Global Leadership Training Programme in Africa 2018

Activity Report of Field Research

A study of a primary teacher training program under a competency-based curriculum in Rwanda –Focusing on primary science teacher training-

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I. Summary

1. English summary

Rwanda introduced a competency-based curriculum (CBC) to improve the quality of education from 2016. The shift has been to move from knowledge and skills acquisition to knowledge creation and application. The aim is to develop student's independent, lifelong learning habits; appropriate skills and knowledge; and applications to real-life situations. Now Rwandan teachers must teach as facilitators according to CBC. However, according to (Iwakuni, 2015), there is the strong perception that knowledge should be transmitted from teacher to student in Rwanda. This perception can be a barrier to implement a competency-based curriculum.

The curriculum of teacher training college (TTC) also changed to train pre-primary and primary school teachers based on CBC from 2017. TTCs were created in Rwanda with a mission to train qualified pre-primary and primary school teachers in order to achieve the Vision 2020. TTCs are specialized and professional colleges, with a different curriculum from ordinary school. At the TTC level, students are given the opportunity to choose one of the four existing pathways. Teaching Science and Mathematics (TSM) is one of four options in TTC. Sibel et al (2014) suggested that professional development of teachers, particularly starting at the pre-service stage is significant in ensuring that future teachers can be equipped with sufficient skills to support active learning in science lessons. However, reviews of primary teacher training have consistently highlighted serious shortcomings in the quality and relevance of the courses offered (World bank, 2010). They suggested poor alignment of the teacher training curriculum with the school curriculum and lack of teaching experience of TTC staff.

In this study, I explore the recent trend of TTC curriculum and focus on the TTC curriculum for science primary teacher under CBC in Rwanda. Therefore, this research aims to clarify the characteristics and challenges for primary science teacher training program under CBC in Rwanda in terms of alignment between TTC curriculum and primary science curriculum and alignment between two levels of the curriculum (Intended curriculum, implemented curriculum).

In the fourth SDG, We should increase the supply of qualified teachers through international cooperation for teacher training in developing countries. According to World Bank (2011), most teachers at primary levels will be trained at TTCs. Therefore, it is expected that qualified primary teachers who have received appropriate pedagogical training based on the CBC will be increased in Rwanda through this research.

Based on the reasons, I conducted an interview against 26 TTC science tutors, one curriculum coordinator and 3 curriculum developers from September 19th to December 18th through qualitative research mainly.

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2. Japanese summary

ルワンダでは教育の質を改善するために 2016 年から新しいカリキュラム(Competency-Based Curriculum ： CBC)が導入されている。新カリキュラムでは従来のような受動的な知識習得にかわり、知識や技能の開発とその活用を重視しており、生徒の自立性、生涯学習の習慣化、適した技術と知識の習得、実生活への適用が目的として挙げられる。CBC によると、ルワンダの教員はファシリテーターとして授業を教えなければならない。しかし、岩國(2015)の報告によると、ルワンダでは知識は教員から生徒へ移行されるという強い認識があることが報告されている。この認識はコンピテンスベースのカリキュラムの実施において障壁となり得るものである。

小学校教員養成校(TTC)のカリキュラムにおいても 2017 年から CBC に準じてカリキュラム変更が行われた。TTC は Vision2020 を達成するために幼児科教員及び小学校教員を養成する学校として創設された。TTC は普通校とは異なるカリキュラムを持っている専門的かつ専門職な学校であり、生徒は 4 つのオプションから 1 つ自分に適したオプションを選択することが可能であり、理数科(Teaching Science and Mathematics)はその 4 つのオプションのうちの 1 つである。Sibel et al. (2014) は教員の専門的開発において、特に教員養成の段階は将来の教員として科学の授業での活発な授業を行うための十分な知識を得るのに重要だとしている。しかし、ルワンダにおける小学校教員養成の調査では、カリキュラムの質と妥当性における重大な欠点があると示されており、教員養成カリキュラムと学校カリキュラムの整合性の欠如及び教員スタッフの教員経験不足が報告されている。

