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Influence of Continuous Professional Development for Secondary School Teachers on Academic Performance in Public Secondary Schools in Rwanda. A Case of Karongi District

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Abstract

Contribution of Continuous Professional Development for Secondary School Teachers on Academic Performance in Public Secondary Schools in Rwanda: A Case Study of Karongi District. The specific research objectives include; to evaluate the skills, level of academic performance and the contribution of CPD for secondary school teachers on academic performance in public secondary schools in Karongi district, Rwanda. The study used a descriptive survey design for the first and second research questions, and a correlational research design for the third research question. Questionnaires and guided interviews were used as data collection instruments. The population of this study was 2,800 people, including head teachers, head teachers in charge of studies, and teachers. The sample size was obtained using Slovin's formula, and was 400 respondents, involving 15 head teachers, 15 head teachers in charge of studies, and 370 teachers in public secondary schools that teach ordinary level in Karongi district. The first finding indicated that secondary school teachers in Karongi district gain skills from CPD. In average, respondents agreed that CPD helps to increase skills. The second finding indicated that the level of learner performance has changed and improved within the current years. In average, respondents agreed that the level of academic performance has increased. The third finding indicated that there is a significant high degree of correlation between focusing on CPD for secondary school teachers and learner academic performance, with a correlation coefficient (r) of 0.498 and an R Square of 0.248. This indicates that CPD for teachers improves student academic performance. Based on the findings the study recommended that; the Ministry of Education and REB should set effective policies and provide enough time for CPD in schools.

Keywords: *Continuous Professional Development, Secondary School Teachers, Academic Performance, Public Secondary Schools, Karongi District*

1.0 Introduction

Every career path and career trajectory for being successfully accomplished needs CPD. Teaching, as a career, also needs CPD for successful outcomes. CPD also plays an important role in improving academic performance. In society, education has an important role for every individual. By developing common values and culture, a community can succeed socially and economically (Jasmeane, 2015). In the global context, OECD (2016) states that poor school performance can lead to problems for individuals and economic development. Sometimes, low performance for students aged 15 can lead to school dropout and they work on low-paying jobs. When a large number of people in a country do not have basic knowledge, it compromises the long-term economic development of that country. The levels of CPD of teachers at school in enhancing the achievement of learners determine the quality of education. Moreover, professional development of teachers is very important for all schools to excel in contributing to the improvement of both school and teacher. According to Jimmy (2014), the low performance of students in science subjects can be attributed to the following: lack of science teachers, lack of science laboratories, lack of learning and teaching tools and low interest from students. Most students are forced to study science by teachers or relatives because of their promising performance, but students themselves lack intrinsic motivation towards the subjects.

There is a lack of guidance and counseling services in secondary schools. Students are not supported and encouraged by their parents, guardians, teachers, and other stakeholders in education. Therefore, serious measures are needed to improve the school environment in motivating students to study science subjects. If parents and guardians play their role in helping students study science and motivating them, there will be much improvement not only in performance, but also in preparation for a better career in the future. In South Africa, mathematics subject is poorly performed (Reddy et al, 2016). According to the report of International Mathematics Union(IMU) as international body and many nations, indicate that secondary and primary level education of mathematics is weak especially in countries of Africa, this reduce the level of students' talent to choose mathematics as majors at university level (IMU,2020). CPD courses for teachers are tools that can help to expand knowledge and skill in teaching career. Equally important tool for resolution of politics, economical, culture and social problems in community is education, here is mutually independent among education and sustainable development (UNESCO, 2009).

In the East Africa Community (EAC), the study by Rugambwa (2017) revealed that the major reason hindering teachers from participating in INSET programs was the lack of support from school management (73%). Heads of schools neither offered moral nor financial support to teachers attending these programs. Other reasons cited were the high cost of off-site INSET programs, which teachers couldn't afford. Additionally, the schedules of INSET programs conflicted with teachers' work schedules. In Tanzania, there is lower performance in every academic aspect of secondary schools, and the reasons for this are the inadequate supply of learning and teaching materials, low motivation among teachers, unfavorable working environments for many teachers, poor recruitment and insufficient in-service teacher training, ineffective education policies, carelessness and lack of accountability among some teachers, poor teaching methods, minimal community involvement in schools, and parents' negligence towards their children (Hermas, 2014).

