

Curriculum Vitae

Simon Karuku

CONTACT DETAILS

Department of Education
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CAREER PROFILE

A Mathematics Educator with experience in teacher training and research in Mathematics and Science Education, Early Childhood Development Education, and Teacher Education. A Lecturer in the Department of Education and the HERI Africa Research Co-Chair in Mathematics Education at the University of Embu

EDUCATIONAL BACKGROUND

2024 Micro-Credential in Educational Innovation and Leadership, Tallinn University
2013 Ph.D. in Mathematics Education, University of Alberta
2008 M.Sc. in Mathematics, University of Manitoba
2002 M.Sc. in Statistics, Kenyatta University
2000 B.Ed. in Mathematics, Kenyatta University

ACADEMIC APPOINTMENTS

2014 – Lecturer of Mathematics Education, University of Embu
2012–2014 Lecturer of Mathematics & Science Education, Aga Khan University
2009–2012 Research Assistant, University of Alberta
2006–2008 Teaching Assistant, University of Manitoba
2002–2006 Tutorial Fellow, Kenyatta University
2001–2002 Graduate Assistant, Kenyatta University

SERVICE AND ADMINISTRATIVE EXPERIENCE

2026 – HERI Africa Research Co-Chair in Mathematics Education, University of Embu
2025 – 2026 Dean, School of Education and Social Sciences, University of Embu
2024 – 2025 Acting Director, Research & Extension, University of Embu
2023 – 2025 Postgraduate Coordinator, Department of Education, University of Embu
2017 – 2022 Chairman, Department of Education, University of Embu
2016 – 2017 School Examinations Coordinator, School of Education & Social Sciences, University of Embu
2015 – 2016 Departmental Examinations Coordinator, Department of Education, University of Embu

ADVISING AND SUPERVISION OF GRADUATE STUDENTS

Student's Name & Reg. Number	Thesis Title	Degree	Institution	Status
John James Juma E880/323/2023	Distributed leadership in comprehensive schools in Tigania West Sub County, Kenya: A sequential explanatory study	PhD	University of Embu	Ongoing
John Maundu Mutua E880/EW/337/2022	Effects of GeoGebra-supported instruction on conceptual understanding of and attitude towards Geometry	PhD	University of Embu	Ongoing

	among secondary school students in Tharaka-Nithi County			
George Ngure Njoroge E880/EW/356/2023	Effects of scaffolding teaching approach on secondary school students' achievement and engagement in Physics	PhD	University of Embu	Ongoing
Samson Murithi Njiru E880/130/2014	Influence of performance ranking on mathematics teaching and learning: A case of secondary schools in Embu County.	PhD	University of Embu	Graduated 2020
William Mutua Munywoki E551/1482/2021	Parental Engagement in the Academic Lives of Day Secondary School Students in Mbeere South Sub-County, Kenya	M.Ed.	University of Embu	Ongoing
Brenda Jerotich Keitany E551/1546/2021	The school principal's role in combating drug and substance abuse among students: A case of public secondary schools in Embu county, Kenya	M.Ed.	University of Embu	Ongoing
Kenneth Kivuti Mugo E551A/1048/2014	Safety preparedness of secondary schools in Embu East Sub-county, Kenya	M.Ed.	University of Embu	Graduated 2026
Nathan Maina Mwangi E555/1383/2020	Teachers preparedness to implement competency based mathematics curriculum: A case of grade six teachers in public primary schools in Embu West Sub-county, Kenya	M.Ed.	University of Embu	Graduated 2026
Dickens Okach Ngicho E551/1216/2018	Cognitive conflict in Mathematics teaching and learning in public secondary schools in Embu West Sub-county, Kenya	M.Ed.	University of Embu	Graduated 2021
Ann Gathigia Waruita E551A/1061/2014	Student social identity and the university image: A case of selected public universities in Kenya	M.Ed.	University of Embu	Graduated 2018
Samson Murithi Njiru MED/2012/944	An exploration of the factors that contribute to low students' performance in physics: A case of a public secondary school in Embu County, Kenya	M.Ed.	Aga Khan University	Graduated 2014
Gabriel Nyongesa MED/2012/874	Implementation of secondary school strategic plan: A case study	M.Ed.	Aga Khan University	Graduated 2014
Moses Nsamba MED/2012/874	Head teacher's role in the utilization of universal primary education funds: A case of Bigandu Primary School in Uganda	M.Ed.	Aga Khan University	Graduated 2014
Francis Kamau Mwangi MED/2012/739	Meeting the INSET needs of mathematics teachers: Lessons from the SMASE Programme in Kenya	M.Ed.	Aga Khan University	Graduated 2013
Michael Osoo Ogola MED/2012/722	Teachers' experiences of supporting students who are struggling to learn Science: A phenomenological inquiry	M.Ed.	Aga Khan University	Graduated 2013

