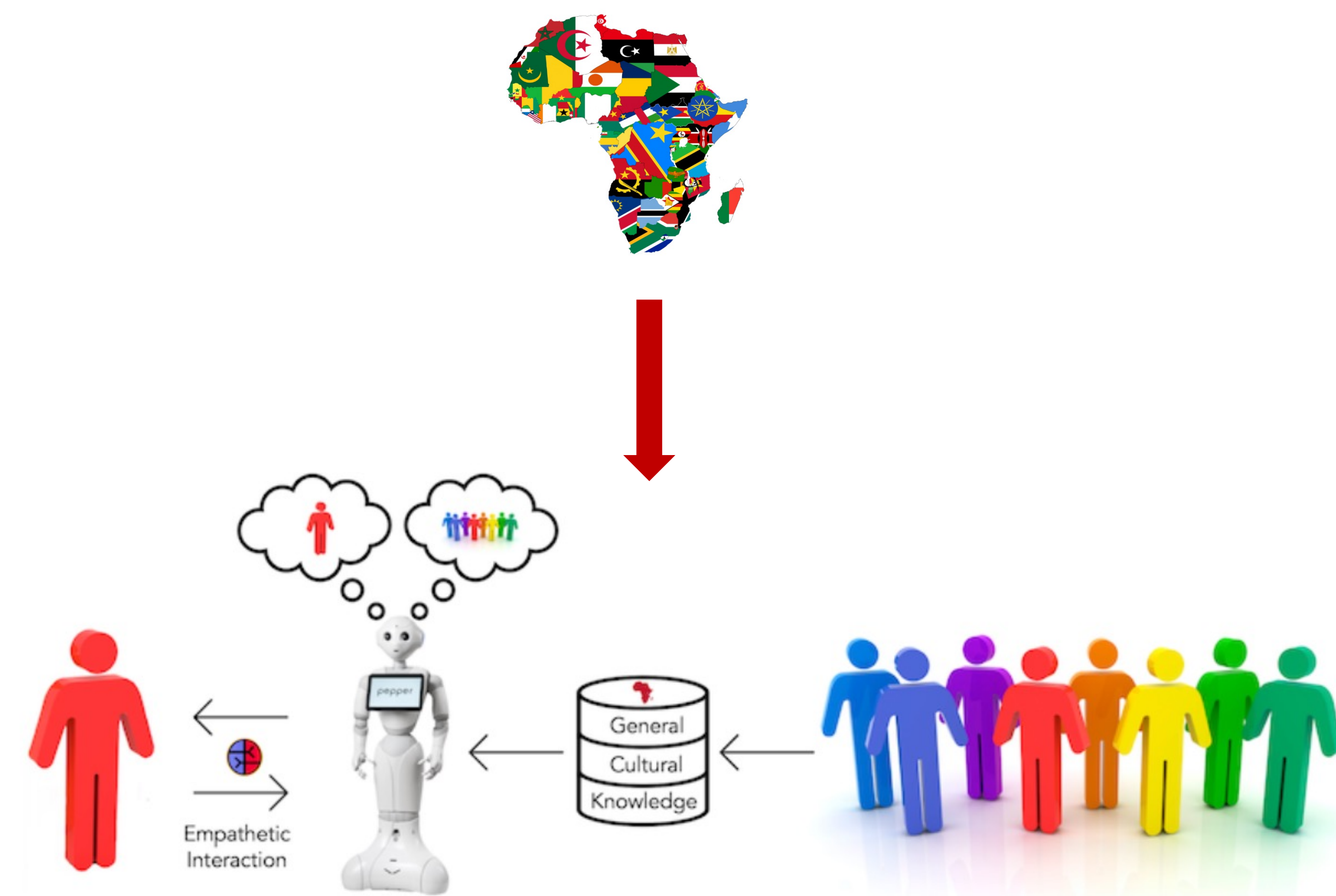


Rwandan Culture Survey for Culturally-Sensitive Social Robotics for Africa

