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6月27～29日に帝京大学で開催された日本比較教育学会第61回大会において、研究成果を発表しました。

We presented our research findings at the 61st Annual Conference of the Japan Comparative Education Society, held at Teikyo University on June 27 – 29.

谷口 京子

児童の学力変化の分析

—マラウイ、ガーナ、ウガンダを例として—

本研究は、サブサハラ・アフリカ地域において、マラウイ、ガーナ、ウガンダを事例とし、初等教育における児童の1年間の学力変化を分析することを目的としている。

低中所得国における児童生徒の学力は、教育の質測定のための南東部アフリカ諸国連合(SACMEQ)や仏語圏アフリカの教育分析プログラム(PASEC)、OECD(経済協力開発機構)生徒の学習到達度調査(PISA)など国際調査や国内調査によって測定され、国全体の学力水準やその推移が明らかにされてきた。しかし、これらの調査では設計上、児童の1年間の学力変化を詳しく捉えることは難しい。学力向上のためには、年単位の変化を定量的に把握することが重要であり、本研究はその点に着目している。

本研究では、英語と算数の学力テストと質問紙を使用した。テストは各国の1～6年生のカリキュラムに基づき、英語97項目、算数110項目を作成した。進度の違いに対応して、マラウイ・ウガンダ用のテストAとガーナ用のテストBを作成し、各テストは40項目で共通項目として英語20項目、算数18項目を設定した。質問紙は児童の属性や学習環境を把握するために、性別、年齢、兄弟数、欠席日数、留年回数などの項目を含んでいる。

本研究の調査は、サブサハラ・アフリカ地域のマラウイ(学力低位国)、ガーナ(学力中位国)、ウガンダ(学力高位国)を対象に、2021～2023年にかけて学力及び質問紙調査を2回実施した。第1回目の調査は、マラウイでは2021年10～11月の学期始めに、リロングウェ農村東部地区とンカタベイ県にある公立小学校12校で5年生900名、6年生636名、ガーナでは2022年1～2月の同様に学期始めに、イースタン州ローワー・マニャ・クロボ郡の公立小学校23校で5年生919名、6年生981名、ウガンダでは2022年5～6月の2学期に、ムピジ県の公立小学校19校で5年生919名、6年生981名を対象とした。第2回目の調査は、第1回と同様の地域において、別の学校を対象に実施された。マラウイでは2022年8～9月の学期末に、公立小学校10校で5年生1,257名、6年生847名、ガーナでは2022年8～9月の学期末に、公立小学校20校で5年生824名、6年生875名、ウガンダでは2023年6～7月の2学期に、公立小学校19校で5年生800名、6年生716名を対象とした。第1回目と第2回目の調査校は、各国の地域における学力水準が同程度となるように選定された。

分析には、項目反応理論(IRT)を用い、テストAとBの得点を比較可能にするために、Kolen & Brennan(2014)による同時推定法を適用した。IRTモデルには、

識別力と困難度の2つのパラメータを推定する2パラメータ・ロジスティック・モデルを採用し、3カ国の各学年において異なる能力分布を仮定した多群IRTモデルを用いた。パラメータ推定においては、ガーナの5年生を参照群とし、その能力分布の平均値を0、標準偏差を1に固定して、他の群の能力値を相対的に推定した。

結果として、ガーナでは英語において5年生で平均値0.526、6年生で0.465、算数では平均値0.588、6年生では0.493と、いずれも学力の伸びが確認された。一方、マラウイとウガンダでは学力伸びは確認されなかった。すなわち、5～6年生の1年間で習得すべきカリキュラムの内容や、学期始めに解けなかった問題が学期末になっても解けないことが明らかになった。マラウイにおいては留年率が約25%と非常に高い(Taniguchi, 2019)。一方、ウガンダは、新型コロナウイルスの影響による学校閉鎖の期間が長く、未習得の内容や学力を十分に回復していない可能性がある。本研究の結果は、児童生徒の学力変化や分析する上で重要な知見を提供するものである。

Kyoko Taniguchi

An Analysis of Student Achievement Growth: Cases of Malawi, Ghana, and Uganda

This study aims to analyze one-year changes in primary school students' academic achievement in sub-Saharan Africa, using Malawi, Ghana, and Uganda as case studies.

In low- and middle-income countries, students' academic achievement has been measured through international and national assessments such as the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), the Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN (PASEC), and the OECD Programme for International Student Assessment (PISA), which have clarified national achievement levels and trends over time. However, due to their design, these assessments make it difficult to capture detailed year-to-year changes in individual students' learning outcomes. Quantitative identification of annual changes in achievement is crucial for improving learning outcomes, and this study focuses on this issue.

This study employed English and mathematics achievement tests along with questionnaires. The tests were developed based on the curricula for Grades 1 to 6 in each country and consisted of 97 items in English and 110 items in mathematics. To account for differences in curricular progression, Test A was developed for Malawi and Uganda, and Test B for Ghana. Each test consisted of 40 items, including common anchor items (20 in English and 18 in mathematics). The questionnaires collected information on students' backgrounds and learning environments, including gender, age, number of siblings, number of absences, and history of grade repetition.

