

D1.2 Rwandan Cultural Knowledge

Due date: **31/12/2023**
Submission Date: **20/11/2023**

Start date of project: **01/07/2023**

Duration: **36 months**

Lead organisation for this deliverable: **Carnegie Mellon University Africa**

Responsible Person: **D. Vernon**

Revision: **1.2**

| Project funded by the African Engineering and Technology Network (Afretec) Inclusive Digital Transformation Research Grant Programme | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------|
| Dissemination Level | | |
| PU | Public | PU |
| PP | Restricted to other programme participants (including Afretec Administration) | |
| RE | Restricted to a group specified by the consortium (including Afretec Administration) | |
| CO | Confidential, only for members of the consortium (including Afretec Administration) | |

Executive Summary

Deliverable D1.2 comprises a catalogue of general, population-based cultural knowledge in the form of behaviors, activities, actions, and movements that are either culturally sensitive or culturally insensitive. This knowledge will be used to specify the culturally sensitive African modes of social interaction in Deliverable D1.3 and the Africa-centric design patterns in Deliverable D1.4. It will be formalized in the culture knowledge ontology and knowledge base in Deliverable D5.4.1. The cultural knowledge will be gathered by developing a detailed questionnaire and using it to interview a cross-section of Rwandan citizens in November and December 2023. **This first draft of the deliverable just addresses the survey questionnaire, so that it can be validated before conducting the survey.**

Contents

| | | |
|----------|----------------------------------------------------------------------------|-----------|
| 1 | Introduction | 4 |
| 2 | Rwandan Cultural Knowledge for Respectful Interaction | 4 |
| | Appendix I: Cultural Knowledge Survey Questionnaire | 5 |
| | Appendix II: Cultural Knowledge Ontology for Respectful Interaction | 19 |
| | References | 20 |
| | Principal Contributors | 20 |
| | Document History | 21 |

1 Introduction

This report will be a compilation of the culture-specific knowledge that is needed to achieve culturally-competent human robot interaction between robots and Rwandan people. The knowledge focusses on human-human interaction, rather than human-robot interaction. Appropriate elements of this knowledge will then be used in Tasks 1.3 and 1.4 to specify culturally sensitive modes of robot behavior for human-robot interaction. This approach was adopted to avoid introducing the concept of social robots, something that may not be familiar to all participants in the survey, when canvassing their views. It is planned to conduct this canvassing exercise using the questionnaire in Appendix I. **This first draft of the deliverable focusses on the survey questionnaire, so that it can be validated prior to conducting the survey.**

2 Rwandan Cultural Knowledge for Respectful Interaction

The knowledge will be structured according to an ontology of cultural knowledge for respectful interaction detailed in Appendix II. This ontology is a preemptive attempt at the ontology design exercise in Task 5.4.1.

Subsequent versions of this deliverable will address the identification of the respondents who will be canvassed, with the goal of compiling responses from an broad cross-section of people and, thereby, creating an unbiased and representative knowledge base.

The final version will present the results of the exercise — Rwandan cultural knowledge for polite and respectful interaction — which will then be used as input to Task 1.2 African Modes of Social Interaction, Task 1.3 Africa-centric Design Patterns, and Task 5.4.1 Cultural Knowledge Ontology & Knowledge Base.

Appendix I: Cultural Knowledge Survey Questionnaire

Respectful Interaction

In daily life, people interact with one another in several ways. They interact verbally using speech and they interact non-verbally using body language, e.g. by gesturing with their hands, arms, shoulders, faces, lips, eyes, and eyebrows. During such social interaction, they often position their bodies in certain ways. It is highly desirable that all interaction between people be conducted in a respectful manner by being aware of social and cultural norms and expectations.

Goal of the Survey

This survey aims to answer the following two questions: “How do you behave respectfully when interacting with people in Rwanda and how should you not behave?”

Purpose of the Survey

The knowledge that is gathered in this survey will be used to equip social robots with cultural knowledge that will allow them to interact respectfully and politely with people using non-verbal, verbal, and spatial modes of behaviour.

Structure of the Questionnaire

The questionnaire has three parts.

In Part 1, we ask you to provide some information about yourself. This information will be kept in strict confidence and it is only used to check that the survey is balanced in terms of age, gender, cultural heritage, and nationality.

In Part 2, we will ask you if you agree or disagree with the cultural knowledge we have gathered in previous surveys in which canvassed the views of twenty-three people from eight countries in Africa. The focus of these surveys was on human-robot interaction, derived from human-human interaction, and so the social settings reflects situations where one might encounter a social robot, e.g., hospitals, airports, exhibitions, shopping malls, and offices.