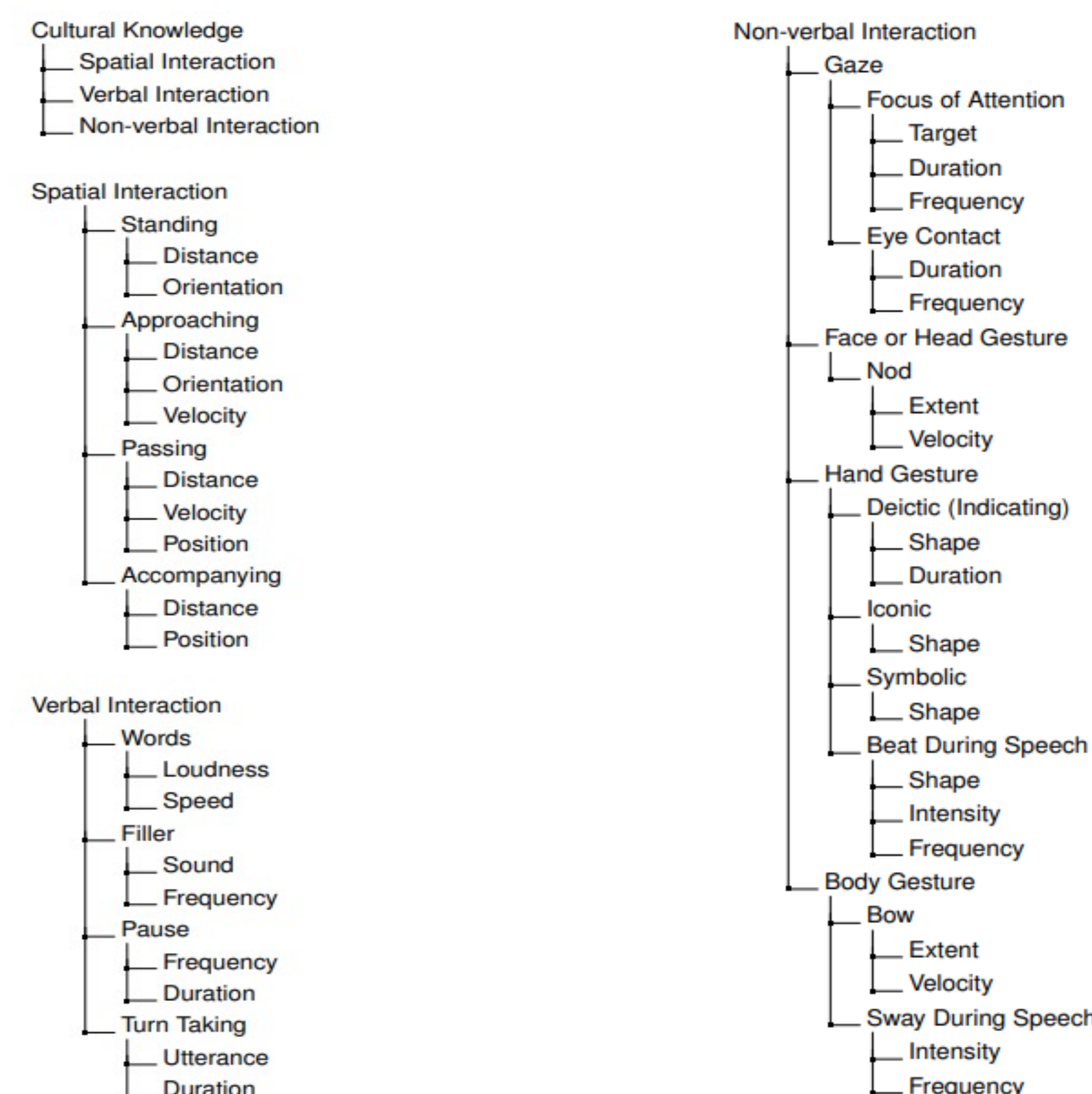
Eyerusalem Birhan, Muhirwa Richard, and David Vernon
Carnegie Mellon University Africa, Kigali, Rwanda