According to Schleicher (2015), CPD (Continuing Professional Development) is successful in some countries but unsuccessful in others due to various reasons such as top-down approaches, a fix-it mentality, educator reluctance, one-size-fits-all techniques, prescriptive and untimely delivery methods, lack of proper follow-up, decontextualized programs, and a lack of proper evaluation of pedagogical (child-centered) instruction (Diaz-Maggioli, 2014). The Rwanda Education Board (REB, 2016) indicated that a school-based mentorship framework was developed by MINEDUC to guide the implementation of CPD activities. There is a need for proper training in coaching, mentorship, and school leadership to effectively contribute to the acquisition of required skills. It is essential at the school level for mentoring and coaching, new teachers' induction, and the planning and management of schools, for administrators and teachers to participate in CPD activities. REB defines CPD as a tool for improving performance through continuous learning (REB, 2015). In Rwanda, from nursery to secondary schools, the Ministry of Education provides dedicated time for CPD during the week where teachers meet with School-Based Mentors (SBMs). CPD is used as a means to enhance learning and teaching. Various individuals at the national, district, sector, and school levels come together to work towards this common goal. Research indicates that the existing system informs key stakeholders about teachers' stages of CPD, the responsible agencies and personnel, the technical support structure, and the administration of teachers' CPD (REB, 2019). The challenges that teachers face in the school context and the induction process for new teachers are discussed in the school-based CPD.

1.2 Statement of the Problem

Since the 2014-2016 period, the University of Rwanda-College of Education (UR-CE), Rwanda Education Board (REB), and VVOB - Education for Development (VVOB Rwanda) have partnered to develop formal training programs, specifically certified CPD programs. Simultaneously, the program focused on tutors in teacher training colleges, training them as trainers for pre/primary teachers in improving learner-centered pedagogy (VVOB, 2016). The program was expanded into a multiyear initiative (2016-2021) called 'Leading, Teaching, and Learning Together' (LT2) to enhance the implementation of the Competence-Based Curriculum and ultimately improve learning outcomes. The Ministry of Education, through the Rwanda Basic Education Board (REB) and education partners, has planned and implemented a CPD framework in all secondary and primary schools. The objective is to equip teachers and learners with competencies in teaching and learning. In addition to their teaching responsibilities, School-Based Mentors (SBMs) are required to (i) assist teachers in improving their English language skills, (ii) organize professional development activities as needed, (iii) support teachers in enhancing their pedagogy for competence-based teaching and learning, and (iv) encourage reflection and facilitate feedback on the quality of teaching and learning at school. It is worth noting that none of the SBMs were prepared for these new responsibilities, posing a challenge not only to themselves but also to local education leaders in terms of implementation (REB, 2016).

Today, in some schools, many reports from the Ministry of Education (MINEDUC) highlight the major issue of inadequate CPD, resulting in some teachers falling behind in teaching and learning, which hampers their ability to support students in different subject content learning, teaching methodology, assimilation, and understanding. The lack of a culture surrounding the use of CPD has also hindered the widespread adoption of such an approach in education. This can be attributed to the limited availability of CPD content and expertise, especially in rural areas of the country (MINEDUC, 2016). Over the course of nine years, the Rwanda Basic Education Board (REB) has made advancements in continuous professional development. However, many stakeholders still

question whether the program has had any impact on the existing lower performance in public schools. For instance, in Western Province where Karongi district is located, Crimson (2018) found that learners attending schools in the Western Province performed worse in national examinations compared to learners in other provinces. The performance in the Western Province was lower by as much as 10 points compared to schools in other provinces. Therefore, this study aims to examine the relationship between CPD for secondary school teachers and the academic performance of learners in public secondary schools in Karongi district.

