



Chapter 5

Twenty Years of the Master's Programme Initiative Among Hiroshima University, Japan International Cooperation Agency (JICA) and the University of Zambia for Integration of Theory and Practice

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5.1 Introduction

In the first four chapters, the growing internationalisation of universities worldwide was first discussed, followed by an analysis of the education and societal contexts of Japan and South Africa. From that analysis it was concluded that considerable scope for international partnerships between South African and Japanese universities exists. The preceding chapter surmised that there is a dearth of such partnerships at present, notwithstanding the promise that such partnerships

contain. Japanese universities have recently been involved with a number of African countries. This chapter is the first to examine a sample of international partnership projects as an objective lesson for South African and Japanese universities to learn from.

5.2 Background on the Zambia Special Education Programme (ZSEP)

In the 1980s, the Japanese Official Development Assistance (ODA) budget was second to the United States of America (USA), which was its highest record in history. Despite this, there were not enough human resources engaged in international cooperation activities. These human resources comprised those whose activities were related to international cooperation and worked in multilateral international cooperation agencies such as families of the United Nations, bilateral international cooperation agencies like the Japan International Cooperation Agency (JICA), international cooperation NGOs and private companies. In response, the Japanese government decided to establish graduate schools of international cooperation in national universities. They were Nagoya University (1990), Kobe University (1992) and Hiroshima University (1994). In Japan, there are three categories of universities: national, public and private universities in terms of establishers.

The graduate school of international cooperation within Hiroshima University included education research specialisation, which reflected the university's history. Hiroshima University was established after World War II by integrating several colleges of different origins. One of them is a Higher Normal School (*Koutou-Shihan Gakko*) which trains teachers at high schools and has been regarded as the centre of teacher education in the western part of Japan. Thus, this graduate school reflected a rich background by sustaining many researchers in the education research field.

After the report by the Evaluation Committee for Chartering of Universities in 1998, each university considered

the establishment of a professional graduate school aimed at producing highly professional human resources. The above three graduate schools in particular considered incorporating this practice-based curriculum, which reflected the unique characteristics of education for international cooperation. One possibility to set up such an education might be to integrate volunteer activity and graduate school education. At that time, Professor Shuichi Nakayama, the founder of this special education programme, wrote in the report of the Japan Society for the Promotion of Science (JSPS) research fund (Nakayama 2001-2002):

This research intends to explore the measures of systematising the education programme within the graduate school of international cooperation, which aims at growing the human resources in correspondence with the need and expectation of the international community and integrates a practical activity in collaboration with international assistance organisations such as JICA.

Owing to the JSPS research from 2001-2002, some field surveys were conducted on the integration of volunteer activities and graduate school education in the USA and the United Kingdom (UK) and some meetings were held with the JICA-JOCV office. The Japan Overseas Cooperative Volunteers (JOCV) oversees the dispatch of volunteers all over the world, and is a section of JICA, which is in charge of official development assistance. This research effort boosted the beginning of the Zambia Special Education Programme (ZSEP) in 2002 whose first call for participation was announced in the same year. This programme aims to grow human resources by integrating the practicality of volunteer activity and the reflectivity and scientific nature of education in graduate school and nurturing a broad understanding of international cooperation and professional skills.

This integration of volunteer activity and graduate school education had the following interpretation from the participants' perspective: some of those who were interested and participated in volunteer activities of JOCV would have

wished to pursue a further degree in graduate school before or after such participation and if participation in JOCV occurred after such education, such a person considered it necessary to acquire first an ability to contribute significantly to the recipient country. Alternatively, if the participation would be before acquiring education, the questions and sense of issues, which were formed through international cooperation activities, prompted such a person to find solutions for the questions and to grow a professional ability which is required in the career of international cooperation. In fact, those who proceeded to study further after their participation in JOCV were 7.1% (National Institution For Youth Education 2021:38). Against this situation, the special education programme had the unique characteristics of combining volunteer activity and graduate school education.

5.3 Activities of ZSEP

5.3.1 Stakeholders and Their Roles

Hiroshima University started ZSEP in collaboration with JICA-JOVC in 2002. In this programme, we dispatched master's students as volunteer teachers to a newly established school in Zambia. The dispatched students were expected both to become volunteer teachers and conduct research as graduate students. They developed their professional abilities and comprehension of issues through such engagement. As of September 2021, approximately 40 students had participated in the past 20 years.

