



Jacobs Foundation-ISSBD Doctoral Fellowship Program in Cote d'Ivoire, West Africa: Summary and Review

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Objectives

The Jacobs Foundation is one of the world's leading charitable foundations dedicated to promoting innovations for children and youth (Holding, 2025). For more than 30 years, it has partnered with the International Society for the Study of Behavioural Development (ISSBD) on a variety of initiatives aimed at achieving our shared goals. In 2019, ISSBD entered an innovative extension of its longstanding partnership with the Jacobs Foundation to provide six doctoral fellowships. The Foundation's objective was to strengthen Côte d'Ivoire's capacity to develop and evaluate interventions designed to improve:

- School readiness and/or social and emotional skills among children under 5 years of age;
- Literacy and/or numeracy skills among primary school children;
- Vocational skills among youth.

The doctoral fellowship program was one component in the Jacobs Foundation's strategic plan for improving women's

empowerment, child protection, and the educational opportunities available to young people in rural cocoa-producing communities. This focus reflects the Jacobs family's long history of involvement in the cocoa industry in Côte d'Ivoire.

For ISSBD, the fellowships program aligned with the goal of supporting early career researchers in developmental science around the world. Although approximately one-quarter of ISSBD members are located in Africa, and an ISSBD African Regional Workshop was hosted by Côte d'Ivoire in 1994, for the past 25 years, there has been little or no representation from Francophone West Africa. Thus, the doctoral fellowship program marked a significant step toward the reintroduction of ISSBD in Francophone Africa.

ISSBD's goal of harnessing the perspectives of multiple disciplines to achieve a holistic understanding of human development was reflected in the diversity of disciplines from which the doctoral fellows were drawn: Franck Adjé DJALEGA (Nutrition), Venance TOKPA (Linguistics), Abenin Mathieu BROU (Biological Anthropology), Edy Constant Gbala SERI (Psychology), Apie Léa Fabienne ANOUA (Anthropology of Education), and Marie Josiane KOUAME (Sociology of Education).

Components of the Fellowship Program

Activities in the program were designed to:

- Increase our research capacity
 - We continued to receive training from our research supervisors and other members of the research laboratories and institutes where we were based.
 - Mentorship, research advice, and training seminars were also provided by a coordination team composed of members of ISSBD and the Jacobs Foundation. This team included, among others:
 - Prof. Toni Claudette ANTONUCCI, Institute for Social Research, University of Michigan, USA; and past president of ISSBD.
 - Prof. Anne Cheryl PETERSEN, Gerald R. Ford School of Public Policy, University of Michigan, USA; Founder and President, Global Philanthropy Alliance; and past president of ISSBD.
 - Dr. Julie Ann ROBINSON, College of Education, Psychology and Social Work, Flinders University, Australia; and past ISSBD Executive Committee member.

- Mr. Sosthène GUEI, the representative of the Jacobs Foundation and the local coordinator of the program.
- Guest presenters.
- A short course in statistical analysis, funded by the fellowship program, was provided by the National School of Statistics and Applied Economics (ENSEA) in Abidjan, Côte d'Ivoire.
- Training in the English language, provided by Update Consulting in Abidjan and Eagle Vision Institute in Accra, Ghana, was also funded by the fellowship program.
- Production of a group-authored article, which was accepted by *Frontiers in Public Health* (2024 Impact factor 5.18) (<https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2022.1035488/full>)
- Mentorship from members of ISSBD located in other African countries.
- Participation in pre-conference workshops at ISSBD biennial meetings.
- Provide material resources
 - Fellows received a quarterly stipend over four years (extended from three years due to the disruption to research activities caused by COVID-19), a contribution towards their doctoral research expenses, and funding to attend

two ISSBD Biennial Meetings and ISSBD African Regional Workshops.

- Support the creation of ongoing professional networks
 - Mentorship by other scholars in Africa, and participation in the 14th and 15th ISSBD African Regional Workshops (online in 2021; in person in 2023), a workshop sponsored by the Jacobs Foundation (Abidjan, Côte d'Ivoire, in 2023), and the 26th and 27th Biennial Meetings of ISSBD, all helped us identify other scholars who share our research interests.