PUBLICATIONS

➤ Peer-reviewed Journal Articles

- Mwangi, C. W., Gitonga, C. M., Asweto, C. O., **Karuku, S.**, Rugano, P. & Saoke, V. (in press). Beyond the school gate: Socioeconomic predictors of parental engagement in early learning. *Journal of Education & Learning*.
- Gitonga, C. M., **Karuku, S.**, Asweto, C. O., Rugano, P., Nzomo, C. M., Ngicho, D. O., Saoke, V. O. & Mulonzi, D. M. (2026b). Parental empowerment and engagement as predictors of foundational learning. *Journal of Childhood, Education & Society*, 7(2), 309-327. <https://doi.org/10.37291/jces.591>
- Gitonga, C. M., **Karuku, S.**, Asweto, C. O., Rugano, P., Saoke, V. O., Mulonzi, B. M., Nzomo, C. M., Mwenda, E., & Ngicho, D. O. (2026). Determinants of parental engagement in early childhood education in Kenya. *Discover Education*, 5(56). <https://doi.org/10.1007/s44217-025-01059-4>
- Mwangi, N. M., **Karuku, S.** & Obura, E. (2026). Teacher preparedness for competency-based curriculum in Kenyan schools: Training and perceptions prior to implementation. *International Journal of Evaluation and Research in Education*, 15(1), 714-724. <http://doi.org/10.11591/ijere.v15i1.35742>
- Mugo, K. K., **Karuku, S.**, & Sitati, G. (2025). Safety preparedness of secondary schools in central highlands of Kenya. *Journal of Higher Education Theory and Practice*, 25(1), 63-79. <https://doi.org/10.33423/jhetp.v25i1.7564>
- Gitonga, C. M., Chege, E. & **Karuku, S.** (2021). Personality types and socio-demographic determinants of girls' aggressive behaviors in rehabilitation programs in Kenya. *International Journal of Psychology and Counselling*, 13(2), 25-33. <https://doi.org/10.5897/IJPC2021.0644>
- Ngicho, D. O., **Karuku, S.** & King'endo, M. (2020). Manifestations and meanings of cognitive conflict among mathematics students in Embu, Kenya. *Educational Research & Reviews*, 15(11), 690-699. <https://doi.org/10.5897/ERR2020.4061>
- Njiru, S. M., **Karuku, S.** & Nyaga, M. N. (2020a). Performance ranking in school mathematics in Kenya: A device that conceals and naturalizes inappropriate teaching strategies. *Educational Research & Reviews*, 15(8), 465-472. <https://doi.org/10.5897/ERR2020.4001>
- Njiru, S. M., **Karuku, S.** & Nyaga, M. N. (2020b). Performance rankings in education: Implications for policy and practice. *Educational Research & Reviews*, 15(12), 700-710.
- Njiru, S. M., Nyaga, M. N. & **Karuku, S.** (2019). Effects of performance ranking in mathematics students' and teachers' identity development. *International Journal of Secondary Education*, 7(1), 17-28. [10.11648/j.ijsedu.20190701.14](https://doi.org/10.11648/j.ijsedu.20190701.14)
- Waruita, A. G., Thurair, S. & Karuku, S. (2017). Student social identity development and the university image: A case of selected universities in Kenya. *Scholars Journal of Arts, Humanities and Social Sciences*, 5(7B), 779-795.
- Halai, A. & **Karuku, S.** (2013). Implementing language-in-education policy in multilingual mathematics classrooms: Pedagogical implications. *Eurasia Journal of Mathematics, Science & Technology Education*, 9(1), 23-32. <https://doi.org/10.12973/eurasia.2013.913a>
- Kibua, T. K. & **Karuku, S.** (2006). Bandwidth selection in smoothing functions. *East African Journal of Statistics*, 1(2), 161-174.
- Kibua, T. K. & **Karuku, S.** (2006). Some results on nonparametric estimation of variance function. *East African Journal of Physical Sciences*, 7(1), 51-64.