In addition to the standard curriculum for all graduate school students, ZSEP aimed to attain the above mission through volunteer activities and field surveys. Participants were given an opportunity to develop the necessary skills. Moreover, the JOCV could steadily obtain high-quality human resources and professionalise its activity. The participants could acquire both skills and experience, which were required as highly professional resources through integrating and reflecting on both activities.

There were four stakeholders besides the students and the schools of assignment:

- **JOCV-JICA** has overseen the entire process, from selecting and dispatching ZSEP participants as JOCV members to dispatching professors of Hiroshima University as tutors to monitor the volunteers' activities and progress in the field.
- **Hiroshima University** monitored the activities of ZSEP participants through email and field visits. It established a system of credit approval for internship and fieldwork based on the activity and sanction of leave of absence.
- **The Ministry of Education in Zambia** secured the school for volunteer teachers and, in some cases, a teacher's house. They also gave permission to train teachers during the vacation period.
- **University of Zambia (UNZA)** gave advice to the ZSEP participants as a local tutor and implemented a joint seminar with Hiroshima University since 2007 by providing the venue and manpower. In this context, Hiroshima University established a mutual agreement with UNZA in 2004. As anticipated, they provided impromptu support whenever necessary.

5.3.2 Roles of Graduate Students and Their Assigned Schools

The ZSEP participants were master's students as well as JOCV programme participants. As master's students, they acquired the necessary credits before and after being dispatched to Zambia. During their stay in Zambia, they conducted a field survey and wrote a master's thesis based on the collected data. Furthermore, for the joint seminar, they held meetings with UNZA lecturers regarding the preparation and acquired experience in managing research seminars.

As volunteer teachers, they conducted mathematics and/or science lessons and contributed to educational activities in the school assigned to them. They also conducted extracurricular activities based on their interest, ability, and the school's requirement. If they had interest and time,

they could participate in the in-service training during the term break.

The dispatch of volunteers was based on requests from the recipient country and school. The school arranged for the volunteers to work and, in some cases, provided housing for them.

5.3.3 Time Flow From Application and Dispatch to Graduation

Prospective students interested in ZSEP submitted an application form for an entrance examination to the university. A typical case is shown below, but all cases do not exactly follow this schedule as it depends on each student's situation.

When applying for participation in the JOCV, the university submitted a recommendation letter to JICA-JOCV. However, if this application was sent before entering the university, the prospective participant consulted with a prospective supervisor in the graduate school and the university submitted a recommendation letter on their behalf for the ZSEP.

When participants obtained the passage after document and interview screenings like the general applicants, they submitted December as their preference for the timing of dispatch. The number of JOCV volunteers dispatched was more than 1,000 per year before COVID-19. They were dispatched three times a year after three months of training.

After entering the graduate school, the participants take the necessary courses and prepare a research plan. They participate in pre-training for JOCV around September and are then dispatched around December. They work as volunteer teachers in a school and conduct a field survey. Two years later, after completing their volunteer term, participants return to Hiroshima University close to December, submit a master's thesis to the university in September, and are admitted for completion of the programme in the same month. The standard period of the programme is three and a half years.

Table 5.1: Standard period of the programme

Passage to the graduate school	Passage to JOCV selection	Three and half years			
		6 months	3 months	2 years	9 months
		Lectures and preparation for thesis	Preparation such as JOCV pre-training	International cooperation as a volunteer and research activity as a graduate student	Thesis writing
		Seminar			

Table 5.2: Standard schedule and necessary units for first term entrance (pre-training in September and dispatch in December)¹

Time	Activities	Required courses	Required units
1st year	1st term	Entrance in April Taking courses between April and August	More than 22 units such as common subjects, specialised subjects and others
	2nd term		
2nd year	1st term	Pre-training in September Dispatch in December	4 units
	2nd term		
3rd year	1st term	International cooperation volunteer Fieldwork	Fieldwork (2) and internship (2) Seminar
	2nd term		
4th year	1st term	Come back in December Mid-term presentation Completion in September	Submit report on fieldwork Complete and report on internship Special research (1-2 years) Completion of master's thesis
	2nd term		
		Total	More than 30 units

¹ These are the required units after the reorganisation of the graduate school in 2020.