Data were collected twice between 2021 and 2023 in Malawi (a low-achievement country), Ghana (a middle-achievement country), and Uganda (a high-achievement country) in sub-Saharan Africa. The first survey was conducted at the beginning of the school term: in Malawi during October–November 2021 at 12 public primary schools in Lilongwe Rural East District and Nkhata Bay District, targeting 900 Grade 5 and 636 Grade 6 students; in Ghana during January–February 2022 at 23 public primary schools in Lower Manya Krobo District, Eastern Region, targeting 919 Grade 5 and 981 Grade 6 students; and in Uganda during May–June 2022 during the second term

at 19 public primary schools in Mpigi District, targeting 919 Grade 5 and 981 Grade 6 students. The second survey was conducted in the same regions as the first survey but at different schools: in Malawi during August–September 2022 at the end of the school term at 10 public primary schools, targeting 1,257 Grade 5 and 847 Grade 6 students; in Ghana during August–September 2022 at the end of the school term at 20 public primary schools, targeting 824 Grade 5 and 875 Grade 6 students; and in Uganda during June–July 2023 during the second term at 19 public primary schools, targeting 800 Grade 5 and 716 Grade 6 students. Schools for the first and second surveys were selected to ensure comparable achievement levels across countries.

Item Response Theory (IRT) was used for the analysis. To make scores from Tests A and B comparable, the concurrent calibration method proposed by Kolen and Brennan (2014) was applied. A two-parameter logistic (2PL) IRT model, estimating item discrimination and difficulty parameters, was adopted. A multiple-group IRT model assuming different ability distributions for each grade and country was used. For parameter estimation, Grade 5 students in Ghana were used as the reference group, with the mean of the ability distribution fixed at 0 and the standard deviation fixed at 1; the abilities of other groups were estimated relative to this reference.

The results showed clear achievement gains in Ghana: in English, the mean increased to 0.526 in Grade 5 and 0.465 in Grade 6; in mathematics, the mean increased to 0.588 in Grade 5 and 0.493 in Grade 6. In contrast, no significant gains in achievement were observed in Malawi or Uganda. This indicates that curricular content expected to be mastered between Grades 5 and 6, as well as items that students could not solve at the beginning of the school year, remained unsolved at the end of the year. In Malawi, the grade repetition rate is exceptionally high at approximately 25% (Taniguchi, 2019). In Uganda, prolonged school closures during the COVID-19 pandemic may have hindered the recovery of lost learning and the mastery of previously learned content. These findings provide important insights into the analysis of changes in students' academic achievement over time.

Vichara Lay

Applying for Test Theory for Analyzing Reading and Mathematics Achievement in Cambodian Public Secondary Schools.

Cambodia has consistently prioritized the improvement of student achievement through national and regional assessments, particularly participation in Program for International Student Assessment (PISA), and empirical research. Applying Classical Test Theory (CTT) and Item Response Theory (IRT) as foundational frameworks to measure academic achievement. These two important theories theoretically guide and analyze most tests that encompass people's cognitive abilities (Muñiz, 2010). CTT establishes the relationship between observed scores, true scores, and measurement errors, ensuring reliability and validity (Hambleton & Jones, 1993; Sijtsma, 2015). In contrast, IRT offers item-level analysis and ability scores independent of specific test structures (Hambleton & Jones, 1993). Every examinee responding to a test item possesses an underlying ability that can be quantified on an ability scale (θ); "At each ability level, there will be a certain probability that an examinee with that ability will give a correct

answer to the item” (Baker, 2001, p. 15). This study employed both theories to analyze empirical data on Cambodian students' reading and mathematics performance at the secondary school level.

There were 1158 grades 7 and 1225 grade 10 students from 29 public secondary schools in three provinces who participated in taking tests, which consisted of 30 items for each test. CTT approach focuses on classical difficulty (P_i), classical discrimination (D_i), and item point biserial ($r_{pb,i}$). The IRT approach applied the two-parameter logistic (2PL) model to estimate the item difficulty (b) and item discrimination (a).

The results yielded from CTT and IRT analysis revealed that the reading achievement of grade 7 students was particularly challenged with the ability to define word meanings and understand parts of speech. The discrimination between different abilities among these challenged students was low. Similarly, grade 10 students are challenged with the ability to identify relevant information in a story, grammar related to parts of speech, and antonyms. Low discrimination emerged among students challenged to identify the relevant information in the story.

Mathematics achievement, grade 7 students struggled with abilities to operate fractions and equation solving, specifically adding fractions with the same denominators, adding fractions with the same denominators, multiplying fractions, and solving equations using transposing terms. There was high discrimination of different abilities. However, low discrimination was relatively the calculating the perimeter of a rectangle, identifying the value of an expression with one variable, and identifying the triangle area, suggesting that these items were likely very difficult. For grade 10 students, the most challenging with abilities to add fractions with the same denominators and reduction, add fractions with different denominators, identify the area of a rectangle, identify the area of a triangle, define the mean score of a data set, and solving inequalities as well as discrimination between different abilities among these challenged students was also low.

