

PATHWAY FOR THE DEVELOPMENT OF TEACHERS SKILLS TO MAINSTREAM OPEN EDUCATIONAL RESOURCES IN INSTRUCTIONAL PROCESSES

BY

Michael N. Nkwenti, Ph.D

Department of Computer Science and
Educational Technology
The University of Yaounde I
Email: nkwenti@ens.cm

ABSTRACT

In 2016, the Commonwealth of Learning sponsored a nation-wide advocacy and sensitization campaign to encourage pedagogic supervisors from the Ministries of Basic and Secondary Education to mainstream Open Educational Resources (OERs) in the teaching and learning process. In 2019, a study was conducted to assess the pedagogic supervisors' perception and barriers in mainstreaming OERs in instructional processes. The findings revealed that they lack: computer skills to search for OERs; skills to adapt different OERs; and skills to interpret the different OERs licenses as the major barriers. To address these needs, the following research question was formulated: *How can pedagogic supervisors' skills be updated to mainstream OERs in Instructional processes?* To respond to the research question, single group pre-training and post-training quasi-experimental design was employed. N = 58 Pedagogic Supervisors drawn from the Regional Delegations of Basic and Secondary Education for the Centre were targeted for the experimental study with n = 52 effectively taking part. A 5-point Likert scale instrument was used to collect pre-training and post-training data analysed for mean and standard deviation. T-test was used to compare the mean scores and the results indicated a difference of -0.88 between the 2 means with a standard deviation of 0.52. The 95% confidence interval for the difference ranged from -1.37 to -0.40 with $p = 0.005 < 0.05$. It was concluded that, there is a statistically significant difference between the two means, an indication that the change observed in the post-training mean was due to the professional development. This result was triangulated with the scores of lesson plans produced at the end of the professional development programme. Inter-rater Reliability Scores in each Construct of the Lesson Plans was measured using the Cohen Kappa's coefficient. The outcomes indicated a better score than the post-training results. It was highly recommended that: a) professional development programme on OERs should be conducted based on the outcome of a training-needs analysis conducted with participants; b) participants should be given ample opportunity over an extended period of time to design lessons that incorporate OERs, implement them, get feedback, and improve on their practice; c) professional development programmes should provide an opportunity for peer support; d) the content of the professional development programme should be clearly structured, easy, appropriately sequenced and

include activities that assist participants in the construction of new knowledge.

Key Words: *Open Educational Resources, Cameroon, Teacher Professional Development, learning outcomes, OER mainstreaming*

INTRODUCTION

Over the years, the lack of textbooks has been reported globally as a major issue that has a negative impact on the quality of learning outcomes (Global Education Monitoring Report, 2016). As a global issue with an impact on developing countries such as Cameroon, the World Bank (2018, p.15) commented that:

textbooks-to-learner ratio in Cameroon is among the lowest in the world, with an average of one textbook per 12 learners, falling to one textbook per 30 students in some regions. The primary causes of low textbook-to-learner ratios are (a) the high cost of textbooks (incurred mainly by families), (b) the limited availability of textbooks outside the major cities, and (c) the poor quality of textbooks (in terms of content and materials). These challenges are largely associated with weaknesses in the national textbook policy framework and weak overall management of the textbook development and supply chain.

Besides, the World Bank (2018, p.15) observed that, between 2010 and 2016, Cameroon “allocated on average, 14.2% of her public investment budget to education which is more than 5% below the GPE benchmark of 20% to the education sector”. Of this percentage, less than 1% of this education budget was allocated for the purchase of pedagogic materials in 2017 (Republic of Cameroon, 2017a; Republic of Cameroon, 2017b).

The lack of textbooks has an adverse effect on learners (UN General Assembly, 2015d; World Bank, 2018). The World Bank on Cameroon Education Reform Support Project revealed that the country would not achieve universal primary education at 100% by 2020 (World Bank, 2018). Cameroon Primary Completion Rate scorecard witnessed only a two-percentage point increase from 74.2% to 76.3% from 2013 to 2015. In 2017, the Government of Cameroon conducted a learning achievement study and found that more than 50% of learners were not able to demonstrate the expected competencies in language and mathematics (Ministry of Basic Education, 2018).