1.3. Objectives of the Study

The general objective of this study is to examine the relationship CPD has on secondary school teachers to learners' academic performance in secondary schools in Rwanda.

2.0 Literature Review

2.1 Continuous Professional Development for Teacher and Academic Performance

The role of CPD in academic performance has been emphasized by numerous researchers and authors, highlighting the advantages it brings to the assessment of cognitive, psychomotor, and affective learning objectives. For instance, Such and Day (2005) describe professional development activities as successful when teachers gain an understanding of new perspectives on how people learn and develop subject expertise, enabling them to facilitate more meaningful and impactful learning experiences for students. They emphasize the importance of teachers acquiring knowledge to effectively engage learners and improve learning outcomes. Campbell and Elliot (2013) support this perspective, stating that CPD provides opportunities for educators to foster personal growth, professionalism, and increased teaching quality, ultimately maximizing student achievement. The significance of CPD in enhancing academic performance is also acknowledged in the national framework for teacher CPD in Rwanda. The concept of academic performance is multifaceted, encompassing various factors ranging from attaining a professional level to the growth of students' moral intelligence (York, Gibson & Rankin, 2015). According to Diaz-Morale and Escribino (2015), academic performance is understood as the outcome of a combination of psychological, social, and economic factors that influence different aspects of student development.

2.2 Empirical Literature Review

By examining the perspectives of other researchers on the contribution of CPD to academic performance, it becomes evident that continuous professional development plays a crucial role in academic success. The performance of students is closely tied to their academic achievements (Narad and Abdullah, 2016). Generally, a secure future is built upon better career prospects through academic performance. The academic performance of learners serves as a significant tool for the economic and social development of a country (York et al., 2015). Academic performance signifies the learners' accomplishments in understanding academic foundations, institutional contexts, and related issues, as well as the completion of degrees. Recognizing the importance of CPD in the success of education reforms and curriculum implementation, Ministries of Education in many countries have established or are in the process of establishing CPD frameworks for teachers and school leaders with the goal of enhancing teachers' knowledge, skills, and values to improve students' learning outcomes (Luhanga, 2015).

In South Africa, different stakeholders utilize teachers' knowledge to influence education management and the impact of educators' CPD. They provide examples of favorable classroom

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practices that can be used by stakeholders in implementing, planning, monitoring, and evaluating educators' CPD, as well as evaluating and monitoring teachers' supervision of CPD at all levels. These capabilities can assist teachers in organizing the components that students learn from classroom practice, enabling them to assess current strengths, plan for improvement, and address shortcomings (Kennedy, 2022). In Tanzania, communities of learning (CoL) focus on teachers' continuous improvement and student learning in the Tanzanian education reform efforts. Every teacher in a group learns to improve their own learning and ensure that every student in their school learns and achieves. The Didactic Program in Dietetics (DPD) informs the effectiveness of CoL. Performance managers and administrative leaders ensure the sustainability and effectiveness of CoL at the school level. Teachers should be given time by the head teacher to share, meet, learn, and reflect together (INSET, 2017). In Rwanda, the national framework issued by MINEDUC aims to develop teachers' continuous professional development (CPD) and examines the influence of educators' CPD on learning and teaching. The wider education system and Rwandan schools work together to guide individuals in developing their professions. It focuses on educators' skills and various aspects of teachers' behavior and classroom practice that have the greatest impact on student learning. It describes different practices of teachers and outlines teachers' professional development at different stages. The document defines the current CPD system for educators and demonstrates how educator skills can be utilized to develop and influence the management and CPD of education through the involvement of various participants (REB, 2017).

2.3 Theoretical framework

Theoretical framework means foundation from which skills and knowledge built for research study (Grant, Osanloo, 2014). This section shows the theory conducted by other researchers in relation to CPD and academic performance in secondary schools.