In Part 3, we will ask you to provide examples of different forms of culturally sensitive, respectful behaviours — movements, actions, or activities — and disrespectful behaviours.

Part 1: Demographic Information

1. What age are you? ☐ 20–29 ☐ 30–39 ☐ 40–49 ☐ 50–59 ☐ 60 or more.
2. What gender are you? ☐ Woman ☐ Man
3. What is your cultural heritage? _____
4. What is your nationality? _____

Part 2: Existing Cultural Knowledge

Consider the following statements and select the option to indicate whether or agree with it or not.

5. To show respect, one should lower gaze when greeting someone older.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
6. One should suspend work or movements and pay attention when addressed.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
7. One should keep intermittent eye contact; lack of eye contact depicts disrespect as it shows divided attention during the interaction.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
8. One should not make persistent eye contact with an older person.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
9. One should not make eye contact when being corrected by someone.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
10. One should use an open palm of the hand to point to people and objects.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
11. One should not point an upward facing palm of the hand at someone.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
12. One should not use the left hand to point to anything.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.

13. To show respect, one should bow slightly when greeting someone older.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
14. To show respect, one should raise both hands when greeting.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
15. One should not wave at someone from a distance; one should move towards them to greet them.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
16. One should not use the left hand to hand something to someone.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
17. To show respect, one should hand over and accept gifts with two hands and do so from the front, facing the recipient.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
18. To show respect, one should shake hands with the right hand and use the left arm to support the right forearm when doing so.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
19. An appreciation of rhythmic sound and movement is valued.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
20. To show respect, one should bow slightly and lower gaze when greeting someone older.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.

21. The younger interaction partner should bow when greeting an older person or when rendering a service.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
22. All interactions should begin with a courteous greeting.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
23. The younger interaction partner should enable a greeting to be initiated by an older person.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
24. It is respectful to use local languages and they should be used for verbal interaction when possible.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
25. One should use formal titles when addressing someone.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
26. One should engage in a preamble before getting to the point, as being too forward may be regarded as disrespectful.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
27. One should not interrupt or talk over someone when they are speaking.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
28. One should not talk loudly to an older person.
 - ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.

29. Behaviours should focus on fostering social connections and relationships; they should not be purely functional.
- ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
30. One should not walk between two or more people who are conversing because it is considered rude to do so.
- ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.
31. One should not walk far ahead of an older person, unless leading the person (in which case, one should walk slightly to the side).
- ☐ Yes, I agree with this.
 - ☐ No, I do not agree with this.
 - ☐ I am not sure.

Part 3: New Cultural Knowledge

32. What distance should you keep when passing someone?
- ☐ Less than 1 m.
 - ☐ 1 – 2 m.
 - ☐ More than 2 m.
33. How should you acknowledge someone when passing them?
- ☐ No acknowledgement.
 - ☐ Raise eyebrows slightly.
 - ☐ Say hello.
 - ☐ Other. Please specify: _____
34. How should you pass a group of two or more people?
- ☐ Pass behind the majority.
 - ☐ Pass between them.
 - ☐ Pass in front of the majority.
35. When showing someone *older* than you the way, where should you position yourself?
- ☐ Far in front of them.
 - ☐ A little in front of them.
 - ☐ Beside them.
 - ☐ A little behind them.
36. When showing someone *the same age* as you the way, where should you position yourself?
- ☐ Far in front of them.
 - ☐ A little in front of them.
 - ☐ Beside them.
 - ☐ A little behind them.
37. When showing someone *younger* than you the way, where should you position yourself?
- ☐ Far in front of them.
 - ☐ A little in front of them.
 - ☐ Beside them.
 - ☐ A little behind them.

38. How should you address someone who is *older* than you and who you haven't met before?
- ☐ First name.
 - ☐ Last name.
 - ☐ Title first name.
 - ☐ Title last name.
 - ☐ Other. Please specify: _____
39. How should you address someone who is *the same age* as you and who you haven't met before?
- ☐ First name.
 - ☐ Last name.
 - ☐ Title first name.
 - ☐ Title last name.
 - ☐ Other. Please specify: _____
40. How should you address someone who is *younger* than you and who you haven't met before?
- ☐ First name.
 - ☐ Last name.
 - ☐ Title first name.
 - ☐ Title last name.
 - ☐ Other. Please specify: _____
41. Should you pause before responding when someone asks you a question? If yes, for how long?
- ☐ Yes: _____
 - ☐ No.
42. In an interaction where you and someone else take turns to speak, would you signal that you want to speak? If yes, how do you do that?
- ☐ Yes: _____
 - ☐ No.