Figure 1. The six doctoral fellows with Prof. Toni Antonucci (left) and Prof. Anne Petersen (far right). *Photo courtesy of the authors.*

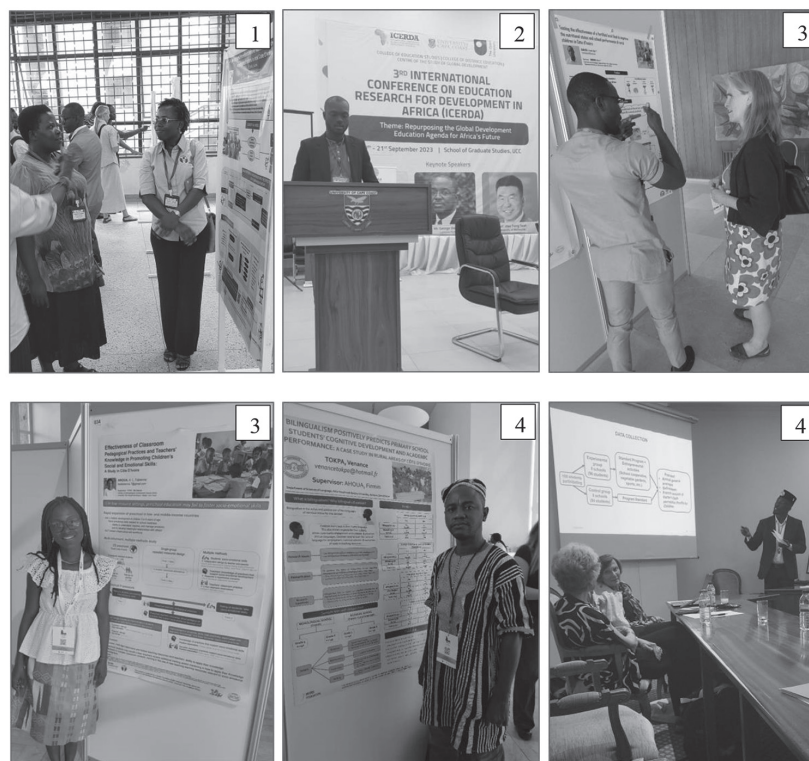


Figure 2. Doctoral Fellows' Presentations at Workshops and Conferences. *Photo courtesy of the authors.*

1. 15th ISSBD African Regional Workshop, Kampala, Uganda.
2. 3rd International Conference on Education Research for Development in Africa (ICERDA), Cape Coast, Ghana.
3. 26th Biennial Meeting of ISSBD, Rhodes, Greece.
4. 27th Biennial Meeting of ISSBD, Lisbon, Portugal.

Doctoral fellows' research



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ISSBD mentor Emeritus Prof. Kofi MARFO (Ghana) (Aga Khan University, East Africa)

(Photo courtesy of the authors)

Effect of micronutrient fortification of a staple food on children's nutritional status and academic performance

Micronutrient deficiencies, which are widespread among children in rural communities in Côte d'Ivoire, have adverse effects on physical growth, brain development, and cognitive performance. My research involved four stages. First, a survey identified cassava semolina as a staple food that could serve as a vehicle for micronutrient fortification in rural areas with a high prevalence of micronutrient deficiencies. Second, we developed a method of fortifying cassava semolina so that it dramatically increased iron, zinc, and folic acid content, satisfactory microbiological quality, no pathogens, and low levels of spoilage microorganisms. Third, in-vivo trials in mice showed that the fortified cassava semolina increased body mass and blood's ability to transport oxygen. The final phase examined whether the integration of fortified cassava semolina into the school lunch program for children ($n = 460$; ages 5 to 15 years) in six rural villages with a high prevalence of anaemia had a beneficial effect. Children who consumed fortified semolina had higher haemoglobin levels than those who did not, resulting in a reduction in the prevalence of anaemia. However, the intervention did not improve students' memory performance or their average academic grades in literature or mathematics. Thus, cassava semolina is an effective vehicle for improving the nutritional status of schoolchildren. However, because of the latency between improvements in nutrition and subsequent catch-up in brain development and cognitive performance, studies over a longer period than were feasible in the current research are needed to determine the effect of fortification on students' academic performance.