2.3.1 Theory of improvement

This theory was developed by Drs. Niek Van, Dr. Judith Gulikers, Dr. Frank de Jong, and Prof. Dr. Martin Mulder (2011). Competence-Based Education (CBE) served as the impetus for its development and strengthening. Understanding the potential of Assessment for Learning (AFL) is essential. The theory of improvement describes how professional development features are initiated in assessment. Conception refers to the mental representation of phenomena in reality and is the outcome of educational capabilities. Assessment practices in education reform highlight the importance of AFL, which involves external support, input, involvement, sharing of educators' beliefs and knowledge, and engaging in reflection and professional experimentation (Cooper & Cowie, 2009). Generally, individuals are more receptive to improvement when they understand its relevance, perceive its connection to their specific circumstances, and are able to plan for it. By challenging educators' conceptions of evaluation, there can be an increase in ownership and knowledge. Ownership is widely regarded as a condition for accepting innovation and fostering creativity (Gardner et al., 2010).

2.3.2 Theory of Academic Performance

This theory of academic performance was developed by Elger (2007). The theory emphasizes six foundational concepts (level of identity, level of knowledge, personal factors, context, level of skills, and fixed factors) that inform a framework for describing performance and performance improvements. According to this theory, performing involves producing valuable results. Performers can be individuals or groups of people engaged in combined efforts. Improving

performance is a gradual process, and performance reflects the capacity developed throughout that journey. The academic department plays a significant role in influencing performance levels and facilitating effective learning for learners. Creating an effective academic culture and conducting research also contribute to performance. CPD for teachers also focuses on their work in departments. As educators increase their performance levels, they gain the ability to deeply enhance learning levels, develop skills, and establish meaningful connections within their discipline while investing less time in the process.

2.5 Conceptual framework

The conceptual framework was described as a diagrammatic representation with several variations that express the relationship between the dependent and independent variables of a given study (Mil, 2018). In line with the education production function model, the variables of this study will be conceptualized as follows:

