

Digitalpakt Kita (Digital Pact for Early Childhood Education and Care Centres) - Strengthening Early Education for the Global Future

Position Paper of the “Haus der kleinen Forscher” (“Little Scientists’ House”) Foundation

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Summary

From an early age, children are surrounded by a constantly changing media world. For the “Haus der kleinen Forscher” Foundation, education with and about digital media therefore already begins when the child enters the early childhood education and care centre (hereinafter referred to as “child-care centre”). Early, critical and reflective engagement with digital media prepares children for the challenges and opportunities of an increasingly digital world. In order for children to understand media and to be able to use them responsibly and critically, they need access that is pedagogically well-supported. The prerequisite for this is digitally competent educators who regularly undergo further training - ideally also face-to-face and online.

With its professional development programme, the “Haus der kleinen Forscher” Foundation qualifies early childhood educators and primary school teachers for the expedient use of digital media for explorations and investigations in the STEM domain (science, technology, engineering/computer science, and mathematics).

It is important that policy-makers strengthen comprehensive qualification of professionals and promote further measures for digital education in child-care centres. Child-care centres must be adequately equipped with digital devices, professionals must be qualified to use them and administration must be well networked with a digital infrastructure and equipped with the necessary software. To make this scenario a reality, the “Haus der kleinen Forscher” Foundation is calling for a digital pact for child-care centres.

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Introduction

Distance learning, IT equipment, media concept and media competence: These buzzwords show that digitalisation does not stop at the education sector. On the contrary: In order to enable equal educational opportunities for all children in the future and to equip them for the rapid digital changes, the education sector must continuously adapt to changing needs and challenges. In this context, the Corona pandemic is accelerating digital advancement. Politics has responded to this: With “DigitalPakt Schule” (Digital Pact for Schools)¹, with the “Initiative Digital Education”², with the establishment of “Competence Centres for Digital Education”³ and the “Alliance for STEM Education at Home”⁴, it is providing extensive programmes and various measures for the education sector.

Is early education on a digital sidetrack?

One thing is striking: Currently, the focus of the digitalisation debate is on school education. But what about children who are cared for in child-care centres and the pedagogical staff who provide for their education? Most programmes and measures for digitalisation in education hardly take early education into account. Thereby, they neglect the first and thus essential part of the children's educational path⁵.

For the “Haus der kleinen Forscher” Foundation, good education and thus also good digital education begins with the entry into the first educational institution. Child-care centres are places of learning, where children can develop the necessary 21st-century skills at an early age: Creativity, communication, collaboration and critical thinking⁶. Studies⁷ show that good early education pays off, especially for children themselves. Besides quantity, what matters most is the quality of the educational work.

Strengthening the educational opportunities of children in a digital world

Multimedia-based exploration and investigation promotes the learning process in children and expands the variety of methods used by early childhood educators. The “Haus der kleinen Forscher” Foundation supports professionals in child-care centres with educational offers in the fields of science, technology, engineering/computer

¹ Bundesministerium für Bildung und Forschung (BMBF) [Federal Ministry of Education and Research (Germany)]: https://www.bmbf.de/files/VV_DigitalPaktSchule_Web.pdf

² BMBF: <https://www.bmbf.de/de/bildung-digital-3406.html>

³ BMBF: <https://www.bmbf.de/de/karliczek-bund-und-laender-bringen-gemeinsam-digitalisierung-der-schulen-voran-12563.html>

⁴ BMBF: <https://www.bildung-forschung.digital/de/mint-allianz-2832.html>

⁵ Elango, Sneha, Andrés Hojman, Jorge Luis García, and James J. Heckman. (2016) “Early Childhood Education.”

⁶ Charles Fadel, Maya Bialik and Bernie Trilling. (2015) Die vier Dimensionen der Bildung: Was Schülerinnen und Schüler im 21. Jahrhundert lernen müssen. Zentralstelle für Lernen und Lehren im 21. Jahrhundert - ZLL 21 e. V.