Kelroy Kirkland Brown

The Impact of the Family Island Exchange Program on the Development of Parents and Children: A Case Study of Ama Town

Japan's persistent population decline, characterized by low fertility rates and rapid ageing (UN World Population Prospects, 2024), has disproportionately affected rural areas due to internal migration favouring urban centres (Kakinuma & Abel, 2022). The resulting demographic shifts have influenced the creation of various revitalization initiatives at various levels of government (Dilley, Gkartzios & Odagiri 2022; Matanle, 2017; McCurry, 2023; Luzi, 2025), promoting counterurbanization to residents of Japanese urban centres. However, research examining the actual experiences of those who participate in such initiatives, especially family units, remains limited. In Ama Town, in Shimane Prefecture, Ama Town started one such revitalization initiative in 2016, managed by their local government through the board of education. Their family exchange program invites families from urban centres in Japan to move to the remote island for the child's education. This study attempts to analyse understand the what impacts that participating in on the program has had on the families by applying Bronfenbrenner's Ecological Systems Theory, established in (1979). This theory is used

to analyse how urban families are impacted across multiple ecological levels: microsystem (family, school), mesosystem (community ties), exosystem (policies), and macrosystem (cultural norms).

This research employed qualitative methods, conducting semi-structured interviews in September 2024 with five urban-to-rural migrant families participating in Ama Town's Island Exchange Program. Families represented varying lengths of residency, from several months to over four years, with all cohabiting members participating in interviews of approximately 60 -minutes. Open-ended questions explored relocation motivations, adaptation processes, and perceived impacts on family dynamics while living in Ama, capturing multigenerational perspectives that align with Bronfenbrenner's framework's emphasis on nested systems.

Key findings revealed notable developmental impacts across ecological systems. At the microsystem level, children demonstrated increased classroom participation in small rural schools compared to urban institutions, while parents reported improved teacher communication and engagement. A notable role reversal emerged, as children's environmental knowledge stimulated parental learning. At the mesosystem level, a close-knit community fostered conflict resolution skills in children and promoted family ingenuity through resource creation. Parents consistently reported better work-life balance and reduced urban stressors. At the macrosystem level, rural communities displayed greater acceptance of diverse behaviours compared to urban conformity pressures, allowing families to express individuality without potentially being socially stigmatized.

Dav Chanly

Trainer and Institution Factors Influencing Trainee Competence in Competency-Based Training in TVET in Phnom Penh, Cambodia

Technical and Vocational Education and Training (TVET) is an essential component of the education system, aiming to develop a skilled workforce that contributes to national economic growth and social progress (UNESCO, 2021; World Bank, 2023). Cambodia has experienced remarkable economic growth and poverty reduction over the past two decades, but it continues to face challenges such as human capital, low productivity, high informality, and labor vulnerability (UNESCO; ILO, 2020). Competency-Based Training (CBT) has emerged as a key strategy to improve training effectiveness and workforce readiness. This study is to investigate trainer and institutional factors influencing the implementation of CBT in TVET institutions in Phnom Penh, Cambodia. Specifically, the study addresses three research questions: (1) To what extent do trainees acquire competency in CBT? (2) What trainer and institutional factors influence the competency outcomes of CBT? (3) To what extent do Cambodian TVET institutions support the delivery of CBT?

A convergent mixed-methods approach was employed. The questionnaires and semi-structured interviews were used as research tools. The questionnaire for trainees consists of general information, family information, instructional impact on trainee achievement, trainee involvement in classroom activities, and trainee perception of CBT. The questionnaires for trainers have background, understanding of CBT concepts and

objectives, teaching and facility issues affecting trainee achievement, professional development, trainer factors in CBT implementation, institutional factors in CBT implementation, and CBT qualification assessment. The semi-structured interviews were also released the questions which also included questions that support the factors influencing CBT implementation. The questionnaires were distributed to 267 trainees and 107 trainers from four TVET institutes. The semi-structured interviews were conducted with principals and managers in the same TVET institutions. The questionnaires were analyzed by using descriptive statistics and multiple linear regression. The semi-structured interviews were used for thematic coding.

The results from the questionnaires revealed that institutional commitment to CBT implementation and recognition, structured training design, and the availability of qualified trainers significantly impacted trainee competency. However, demographic and socio-economic factors, such as age, gender, and family background, showed no significant influence on learning outcomes. Additional factors, such as the availability and quality of training facilities, instructional design, teaching and training practices, and evaluation methods, were found through the semi-structured interviews. Curriculum development, alignment with industry needs and standards, and the integration of vocational knowledge, skills, and ethical requirements were also critical factors. The influential factors identified were the development of subject areas, projects, and modules, as well as ongoing professional development for trainers in both pedagogical and technical areas. Organizational structure, including management and infrastructure, and public-private partnerships, were also found to impact the success of CBT implementation significantly. These findings underscore the need for strong institutional frameworks and improved teaching strategies to enhance the effectiveness of CBT in Cambodian TVET institutions and better equip trainees with relevant industry skills.