

Accompanying Research for the “Haus der kleinen Forscher” Programme*: Key Findings

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To date, the results of the quantitative and qualitative studies conducted within the framework of the accompanying research for the “Haus der kleinen Forscher” programme show the success of the work of the Foundation and its education programme, which over 200 local network partners and more than 600 trainers. In what follows, some key findings relating to various aspects of the programme are outlined in detail.

Implementation Success and Overall Evaluation

“The Foundation’s work is a convincing contribution to the improvement of early childhood education in the initial learning phase. [...] The Foundation makes an important contribution to strengthening competence in learning methodology – one of kindergartens’ core tasks. In this way, pre-primary and primary education is further strengthened and valorised” (Köller et al., 2013, p. 27; our translation).

“With its nationwide perspective and its professional development offerings, the Foundation plays a unique role in the promotion of early childhood science and technology education” (Köller et al., 2013, p. 28; our translation).

“[The education programme is a] commendable project for the development of early, sustainable, and positive affective associations with science at an individual level” (acatech, 2011 p. 57; our translation).

“[...] the ITTEL [Innovative Teaching for Effective Learning] project identified the “Kleine Forscher” association [sic] as Germany’s largest-scale skills training initiative in early education. The HdKF is working with an evaluation model (see below) which, as already mentioned, many other initiatives lack” (OECD, 2012, p. 37).

*Haus der kleinen Forscher = Little Scientists’ House

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Validity of the Procedure for the Certification of Institutions as a “Haus der kleinen Forscher”

“A high correlation was consistently identified between the responses in the certification procedure and the conditions found during on-site inspection. No indications were found of deliberate deception in the certification procedure. With regard to the examined validity, it was ascertained that [...] the observed science-related process quality at the institutions certified as a “Haus der kleinen Forscher” was significantly higher than that at comparable uncertified institutions ”(Anders & Ballaschk 2014, p. 129; our translation).

Pedagogic Approach

“The pedagogic concept of the “Haus der kleinen Forscher” programme is in line with current scientific findings on how children learn and how learning processes have sustainable outcomes for children. The conceptually anchored understanding of education, the image of the child, and the understanding of learning are professionally very well founded and are also supported by empirical evidence in early childhood education research” (Spindler & Berwanger, 2011, p. 47; our translation).

“The emphasis on the scientific method in the research cycle shows the initiative's focus on promoting cognitive and problem-solving skills, designed to help children acquire learning skills in various disciplines, the ability to acquire knowledge themselves and sagacity” (OECD, 2012, p. 38).

The participating educators and teachers at early childhood education and care centres, after-school centres, and primary schools consider the pedagogic approach of the Foundation to be practice-oriented and suitable for implementation at their institutions (see the “Haus der kleinen Forscher” Foundation, 2013; our translation).

Competencies of the Early Childhood Educators

“According to the findings of this expert report, the strengths of the “Haus der kleinen Forscher” programme lie in the areas of ‘motivating and easy accessibility’: Both the early childhood educators and the children experience a motivating start in science and technology education. With exceptional ease and without trepidation, the educators succeed in acquiring the necessary professional competencies and in directly implementing them at their institutions. The children then approach the topics and acquire knowledge about scientific phenomena and relationships with strong motivation and interest” (Spindler & Berwanger, 2011, p. 48; our translation).

On the whole, the self-perceived competence of the participating teachers and educators to engage in inquiry with the children is high; it increases with the duration of participation in the education programme and its professional development offerings (“Haus der kleinen Forscher” Foundation, 2013; our translation).

Through the Foundation's professional development workshops, possible reservations on the part of the educators towards science, mathematics, and technology are significantly reduced, and interest in these fields is promoted ("Haus der kleinen Forscher" Foundation, 2010, 2011, 2012, 2013).

"Educators feel most confident when talking to children about their observations and findings and when purposefully fostering their language skills. This is reflected in the frequent linking of scientific, mathematical, or technical content with language training: Almost half of the educators in early childhood education and care centres (48 percent) engage in collaborative inquiry with the children several times a week, or even daily, in order to foster the children's language skills. The figures for educators at after-school centres and primary school teachers are 34 and 29 percent respectively" ("Haus der kleinen Forscher" Foundation, 2014; our translation).

Objectives and Opportunities of the Programme

"Like other similar projects and activities for science and technology education, the "Haus der kleinen Forscher" programme aims to enable children to have fundamental experiences in this vital area of life and knowledge at an early stage. It is a matter of promoting children's development, on the one hand, and of supporting the professional development of the early childhood educators on the other.¹ These objectives are in line with the aspiration of early childhood education to promote the holistic development of girls and boys and to provide them with sustainable access to the different areas of the life-world" (Preissing & Heller, 2011, p. 151; our translation).

"The "Haus der kleinen Forscher" Foundation has the perhaps unique opportunity to contribute to strengthening a new culture of learning nationwide. This new culture of learning puts the accompaniment of the development of the individual child at the centre of all its efforts. The support for the intended attitudinal change on the part of educators in Germany's early childhood education and care centres that is provided in the "Haus der kleinen Forscher" programme through training in how to handle scientific content can fundamentally impact the pedagogical quality of early childhood education as it exists in reality. For that reason, considered and well-founded action on the part of the Foundation is of great importance" (Evantschitzky, 2011, p. 93f.; our translation).

Acceptance and Identification

The stakeholders of the programme – from the trainers who conduct the professional development workshops to the teachers and educators who work with children – report an extremely high level of acceptance of, and identification with, the professional

¹ Since 2011, the Foundation also targets educators at after-school centres and primary school teachers.

development offerings and the educational objectives of the Foundation (“Haus der kleinen Forscher” Foundation, 2010, 2011, 2012, 2013, 2014).

“The emotional attachment of the trainers to the idea of the “Haus der kleinen Forscher” programme and their assessment of the support offered by the Academy are consistently positive” (Fritz, Hille & Lau, 2012, p. 14; our translation).

Competencies of the Trainers

“The trainers [in the professional development programme] attribute their competencies mainly to their own professional experience and to the trainer workshops provided by the Academy.² [...] According to early childhood educators, the trainers have sound knowledge that they competently impart and explain” (Fritz, Hille & Lau, 2012, p. 14f; our translation; see also “Haus der kleinen Forscher” Foundation, 2013).

The trainers themselves rate their own competence to deliver professional development workshops to teachers and educators as high, on average. This applies to the preparation and moderation of the sessions, to addressing professional fundamentals, and to the pedagogical skills [needed] to support the inquiry processes of the teachers and educators. In this area, in particular, the surveyed trainers feel confident, on average (“Haus der kleinen Forscher” Foundation, 2014).

Competencies of the Children

The teachers and educators observe significant skill gains in the children (including basic skills such as fine motor skills and verbal skills) and an increased interest in scientific phenomena through the process of collaborative inquiry and experimentation (“Haus der kleinen Forscher” Foundation, 2010, 2011, 2012, 2013).

Quality Development at the Educational Institutions

By taking part in the “Haus der kleinen Forscher” programme, a process of systematic quality development is promoted at the educational institutions, which is reflected in the percentage of institutions that have obtained certification. While about one-fifth (21 percent) of the institutions that have participated in the programme for two years are certified, over one-third (38 percent) of those that have participated in the programme for between four and five years have obtained certification (“Haus der kleinen Forscher” Foundation, 2013).

² Professional development sessions for trainers delivered by the staff at the “Haus der kleinen Forscher” Foundation.

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