

Studies on the Impact of Early Childhood Science Education: An Overview

Within the framework of a three-year research project, two interdisciplinary studies are currently investigating the impact of early childhood science education on children and early childhood educators.*

Study 1: The Impact of Science Education

Title: EASI Science (Early Steps into Science)

– The impact of early childhood science education offerings on the science skills of educators and children

The aim of this study is to gain an insight into the impact of science education in early childhood. Taking as an example the approach of the “Haus der kleinen Forscher” programme,¹ this study focuses on the science skills of both children and educators at early childhood education and care centres. These skills are being examined in terms of the targets of early childhood science education,² with the aim of making scientifically sound statements on the variables and factors (e.g., the duration of participation in educational offerings, etc.) on which the educational impact depends.

Research Group

Prof. Dr Mirjam Steffensky (Leibniz Institute for Science and Mathematics Education, IPN Kiel, Didactics of Chemistry) – Spokesperson

Prof. Dr Yvonne Anders (Freie Universität Berlin, Department of Education and Psychology)

Prof. Dr Ilonca Hardy (University of Frankfurt, Department of Education)

Prof. Dr Miriam Leuchter (University of Münster, Seminar for the Didactics of *Sachunterricht*)³

¹ Haus der kleinen Forscher = Little Scientists' House

² Stiftung Haus der kleinen Forscher (Ed.) (2013). *Wissenschaftliche Untersuchungen zur Arbeit der Stiftung „Haus der kleinen Forscher“* [Scientific Studies on the Work of the “Haus der kleinen Forscher” Foundation] Vol. 5. Schaffhausen: Schubi Lernmedien AG. PDF available at www.haus-der-kleinen-forscher.de

³ *Sachunterricht* is a subject taught at primary school in Germany familiarising students with scientific and technical phenomena and with social, economic, and historical aspects of their local area.

Participants

300 children (between the ages of three and six) and 480 early childhood educators from 120 early childhood education and care centres in five survey regions (Schleswig-Holstein/Hamburg, Berlin/Brandenburg, Hesse, North Rhine-Westphalia, Thuringia) (controlled three-group design)

Duration: Three years (November 2013 to October 2016)

Funding Partners

The “Haus der kleinen Forscher” Foundation⁴
The Federal Ministry of Education and Research

Study 2: Interaction Quality and the Impact of Language Education

Title: EASI Science-L (Early Steps Into Science and Literacy)

– Science education in early childhood education and care centres in Germany: Design of teaching-learning situations, quality of language stimulation, and the language and science skills of the children

This study examines the possible impact of science education on language skills and the quality of interaction in the context of science education offerings. The research questions are a) whether, or in which phases, an impact on language skills can be achieved during science activities – also, and in particular, in children for whom German is a second language – and b) to what extent the impact on language skills depends on the quality of the linguistic accompaniment of science activities.

Research Group

Prof. Dr Astrid Rank (University of Regensburg, Department of Education; until 2014: University of Koblenz-Landau) – Spokesperson

Prof. Dr Anja Wildemann (University of Koblenz-Landau, Department of Education)

Prof. Dr. Andreas Hartinger (University of Augsburg, Primary School Pedagogy and Primary School Didactics)

Prof. Dr Sabina Pauen (University of Heidelberg, Developmental Psychology and Biological Psychology)

⁴ Haus der kleinen Forscher = Little Scientists' House

Participants

240 children (between the ages of three and six) and 60 early childhood educators from 60 early childhood education and care centres (*KiTas*) in two survey regions (Baden-Württemberg, Rhineland-Palatinate) (control-group design)

Duration: Three years (October 2013 to October 2016)

Funding Partners

The “Haus der kleinen Forscher” Foundation
The Baden-Württemberg Stiftung
The Siemens Stiftung

*The Scientific Advisory Board of the “Haus der kleinen Forscher” Foundation supports the implementation of this project. The selection procedure – including the public invitation to tender and the external peer review of the applications – was coordinated by acatech, the German National Academy of Science and Engineering. An independent jury of experts recommended that the Foundation provide funding to the above-mentioned research groups to implement the two studies.