43. If *you* are explaining something to someone, what is your primary focus of attention, i.e., where do you direct your gaze?
- ☐ The object being explained.
 - ☐ The face, eyes, or mouth of the person to whom you are explaining.
 - ☐ Mostly the object and sometimes the person.
 - ☐ Mostly the person and sometimes the object.
 - ☐ Equally the person and the object.
44. If *you* are explaining something to someone, how often should you make eye contact?
- ☐ Never.
 - ☐ Occasionally.
 - ☐ Often.
 - ☐ Constantly.
45. If *you* are explaining something to someone, how often would you make eye contact if the person was older than you?
- ☐ Less often.
 - ☐ More often.
 - ☐ No difference.
46. If *you* are explaining something to someone, how often would you make eye contact if the person was younger than you?
- ☐ Less often.
 - ☐ More often.
 - ☐ No difference.
47. If someone is explaining something to *you*, what is your primary focus of attention, i.e., where do you direct your gaze?
- ☐ The object being explained.
 - ☐ The face, eyes, or mouth of the person to whom you are explaining.
 - ☐ Mostly the object and sometimes the person.
 - ☐ Mostly the person and sometimes the object.
 - ☐ Equally the person and the object.
48. If someone is explaining something to *you*, how often should you make eye contact?
- ☐ Never.
 - ☐ Occasionally.
 - ☐ Often.
 - ☐ Constantly.

49. If someone is explaining something to *you*, how often would you make eye contact if the person was older than you?
- ☐ Less often.
 - ☐ More often.
 - ☐ No difference.
50. If someone is explaining something to *you*, how often would you make eye contact if the person was younger than you?
- ☐ Less often.
 - ☐ More often.
 - ☐ No difference.
51. Would you use a facial gesture to express *gratitude*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
52. Would you use a facial gesture to express *approval*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
53. Would you use a facial gesture to express *surprise*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
54. Would you use a facial gesture to express *agreement*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
55. Would you use a facial gesture to express *respect*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
56. Would you use a facial gesture to express *friendliness*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.
57. Would you use a facial gesture to express *anger*?
If yes, what would that gesture be?
- ☐ Yes: _____
 - ☐ No.