➤ **Chapters in Edited Books**

- Mohamed, M. & **Karuku, S.** (2017). Implementing a competency-based curriculum in science education: A Tanzania Mainland case study. In F. S. Otulaja & M. B. Ogunniyi (eds.), *The world of science education: Handbook of research in science education in sub-Saharan Africa* (pp. 101-118). Rotterdam, The Netherlands: Sense Publishers. ISBN 978-94-6351-089-9
- Karuku, S.** & Tennant, G. (2016). Towards a harmonized curriculum in East Africa: A comparative perspective of the intended secondary school mathematics curriculum in Kenya, Rwanda, Tanzania and Uganda. In A. Halai & G. Tennant (Eds.), *Mathematics education in East Africa: Towards harmonization and enhancement of education quality (SpringerBriefs in Education)* (pp. 9-25). Dordrecht, The Netherlands: Springer International Publishing. doi: 10.1007/978-3-319-27258-0_2. ISBN 978-3-319-27258-0
- Mohamed, M., Halai, A. & **Karuku, S.** (2016). Issues for quality enhancement and harmonization of education in East Africa. In A. Halai & G. Tennant (Eds.), *Mathematics education in East Africa: Towards*

harmonization and enhancement of education quality (SpringerBriefs in Education) (pp. 1-7). Dordrecht, The Netherlands: Springer International Publishing. doi: 10.1007/978-3-319-27258-0_1. ISBN 978-3-319-27258-0

Pegg, J., & **Karuku, S.** (2012). Explanatory reasoning in junior high science textbooks. In S. P. Norris (Ed.), *Reading for evidence and interpreting visualizations in mathematics and science education* (pp. 65-81). Rotterdam, The Netherlands: Sense Publishers. ISBN 978-94-6091-924-4

Conference Proceedings

Karuku, S. (2013a). Accessing the other's lived mathematical experience: Experiences from the "field". In M. V. Martinez & A. C. Superfine (Eds.), *Proceedings of the 35th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (p. 1309). Chicago, IL: University of Illinois at Chicago.

Karuku, S. (2013b). What's in a mathematics lesson? An exchange or a gift? In S. K. Kwofie, M. B. Ogunniyi, O. Amosun, K. R. Langenhoven & S. Dinie (Eds.), *Proceedings of the 21st Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education* (pp. 76-78). Bellville, Cape Town: University of the Western Cape.

Karuku, S. & Simmt, E. (2012). Students' experiences of seeking injustice-induced help in a mathematics classroom. In L. R. van Zoest, J.-J. Lo, & J. L. Kratky (Eds.), *Proceedings of the 34th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 347-350). Kalamazoo, MI: Western Michigan University.

Halai, A. & **Karuku, S.** (2012). Learning mathematics in multilingual classrooms: Policies and practice. *Proceedings of the 12th International Congress on Mathematics Education* (pp. 6118-6127). Seoul, Korea: International Congress on Mathematics Education.

Karuku, S. (2010). Reasoning demands in mathematics textbooks. In P. Liljedahl, S. Oesterle & D. Allan (Eds.), *Proceedings of the 2010 annual meeting of the Canadian Mathematics Education Study Group* (p. 219). Burnaby, BC: Simon Fraser University.