Independent variable

Dependent variable

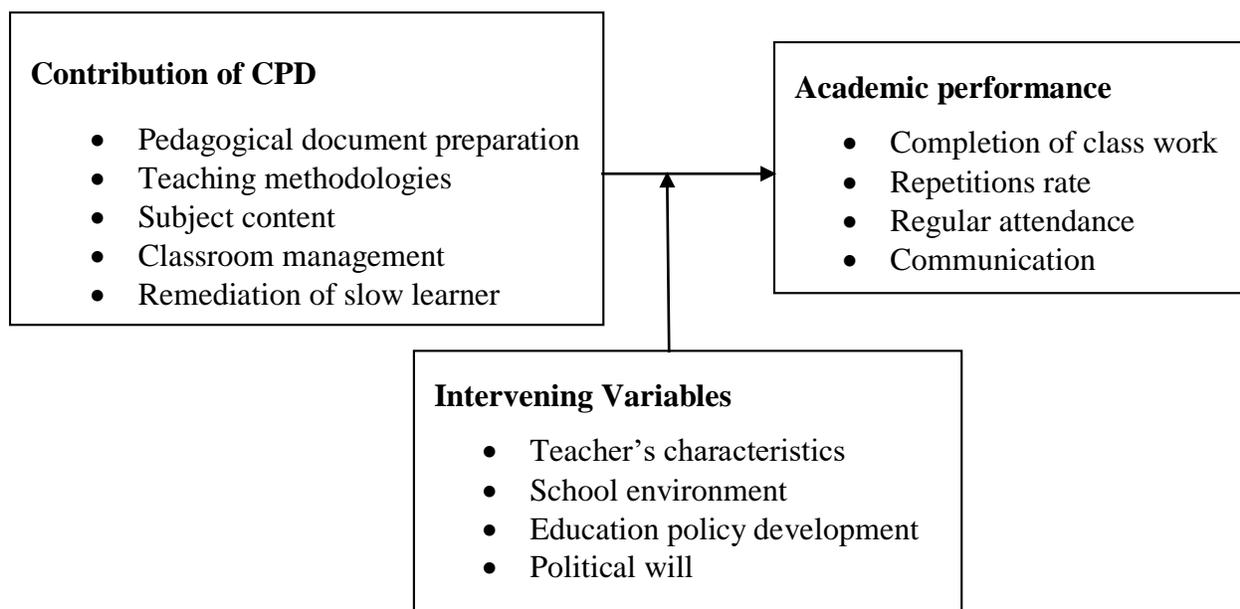


Figure 1. Conceptual framework

3.0 Research Methodology

A descriptive research design was employed to gather and analyze data for the first and second objectives of the study. These objectives involved evaluating the skills acquired by secondary school teachers through CPD in Karongi district and assessing the level of academic performance in public secondary schools within the same district. In addition, a correlation research design was utilized to examine the influence of CPD for secondary school teachers on learners' academic performance in public secondary schools in Karongi district, Rwanda. The target population for this research consisted of 102 deputy head teachers in charge of studies, 102 head teachers, and 2596 teachers in Karongi district. A sample size of 400 was determined using the Slovin's formula. Purposive sampling techniques were employed to select school administrators, while simple

random sampling was utilized to select teachers. Questionnaires were administered to collect data from teachers, while interview guides were employed to gather data from school head teachers and deputy head teachers in charge of studies.

4.0 Research Findings

4.1 The Skills Secondary School Teachers Gain from CPD

This subsection evaluates the skills that secondary school teachers gain from CPD in Karongi district. It focuses on the data collected regarding pedagogical document preparation, teaching methodology, subject content, and classroom management. Specifically, it examines how CPD for secondary school teachers supports one another in the preparation of pedagogical documents such as class diaries, lesson plans, scheme of work, curriculum usage, and evaluation books. The findings of this evaluation are summarized in Table 1.

Table 1: The Skills Secondary School Teachers Gain from CPD

Statements	SD		D		N		A		SA		Mean	Std. D
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
In CPD teachers support each other on how class dairy are prepared	0	0	0	0	8	2.0	126	34.2	236	63.8	4.454	0.7444
In CPD teachers support each other on how lesson plan are prepared	0	0	7	1.7	19	5.2	190	51.4	154	41.7	4.313	0.7259
In CPD teachers support each other on how scheme of work are prepared	0	0	18	4.6	12	3.2	27	7.5	131	84.8	4.678	0.9141
In CPD teachers support each other on how to use curriculum	16	4.3	8	2.0	16	4.3	131	37.9	189	51.2	4.296	0.9700
In CPD teachers support each other on how evaluation book are prepared and used	4	1.1	3	0.9	7	2.0	219	59.5	137	36.5	4.112	0.8223

The findings from Table 1 showed that the majority of teachers (98%) agreed that CPD supports each other in preparing class diaries, with no one disagreeing and 2% being neutral. Similarly, 93.1% of the respondents agreed that CPD supports each other in preparing lesson plans, with 1.7% being neutral and no one disagreeing. In terms of scheme of work preparation, 92.3% of the respondents agreed, while 4.6% disagreed and 3.2% were neutral. Additionally, 89.1% agreed that CPD supports each other in using the curriculum, with 6.3% disagreeing and 4.6% being neutral. Further, Table 1 indicated that 96% of the respondents agreed that CPD supports each other in

preparing and using evaluation books, while 2% disagreed and 2% were neutral. The findings from the interviews with head teachers revealed that 12 out of 15 agreed that their schools support the CPD program. When asked about the skills teachers gain from CPDs, they mentioned lesson planning, scheme of work preparation, and the use of other pedagogical documents. The researcher also interviewed 15 Directors of Studies (DOSs), and 14 of them stated that their schools support the CPD program, emphasizing the development of skills such as lesson planning, use of teaching aids, and preparation of pedagogical documents. Overall, the findings indicated that 93.7% of the respondents agreed that CPD helps secondary teachers gain skills in pedagogical document preparation and usage, which was consistent with the interview guide from DOSs and head teachers.

