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4月18～19日に鳴門教育大学で開催された日本アフリカ教育学会第37回大会で研究計画と研究成果を発表しました。

We presented research proposals and findings at the 37th Japan Society for African Educational Research held in Naruto University of Education from April 18th to 19th.



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***千田成美さんは、優秀研究発表賞を受賞しました She received the Excellent Research Presentation Award.**

Assessing the Acquisition of Cognitive Domains in Mathematics Curricula:
A Comparative Study of Malawi, Ghana, and Uganda

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Globally, only 44% of primary students have attained the minimum proficiency level in mathematics (UNESCO, 2024). In sub-Saharan Africa, mathematics achievement remains a significant challenge. According to the Southern and East Africa Consortium for Monitoring Educational Quality (SACMEQ, 2023), only 26.7% of grade 6 students scored above "Beginning Numeracy at Level 4." The extensive study has focused on teacher quality, pedagogy, and the development of teaching and learning materials, including curriculum and textbooks, to improve academic achievement. On the other hand, less attention is paid to analyzing curriculum attainment through measures of student academic achievement.

Gradually, the application of Cognitive Diagnostic Models (CDMs) has received attention for curriculum attainment analysis. CDMs are psychometric models used in educational and psychological assessment. It improves academic achievement by diagnosing skills, strengths, and weaknesses in each area of the cognitive domain. Recently, it has been used to evaluate acquired skills and academic achievement in high-income countries. In contrast, it has rarely been used in low- and middle-income countries. To fill this gap, drawing on data from Malawi, Ghana, and Uganda, this study aimed to assess attainment in the cognitive domain of the Mathematics curriculum by applying the cognitive diagnostic model.

To develop mathematics tests, we first developed an international curriculum based on common content across three countries by comparing national curricula. Then, we created 110 question items for mathematics tests based on the international curriculum and textbook in each country. We developed test forms by selecting question items. Due to differences in the curriculum across the three countries, we developed two test forms: Test A for Malawi and Uganda, and Test B for Ghana. The level of Test B was higher than that of Test A. To equate Test A and Test B, 18 common items were included in both tests. There were 40 question items in both tests. The implementation time was 90 minutes.

The sample was 900 grade 5 and 636 grade 6 students in 12 public primary schools in Lilongwe East and Nkhata Bay District, Malawi, 919 grade 5 and 981 grade 6 students in 23 public primary schools in the Lower Marya Krobo District, Eastern Region, Ghana, and 1049 grade 5 and 966 grade 6 students in 18 public primary schools in Mpigi District, Uganda. Data were collected in Malawi from October to November 2021, in Ghana from January to February 2022, and in Uganda from June to July 2022.

In the analysis, we first developed six attributes that classify the cognitive domain in mathematics: reading comprehension skills; natural numbers; rational numbers; four arithmetic operations (addition, subtraction, multiplication, and division); carrying and borrowing in arithmetic operations; and the concepts of graphs and units. Then, we created a Q matrix indicating whether each attribute was required to obtain the correct answer for each question item. Finally, we applied the generalized deterministic inputs, noisy-and-gate (GDINA) model in the cognitive diagnostic model for each grade and country to assess acquisition rates and their relationships to the attributes.

The results showed that the levels of acquiring six attributes were different among the three countries: 1.0% in grade 5 and 20.7% in grade 6 in Malawi, 2.7% in grade 5 and 10.4% in grade 6 in Ghana, and 7.0% in grade 5 and 21.0% in grade 6 in Uganda. The level of rational number acquisition was lower than that of the other attributes in all countries. In both grades, there was a strong relationship between rational numbers and the concepts of graphs and units in Malawi and Uganda. In Ghana, the tendency was different. There was a strong relationship between natural numbers and rational numbers in grade 5. At the same time, it was between natural numbers and the concepts of graphs and units in grade 6. The results contribute to reconsidering teaching methodology and guide learning points to improve basic mathematics skills in the three countries. We can also apply the methodology used in this study to other countries.

