ATLog Project Ethical Framework

Key Principles of the Ethical Framework for the ATLog Project

Adherence to the key principles of the ethical framework developed within the ATLog Project for the use of Socially Assistive Robots (SARs), Virtual and Augmented Reality (VR/AR), and Conversational AI (CAI)—conversational agents incorporating artificial intelligence (AI)—in speech and language therapy for children and adolescents with communication disorders (CDs) will ensure that the methodology and technologies are used in a manner consistent with the ethical and legal standards of the European Commission (EC), that users' well-being is protected, and that users are treated with respect.

1. The ethical framework for the use of socially assistive robots (SARs) in speech and language therapy must take the following key principles into account:

1.1. Respect for Privacy (Freedom of Choice Regarding Monitoring) and Confidentiality (Protection of Data Secrecy): SARs must be designed and used in a manner that respects the privacy and confidentiality of users, including children with communication disorders and their families. This requires appropriate data protection measures and policies to ensure that personal information is collected, stored, and used in compliance with applicable privacy laws and ethical guidelines.

1.2. Non-Discrimination: SARs must be designed and programmed to avoid bias and discrimination and to treat all users equally and fairly, regardless of their race, ethnicity, gender, or other characteristics. This requires careful consideration of SAR design and programming to ensure that existing biases and discriminatory practices are neither perpetuated nor reinforced.

1.3. Accountability and Loyalty: SARs must be designed and used in a manner that ensures accountability and loyalty are clearly defined and that appropriate risk management strategies are in place. This requires clear policies and procedures governing the use of SARs in speech and language therapy, as well as continuous monitoring and evaluation of their use to ensure that they do not cause harm to users.

1.4. Promotion of Interpersonal Relationships: SARs must be designed and used in a manner that enhances, rather than undermines, existing interpersonal relationships and interactions. This requires careful consideration of SAR design and use to ensure that the technology supports human interaction and promotes users' well-being.

1.5. Prevention of Dependence on SARs and Excessive Reliance on SARs: SARs must be designed and used in a manner that prevents users from becoming overly dependent on the technology and withdrawing from important interpersonal relationships and activities. This requires ongoing monitoring and evaluation of SAR use in speech and language therapy to ensure that it does not have negative consequences for users.

1.6. Respect for Autonomy and Dignity: SARs must be designed and used in a manner that respects users' autonomy and dignity, including those of children with communication disorders. This requires ensuring that users have control over their use of the technology, that their privacy and confidentiality are protected, and that their dignity is consistently upheld.

1.7. Transparency and Openness: SARs must be designed and used transparently and openly, with clear explanations of how they work and how the data they collect will be used. This requires clear communication and information-sharing with users, including children and adolescents with communication disorders and their families, to ensure that they understand and feel comfortable with the use of the technology.

1.8. Evidence-Based Speech and Language Therapy Using SARs: SARs must be used in an evidence-based manner, supported by a clear and robust assessment of their effectiveness and positive impact on users. This requires ongoing research and evaluation of the use of SARs in speech and language therapy to ensure that they achieve the intended outcomes for users with communication disorders and are used as effectively as possible.

2. The ethical framework for the use of virtual and augmented reality (VR/AR) in speech and language therapy must take the following key principles into account:

2.1. Respect for Privacy and Confidentiality: As described in Section 1.1.

2.2. Non-Discrimination: As described in Section 1.2.

2.3. Accountability and Loyalty: As described in Section 1.3.

2.4. Prevention of Psychological Harm: VR/AR must be designed and used with careful consideration of its design and implementation to ensure that it does not cause anxiety, fear, or other negative psychological reactions in children and adolescents with communication disorders.

2.5. Respect for Autonomy and Dignity: As described in Section 1.6.

2.6. Transparency and Openness: As described in Section 1.7.

2.7. Evidence-Based Practice: VR/AR must be used in an evidence-based manner, supported by a clear and robust assessment of its effectiveness and impact on users. This requires ongoing research and evaluation of the use of VR/AR in speech and language therapy to ensure that it achieves the intended outcomes for users and is used as effectively as possible.

3. The ethical framework for the use of Conversational AI (CAI) in speech and language therapy must take the following key principles into account:

3.1. Respect for Privacy and Confidentiality: Conversational AI must be designed and used in a manner that respects the privacy and confidentiality of users' data, including that of children and adolescents with communication disorders and their families. This requires appropriate data protection measures and policies to ensure that personal information is collected, stored, and used in compliance with applicable privacy laws and ethical guidelines.

3.2. Non-Discrimination: Conversational AI must be designed and programmed to avoid bias and discrimination and to treat all users equally and fairly, regardless of their race, ethnicity, gender, or other characteristics. This requires careful consideration of the design and programming of Conversational AI to ensure that existing biases and discriminatory practices are neither perpetuated nor reinforced.