Other countries that face a similar situation have resorted to the use of Open Educational Resources to complement the high cost and scarcity of textbooks (Chen & Panda, 2013; Nkwenti & Abeywardena, 2019; Commonwealth of Learning, 2018; Fiji Ministry of Education, Heritage and Arts, 2016).

1.1. Open Educational Resources

Globally, Open Educational Resources (OERs) are generally perceived as freely accessible instructional resources in the form of books, software, course materials, learning objects and many more shared under an open intellectual property license (Ozdemir & Bonk,

2017; Nkwenti & Abeywardena, 2019). The Ljubljana Action Plan defines OER as:

OER are teaching, learning and research materials in any medium - digital or otherwise - that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the framework of intellectual property rights as defined by relevant international conventions to respect the authorship of work. OERs are a strategic opportunity to improve knowledge sharing, capacity building and universal access to quality learning and teaching resources. (UNESCO, 2017, p. 1).

Although these resources are free, their uses are guided by a Creative Commons licence affixed on the resources (Johnson, Becker, Estrada & Freeman, 2014). The degree of freedom in the manipulation of the OERs is guided by the 5R framework - Retain, Reuse, Revise, Remix, and Redistribute (Wiley, 2015). The resources are freely available in online repositories to facilitate free access and sharing (Nkwenti & Abeywardena, 2019). Developers of the OERs refer to themselves as a Creative Commons Community (Willems & Bossu, 2012). Frontline advocates of OER such as UNESCO, the Commonwealth of Learning (COL) and Hawlett Parker Foundations believe that “universal access to high quality education is key to peace building, sustainable social and economic development, and intercultural dialogue” (Ozdemir & Bonk, 2017, p.1).

1.2. OERs Initiatives in the Cameroon Basic and Secondary Education sector

Based on the challenges identified in the provision of textbook in the basic and secondary education sub-sectors, several initiatives have been undertaken. In 2016, the Commonwealth of Learning (COL) funded a nation-wide advocacy and sensitisation campaign on the need to explore open educational resources to bridge the lack of textbooks in basic and secondary school classrooms (Nkwenti, 2016; Abeywardena, Karunanayaka, Nkwenti, & Tladi, 2018). This initiative targeted Pedagogic Inspectors of Basic and Secondary Education as the key actors who work on daily basis with classroom teachers to enhance teaching and learning. This exercise ended with the production of an OERs guidelines using the bottom-up approach in Commonwealth countries. In 2019, another study was conducted to assess the level at which OERs have been mainstreamed in the basic and secondary classroom (Nkwenti & Abeywardena, 2019). The study examined participants' perception and barriers in the use of OERs in the teaching and learning process. The findings concluded that the participants of the study lack: computer skills to search for OERs online; skills to adapt different OER and skills to interpret the different OERs licenses.

The lack of these skills is not unique to Cameroon. Other studies conducted on challenges faced by teachers in the adoption and diffusion of OERs in developing countries revealed that, teachers lack skills to search and interpret the different creative commons licences (Conrad, Mackintosh, McGreal, Murphy & Witthaus, 2013; McGreal, Kinuthia & Marshall, 2013; Wolfenden, Buckler & Keraro, 2012). Similarly, other researchers identify limited awareness, skills and

competencies in the creation, integration and use of OERs (Muganda, Samzugui & Mallinson, 2016). The need for teachers to be empowered with OERs skills was found as an enabler to their adoption and use of the resources (Pantò & Comas-Quinn, 2013). Following the slow uptake of OERs in the Basic and Secondary Education sub-sector COL's intervention in 2016, this researcher decided to explore professional development model through which teachers could be updated to mainstream OERs with ease. To attain this goal, the following research question was formulated: ***How can pedagogic supervisors' skills be updated to mainstream OER in Instructional processes?***

