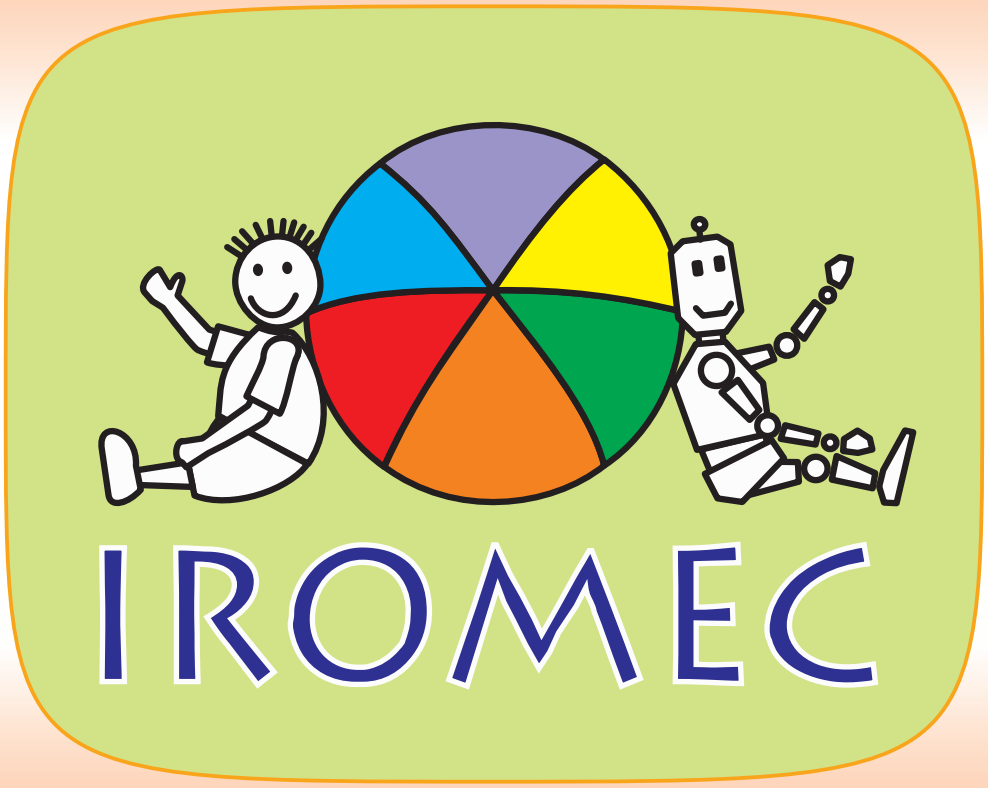
Information Society Technologies

Serenella Besio
(editor)



METHODOLOGICAL FRAMEWORK TO SET UP EDUCATIONAL AND THERAPY SESSIONS WITH IROMEC

IROMEC
Interactive RObotic Social Mediators as Companions - IST-FP6-045356

Editrice | UNI Service

Serenella Besio
(editor)

METHODOLOGICAL FRAMEWORK TO SET UP EDUCATIONAL AND THERAPY SESSIONS WITH IROMEC

(Deliverable D5.2)

IROMEC

Interactive RObotic social MEdiators as Companions

IST-FP6-045356

Editrice | UNI Service

Serenella Besio
Methodological framework to set up educational and therapy sessions with IROMEC

Prima edizione: ottobre 2009, *Printed in Italy*
ISBN 978-88-6178-405-5 (e-book)

Università della Valle d'Aosta – Université de la Vallée d'Aoste

Editor
Serenella Besio

Authors
Elena Laudanna — Section I
Francesca Caprino — Section II

Progetto grafico di copertina: eco

NOTE: Although this document is mainly a product of the University of Valle d'Aosta research team, the final results here presented, in terms of both content and data organisation, are the product of many, fruitful and intense discussions with the whole IROMEC Consortium, via email exchanges and online or face-to-face meetings.
Moreover, since this publication includes also information and knowledge produced within the IROMEC activities, whereas the cited contents should be referred to the other partners' research work, it will be regularly reported.

TABLE OF CONTENTS

SECTION II

LITERATURE ANALYSIS ON PLAY ASSESSMENT METHODOLOGIES

Glossary of acronyms

CF	Critical Factors
ICF	International Classification of Functioning, Disability and Health
ICF-CY	International Classification of Functioning, Disability and Health – Children and Youth version
ESAR	Exercise play, Symbolic play, Assembly play, games with Rules
AUT	Autism
SMI	Severe Motor Impairment
MMR	Medium Mental Retardation
MF-Form	Methodological Framework Form

Summary

This document is part of the products of the IROMEC European project,[1] developed by the University of Valle d'Aosta, as one of the Consortium partners and responsible of the most theoretical aspects of the project itself, related to play and children with disabilities.

In particular, this document concerns two intertwined aspects: from one hand, the development of a general methodological framework to set up a fruitful and effective matching process between the child's competence and ability and the robot's technological features, to develop and realize interesting and useful play scenarios. On the other hand, an in-depth study on the existing literature about the experimental evaluation of the infant play, especially in the case of children with some type of disabilities.