マラウイにおける日本型特別活動による児童の社会情動的スキルへの影響

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1. 研究背景

近年、社会情動的スキル (Social-Emotional Skills: SES) は学力向上のみならず、将来の所得向上や犯罪率・離職率の低下といった社会的成功に寄与する因子として注目されている (Heckman, 2006)。その育成には課外活動が有効とされており (OECD, 2018)、特に日本の「特別活動 (特活)」は、教育課程に定められており、掃除、班活動、学級会、生徒会活動などの集団活動、異年齢交流を通じて SES 向上に資するとして国際的関心を集めている (京免, 2021)。エジプトやインドネシアなどでは JICA による特別活動を中心とした日本型教育が導入されている。一方、マラウイにおいては「ライフスキル」という科目は存在するものの、学校現場での実践機会の不足や、教員の教授法・知識不足が課題となっている (Lee, 2023)。

2. 研究目的

本研究の目的は、マラウイの私立小学校において日本型特別活動 (日直、スピーチ、目標設定と振り返り、集団活動) を実施し、児童の SES に変容が見られるかを検証することである。具体的には、マラウイでの日本型特活の導入可能性とその障壁、および介入が児童の SES 向上に与える効果を明らかにすることである。

3. 研究方法

マラウイの首都 (リロングウェ) の私立小学校 4・5 年生を対象に、現地教師と筆者が協働して 1 ヶ月の間、日本型特別活動を実施した。実施内容は、日直活動、スピーチ、健康・感情チェック、および集団活動 (長縄、折り紙) である。効果測定には混合研究法を用いた。量的調査として、OECD の SES 調査 (Survey on Social Emotional Skills: SSES) を基にした 6 項目 (信頼、協力、主張力、責任感、自己制御、忍耐力) の事前・事後アンケートを実施した。質的調査では、活動のビデオ分析、参与観察に加え、実施後に児童 10 名および教師 2 名への半構造化インタビューを行った。

4. これまで得られた研究成果

質問紙調査の結果、統計的な有意差は確認されなかったが、「協力」「信頼」「忍耐力」の項目に平均値の向上傾向が見られたが、「責任感、主張力」の項目においては低下が認められた。インタビュー調査では、児童および教師から「協力スキルの向上」「集中力の持続」「静的活動 (座学) から動的活動 (集団活動) への切り替え力向上」の変容が報告された。以上の結果から、日本型特活の実施はマラウイの文脈においても SES 向上に一定の効果を持つ可能性が示唆された。今後の課題として、教師・児童に対する SES の概念および活動意義の理解促進、及び現地文化や既存カリキュラムに即した「日本型教育の現地化」が挙げられる。

5. 主要参考文献

Organisation for Economic Co-operation and Development (OECD). (2021). *Beyond academic learning: First results from the Survey of Social and Emotional Skills*. OECD Publishing. <https://doi.org/10.1787/9211651f-en>

Effects of Japanese Extracurricular Activities on Students' Social-emotional Skills in Malawi

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1. Background

In recent years, social-emotional skills (SES) have paid attention for their role in enhancing academic performance and for their contribution to social success, including higher future income and lower crime and turnover rates (Heckman, 2006). Extracurricular activities are considered an effective way to foster these skills (OECD, 2018), and “Japanese Extracurricular Activities” (Tokkatsu) are particularly notable as they are mandated in the curriculum. These activities have received international recognition for their contribution to the development of SES, through group activities, such as cleaning, group activities, class meetings, and student council activities, as well as interactions with students of different ages (Kyomen, 2021). In countries such as Egypt and Indonesia, a Japanese-style education based on Japanese Extracurricular Activities has been introduced through the Japan International Cooperation Agency (JICA). In Malawi, students learn about SES in a subject called “Life Skills.” However, there is a lack of practical opportunities, such as extracurricular activities in schools, and teachers' teaching methods and knowledge are insufficient (Lee, 2023).