The study concluded that CPD plays a crucial role in helping secondary teachers gain skills in pedagogical document preparation and usage. It also highlighted the importance of teachers' ability to develop, adopt, and improve throughout their careers, which relies on their participation in collaborative organizations and communities of practice. Additionally, the study emphasized the significance of school-based professional development for teachers, whether in pre-service or in-service. In summary, the findings of the study indicated that secondary school teachers in Karongi district gain skills from CPD in various areas, including pedagogical document preparation, teaching methodologies, subject content, classroom management, and remediation of slow learners. The data collected through interviews further supported the positive impact of CPD on teachers' skills in classroom management, teaching methodologies, subject content, and remediation of slow learners. These findings align with the empirical data, supporting the notion that quality education largely depends on the magnitude of school-based teachers' continuous professional development in improving students' achievement (Belay, 2013).

4.2 Level of academic Performance for Secondary Schools of Karongi District

This subsection presents the findings related to the second objective, which aimed to assess the level of academic performance among learners in public secondary schools in Karongi district. The data collected focused on various aspects, including learners' performance in homework, class exercises, group work, termly examinations, and end-of-year examinations set by NESA. The summary of learners' performance in academic work is presented in Table 2.

Table 2: Performance in academic work of Learners from CPD

Statements	SD		D		N		A		SA		Mean	Std. d
	Fre q	%	Fre q	%	Fre q	%	Fre q	%	Fre q	%		
Learners are able to perform in homework given.	0	0	66	17.8	0	0	66	17.8	238	64.4	4.54	0.7444
Learners are able to perform in class exercises.	0	0	29	8.0	0	0	340	91.7	1	0.3	4.313	0.7259
Learners are able to perform in group work.	0	0	0	0	10	2.9	106	28.7	254	68.4	4.678	0.9141
Learners are able to perform in termly examination	0	0	0	0	0	0	273	73.9	97	26.1	4.116	0.9700
Learners are able to perform in end of the year examination set by NESAs.	0	0	29	8.0	0	0	340	91.7	1	0.3	4.116	0.700

Table 2 provides a summary of the performance in academic work. According to the table, the majority of teachers (82.2%) agreed that learners are able to perform well in homework given, with a mean of 4.454 and a standard deviation of 0.7444. However, 17.8% of the teachers disagreed. Similarly, 92% of the respondents agreed that learners are able to perform well in class exercises, with no neutral responses, but 8% disagreed. In addition, the findings showed that 97.1% of the respondents agreed that learners are able to perform well in group work, with a mean of 4.678 and a standard deviation of 0.9141. In terms of termly examinations, 100% of the respondents agreed that learners perform well, with no neutral or disagreeing responses. Similarly, 92% of the respondents agreed that learners are able to perform well in the end-of-year examination set by NESAs, with no neutral responses and 8% disagreeing. The interview findings also indicated that all 15 head teachers agreed that learners perform well in academic work. In addition, out of the 15 interviewed DOSs, 12 agreed that students' performance in academic work has increased. Based on these findings, it can be concluded that students have shown an improvement in their performance in academic work. The attainment of academic excellence and the evaluation of students' academic performance are important goals for educational institutions. The findings of this study align with previous research that emphasizes the significance of academic achievement and its impact on student outcomes.

4.3 Influence of CPD for teacher on students' Academic Performance

The third objective of the study was to examine the influence of continuous professional development (CPD) for secondary school teachers on learners' academic performance in public secondary schools in Karongi district, Rwanda. To achieve this objective, correlation and regression analyses were conducted to assess the presence of either a positive or negative correlation between the dependent and independent variables.