Thus, the document is structured into two Sections, one per each concerned aspect; it is also accompanied by three appendices.

In Section I, the Methodological Framework – one of the IROMEC final results – is presented and described; it will be the basis for one of the main final publications of IROMEC, that is the *Guidelines for using robots in educational and therapy sessions for children with disabilities*.[2]

One of the primary scopes of this framework is to match technical and psycho-pedagogical issues both to clinical challenges and demands and to technological features: to this purpose, a strict connection with the items of the WHO's International Classification of Functioning – Children and Youth (ICF-CY) has been established.[3]

The scientific background for the definition of this framework has been found – and widely used – in one of the IROMEC previous publication, *Analysis of Critical Factors involved in using interactive robots for education and therapy of children with disabilities*.[4]

In this Section a form is proposed – called Methodological Framework Form (shortly, MF-Form) – which is based on a very general methodology designed to support the evaluation phase of the experimental trials, both with the IROMEC prototype in different test sites defined with the Consortium partners and with other available robotics devices.

The aim of the MF-Form (Addendum A – MF-Form) is to test the effectiveness of play-robots in rehabilitation and education of children with disabilities. It is intended to be easily and quickly filled in and it is also strictly dependent on – and linked to – other results and products of IROMEC: scenarios, objectives of scenarios, robot design and technical features.[5]

It will help to collect information useful for choosing and applying the play scenarios that have been developed within IROMEC, and it will give back useful data about the effectiveness of the established connections between the child, the robot and the scenario, thus

---

[1] IROMEC: Interactive RObotic social MEdiators as Companions, www.iromec.org. The project is co-ordinated by PROFACTOR, Austria.

[2] Also the development of this publication – IROMEC Deliverable D5.3 – will be managed by the University of Valle d'Aosta.

[3] See the World Health Organisation site, www.who.int/classifications/icf/en/.

[4] The publication, edited by UNISERVICE, Trento (Italy), is freely downloadable at the IROMEC site.

[5] Some partenrs of the Consortium are respectively responsible of these parts: University of Hertfordshire (Great Britain), University of Siena (Italy), Robosoft (France), AIT and PROFACTOR (Austria). See the IROMEC site for further details.

allowing the generalisation from the specific case to a more comprehensive and general approach.

To make it easier to fill in the form, an electronic version is being developed,[6] to speed up the process of data input, to automatize some procedures of selection and, finally, to analyse the information collected by all the partners in the test sites.

The MF-Form is also strictly linked to other results and products of the project, such as play scenarios, objectives of play scenarios, robot design and technical features and for this reason it should be considered a work-in-progress until the end of the project itself.[7]

An important phase of the Methodological Framework development process is the evaluation of the educational/rehabilitative outcomes of the intervention realised to improve the child's functioning, activities and participation. This scope – related to evaluation and outcome measurement – is partially shared with other partners of the Consortium.[8] The contribution of this document is mainly performed by the literature analysis described in Section II, which is related to play assessment procedures with children with disabilities.

The main scope of this analysis, carried out by the University of Valle d'Aosta research group with the collaborative participation of other partners,[9] is to provide the experimental trials with the IROMEC prototype and with other robotic play systems with suitable assessment tools and methodological inputs for the validation of play scenarios.

For this reason, the results of this analysis can be also considered as an input for the development of the work packages in IROMEC, especially for "field studies and evaluation"[10] and for "social play scenarios and evaluation methods",[11] being a possible further source of information to set up proper assessment methodologies within the IROMEC project.

More in detail, the gathered information is meant to be used to find out suitable tools for the IROMEC target groups, to evaluate the scenario objectives and their overall playfulness.

Objectives, methodology and results of the analysed references are described in different chapters while Appendix B – Reference Lists – contains useful additional documentation and gives four different versions of the reference list adopted for the literature analysis.

Appendix C – IROMEC Glossary – the last one of this document – contains the IROMEC Glossary, realised with the contribution of all partners in an ongoing collaborative work. It has been included as an important step in building up and sharing a common language within the Consortium, as well as a common view of some issues related to play and disability.

---

[6] The platform will be available on the IROMEC site at the end of the project, after validation through its use during the trials.

[7] See note no. 5.

[8] Especially with VILANS (The Netherlands), University of Hertfordshire (Great Britain), AIJU (Spain). See the IROMEC site for further details.

[9] We would like to cite here Dr. Ester Ferrari of the University of Hertfordshire (Great Britain), Dr. Patrizia Marti, Dr. Leonardo Giusti, Dr. Alessandro Pollini of the University of Siena (Italy), Ing. Andreas Hochgatterer and, Dr. Barbara Prazak-Arm of the Austrian Institute of Technology (Austria), Gert Jan Gelderblom, Dr. Tanja Bernd of Vilans (Netherlands)

[10] Workpackage "Field studies, Evaluation", managed by AIJU (Spain).

[11] Workpackage "Social play scenarios and Evaluation methods", managed by University of Hertfordshire (Great Britain).