この研究では、小学校教員養成カリキュラムの傾向を調査するとともに CBC を基盤とした小学校理科教員の小学校教員養成カリキュラムに焦点を当てて調査を行う。そのため、この調査ではルワンダにおける CBC を基盤とした小学校理科教員養成における特徴と課題を教員養成カリキュラムと小学校カリキュラムとの整合性、意図されたカリキュラムと実施されているカリキュラムの整合性の観点から明らかにすることを目的とする。

SDG4 において開発途上国での教員訓練による適格な教師の増加が目指されている。World Bank(2011)によると、将来的にルワンダではほとんどの小学校教員は TTC でのトレーニングを受けていることになることが報告されている。そのためこの研究を通じて、ルワンダにおいて CBC に準じた適切な訓練を受けた教員が増えることが期待される。

以上の理由から、筆者は 2018 年 9 月 19 日から 12 月 18 日まで 26 名の理科 TTC 教員、カリキュラム担当者 4 名に対して、インタビューといった質的調査を主に行った。

II. Research Activity

1. Introduction

Rwanda has started a long-term strategy called Vision 2020 to transform Rwanda into a middle-income country until 2020 based on a knowledge-based country. The Ministry of Education has developed the Education Sector Strategic Plan (ESSP) which sets out a mission to transform Rwandan citizens into skilled human capital for the socio-economic development of the country by ensuring equitable access to quality education. Competency-based curriculum (CBC) was introduced to improve the quality of education from 2016 in order to achieve the Vison 2020. The shift has been to move from knowledge and skills acquisition to knowledge creation and application. The aim is to develop student's independent, lifelong learning habits; appropriate skills and knowledge; and applications to real-life situations.

The curriculum of teacher training college (TTC) also changed to train pre-primary and primary school teachers based on CBC from 2017. TTCs were created in Rwanda with a mission to train qualified pre-primary and primary school teachers in order to achieve the Vision 2020. TTCs are specialized and professional colleges, with a different curriculum from ordinary school. At the TTC level, students are given the opportunity to choose one of the four existing pathways. Teaching Science and Mathematics (TSM) is one of four options in TTC. Sibel et al (2014) suggested that professional development of teachers, particularly starting at the pre-service stage is significant in ensuring that future teachers can be equipped with sufficient skills to support active learning in science lessons. However, reviews of primary teacher training have consistently highlighted serious shortcomings in the quality and relevance of the courses offered (World bank, 2010). They suggested poor alignment of the teacher training curriculum with the school curriculum and lack of teaching experience of TTC staff. The alignment of the implemented curriculum in ITE and intended school curriculum may reduce newly qualified teachers to teach using a traditional teacher-centered method, instead of using the promoted pedagogical approach at school.

In this study, I will explore the recent trend of TTC curriculum and focus on the TTC curriculum for science primary teacher under CBC in Rwanda. Therefore, this research aims to clarify the characteristics and challenges for primary science teacher training program under CBC in Rwanda in terms of alignment between TTC curriculum and primary science curriculum and alignment between two levels of the curriculum (Intended curriculum, implemented curriculum). The specific objectives of this research proposal are listed as follows.

a. To investigate what is intended in a primary science teacher training program under a CBC in Rwanda.
b. To identify what perception TTC tutor have in primary science teacher training program in Rwanda.
c. To investigate what extent TTC tutor understand primary science curriculum in Rwanda.

2. Study Area

In this survey, I explored 26 science tutors from 16 TTCs mainly. TTCs are located around Rwanda to produce qualified pre-primary and primary teachers. Each TTC has about 600 student teachers on average. Student teacher can get certificate qualifying to teach in primary after 3 years program in TTC.