The following eight units are necessary to complete the programme and the participants are given a certificate of completion in addition to a master's degree diploma:

- Internship (2 units)
- Fieldwork (2 units)
- Special study (4 units including the dispatch period)

5.4 Achievement of ZSEP

5.4.1 Education (As of August 2021)

Since the beginning of 2002 and until August 2021, ZSEP has dispatched 42 students (36 long-term and six short-term). Among the 36 participants, 33 had completed the course and obtained a master's diploma. Two were scheduled to complete the course in September 2021, and one has been dispatched. Five proceeded to the doctoral course and obtained Ph.D degrees. Their assignment work in school was basically mathematics and science education. Students sent on a short term are assigned to the Ministry of Finance and Planning, Education office or UNZA.

Table 5.3: Dispatch area

Province	Central	Copperbelt	North-western	Southern
Schools	19	2	2	14



Figure 5.1: Map of assigned schools in Zambia

5.4.2 Research

UNZA and Hiroshima University have jointly been holding a research seminar since 2007. The ZSEP participants make a presentation in this seminar and are engaged in its management. Zambian graduate from Hiroshima University, Dr. Nachiunde, has been representing UNZA in this workshop since 2014, and some graduate students of UNZA have joined to help with the preparation. Being the only presentation opportunity in the education research field, it is highly valued in UNZA.

So far, the total number of participants is 845 and presentations total 205. Among them, 53 presentations were given by Hiroshima University and 38 presentations by students. Unfortunately, this seminar was suspended due to the COVID-19 pandemic (2020-2021).

In the past 20 years, 34 master’s theses and five doctoral theses have been accepted. The theme was related to teacher

education, students' conceptions, educational environments and teaching-learning materials.

Table 5.4: Doctoral dissertations

No.	Title	Name	Date
1.	A Study on Situational Analysis of Zambian Science Education and Development of Lesson Analysis Designed to the Science Classes	Kenji Matsubara	2009. 3
2.	Lesson Development in Mathematics Based on Substantial Learning Environment (SLE) in the Republic of Zambia	Nagisa Nakawa	2011. 3
3.	A Study on the Role of Reflection in the Pedagogical Competence Development of Zambian Mathematics Teachers: Focusing on Qualitative Analysis Using Lesson Diary	Chikara Kinone	2012. 3
4.	Study on Pupils' Calculation Ability at Basic Education in Zambia -Through the Diagnostic Evaluation Focusing on Validity and Discriminability	Toyomi Uchida	2012. 3
5	Principles of Curriculum Development for Connecting Science and Mathematics: Through the Case of Secondary Education in Zambia	Masato Kosaka	2015. 3

Table 5.5: Master's theses

No	Title	Name	Date
1.	The Roles and Significance of Lesson Study in Science Educational Development in the Context of the Basic Education in Zambia	Kenji Matsubara	2005. 3
2.	A Case Study of Teachers Centre as International Educational Cooperation in Southern Province, Zambia	Masaaki Taniguchi	2006. 3
3.	The Present Status and Possibilities of "Zone Education Support Team" in Zambia	Toyomi Uchida	2006. 3
4.	The Present Status and Possibilities of the Mathematics "Activity-Based" Approach in Basic School of Zambia	Chikara Kinone	2006. 3
5.	The Issues and Actual Situation of HIV/AIDS in Sub-Saharan Africa - Role of Information about HIV/AIDS in Zambia	Yuji Tanabe	2007. 3
6.	Difficulty in Learning Geometrical Concepts in Zambian Basic Education	Mami Ishida	2007. 3
7.	Research Concerning Pupils' Cultural Situation in Upper Basic Education in Zambia	Atsushi Tsujimoto	2008. 3
8.	Teaching Experiments for Understanding Fraction in Upper Basic Education in Zambia	Yoshihide Arima	2008. 3