2. THEORETICAL FRAMEWORK

In order to upgrade teacher skills to mainstream OER in instructional processes, the Mastery of Active and Shared Learning Processes of Techno-pedagogy (MASLEPT) model was adopted for the study (Nkwenti, 2015). According to the model, a teacher professional development programme should be characterised by teachers' pedagogical content knowledge; sufficient time and resources; collegiality and collaborative exchange; and follow up procedures. MASLEPT as a school-based teacher professional development model is characterized by three key components: Firstly, MASLEPT model argues that for teachers to integrate any new technology in instructional processes, they should demonstrate a mastery of Technological Pedagogical Content Knowledge (TPACK). TPACK covers three knowledge domains broken down into seven constructs: Technology Knowledge (TK) -skills teachers require to search OERs online; Pedagogy Knowledge (PK) -different instructional strategies teachers will require to pass on the knowledge of OERs to learners; Content Knowledge (CK) -skills teachers require to interpret different licences and repurpose different OERs based on different licences; Pedagogical content knowledge (PCK) -skills teachers require to blend knowledge of pedagogy and content driven by OERs; Technological Content Knowledge (TCK) – skills teachers require to use technology to manipulate existing OER content to create a new resource; Technological Pedagogical Knowledge (TPK) – skills teachers require to use technology to deliver OER driven content in innovative ways; and Technological Pedagogical Content Knowledge (TPACK) – the entire skills package required to adequately use technology to create OERs content and in instructional processes. Therefore, TPACK provides a framework for understanding the complexity involved in developing teachers' skills to mainstream OER in the teaching and learning process.

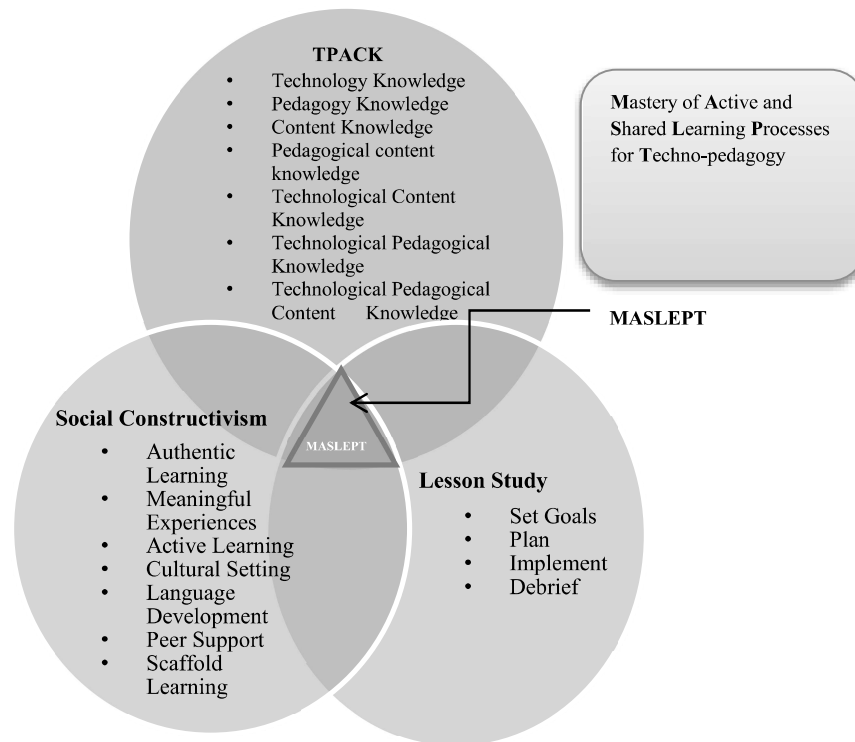
Secondly, lesson study approach is school-based approach that facilitated teachers' skills development (Nkwenti, 2015). Lesson study principles require groups of teachers to meet regularly over an extended period of time, to work on the design of instructional content, implement, get feedback, and improve one or several 'research lessons' developed during the process. Using the lesson study principles teachers will develop their computer skills to search for OER, adapt different OER; and interpret the different OERs licenses. Many researchers have ascertained that lesson study approach is good

for teachers' continuous professional programmes (Baba & Kojima, 2004; Fernandez & Yoshida, 2004; Hashimoto, Tsubota, & Ikeda, 2003). Moreover, research lessons are authentic instructional packages that can enhance learning outcomes (Lewis & Tsuchida, 1997).