Research Goals

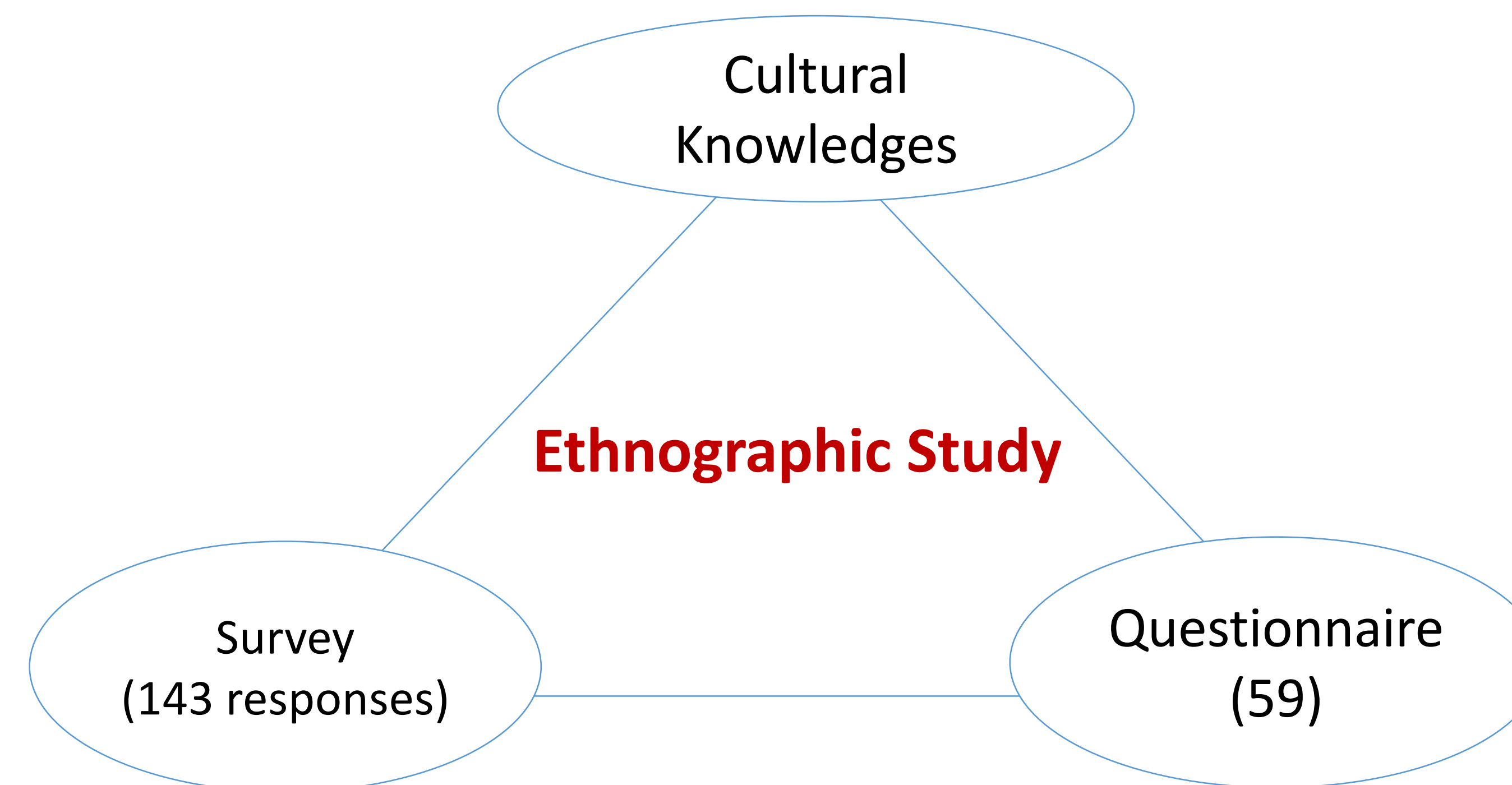
Identify the verbal and non-verbal social and cultural norms of human interaction that are prevalent in African countries, specifically **Rwanda**.