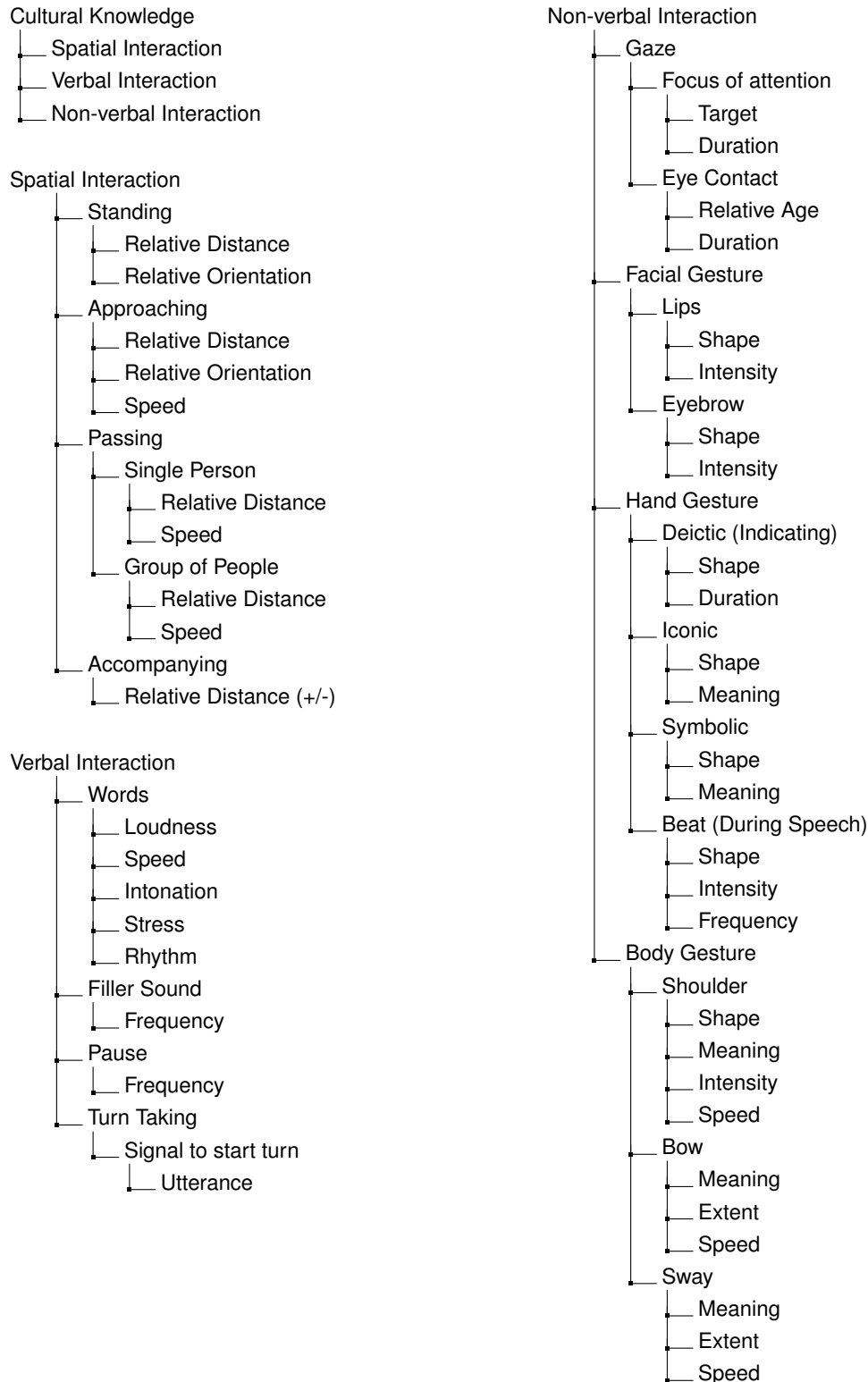
58. Would you use a facial gesture to express *fear*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
59. Would you use a facial gesture to express *happiness*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
60. Would you use a facial gesture to express *sadness*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
61. Would you use a facial gesture to express *comprehension*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
62. Would you use a facial gesture to express *interest*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
63. Is there a facial gesture you should *not* use?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
64. Would you use a facial gesture to draw someone's attention to something?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
65. Would you use a hand gesture to express *gratitude*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
66. Would you use a hand gesture to express *approval*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.

67. Would you use a hand gesture to express *surprise*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
68. Would you use a hand gesture to express *agreement*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
69. Would you use a hand gesture to express *respect*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
70. Would you use a hand gesture to express *friendliness*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
71. Would you use a hand gesture to express *anger*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
72. Would you use a hand gesture to express *fear*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
73. Would you use a hand gesture to express *happiness*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
74. Would you use a hand gesture to express *sadness*?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
75. Would you use a hand gesture while speaking to someone?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.

76. Would you use a hand gesture while listening to someone?
If yes, what would that gesture be, and which hand would you use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
77. Is there a hand gesture you should *not* use?
If yes, what would that gesture be, and which hand would you not use: left, right, either, or both?
☐ Yes: _____ , _____
☐ No.
78. Would you use a body gesture to express *gratitude*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
79. Would you use a body gesture to express *approval*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
80. Would you use a body gesture to express *surprise*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
81. Would you use a body gesture to express *agreement*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
82. Would you use a body gesture to express *respect*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
83. Would you use a body gesture to express *friendliness*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
84. Would you use a body gesture to express *anger*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.

85. Would you use a body gesture to express *fear*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
86. Would you use a body gesture to express *happiness*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
87. Would you use a body gesture to express *sadness*?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
88. Would you use a body gesture while speaking to someone?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
89. Would you use a body gesture while listening to someone?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.
90. Is there a body gesture you should *not* use?
If yes, what would that gesture be?
☐ Yes: _____
☐ No.

Appendix II: Cultural Knowledge Ontology for Respectful Interaction



Principal Contributors

The main authors of this deliverable are as follows (in alphabetical order).

Eyerusalem Birhan, Carnegie Mellon University Africa.

David Vernon, Carnegie Mellon University Africa.

Document History

Version 1.0

First draft with survey questionnaire, for validation before conducting the survey.

David Vernon.

25 October 2023.

Version 1.1

Fixed minor typos.

David Vernon.

2 November 2023.

Version 1.2

Changed male/female to man/woman to determine the gender of the respondent.

Explained the context of the existing cultural knowledge.

Removed the question about name, to keep the survey anonymous.

Replaced question about being Rwandan by two questions on cultural heritage and nationality.

Removed the < 20 age group.

David Vernon.

20 November 2023.