Thirdly, the interaction and collaboration that take place in a continuous professional development programme is guided by social constructivism (Nkwenti, 2015). Dewey (1916) suggests that experience is the cornerstone from which new knowledge is created, promoting authentic learning and meaningful experiences that foster new knowledge growth. Constructivism describes learning as a process whereby learners actively construct new knowledge based upon existing understandings (Vygotsky, 1978). Vygotsky further argues that learning occurs through sociocultural mediation. More explicitly, individuals construct new knowledge through their active participation in a social context and via interactions with signs and tools. In a professional development programme on OERs mainstreaming in the teaching and learning process, participants will certainly interact with peers, resources and technology to build their capacities. In so doing, they will grow from a relationship with a trusted confidant, with whom they can establish and continue dialogue about ways of developing their understandings (Nkwenti, 2015).

From the description of the different components of MASLEPT, it is evident that, the model motivates teachers to participate, contribute, guide each other's learning, and give meaning to their common concern while developing OERs integration skills. The model provides teachers with the opportunity to meet, discuss and share their views on how to improve their learning outcomes through the use of OERs in their classrooms. As such, the model contributes in defining the identity of the teachers because coming together for a common purpose implies a commitment to sharing their competencies. As they engage in the model, they will undertake common activities, share ideas, reflect on their experiences and support each other (Nkwenti, 2015). Their participation in these activities and the relationships that they create enable them to learn from each other and grow professionally.

Figure 1: Mastery of Active and Shared Learning Processes for Techno-pedagogy (MASLEPT) model



Mastery of Active and Shared Learning Processes for Techno-pedagogy (MASLEPT) model adapted from Nkwenti (2015).

3. METHODOLOGY

The target participants were 58 Regional Pedagogic Supervisors drawn from the Regional Delegations of Basic and Secondary Education for the centre Cameroon. A total of 52 teacher-participants volunteered to take part in the study. This population was made up of 42 males and 12 females. Single group pre-training and post-training quasi-experimental design was employed to evaluate the participants skills to search the internet for OERs, repurpose and interpret different licenses prior to and after they took part in the training programme (Barab & Squire, 2004; Barab, 2006). The professional development took place in eight weeks – December 2019 -January 2020.

Before the training of participants began, a meeting was convened to brief them on the purpose of the study. After the meeting, the researcher administered the pre-training survey questionnaire to 52 teachers who volunteered to take part in the study to determine their entry level. To fill the identified gaps, a professional development programme was co-designed with the participants to develop their knowledge of searching the internet for OERs, repurposing OERs for different uses and interpretation of different licenses as an amalgamation. The course guideline of the programme was developed by the researcher who has a background in instructional design and technology. The course was aimed at providing participants with opportunities to gain the knowledge and skills needed to integrate OER into classroom practices. To ensure that the content meet required

standards, the initial draft of the course materials was evaluated by two subject matter experts as one of the five approaches used in validating instructional design products (Richey, 2005; Richey & Klein, 2007).

The content was structured into eight topics with several objectives spread over a period of eight weeks with 2 hours of study per week conducted in a face-to-face mode. As a product of the professional development programme, participants produced lesson plans that incorporate OERs and appropriately respect the different creative commons licences. The lesson plans were used to verify participants' self-reported abilities to search the internet for OERs, repurpose and interpret different licenses. At the end of the eight-week programme, the researcher administered the post-training survey questionnaire and used two experts to assess the lesson plans.