Cultural knowledge Ontology



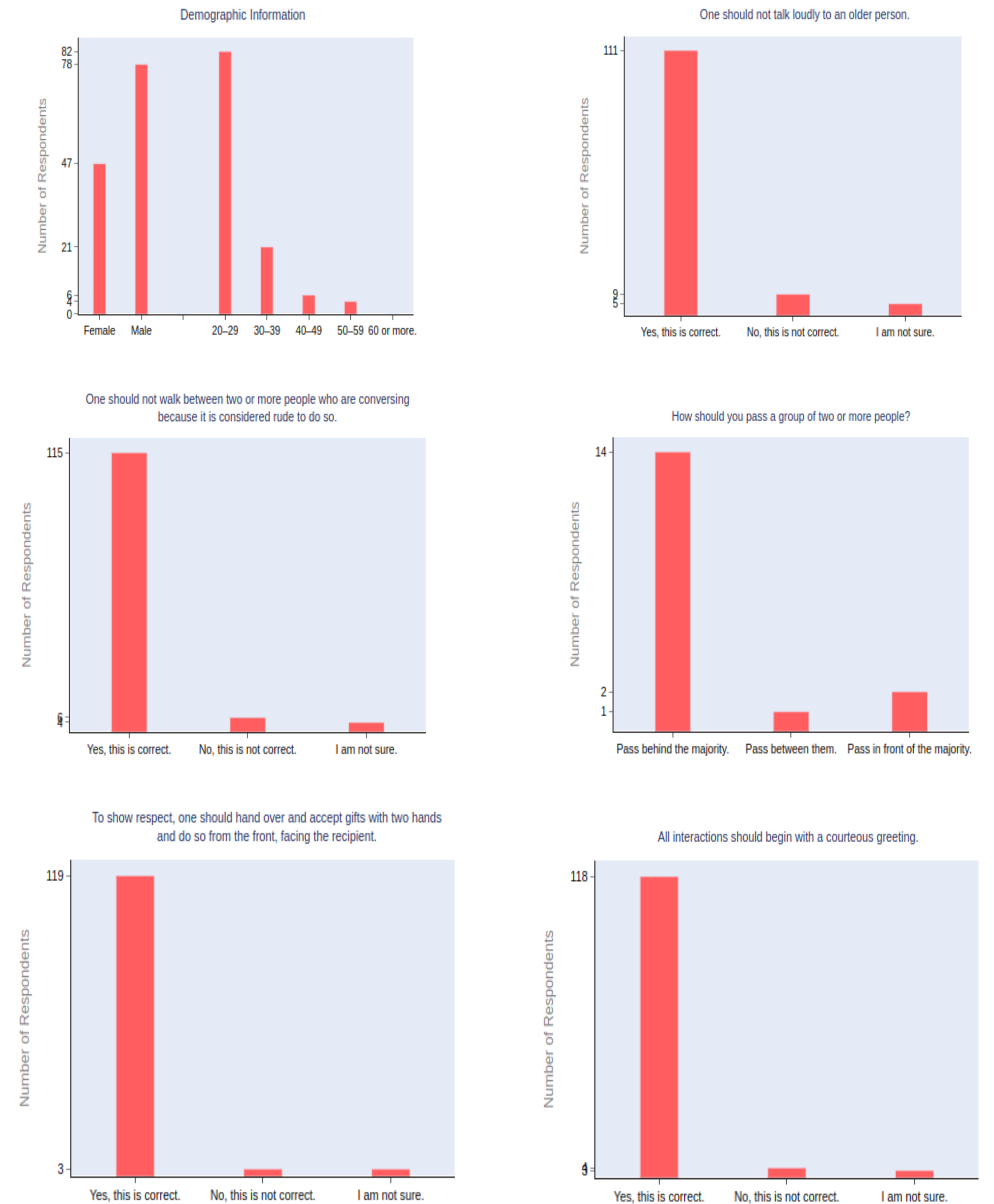
Method



Sample Questions

No.	Question
2-1	To show respect, one should lower gaze when greeting someone older.
2-3	One should keep intermittent eye contact; lack of eye contact depicts disrespect as it shows divided attention during the interaction.
2-4	One should not make persistent eye contact with an older person.
2-6	One should use an open palm of the hand to point to people and objects.
2-7	One should not point an upward-facing palm of the hand at someone.
2-8	One should not use the left hand to point to anything.
2-9	To show respect, one should bow slightly when greeting someone older.
2-12	One should not use the left hand to hand something to someone.
2-14	To show respect, one should shake hands with the right hand and use the left arm to support the right forearm when doing so.
2-15	An appreciation of rhythmic sound and movement is valued.
2-16	To show respect, one should bow slightly and lower gaze when greeting someone older.
2-17	The younger interaction partner should bow when greeting an older person or when rendering a service.
3-1	What distance should you keep when passing someone?
3-2	How should you acknowledge someone when passing them?
3-3	How should you pass a group of two or more people?
3-6	When showing someone younger than you the way, where should you position yourself?
3-7	How should you address someone who is older than you and who you haven't met before?
3-21	Would you use a face, head, hand, or body gesture to express gratitude?
3-22	Would you use a face, head, hand, or body gesture to express agreement?
3-23	Would you use a face, head, hand, or body gesture to express respect?
3-28	Is there a face, head, hand, or body gesture you should not use?