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ISSBD mentor Emeritus Prof. Robert SERPELL (University of Zambia)

(Photo courtesy of the authors)

Overcoming the challenges of teaching literacy in a language in which meaning is communicated through tones

When children in rural Côte d'Ivoire enter school, they often have no familiarity with French, the language of instruction. To ease this transition and improve school performance, policies that promote bilingual education during the first years of schooling have been implemented in some regions. This study explored the integration of the Toura language, one of Africa's many tonal languages, into primary schools. Tonal languages present a special challenge for the development of literacy skills because the meaning of a word is conveyed by the tone with which it is uttered. Thus, words that have the same spelling have multiple unrelated meanings. This research examined how the tonal system of Toura functions and how it can be effectively analysed and taught. The methodological approach combined linguistic theories with experimental methods. It identified four main tones that influence both the lexical and grammatical meaning of words, developed an adapted orthography to represent these tones in text, and demonstrated the pedagogical benefits of their integration, particularly its ability to both facilitate students' transition to French and preserve the cultural and linguistic heritage of their communities.



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(Photo courtesy of the authors)

Association between participation in an entrepreneurial education program and primary school students' self-esteem and academic performance

As a strategy to increase students' school attendance and engagement, Côte d'Ivoire implemented a pilot program in entrepreneurial education. My research evaluated whether participation in this program was effective in achieving the aim of improving students' academic performance and whether any improvements were associated with an increase in students' self-esteem. Students in eight elementary schools who participated in the program had higher academic achievement and higher self-esteem than those who did not. The difference in academic performance was partially mediated by self-esteem. These results support further investigation of entrepreneurial education as a model for school-based interventions to alleviate "learning poverty" in rural areas.



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ISSBD mentor Dr. Pamela WADENDE (Kisii University, Kenya)

(Photo courtesy of the authors)

The association between preschool students' acquisition of socio-emotional skills and the parenting styles and pedagogical practices to which they are exposed

Preschool education has been promoted as one means of increasing young children's school readiness, including their socio-emotional skills. My research adopted a mixed methods approach to evaluate the effectiveness of current preschool programs in improving the socio-emotional skills of young children in rural communities with low educational attainment. A qualitative study validated measures, gained parents' (n = 38; 50% fathers) and preschool teachers' (n = 22) perspectives on young children's socio-emotional development, and provided insights into the challenges faced by preschool teachers. The quantitative study examined whether preschool attendance was associated with an improvement in students' socio-emotional skills, how any improvement was related to their parents' caregiving style and their teachers' knowledge, and observed the use of pedagogical practices that can support socio-emotional development. Parents (n = 138) and teachers (n = 23) rated the socio-emotional skills of a random sample of six students from each class on two occasions: 2 months after the school year began and again five months later. Surprisingly, neither parents' nor teachers' ratings of skills showed any improvement. However, teachers' knowledge of pedagogical practices that support socio-emotional development was positively associated with improvements in their assessment of their students' socio-emotional skills. Teachers' use of supportive, sensitive pedagogical practices and parents' use of authoritative parenting practices were positively associated with changes in parents' assessments of their children's socio-emotional skills. There was no interaction between these variables. A thematic analysis of the qualitative data suggested that teachers' ability to apply their knowledge in their classrooms was constrained by structural limitations (e.g., large, multi-age classes; absence of relevant teaching and learning materials). In conclusion, ongoing international initiatives aimed at rapidly expanding preschool education in low- and middle-income countries must consider the scale of the investment in the education system, teacher training, and classroom conditions required for preschool education to achieve its objectives.



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(Photo courtesy of the authors)

A guided games intervention to improve mathematics achievement among school students in rural Côte d'Ivoire

My research evaluates whether training teachers to introduce playful learning activities in their classrooms is effective in increasing the mathematics performance of students in rural cocoa-producing communities and whether this increase is mediated by improvements in student-teacher relationships and student engagement. The procedure involves collecting pre- and post-test measures from Grade 2 classes (n = 200 students) that have been randomly assigned to the intervention and comparison groups. The study also examines heterogeneity in the effectiveness of the intervention. The findings may show how play-based pedagogies may help to overcome low levels of academic achievement in rural areas in many African countries.