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No	Title	Name	Date
9.	Research on Lesson Development in Mathematics Education Based on 'Substantial Learning Environment (SLE)' in Zambia	Nagisa Shibuya	2008. 3
10.	A Case Study of Mathematics Lesson Analyses in the Basic Education of Zambia – Focusing on the Linguistic Aspect of Interaction between Teacher and Students	Takuto Ikeya	2008. 9
11.	Effective School Management at Basic Schools in Zambia	Keiko Fukuda	2009. 3
12.	Acquisition Process of Basic Mathematics Competency in Zambia	Ai Sasaki	2009. 3
13.	The Role of Social Context in Pupils' Understanding of Multiplication and Division in Zambia	Kyoko Yamada	2010. 9
14.	Research on Geometry Education Applying Ethnomathematics in Upper Basic Education in Zambia	Mitsuhiro Kimura	2012. 3
15.	Research on Teaching Materials about Proportional Reasoning in Upper Basic Education in Zambia	Fumiya Shimamoto	2012. 3
16.	Teaching and Learning Physics Through Small Step Approach: A Case of a School in Central-Zambia	Haruna Nakazato	2012. 3

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No	Title	Name	Date
17.	Scholl Improvement Process of Basics Schools in Zambia	Itaru Shibuya	2012. 3
18.	Connecting Function Lesson with Physics at High School Level in Zambia: Focusing on Context Dependency	Masato Kosaka	2012. 3
19.	The Aspect of Understanding on Mathematical Words Problems in Upper Basic Education in Zambia	Tomoe Harada	2013. 3
20.	The Reconstruction of “Learner-Centred” Mathematics at Basic Education Level in Zambia	Toshikazu Nonaka	2013. 3
21.	The Differences of Basic Literacy and Numeracy Skills Among Primary Schools in Zambia	Yuta Yamanaka	2014. 3
22.	The Effect of Science Lesson at Secondary Level in Zambia— Focusing on Affect and Cognition	Nozomi Takeuchi	2015. 3
23.	Factors Behind School Girls’ Pregnancy and Reasons of Their Return or Non-Return to School in Kabwe, Zambia: From the Perspectives of Pregnant Girls, Parents, Teachers, Students and Ministry of Education	Junko Kabashima	2015. 3

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No	Title	Name	Date
24.	Development of Methods to Analyse the Mathematics Curriculum in Zambia in terms of Representational Modes—A Case of Concept of Function	Satoshi Mashiko	2016. 3
25.	Research about Students' Understanding of Mole Concept in High School—Focus on Quantitative Relationship	Shunichiro Watanabe	2016. 9
26.	Research on Acquisition of Number Sense in Zambian Mathematics Education	Tatsuya Higashi	2017.3
27.	Study of the Effect of Visual Materials for the Particle Concept Understanding in the Science Classroom in Zambia	Yu Takahashi	2018.3
28.	Examining the Number Concept Through Operating Numbers at Primary Schools in Zambia	Azusa Takagi	2018.9
29.	Linguistic Effects in Acquiring Calculation Ability in Zambia	Misako Hata	2019.3
30.	Secondary School Teachers' Belief Formation through Interaction with Teachers and Students in Zambia: Using an Ethnographic Approach	Kosei Usuda	2019.9
31.	Research on Nurturing STEM Literacy in Zambia	Mamoru Tsurudome	2021.3
32.	Teacher's Use of Life Experience in the Mathematical	Yoshinori Takahashi	2021.3

No	Title	Name	Date
33.	A Study on the Stage of Acquisition of the Decimal Number Concept of Zambian Primary School Students	Gaku Seshimo	2021.3
34.	Analysis About Zambia Secondary Science Textbook—Perspective from Learning Material Function and Teaching Material Function	Shoki Ogawa	2021.9

5.4.3 Further Impact of the Programme

5.4.3.1 Collaboration with the Ministry and JICA

While in the process of implementing ZSEP, Hiroshima University established a strong relationship with JICA, especially with the technical cooperation project and the Ministry of Education in Zambia.

There were many activities among the three bodies, including:

Dispatch of short-term experts

- 2013: Hideo Ikeda and Takuya Baba for supporting curriculum revision in mathematics and science
- 2013: Issei Maeda and Kazuyuki Kambara
- 2014: Kinya Shimizu for “Strengthening Teachers’ Performance and Skills through School-Based Continuing Professional Development” Project (2011–2015)

Launching of journal

Assisted in launching the *Journal of Zambia Teacher Professional Growth* published by the Ministry and contributed some articles as a part of master’s research.