3.1. Data Collection Instrument

Data collection instruments were made up of two sections: profile and test items based on the TPACK framework. The first section incorporates a nominal scale to identify participants' demographic information in two items, notably gender, age range and teaching experience. The second section uses a 5-point Likert scale ranging from 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree to investigate participants' opinion on the test items. The TPACK test items covered three knowledge domains broken down into seven constructs: TK; PK; CK; PCK; TCK; TPK; TPACK. The adapted test items were designed to investigate their knowledge of technology, pedagogy and content as an amalgamation (Schmidt, Baran, Thompson, Koehler, Mishra, & Shin, 2009; Archambault & Crippen, 2009). They were administered to 52 teacher-participants before and after their participation in a single group pre-training and post-training experimental study.

The post-training scores were triangulated with the scores of lesson plans produced at the end of the professional development programme. The lesson plans that incorporate OER were evaluated by two independent assessors to confirm their performances in the self-reported survey questionnaires. Technology Integration Assessment Rubric was used to evaluate OER-driven lesson plans developed by the teacher-participants during their participation in the professional development programme (Harris, Grandgenett, & Hofer, 2010).

3.2. Data Analyses

Statistical Package for Social Sciences (SPSS) version 20 was used to analyse the quantitative data. The quantitative data from the teacher-participants was analysed using frequency counts, percentages, mean; standard deviation; and t-tests for significance.

4. RESULTS

Table 1 presents the demographic information of the teacher-participants in terms of gender, age and teaching experience. With a total of 52 teacher-participants who took part in the study, 40 (76.9%) were males and 12 (23.1%) were females. A total of 23 (42.2%) of the participants were between 36 and 40 years. Meanwhile those with 40 years and above were 29 (55.8%). As regards their teaching

experiences, 09(17.4%) had a teaching experience of between 16 to 20 years while 29 (55.8%) had 29 (55.8%) had 41 years and above.

Table 1: Participants' Profile in terms of Gender, Age Range and Teaching Experience

Participants in Terms of Sex			
Male	Female	Total	
40 (76.9)	12 (23.1%)	52(100%)	
Age Range			
	36 - 40 Years	41+ Years	
	23 (42.2%)	29 (55.8%)	
Teaching Experience			
	16 - 20years	21-25years	26+ Years
	09(17.4%)	14(26.9%)	29(55.7%)

Table 2 compares the mean of the pre- and post-training scores in terms of mean and standard deviation in both cases. It can be observed that, the mean and standard deviation of all the seven constructs at pre- and post-training varies. It can be seen that there was an improvement in both the mean (M2) and standard deviation (STD2) at post-training.

Table 2: Mean and Standard Deviation of Pre-training and Post-training

Construct	N	Mean (M1)	Mean (M2)	Std. Deviation (STD1)	Std. Deviation (STD2)
TK	52	2.57	3.98	1.03	0.89
CK	52	4.10	4.54	0.62	0.48
PK	52	4.47	4.66	0.50	0.46
PCK	52	4.17	4.54	0.59	0.49
TCK	52	2.60	3.92	0.90	0.80
TPK	52	2.53	3.79	1.03	0.73
TPACK	52	2.42	3.65	0.96	0.88

Table 3 shows the descriptive statistics of the variables being tested for statistical significance. The variables M1 and M2 represents the mean scores for pre- and post-training scores. Thus M1 = 3.26 with STD1=0.92 while M2 = 4.15 with STD2 = 0.15. The mean M2 is higher than M1, an indication that participants reported an increase in their skills to search the internet for OER, repurpose and interpret different licenses.

Table 3: Paired-Sample Statistics

Variables		Mean	N	Std.Deviation	Std.Error Mean
Pair 1	Mean (M1)	3.26	7	0.92	0.35
	Mean (M2)	4.15	7	0.41	0.15

Table 3.1 indicates the correlation between the variables being tested. The correlation between the two means (M1 and M2) of the seven constructs is 0.98 with a significance value of 0.00. This

indicates that there is no relationship between the two means (M1 and M2). Therefore, changes in second mean (M2) is not strongly correlated with the first mean (M1).