(Photo courtesy of the authors)

The sixth doctoral fellow was Abenin Mathieu BROU (mathieubrou401@gmail.com), a student in biological anthropology at UFHB. His research found that primary school students whose biological and psychological rhythms had adequate or strong functional synchronization with environmental and cultural time cues showed better academic performance than their peers whose rhythms showed poor entrainment. The same pattern as seen among students from ethnic backgrounds that were indigenous to their school's location, within-country migrants, and international immigrants. Abenin was supported by his thesis supervisor, Dr. Kouakou Jérôme KOUADIO (Biological Anthropology, UFHB), and his ISSBD mentor, Assoc. Prof. Missaye Mulatie MENGSTIE (University of Gondar, Ethiopia).

Benefits of the Jacobs Foundation-ISSBD Doctoral Fellowship Program

Participation in this doctoral fellowship program represents far more than an academic opportunity for individual students. It provided us with the skills and knowledge necessary to participate in international collaborations that have the

potential to be a catalyst for strengthening national, regional, and international research capacity, the evolution of evidence-informed public policies, and, through these, contribute to the political and economic empowerment of our countries.

The knowledge and skills we obtained during our fellowships can be leveraged to:

Improve policymaking within Côte d'Ivoire

Contribute to a more inclusive developmental science

Promote sustainable development policies

Strengthen the autonomy of African countries

Contribute to the reduction of inequalities

Increase awareness of and engagement in ISSBD in Francophone Africa

Facilitate South-South research partnerships

Improve policymaking within Côte d'Ivoire by proposing solutions that integrate an understanding of the local context with research evidence and international best practices.

Increase the diversity of the knowledge base in developmental science by contributing distinctive African perspectives.

Contribute towards achieving the Sustainable Development Goals (SDGs), which address critical issues in Africa, including poverty, malnutrition, poor quality education, and inequality.

Strengthen the scientific independence of our country by sharing our knowledge and skills and participating in international collaborations that provide local scholars with research opportunities and access to expertise.

Using our research to identify and promote more inclusive policies aimed at reducing disparities in access to developmental opportunities.

Strengthen the integration of ISSBD in Francophone Africa by promoting our research and building a regional network of developmental scientists.

Through learning to work effectively with our mentors from other African countries, we gained the skills needed to build collaborative research networks with other countries in the Global South that share similar challenges and contexts.

The future

Although we are all passionate about establishing careers as researchers, our future is currently unclear. Local research positions are scarce. University departments in Côte d'Ivoire and other Francophone African countries are small because only a very small percentage of the population has the opportunity to complete tertiary education. In addition, many academic programs are offered at only a single university in Côte d'Ivoire (e.g., the University of Nangui Abrogoua is the only university to offer programs in Nutrition). As a result, new positions are very rare. Although the public sector is large and several non-government organizations operate in Côte d'Ivoire, research is rarely their focus.

We are keen to continue as members of ISSBD and would welcome opportunities to form research collaborations with other members or to learn about wider training or research opportunities they may be aware of. We are also looking for ways that we can expand connections between

developmental scientists in Francophone Africa by serving as ambassadors for ISSBD, sharing the skills we have gained with students and other early-career scholars in our region, and applying our knowledge and skills to the urgent problems confronting children and young adults in our country. Although we are drawn from many academic disciplines and conducted our doctoral research on diverse topics, we all share a motivation to produce evidence that can inform initiatives to improve the developmental opportunities of young people in our region.

Acknowledgements

This doctoral fellowship program was successfully completed thanks to the scientific contributions and the moral and financial support of several individuals and institutions, to whom we would like to express our gratitude. We wish to thank Nangui Abrogoua University and Félix Houphouët-Boigny University, along with their entire

faculty, for hosting our research and facilitating the public defense of our doctoral theses. We express our deepest gratitude to ISSBD, especially to Professors Tina MALTI (current President), Toni ANTONUCCI (past President), Anne PETERSEN (past President), and Julie ROBINSON (member). Despite the language barrier, you trained, guided, and supported us throughout our fellowships. We would also like to thank the Jacobs Foundation, especially Mrs. Sabina VIGANI (Country Director) and Mr. Sosthène GUEI (Local Coordinator), for the funding and support they provided. Finally, we express our deepest gratitude to our thesis supervisors, mentors, and members of ISSBD in Africa. Through your guidance and dedication, we were able to complete this fellowship program successfully. May God continue to support you all.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Reference

Holding, J. (2025). *Investing in the future*. Available at <https://jacobsholding.com/our-foundation/>. Accessed on 20/03/2025.