Conference and Workshop Presentations

Gitonga, C. & **Karuku, S.** (2018). An interrogation of the role, nature and significance of expected learning outcomes of selected degree programs in achieving the national goals of education in Kenya. *1st Annual International Conference on Decolonizing Education*. Embu, Kenya: University of Embu.

Karuku, S. (2017, June 23). Status of Primary and Secondary School Mathematics Curriculum in Eastern Africa. Paper presented at the 4th Strathmore International Mathematics Conference. June 19-23, 2017. Nairobi, Kenya: Strathmore University.

Karuku, S. & Tennant, G. (2014, September 2). Comparative analysis of secondary school mathematics curriculum in Kenya, Rwanda, Tanzania and Uganda. Paper presented in the 4th Capacity and Network Project Workshop, September 1–12, 2014, Dar es Salaam, Tanzania.

Karuku, S. (2012, July 26). *The gift of pedagogy: Implications for mathematics teaching*. Paper presented at the 2nd International Mathematics Research Meeting. July 23-27, 2012. Nairobi, Kenya: Strathmore University.

Pegg, J. & **Karuku, S.** (2012, May 29). *Opportunities for reasoning about explanations in junior high science curricular materials*. Paper presented at the 40th annual conference of the Canadian Society for the Study of Education (CSSE). May 27-30, 2012, Waterloo, ON: Wilfrid Laurier University.

AWARDS & GRANTS

- 2022** Global Innovation Network for Teaching and Learning (GINTL) Travel Grant
- 2021** Spencer Foundation Small Research Grant on Education
- 2019** Vice-Chancellor's Research Grant, University of Embu
- 2012** Myer Horowitz Graduate Student Travel Award, Faculty of Education, University of Alberta, Canada
- 2012** Professional Development Grant, Graduate Students' Association, University of Alberta, Canada
- 2011** Tom Kieren Graduate Award in Mathematics Education, University of Alberta
- 2011** International Internship Award, The Aga Khan University
- 2010** CMESG/GCEDM Annual Conference Travel Award, Canadian Mathematics Education Study Group
- 2010** Travel Grant, Department of Secondary Education, University of Alberta, Canada
- 2001** DRIP/ARPPIS Scholar, International Centre of Insect Physiology and Ecology, Nairobi, Kenya

FACILITATION OF PROFESSIONAL DEVELOPMENT COURSES

June 25, 2019	Facilitated an academic workshop on effective examination setting, administration and processing to the faculty at Murang'a University of Technology
June 14, 2019	(with Z. Njagi & P. Rugano) Facilitated a training workshop on pedagogy to the tutors at Embu College of Professional Studies
Jan. 23, 2018	(with M. Nyaga) Facilitated a training workshop on effective examination setting, administration and processing to the faculty at the University of Embu
Dec. 1 –7, 2013	(with J. Kova) Facilitated a short course in early years numeracy to lower primary class teachers in Nachingwea District, Tanzania
May – Dec. 2013	(with L. Vikiru) Facilitated a certificate course in early years literacy and numeracy to early childhood teachers and teacher educators in Kilifi County, Kenya
Aug. 15 –16, 2012	(with P. Kajoro) Facilitated a <i>Technology in the service of Mathematics learning</i> – offered to primary school Mathematics teachers in Dar es Salaam, Tanzania

CONSULTANCIES

- Review Consultant for Aga Khan Foundation East Africa on the Reading to Learn (RtL) Numeracy Program in Coastal Kenya (2013)

COMMUNITY SERVICE

2025 – Present	Chairman, Board of Management, Nthambo Secondary School
2025 – Present	Member, Lions Club of Embu
2023 – Present	Member, Board of Management, St. John Chrysostom Muvandori Secondary School
2023 – Present	Chairman, Board of Management, DEB Kangaru Primary School

PROFESSIONAL MEMBERSHIP

- Member, Kenya Mathematical Society