Table 3: CPD for teacher on students' Academic Performance

		Correlations			
		Performance in academic work	Learners promotion rate	Communica tion	Regular attendance
Pedagogical preparation	Pearson Correlation	.026	.467**	.475**	.562**
	Sig. (2-tailed)	.620	.000	.000	.000
	N	370	370	370	370
Teaching methodology	Pearson Correlation	.746**	.540	.457	.009
	Sig. (2-tailed)	.000	.815	.286	.000
	N	370	370	370	370
Subject content	Pearson Correlation	.264**	.428**	.387**	.624
	Sig. (2-tailed)	.000	.000	.000	.000
	N	370	370	370	370
Classroom management	Pearson Correlation	.356**	.360**	.474**	.674**
	Sig. (2-tailed)	.000	.005	.004	0.000
	N	370	370	370	370

Table 3 displays the correlation matrix between continuous professional development (CPD) for secondary school teachers and learners' academic performance in public secondary schools in Karongi district, Rwanda. The results indicate a strong positive correlation between the independent variable (CPD) and the dependent variables. Specifically, the findings reveal a positive correlation between pedagogical document preparation and students' academic performance in academic work ($r = 0.326$), learners' promotion rate ($r = 0.467$), communication ($r = 0.475$), and regular attendance ($r = 0.56$). It is worth noting that challenges have been identified in schools' monitoring and evaluation of the effects of professional development, as the impact of CPD on pupils' learning experiences and achievements can be difficult to measure (Carpenter, Progress & Ofsted, 2002; Flecknoe, 2000; Keating, 2001). Regarding the third objective, the findings indicate a significant high degree of correlation ($r = 0.498$) between CPD for secondary school teachers and learners' academic performance, with an R Square value of 0.248. This suggests that CPD for teachers contributes to the improvement of students' academic performance.

5.0 Conclusion

To address the research questions posed in the study, which were based on the three specific research objectives, the conclusions were drawn by analyzing the findings presented in Chapter Four. The first objective aimed to evaluate the skills gained by secondary school teachers through CPD in Karongi district. The findings demonstrated that teachers in Karongi district acquire skills such as pedagogical document preparation, classroom management, and content mastery, as indicated in the findings from Unit Four. The second objective focused on assessing the level of learners' academic performance in public secondary schools in Karongi district. The findings revealed improvements and changes in learners' performance over the years, as evidenced by various dimensions, including academic work, regular attendance, promotion rates, and

performance in national exams conducted by NESAs. These findings highlight an enhancement in the performance of public secondary schools in Karongi district. The third objective aimed to examine the contribution of CPD for secondary school teachers to learners' academic performance in public secondary schools in Karongi district, Rwanda. The findings indicated a significant correlation between CPD for secondary school teachers and academic performance in secondary schools of Karongi district. This emphasizes a strong relationship between the independent and dependent variables.

6.0 Recommendations

The Ministry of Education and REB (Rwanda Education Board) are recommended to establish effective policies and allocate sufficient time for CPD in schools. They should also mobilize school head teachers to strengthen the practice of CPD. It is strongly recommended that trained CPD facilitators be selected, and principals trained in educational leadership and management be appointed in all secondary schools across different districts to provide proper continuous professional support for teachers. Relevant professional training programs should be designed based on the specific training needs of teachers. To achieve this, the relevant authorities at all levels should pay special attention to this matter. School head teachers are advised to prioritize CPD and actively participate in peer learning to enhance their skills. They should also encourage CPD within their departments to improve academic performance. School head teachers play a supportive role in the implementation of school-based CPD and contribute to the school improvement program. Therefore, they should motivate teachers to engage in CPD activities and recognize the contributions of school-based CPD in enhancing overall school performance. Secondary school teachers are encouraged to actively participate in CPD activities and adjust their attitudes towards CPD for the purpose of improving students' academic performance in secondary schools. Further, school head teachers are recommended to support their teachers in CPD by providing the necessary materials and resources required for effective professional development.

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