3-29	Would you use a hand or body gesture while speaking to someone?
3-30	Would you use a hand or body gesture while listening to someone?

Results



References

B. Bruno, C. T. Recchiuto, I. Papadopoulos, A. Saffiotti, C. Koulouglioti, R. Menicatti, F. Mastrogianni, R. Zaccaria, and A. Sgorbissa. Knowledge representation for culturally competent personal robots: requirements, design principles, implementation, and assessment. *International Journal of Social Robotics*, 11(3):515–538, 2019.

Weiss and V. Evers, “Exploring cultural factors in human-robot interaction: A matter of personality?” in *Comparative Informatics Workshop*. University of Amsterdam, 2011.

I. Papadopoulos, A. Saffiotti, F. Pecora, N. Y. Chong, Y. Lim, H. Kamide, J. Lee, C. Papadopoulos, and G. Randhawa, “Culturally competent human-robot interaction: Impact on user acceptance,” *International Journal of Social Robotics*, vol. 12, no. 4, pp. 1107–1120, 2020.

J. van Doorn, M. Mende, and A. L. Noble, “The role of human-robot interaction in consumers,” *Journal of Robotics and Automation*, vol. 17, no. 3, pp. 450–460, 2021.

T. Nomura, K. Kawakami, and K. Kanda, “Understanding cultural preferences for social robots,” *International Journal of Social Robotics*, vol. 15, no. 2, pp. 230–245, 2023.

J. Wirtz, P. G. Patterson, and W. H. Kunz, “Customers’ acceptance of artificially intelligent service robots,” *Journal of Service Research*, vol. 25, no. 1, pp. 50–65, 2023.

This research was carried out in the Culturally Sensitive Social Robotics for Africa project, www.CSSR4Africa.org, as part of the Afretec Network. Afretec is managed by Carnegie Mellon University Africa and receives financial support from the Mastercard Foundation.