 2025

The study results in Table 2 indicate that there is a statistically strong positive and significant relationship between training and performance of teachers in public secondary schools in Jinja Southern Division, Uganda ($r = 0.640$, $N = 52$, $P\text{-value} = 0.000$) at a 0.01 significance level. The findings infer that an enhancement in training strongly and considerably leads to an enhancement in performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Relationship between Mentorship and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

The study also tried to examine the relationship between mentorship and performance of teachers in public secondary schools in Jinja Southern Division, Uganda. The relationship was examined using Spearman’s Rank correlation analysis and the results are provided in Table 3.

Table 3: Correlation Results on the Relationship between Mentorship and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

		Mentorship	Performance of Teachers
Mentorship	Spearman’s Correlation Coefficient	1.000	.673**
	Sig. (2-tailed)	.	.000
	N	52	52
Performance of Teachers	Spearman’s Correlation Coefficient	.673**	1.000
	Sig. (2-tailed)	.000	.
	N	52	52

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data, 2025

The study results in Table 3 found that there is a statistically strong positive and significant relationship between mentorship and performance of teachers in public secondary schools in Jinja Southern Division, Uganda ($r = 0.673$, $N = 52$, $P\text{-value} = 0.000$) at a 0.01 significance level. The results infer that an enhancement in mentorship strongly and considerably leads to an enhancement in performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Relationship between Self-Directed Learning and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

The study further tried to examine the relationship between self-directed learning and performance of teachers in public secondary schools in Jinja Southern Division, Uganda. The relationship was examined using Spearman’s Rank correlation analysis and the results are provided in Table 4.

Table 4: Correlation Findings on the Relationship between Self-Directed Learning and Performance of Teachers in Public Secondary Schools in Jinja Southern Division, Uganda

		Self-Directed Learning	Performance of Teachers
Self-Directed Learning	Spearman’s Correlation Coefficient	1.000	.517**
	Sig. (2-tailed)	.	.000

	N	52	52
Performance of Teachers	Spearman’s Correlation Coefficient	.517**	1.000
	Sig. (2-tailed)	.000	.
	N	52	52
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Primary data, 2025

The study results in Table 4 found that there is a statistically strong positive and significant relationship between self-directed learning and performance of teachers in public secondary schools in Jinja Southern Division, Uganda ($r = 0.517$, $N = 52$, $P\text{-value} = 0.000$) at a 0.01 significance level. The results infer that an enhancement in self-directed learning greatly and significantly leads to an enhancement in performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Conclusion

The study concludes that teacher professional development strategies such as training, mentorship, and self-directed learning have a positive and substantial relationship with performance of teachers in that an enhancement in the different teacher professional development strategies resultantly leads to an enhancement in performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

Recommendations

The study recommends that schools should offer specialized training to teachers in new teaching methods, classroom management, and subject-specific expertise and also encourage teachers to participate in regular training workshops, seminars, and certification programs which would influence an improvement in the performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

The study also recommends that the schools should establish peer coaching programs where teachers observe and learn from one another and also pair new or less experienced teachers with senior educators for guidance and mentorship which would influence an improvement in the performance of teachers in public secondary schools in Jinja Southern Division, Uganda.

References

1. Acheung, A. K. (2019). Structured Questionnaires. Dordrecht: Springer. Retrieved from https://link.springer.com/referenceworkentry/10.1007%2F978-94-007-0753-5_2888
2. Elfil, M. & Negida, A. (2017). Sampling Methods in Clinical Research: An Educational Review. *Journal of Academic Emergency Medicine*, 5(1), 52-69.
3. Festus, A., Valentine, O., & Esther, M. (2019). Human Resource Management and Teachers' Job Performance in Secondary Schools in Akamkpa Local Government Area of Cross River State, Nigeria. *International Journal of Social Sciences and Management Research*, 2(5), 27-34.
4. Fletcher-Wood, H., Stansfield, C., Herwegen, J. V., & Goodrich, J. (2022). Effective Teacher Professional Development: New Theory and a Meta-analytic Test. *EdWorking Paper*, 12(1), 104-118.
5. Gore, J., Lloyd, A., Smith, M., Bowe, J., Ellis, H., & Lubans, D. (2017). Effects of Professional Development on the Quality of Teaching: Results From a Randomised Controlled Trial of Quality Teaching Rounds. *Teaching and Teacher Education*, 68(1), 99-113.
6. Jerrold, H. (2016). *Encyclopedia of Biostatistics: Spearman's Rank Correlation*. Berkshire: Open University Press.

7. Jinja District Local Government. (2021). Jinja District Local Government Education Performance Report 2021. Kampala, Uganda: Jinja District Local Government.
8. Kassu, J. S. (2019). Research Design and Methodology. London, United Kingdom: IntechOpen Limited.
9. Kirsten, N. (2020). A Systematic Research Review of Teachers' Professional Development as a Policy Instrument. *Educational Research Review*, 31(1), 1-13.
10. Korir, B. C., Kalei, A., Korir, T., & Onyango, R. (2023). Influence of Professional Development on Teachers' Performance in Secondary Schools in Uasin Gishu County, Kenya. *The Strategic Journal of Business & Change Management*, 10(3), 214-226.
11. Mathiyazhagan, T. (2018). Survey Research Method. New Delhi: National Institute of Family & Welfare.
12. Mduma, E. R. & Mkulu, D. G. (2021). Influence of Teachers' Professional Development Practices on their Job Performance in Public Secondary Schools: A Case of Nyamagana District, Mwanza-Tanzania. *International Journal of English Literature and Social Sciences*, 6(1), 215-230.
13. Ministry of Education and Sports. (2018). Education System in Uganda: Policies and Regulations . Kampala: Government of the Republic of Uganda.
14. Padillo, G. G., Manguilimotan, R. P., Capuno, R. G., & Espina, R. C. (2021). Professional Development Activities and Teacher Performance. *International Journal of Education and Practice*, 9(3), 497-506.
15. Pinzon, A., Gomez, P., & Gonzalez, M. J. (2024). Effects of a Professional Development Programme on Teachers' Classroom Practices in Colombia. *Oxford Review of Education*, 50(5), 607-625.
16. Yueqin, C. & Mohammed, L. A. (2024). Exploring the Impact of Teacher Professional Development on Teachers' Performance: A Literature Review Study. *International Journal of Religion*, 5(11), 5034-5042.
17. Zhao, G., Yang, X., Long, T., & Zhao, R. (2019). Teachers' Perceived Professional Development in a Multi-Regional Community of Practice: Effects of Beliefs and Engagement. *Learning, Culture and Social Interaction*, 23(1), 1-13.