3.3. Accountability and Loyalty: As described in Section 1.3.

3.4. Prevention of Psychological Harm: As described in Section 1.4.

3.5. Respect for Autonomy and Dignity: As described in Section 1.6.

3.6. Transparency and Openness: Conversational AI must be designed and used transparently and openly, with clear explanations of how it works and how the data it collects will be used. This requires clear communication and information-sharing among all developers involved in delivering the end service, including those responsible for different types of natural language processing. Codes of practice must be developed for conversational components incorporating AI.

3.7. Evidence-Based Practice: Conversational AI must be used in an evidence-based manner, supported by a clear and robust assessment of its effectiveness and impact on users with communication disorders. This requires continuous monitoring and evaluation of the effects of using Conversational AI in speech and language therapy to ensure that it achieves the intended outcomes for users with communication disorders and is used effectively.

4. The ethical framework for the use of phonetic-linguistic analysis (PLA) of speech production in children with communication disorders must take the following key principles into account:

4.1. Respect for Privacy and Confidentiality: PLA must be designed and used in a manner that respects the privacy and confidentiality of data relating to children and adolescents with communication disorders and their families. This requires appropriate data protection measures and policies to ensure that personal information is collected, stored, and used in compliance with applicable privacy laws and ethical guidelines.

4.2. Non-Discrimination: PLA must be designed and implemented to avoid bias and discrimination and to ensure that all children with communication disorders are treated equally and fairly, regardless of their race, ethnicity, gender, or other characteristics. This requires careful consideration of the design and implementation of the PLA methodology to ensure that existing biases and discriminatory practices are neither perpetuated nor reinforced.

4.3. Accountability and Loyalty: As described in Section 1.3.

4.4. Respect for Autonomy and Dignity: PLA must be developed and implemented in a manner that respects the autonomy and dignity of children with communication disorders. This requires ensuring that their privacy and confidentiality are protected and that their dignity is consistently upheld.

4.5. Transparency and Openness: The implementation of PLA must ensure that the results obtained are provided to the parents of children with communication disorders. This requires clear communication and information-sharing with the families of children and adolescents with communication disorders to ensure that they understand the need for PLA to be performed.

4.6. Evidence-Based Speech and Language Therapy Using SARs: SARs must be used in an evidence-based manner, supported by a clear and robust assessment of their effectiveness and positive impact on users. This requires ongoing research and evaluation of SAR use in speech and language therapy to ensure that SARs achieve the intended outcomes for users with communication disorders and are used as effectively as possible.

4.7. Application of PLA in Evidence-Based Speech and Language Therapy Practice: PLA must be applied in an evidence-based manner, supported by a clear and robust assessment of the effectiveness and positive impact of SARs, VR/AR, and Conversational AI.

Ethical Procedure

1. An application for the review and preparation of an ethical expert assessment of scientific studies and projects involving research with human participants (Appendix 1) will be prepared and submitted to the Research Ethics Committee of South-West University (SWU). The application will describe in detail the objectives, hypotheses, materials and methods, expected results, and data processing procedures in accordance with the General Data Protection Regulation (GDPR), applicable in all European Union Member States since 25 May 2018, for the planned experimental studies.

2. At the beginning of the project, an informed consent form will be prepared for the parents or legal guardians of children and adolescents with communication disorders. This form will accompany the documentation submitted to the Research Ethics Committee of SWU.

3. The informed consent form will be accompanied by a letter containing information about the project, as well as the names and contact details of specialists whom parents or legal guardians may contact if they have any additional questions.

4. Children and adolescents will participate in project activities only after their parents or legal guardians have been fully informed about the planned experimental studies and have signed the informed consent form.

5. All project participants will sign an ethical declaration concerning work with children and adolescents.

Premature Termination of the Study

To ensure that ethical requirements are not breached during the experiment, participants will be monitored for signs of dissatisfaction or fear, although no explicit stimuli intended to elicit strong emotional responses will be used.

Criteria for Withdrawal from the Study

If a participant does not wish to continue, they may withdraw their consent to participate in the study during or after data collection. Following withdrawal, the data collected will be destroyed, except where the data have already been incorporated into subsequent statistical analyses.

Data Processing – PROTECTION OF PARTICIPANTS' PRIVACY

A. Privacy

Anonymisation Process

The concept of data anonymisation is as follows: each participant is assigned a number for each individual session. Only the experiment leader knows the correspondence between this number and the participant's personal identity. For the purposes of analysis and publication, only the participant's identification number, gender, and age will be used.