Figure1: Map of TTCs

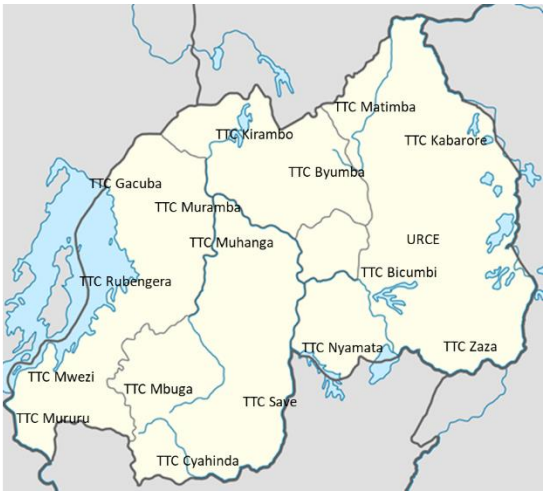

Figure2: Educational System in Rwanda

	Educational level	General Primary and Secondary	TVET	Teacher Education	General Higher Education
Post-Basic Education	Postgraduate			Postgraduate certificate qualifying to teach in higher education	Postgraduate (Masters and above)
	A0			Degree with Qualified Teacher Status (QTS) for upper secondary	Degree
	A1		College of Technology diploma	Diploma with QTS for lower secondary	
Basic Education	A2 (3 Years)	A Level certificate (S4-S6)	TVET Grade 2; A2	Certificate qualifying to teach in primary	
	Lower secondary (3 years: S1-S3)	O Level Certificate (S1-S3)	TVET Grade 3		
	Primary (6 years: P1-P6)	Primary Leaving Certificate			
	Pre-primary (PS1-PS3)				

3. Methodology

This field survey collects the data of an intended curriculum and an implemented curriculum of TTCs in Rwanda through the qualitative method. There are one coordinator and 3 developers in TTC science curriculum. To analyze intended curriculum, I investigated the intention of one curriculum coordinator and 3 curriculum developers through semi-structured interview and data collection (framework and curriculum). I also investigated TTC tutor's perception towards primary science teacher training program and their understanding of primary science curriculum through lesson observation, documentary data collection (Scheme of work and Lesson plan), questionnaire and a semi-structured interview with 26 science teacher educators in 16 TTCs to analyze implemented curriculum. Finally, data collected at two levels of the curriculum is analyzed to determine the alignment between the different levels of curriculum and alignment between TTC curriculum and primary science curriculum. In this survey, I focused on the research of implemented curriculum through investigation of TTC tutors mainly. Additionally, I collected some documents from MINEDUC and REB about the curriculum of TTC. I also conducted an interview against some people who are related with this curriculum including REB officer, consultant of REB, TTC principal, and MINEDUC officer.

Table1: An outline of the content of the interview against TTC science tutors

To curriculum coordinator and developer	New Curriculum	・Reason why they change TTC curriculum ・How do they change TTC curriculum
	Alignment with primary curriculum	・Alignment with school curriculum in the previous TTC curriculum ・Alignment with school curriculum in the new TTC curriculum
To TTC science tutors	Understanding about CBC	・Main changes from previous curriculum ・Competency and example of

		competency How to develop competency ・
	Perception about new TTC curriculum	・Alignment with school curriculum with TTC curriculum Challenges to implement a new curriculum ・

4. Research Findings

(1) Intention in a primary science teacher training program under a CBC in Rwanda.

Curriculum developers and coordinators recognized the importance of alignment between TTC curriculum and school curriculum. For example, curriculum developer B said,

"We have to align TTC curriculum to the new competence-based curriculum in pre-primary and primary. We have to keep our content so that they master of the content of primary. But, they have to keep also teaching methods delivering teach in primary. (2018.10.16, E TTC, Curriculum developer, Male, 30's)"

They intended to train teachers who are able to teach the content of primary with practice through the change of curriculum. Curriculum coordinator also mentioned about practice as below. It is found that they are trying to increase the number of school attachment in order to produce more practical teacher who has experience in a primary.