Table 3.1: Paired-Sample Correlations

	Variables	N	Correlation	Sig.
Pair 1	Mean (M1) & Mean (M2)	7	.98	.00

Table 3.2 depicts the results of the paired-sample t-test. It can be observed that the t-statistic value is -4.45; degree of freedom is 6; 2-tailed significance value is 0.005. The difference between the 2 means is -0.88 with a standard deviation of 0.52. The 95% confidence interval for the difference ranged from -1.37 to -0.40. Since $p = 0.005 < 0.05$, it can be concluded that there is a statistically significant difference between the two means. Therefore, the change observed in the post-training mean is due to the professional development.

Table 3.2: Paired-Sample Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	M1-	-0.88	0.52	0.19	-1.37	-0.40	-4.45	6	
	M2								

Although the t-test is statistically significant, the participants' computer skills to search for OER; skills to adapt different OER; and skills to interpret the different OER licenses were self-reported. The post-training scores were triangulated with the scores of lesson plans produced at the end of the professional development programme. The lesson plans were evaluated by two independent assessors to confirm their performances in the self-reported survey questionnaires.

Table 4 shows the inter-rater reliability scores in different components of the lesson plans which ranged between 0.62 and 0.82. Cohen Kappa's rule of the thumb opines that the values of Kappa that falls between 0.40 to 0.59 should be considered moderate, 0.60 to 0.79 substantial, and 0.80 outstanding (Warrens, 2015). Based on these guidelines, the two assessors had substantial agreement in all the constructs of the lesson plans.

Table 4: Inter-rater Reliability Scores in each Construct of the Lesson Plans

Constructs	Kappa
CK	0.75
PK	0.75
TK	0.83
PCK	0.67
TCK	0.83
TPK	0.62
TPACK	0.62

Table 5 indicates the performances of participants in lesson plans developed during the training programme. It shows that 10(83.3%) of the lesson plans that integrate OERs were designed correctly and appropriately respect the terms of the license. Similarly, 10(83.3%) of the lesson plans had appropriate pedagogic approaches to support learning. 7(58.3%) of the lesson plans clearly show that they can use different internet browsers with search options to source for OERs online. In the same view, 7(58.3%) of the lesson plans show appropriate blend of content that contain OERs and pedagogic approaches to achieve the goals of the lesson. The participants also ensured that 6(50%) of the lesson plans show the use of computer application(s) to repurpose various OERs that align with the goal(s) of the lesson. In 8(66.7%) of the lesson plans, participants show appropriate use of computer application(s) or media-based OERs to support teaching approach. Finally, 8(66.7%) of the lesson plans demonstrated appropriate blend of OERs content, pedagogy and computer application(s) within the lesson plan. These results indicate a small standard deviation (standard deviation <0.55). A small standard deviation indicates that the data is clustered closely around the mean. The participants performed better in the lesson plans than in their self-reported abilities to search the internet for OERs, repurpose and interpret different licenses.

Table 5: Assessment of Lesson Plans Developed during the training

Construct	Statement	Not at all	Minimal	Strong	Mean	Standard Deviation
Content Knowledge (CK)	Lesson that integrates OERs designed correctly and appropriately respect the terms of the license	0 (0.0%)	2 (16.7%)	10 (83.3%)	2	2.83
Pedagogical Knowledge (PK)	Appropriate pedagogic approaches to support learning chosen	0 (0.0%)	2 (16.7%)	10 (83.3%)	2	2.83
Technological Knowledge (TK)	Clear use of different internet browsers with search options to source for OERs online	0 (0.0%)	5 (41.7%)	7 (58.3%)	2	2.58
Pedagogical Content Knowledge (PCK)	Appropriate blend of content that contain OERs and pedagogic approaches to achieve the goals of the lesson	0 (0.0%)	5 (41.7%)	7 (58.3%)	2	2.58