Joint presentations

Jointly presented in the World Association of Lesson Study (WALS)

5.4.3.2 Acceptance of JICA Training in the Zambia Education Sector

In extension of the above relationship, there were requests for training programmes. There are two categories of training programmes. The first is called country-specific training. This programme targets a specific country, which in this case is Zambia. Since 2002, as a relationship was established with the Ministry of Education in Zambia, we corresponded on various topics within the field of education. The second category is called thematic training. This training focuses on a specific theme with various countries participating in it. Since several countries participated in the training at the same time, they considered the theme across the country border. The details were as follows:

Country-specific training (in collaboration with technical cooperation projects)

“Improvement of lesson study” course

- Three trainees (from 6-12 December 2009)

“Improvement of curriculum revision ability in mathematics and science education” course

- Five trainees (from 23 November – 7 December 2010)

“Method of developing teaching-learning materials in Zambian primary and secondary schools” course

- Six trainees (Mathematics 1) (from 18 November – 8 December 2012)
- Six trainees (Science 1) (from 11 October – 1 November 2013)
- Nine trainees (Mathematics 2) (from 3-21 November 2014)
- Nine trainees (Science 2) (from 5-23 October 2015)

“Promotion of Pedagogical Content Knowledge (PCK) in mathematics and science through collaboration between teacher pre-service education courses and attached schools” course

- Ten trainees (from 21 September – 4 October 2016)

“Improvement of lesson skills based on PCK” course

- Twenty trainees (from 4-31 October 2017)
- Twelve trainees (from 9 October – 2 November 2018)

Thematic training

“Curriculum development of primary mathematics” course

- Two trainees (from 15 May – 8 June 2019)
- Four trainees (from 29 October 2019 – 18 February 2020, online basis)

“School-based learning improvement and education administration support” course

- Two trainees (from 16 November – 7 December 2018)
- Two trainees (from 24 October – 16 November 2019)

Through these trainings, we developed a relationship with the Ministry of Education in Zambia and revisited the issues within the education sector. Through this, we developed a deep understanding of the situation in Zambia.

5.4.3.3 Acceptance of JICA Research Project (2018-2021)

Education quality is measured by scores, where an increment tends to be interpreted as an improvement. There is a tendency to direct attention towards the results, so much so that difficult problems and their solutions receive less attention. This quality cannot be attained through repetition of the exercises. In this context, it is imperative to examine educational quality analytically, thus necessitating an educational activity assessment.

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) consisted of 16 countries that cooperated in undertaking integrated research and training activities (SACMEQ 2019). It had conducted four assessments of mathematics and reading achievement in its member countries. With time, the number of participating countries kept rising: 7 in SACMEQ I in 1999, 14 in SACMEQ II in 2004, 15 in SACMEQ III in 2011 and 15 in SACMEQ IV in 2015. Zambia has been participating in SACMEQ since 1999, but consistently recorded poor performance. For example, 67.3% of Zambian sixth grade students did not even reach the category “Basic Numeracy” in SACMEQ II (Hungu, Makuwa, Ross, Saito, Dolata, Van Cappelle, Paviot & Vellien 2010). Since numeracy is the foundation for further mathematics and science, it forms an essential component of the human resources needed for the middle- and long-term development of society. Therefore, the Ministry of General Education in Zambia prioritised numeracy and literacy (Ministry of Education, 1996; Ministry of Education, Science, Vocational Training and Early Education, 2013a, b; Ministry of National Development Planning, 2017).

Accordingly, the JICA research project (2018–2021) was started in 2018 with the objective of developing assessment tools to diagnose the pupils’ level of numeracy competence and then develop intervention tools for improvement (Baba, et al., 2019). The team consisted of Japanese and Zambian members, totalling 16. The six members of the Japanese team were either graduates of ZSEP or engaged in activities related to Zambian educational issues through research and work. The 10 members of the Zambian team included one lecturer, six researchers, two research assistants and one liaison officer from the Ministry. The six researchers were previously master’s degree students in UNZA in mathematics education. The team shared an understanding of the issues when the project began.