"Current taking two school attachment. One is year2, another is year3. So with this, we are expecting our students exposed to real life, real class room. (2018.10.25, URCE, Curriculum coordinator, Male, 60's)"

Developer A mentioned about the science subject to align with school curriculum as follow. It is found that they tried to introduce active teaching including experiment to align with school curriculum.

"We tried to integrate working about experiment can integrate CBC curriculum. We tried to increase methodology rather than making science which are difficult for them. (2018.10.17, URCE, Curriculum Developer, Male, 60's)"

(2) Perception of TTC science tutors against primary science teacher training program

Through the questionnaire, their perception of TTC science tutors against primary science teacher training program is shown as follows.

Table2: Perception of TTC tutors against primary science teacher training program

Statement	Strongly disagree	Disagree	Agree	Strongly agree
Do you understand the Pre- and Primary CBC?	3.0%	12.5%	59.5%	25.0%

The draft TTC curriculum is adequate and relevant to the needs of the learners at each level of education	20.8%	39.9%	33.9%	5.4%
The language used in the draft TTC is clear enough for the tutors to interpret	5.4%	28.6%	41.1%	25.0%
The subject content in the draft TTC curriculum is sufficient	19.0%	48.8%	26.2%	6.0%
The teaching materials to support the draft TTC curriculum are sufficient	72.6%	21.4%	4.8%	1.2%
Does the curriculum support more practical learning and less theoretical learning for the students?	14.9%	32.1%	45.8%	7.1%
Does the curriculum framework reflect the principles and the key characteristics of CBC for basic education?	19.6%	26.8%	43.5%	10.1%
Does the subject syllabi into consideration the one prerequisite for the ordinary level?	13.7%	38.1%	42.3%	6.0%

According to this table, it is found that they don't have a positive image on this curriculum. And they mentioned difficulties to implement this curriculum as stated below.

> "There are so many topics how the curriculum of TTCs was designed and the curriculum of primary, for example the format of lesson plan is different. (2018.10.26, F TTC, Tutor, Male, 20's)"

> "It is a challenge for us to teach the student the content of primary. (2018.10.23, C TTC, Tutor, Male, 20's)"

Especially, they mentioned the problem which lacks the materials of a laboratory. Actually, only 4 TTCs have a laboratory which is available out of 16 TTCs.

> "The challenge we are meeting here is lack of appropriate materials where science teachers don't have any laboratory and it is difficult to go in different school without any different do appropriate experiment. (2018.11.06, D TTC, Tutor, Male, 30's)"

(3) Understanding of TTC science tutors against primary science curriculum

Most of the science tutors can answer the definition of competency. However, I found that some tutors said the definition of competency mistakenly as below.

> "Competence is to be skilled and applying knowledge and gain from the school and what we call competence, is the transfer of knowledge in real life activities. (2018.10.16, A TTC, Tutor, Male, 20's)"
>
> "Competence is the factor increases basic skills, attitudes and, values. (2018.11.16, B TTC, Tutor, Male, 20's)"

If I ask them the example of competency and the way to develop the competency. Their answer was not clear to answer this question.

5. Discussion and Conclusion

According to the interview with curriculum coordinator and developer, it is found that they are trying to make a connection with the school curriculum through increasing the number of internships, focusing on the methodology, introducing experiment. However, it is also found that they face a number of challenges to implement that curriculum through an interview with TTC science tutors. They mentioned the problem of the lesson plan and the lack of experience of teaching primary contents. Especially, they mentioned the problem of materials to teach science. They mentioned the misalignment with the school curriculum and challenges to implement a new curriculum. Finally, I found that Rwandan people are trying to improve this misalignment though the activity like curriculum review and workshop held by REB and MINEDUC. I think that this problem will be improved in the near future.