2. Purpose

This study aims to investigate how the implementation of Japanese extracurricular activities affects the development of social-emotional skills among elementary school students in Malawi. More specifically, by clarifying the feasibility of introducing these activities in Malawi, this study investigates the barriers to their implementation and their potential to improve students' SES.

3. Research Method

In collaboration with local teachers, the author facilitated a month-long programme of Japanese Extracurricular Activities for Grade 4 and 5 students at a private primary school in Lilongwe, the capital of Malawi. The programme consisted of daily class duties, speeches, health and emotional check-ins, and group activities, such as long rope skipping and origami. A mixed-methods approach was used to measure the program's effectiveness. For the quantitative study, pre- and post-programme questionnaires based on the OECD's Survey on Social and Emotional Skills (SSES) were administered, covering six items: trust, cooperation, assertiveness, responsibility, self-control, and perseverance. For the qualitative study, video analysis of activities and participant observation were conducted alongside semi-structured interviews with 10 students and two teachers after the programme concluded.

4. Preliminary Findings

Although the results of the questionnaires did not reveal any statistically significant differences, there was a tendency towards higher average scores in the categories of “cooperation, trust, and perseverance, while a decline was observed in the categories of responsibility and assertiveness. In the interview, both students and teachers reported changes, such as improved cooperation skills, sustained concentration, and improved ability to transition from static activities to dynamic activities. These results suggest that implementing Japanese Extracurricular Activities improved SES, even in Malawi. However, it also became clear that there was a lack of understanding among teachers and students regarding the concepts of SES, as well as a lack of awareness of the relationship among SES, extracurricular activities, and academic performance. The future challenge is to localise Japanese-style education in ways that aligns with local culture and existing curricula.

5. Main References

Organisation for Economic Co-operation and Development (OECD). (2021). *Beyond academic learning: First results from the Survey of Social and Emotional Skills*. OECD Publishing. <https://doi.org/10.1787/9211651f-en>

Exploring the Leadership Experiences of Female School Principals in Mixed Senior High Schools in Northern Ghana.

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Background

Educational and School leadership have proven to be one of the most important structural elements that contribute to the overall efficiency and effectiveness in school and student output (UNICEF, 2022). Globally, the underrepresentation of women in leadership and decision-making processes is rife across diverse fields such as politics, governance, health, and education, has not been spared this phenomenon. The report also indicates that women have persistently been underrepresented in school leadership even though they make up the majority in the teaching field (UNICEF, 2022).

In Ghana, the absence of women in school leadership is a common phenomenon. Previous studies affirm that there is a high female workforce at the elementary level, where more than half of the qualified teaching force are women; however, the reverse is true at the high school level. Despite the fact that most men and women hold the necessary academic credentials, with women slightly above that of men, school leadership eludes most females due to several socio-cultural, religious, and institutional factors (UNICEF, 2023). According to Segkuu & Gyimah (2016), in a study conducted in the Tamale Metropolis, 3 of 12 public senior high schools were headed by female principals.

Purpose and Research Questions.

The purpose of this research is to explore the gendered leadership experiences of female school principals in the Northern enclave of Ghana. In line with this, the study will delve into the intricate socio-cultural landscape of conservative societies and how it shapes the career path and leadership aspirations of female teachers.

The research questions are answered in this study include the following:

1. How do the personal experiences and gendered role expectations of societies shape the leadership aspirations of female school principals?
2. How do socio-cultural norms, gender roles, and perceptions about women leaders influence the career advancement of female teachers into leadership positions?
3. What strategies do female principals adopt to navigate between gender stereotypes and execution of leadership roles in Mixed Senior High Schools?

Significance of the study

The study will add to existing literature in women school leadership, delving deep into uncovering the unique contextual socio-cultural atmosphere in northern Ghana. It will also inform governance decisions and policies strengthening to develop tailor-made interventions for women school principals in northern Ghana.

Methodology

The study will employ the use of semi-structured interviews to elicit responses from the study participants. The narrative enquiry approach will be used, as this method enables responders to reconstruct their unique school leadership experiences and contribute to eliciting deep responses to questions.

References

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