While many developing countries are still struggling to improve the quality of education, these problems still seem invincible. In response to this, the JICA research project in

Zambia (2018–2021) on mathematics education was selected as a case study to show how the research could provide a new approach to such problems. A research team was formed between Hiroshima University and UNZA as both universities have been working together in this field for the past 20 years.

Through four cycles of field surveys in 2018 and 2019, the team developed assessment tools from the perspectives of developmental stages (Clements & Sarma 2010, 2013), structuration in mathematical competence (Mulligan & Micheltmore 2009, 2013) and types of representation (Roberts 2015).

Such influence was accelerated by international assessment because high performance could be interpreted as a high-quality curriculum, and adoption of such a curriculum may occur without considering contextual impact (Meyer & Katie 2014). In this context, curriculum development and international education assessment may have the following issues:

- Can international education assessment properly measure the focus of the curriculum in the respective country?
- Can the respective countries utilise the results of international assessments for curriculum improvement?

Curriculum experts in their respective countries were expected to review these issues. However, in the context of international assistance, curriculum issues received relatively less attention than enrolment, gender gaps and the gap between urban and rural areas. More specifically, the fragility of curriculum experts and studies could be pointed out in developing countries. Curriculum experts were needed to survey the status of children and classrooms and develop prescriptions accordingly. In short, we needed to acquire local curriculum experts and accumulate knowledge and experience (Baba & Nakai 2011).

The academic discipline of ‘mathematics’ was typically regarded as a universal subject, and thus, its international assessment is generally accepted globally. In fact, the same

tool was often used to measure mathematics performance in different contexts and to introduce curricula from developed countries (Jacobsen 1996). However, discussions were held during the 1980s before the international assessment movement occurred. For example, Nebres (1988) pointed out that most countries had adopted the universal mathematics curriculum, regardless of the context. Other examples included discussions on ethnomathematics (D'Ambrosio 1986) and learning mathematics as a second language (Berry 1985), which addressed fundamental problems regarding children learning mathematics in the same way in different countries. In recent years, Cai and Howson (2012) stated that each country's curriculum has been endangered by such an assessment.

Naturally, the cultural context of a particular country played an important role in the way pupils learnt mathematics. Accordingly, mathematics education research should consider not only the knowledge of the subject but also the cultural and language aspects of that country, for which mathematics curriculum experts are required. While studying the nature of children's learning and educational intervention within classrooms, they are expected to produce professional knowledge embedded with the particularities of that country, which is created within the local context. Thus, culture is necessary for endogenous curriculum development (Baba 2014). Such knowledge creation requires professional discussion based on the data and evidence.

5.4.3.4 Collaboration with UNZA

In conclusion, we acquired JSPS research funds and conducted a field survey several times. As a part of these studies, we invited them to Japan and provided them with opportunities to visit schools. Through this occasion, both the Japanese and Zambian sides developed a common understanding and sense of issues regarding the situation in Zambia. Additionally, we invited two scholars, Hambokomaa in 2007 and Nkhata in 2017, to Hiroshima University as visiting professors. We had an intensive discussion during their stay and developed

reliable personal relationships, especially with Nhkata, who is currently a Zambia team leader in the research project.

Moreover, the professors at Hiroshima University visited Zambia and UNZA once a year to monitor students who participated in ZSEP. Since August 2007, we have held the UNZA-HU joint workshop during this visit.

5.5 External Evaluation of the ZSEP

5.5.1 Briefing Sessions on ZSEP Progress

To date, we have conducted two briefing sessions on the progress of ZSEP. The first was in December 2009 and the second was in January 2015. Both were held at the Campus Innovation Centre, Tokyo.

In the first briefing session, one ex-participant each in mathematics and science education made a presentation. A symposium was held with participants including ex-participants, JOCV officials, outside experts and professors at Hiroshima University in charge of this programme. They exchanged opinions on the programme's output and issues.

In the second briefing session, Hiroshima University presented longitudinal research results regarding the output and issues, and four categories of professional career development models. One ex-participant and one graduate student in the programme presented the output of the activity. Furthermore, we invited professors from Hokkaido University of Education, Kansei Gakuin University and Hiroshima University as participants in the symposium and discussed the future possibility of collaboration between JICA-JOCV and graduate school education.