5. DISCUSSION OF THE FINDINGS

Pathway for the Development of Teachers skills to Mainstream Open Educational Resources in Instructional Processes

Michael N. Nkwenti, PhD

Technological Content Knowledge (TCK)	Use computer application(s) to repurpose various OERs that align with the goal(s) of the lesson	0 (0.0%)	6 (50.0%)	6 (50.0%)	2	2.50	0.52
Technological Pedagogical Knowledge (TPK)	Appropriate use of computer application(s) or media-based OERs to support teaching approach	0 (0.0%)	4 (33.3%)	8 (66.7%)	2	2.66	0.49
Technological Pedagogical Content knowledge (TPACK)	Appropriate blend of OERs content, pedagogy and computer application(s) within the lesson plan	0 (0.0%)	4 (33.3%)	8 (66.7%)	2	.66	0.49
Total						.66	0.46

Participants improved performance after their participation in the professional development programme can be attributed to the three key components that constitute the MASLEPT model. Firstly, their learning needs were assessed using instruments adapted from the TPACK framework (Schmidt et al., 2009; Archambault & Crippen, 2009). The outcome enabled the researcher to identify their specific training needs and design a training package that addresses them. The MASLEPT model strongly encourages trainers to ensure that professional development programmes respond to teachers' needs (Nkwenti, 2015)

Secondly, Lesson Study as a component of the MASLEPT model argues that if teachers work in a group over an extended period of time to design lessons, implement them, get feedback, and improve on their practice, such lessons will be great (Baba & Kojima, 2004; Fernandez & Yoshida, 2004; Hashimoto, Tsubota, & Ikeda, 2003). The professional development programme lasted for eight weeks with the researcher as a facilitator. Participants had the opportunity to develop several lesson plans collaboratively, implemented it within themselves and got feedback from colleagues for improvement purposes. Research lessons are authentic instructional packages taught by the teacher to their own class (Baba & Kojima, 2004).

Thirdly, teacher interaction is a very critical component of the MASLEPT model (Nkwenti 2015). Social Constructivist theory opines that when teachers interact and collaborate among themselves learning occurs (Vygotsky, 1978). The participants constructed new knowledge through their active participation in training sessions while also interacting with various learning technologies. As peers, they could freely seek support from the more knowledgeable colleagues.

6. CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to experiment the use of the MASLEPT school-based professional development model in the development of pedagogic supervisors' skills to search the internet for OERs, repurpose and interpret different licenses. The results indicated

participants who took part in the exercise demonstrate a significant improvement. To assess their improvement after the exercise, t-test was used to compare the results of the two mean. The findings indicated that $p = 0.005 < 0.05$. It was therefore concluded that there was a statistically significant difference between the scores of the two means (pre-training and post-training). Therefore, skills to search the internet for OER, repurpose and interpret different licenses improved as a result of their participation in the professional development programme. This finding was further triangulated by comparing the scores of the lesson notes produced by the participants with the post-training scores. It was found that the scores of each construct of the lesson notes were better than the post-training scores. It is highly recommended that: a) any professional development programme should be developed based on the outcome of a training-needs analysis conducted with participants. A successful professional development programme should commence with the trainer identifying the specific training needs and designing a training package that addresses them. At the end of the training programme a post training assessment should be conducted to determine the learning outcomes; b) Participants should be given ample opportunity over an extended period of time to design lessons that incorporate OERs, implement them, get feedback, and improve on their practice; c) Professional development programmes should provide opportunity for peer support. Such a capacity building approach can help participants to develop collaborative learning skills which can eventually lead to the production of quality instructional materials for better learning outcomes. The lesson study approach provides a great opportunity to guide the professional development programme; d) The content of the professional development programme should be clearly structured, easy, appropriately sequenced and include activities to assist participants in the construction of their own knowledge from previous experiences to produce effective teachers. The activities should be related to authentic classroom situations in order to increase teachers' interest in the programme and make learning fun.

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