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III. Reflection to GLTP

The reason for participation in the GLTP is that I wanted to contribute Rwandan education from the aspect of research. I used to work in Rwanda as JICA volunteer for 2 years and a half to teach science and methodology of teaching in TTC Muhanga. I've also stayed in Rwanda as an internship in 2018 for one month in the consultant company under JICA project supporting implementation of competency-based curriculum. In this research, I thought that I can contribute to the development of TTCs through cooperation with stakeholders including MINEDUC, REB and TTCs based on my experiences in Rwanda and Japan. This program is appropriate to realize what I wanted to do in Rwanda because it gives me many great opportunities like getting valuable advice from Rwandan supervisor. I thought that I can be more experienced in Rwanda through this program. That is why I decided to apply for this program in order to conduct a survey under good support and to be more experienced to work in Africa.

I could get many experiences as a researcher through this program. This experience is somehow different from kinds of JICA volunteer and Internship because I decided the whole plan and organized everything by myself. In this program, I visited many places and stakeholders to complete my survey. I found that research can be a great contribution to their work and I reconfirm the significance of my research through discussion and cooperation with various Rwandan people. I could not get this kind of experience from JICA volunteer and Internship program in Rwanda. Additionally, I got many opportunities to talk with stakeholders who are in charge of education in Rwanda. It was a precious experience to discuss with them about a problem of education in Rwanda. They told me many opinions and ideas to improve education in Rwanda. That precious discussion made me motivated and excited to contribute Rwandan education more in the future.

However, I faced many challenges through field survey in Rwanda. I thought that I've already adapted to the environment and culture of Rwanda through the experience of JICA volunteer, but I got many difficulties to complete my task. First, I suffered from environmental issues. When I arrived at Rwanda, I chose a hotel located near Rwanda Education Board so that I can visit there easily, but I could not sleep well because of noise from night club every night. That hotel has some insects in the bed sometimes and it also disturbed my sleep badly. I decided to choose a better hotel, but I lack information about accommodation which has a reasonable price. One friend recommended better accommodation in another place. Finally, I found an appropriate hotel near the Education Board. The second challenge was the difficulty of coordinating and organizing the appointment with informants. I've already known their culture and behavior. However, I could not find the informant in school sometimes when I visited them. It caused change of plan and the number of informants in each TTC. I reconfirmed the difficulty in working at Rwanda. Even if I adapted the situation in a foreign country one time, I will find another challenge to accomplish the tasks. It gave me a great lesson to understand the adaptation in other countries.

However, I also reconfirmed a positive aspect of their culture. Generally, Rwandan people are kind to support foreigners. They always help me when I'm in trouble in the research. For example, when I ask the way to the destination, Rwandan people take me to the destination kindly. People who are in a remote area don't have money, but no one charge money for that guiding. They look happy to help someone who is in trouble. I found that they focus on the cooperation with other people in their daily life. I felt happy to know it again in this survey. That culture supports me to complete the task during the stay at Rwanda and I'm sure that I could not finish my work without that supporting from local people, TTC tutors, principal and REB staff.

I'd like to mention how to make use of this experience to my future career development. I'm planning to work in Japan as a science teacher in Japan to get enough skill and competency to contribute to the developing country's educational situation. After getting enough experience in Japan, I'd like to become a consultant to contribute educational development in the future. I experienced many steps in order to get the skill of management and conduct project successfully through this research. It was the first time to start from planning activity to implementation by myself. Actually, it was hard to complete, but I'm sure that this experience can be applied not only for a consultant but also for a teacher to work. Moreover, I can share my experience in Rwanda with my family, friend and future students.

First of all, I would like to say that any students who participate in this program can be experienced in Africa under the supervisions of professional people. I really recommend this program to students who are interested in researching at Africa. If you attend this program, I'm sure that you can acquire skills in Africa. I think that students can get precious experience through this program to be more knowledgeable in the field of Africa. If you think of working or contributing to Africa, this program is highly recommended to your career development.

Photo1: TTC Tutors and me

Photo2: Interview with TTC tutor

Photo3: Curriculum review

Photo4: Class room in TTC