5.5.2 Media Coverage

- October 2020: Chugoku Shinbun, *Former JICA volunteer shares his experiences in Zambia with primary students in Tojo.*

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- December 2019: Weekly PRESSNET, *Two Graduate Students from Hiroshima University Dispatched to Zambia as JICA Volunteers.*
- 31 October 2016: Chugoku Shinbun, *IDEC of Hiroshima University has supported the spread of "Lesson Study" in Zambia in collaboration with JICA (Dispatch experts and JICA Training in IDEC.)*
- 15 February 2010: Times of Zambia, *Zambian teachers adopt Japan's problem-solving approach.*
- 11 February 2010: Times of Zambia, *New ways of teaching maths and science coming soon.*
- June 2008: Chugoku Shinbun, *Support in Africa- Two Roles in Zambia: teaching as a JICA volunteer and researching as a master's student from IDEC*

5.5.3 Evaluation Report by MEXT, Japan

In 2010, the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan conducted research and published the report, *Experiential Research Regarding the University Education Programme for Global Human Resource Development.*

It consisted of three chapters:

- Chapter one: Integration of overseas volunteer activity and education programme
- Chapter two: Integration of internship in international organisations such as the United Nations and education programme
- Chapter three: Higher education institutions and international organisations, and introduced cases of 12 universities. ZSEP was introduced in the first chapter.

Some points of observation regarding all these programmes were as follows:

- Acquisition of high-level English ability
- Acquisition of clear professional skills

- Provision of first-hand experiences in a developing country
- Provision of opportunity to contact with officers of international cooperation organisations
- Correspondence with development of interests of individual student

ZSEP contains all these points. The programme is conducted in English and incorporated with JOCV activity at a basic school in Zambia. During the term of dispatch, they conducted a lesson in mathematics and/or science and made a presentation on their study in the UNZA-HU joint seminar, which requires professional skills and a high-level English-speaking ability. In fact, they were involved in the process of preparing joint seminars by contacting and discussing with UNZA lecturers, the officers of the Ministry of Education and JICA experts. Throughout this programme, they require professional skills in graduate school education and volunteer work. They set up a research theme depending on their interests and are advised by the supervisors.

Among the 12 universities in the report, ZSEP by Hiroshima University had a significant and clear vision for the participants' future careers. As this was an important characteristic, Hiroshima University and Nagoya University were listed as model cases. It was highly appreciated that ZSEP of Hiroshima University is a good combination of participation in the JOCV programme and acquisition of a master's degree, which enables simultaneous acquisition of experience and degree.

5.6 Conclusion

ZSEP began in 2003 with the aim of growing human resources in the field of international education cooperation. During this period, the programme attracted students from all over Japan and produced approximately 40 resources. Human resource development could not be fully achieved at the end of graduate school education. Rather, it is important that the education programme aims to form some basic skills, perspectives and

consciousness as professionals to continue growing in the long-term. The results of this growth could only be seen after 10 or 20 years. Fortunately, the twentieth anniversary was in 2022, which we celebrated to reflect on these years.

Additionally, this programme also contributed to another outcome, which became very important for us: not only had there been a growth in students but also a significant growth in lecturers and institutions. The joint seminar, which was started as a forum for the students to make a presentation, contributed to the promotion of research activities at UNZA. JICA research project invented a new research method by integrating issues discovered by both universities and research we had conducted. A new approach in mathematics education research, which considered Zambian students and their background, deepened the common and traditional solutions of repeating calculation problems and solutions which focused on the structural understanding of numbers.

Finally, the context of international cooperation in the 2020s has changed tremendously compared. Globalisation progressed, and many developing countries are in transition. Some of these countries, especially Asian countries, have achieved economic development. A few African countries have also achieved a certain level of development. Furthermore, the recent COVID-19 pandemic has made an impact on the world. There was a huge drop in international travel and trade in 2020 and 2021. It certainly will recover someday, but it may not be the same. During this period, the utilisation of information and communications technology (ICT) has progressed considerably and this progress will continue. This is already part of our infrastructure, promoting the second point of structural transformation.

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