⁷ T. M. Marope and Y. Kaga. (2015) Investing against Evidence - The Global State of Early Childhood Care and Education. United Nations Educational, Scientific and Cultural Organization <https://unesdoc.unesco.org/ark:/48223/pf0000233558>

science, and mathematics (STEM), as well as education for sustainable development (ESD). With its pedagogical approach, it supports early childhood educators in mentoring children in their exploration and investigation and in contributing to their educational success.

Digital know-how for child-care centres and early childhood educators

For digital transformation, child-care centres need well-educated and trained professionals who have the opportunity to continue their education, either face-to-face or online. Just as digitalisation is changing everyday life, the content of training programmes for early childhood educators must be continuously adapted to digital developments. In addition, child-care centres need digital equipment and infrastructure. Child-care centres as educational institutions must be considered as a comprehensive system when it comes to digitalisation. This includes the children as well as the educators, the management and the organisation and its structures.

Requisition: Five billion euros for the Digitalpakt Kita (Digital Pact for Child-care Centres)

The “Haus der kleinen Forscher” Foundation calls for a digital pact for child-care centres to strengthen them in dealing with the challenges of digitalisation. This programme is intended to strengthen and promote quality and sustainability in educational institutions. Analogous to “DigitalPakt Schule” (Digital Pact for Schools), the programme is to provide around five billion euros for child-care centres over a period of five years.

Digitalpakt Kita (Digital Pact for Child-care Centres) provides for:

1. **Qualification of early childhood educators** for expedient use of digital media in child-care centres (in the context of good learning support) and to promote media competence of professionals and managers.
2. Nationwide **access to face-to-face and online training programmes** for early childhood educators. Employers should treat online professional development programmes as equivalent to face-to-face training.
3. Targeted **digital media equipment in groups at child-care centres** for expedient use in educational work. Early participation promotes educational equity and the development of important future skills in children.
4. **Optimisation of the administrative infrastructure in child-care centres** with the help of digital tools (hardware and software) as part of holistic organisational development in line with the media concept of the child-care centres as a whole.

Requisition 1: Qualification of early childhood educators for expedient use of digital media in child-care centres (in the context of good learning support) and to promote media competence of professionals and managers.

Digital equipment needs competent early childhood educators

Adequate digital equipment in child-care centres as educational institutions require early childhood educators to be sufficiently qualified in handling digital devices and using them in their pedagogical work. Only in this way can they competently guide and accompany children in their exploration and investigation with digital media. In a survey (2017), conducted by the “Haus der kleinen Forscher” Foundation among educators in child-care centres, more than 80% of the respondents stated that they never (48%) or only once to three times a month (36%) support children in using digital devices⁸. This result almost coincides with the preliminary observations of an OECD study (2020)⁹, according to which most early childhood educators feel "not at all" (approx. 50%) or "rather little" (approx. 40%) confident in using digital media to promote children's learning. When digital media are used, it is mostly “for research purposes [...], e.g., when a question spontaneously arises that the educator cannot answer. Rarely are new media used for sound and video recordings - and hardly ever for playing.”¹⁰

A survey of providers of child-care centres published as part of the IAQ Report (2020)¹¹, confirms the findings: Early childhood educators express a sceptical and insecure attitude towards digital tools, which is intensified by a lack of media competence. Findings from a model project in North-Rhine Westphalian child-care centres also show that pedagogical professionalism and team culture in the institution contribute significantly to the success of media education in the child-care centre¹².

In order to exploit the potential of digital devices for early childhood education and not leave the children alone with them, qualified professionals are needed to accompany the learning process. First of all, educators themselves must find access to digital

⁸ “Haus der kleinen Forscher” Foundation. (2017) Telefonumfrage: Wie nutzen Erzieherinnen und Erzieher digitale Geräte in Kitas? [Telephone survey: How do educators use digital devices in child-care centres?] https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/3_Aktuelles/Presse/171213_Ergebnisse_zur_Telefonbefragung_Digitales.pdf

⁹ OECD. (2020) Building a High-Quality Early Childhood Education and Care Workforce. Further Results from the Starting Strong Survey 2018. https://www.oecd-ilibrary.org/education/building-a-high-quality-early-childhood-education-and-care-workforce_b90bba3d-en

¹⁰ Ulrike Bohnsack. (2020) Medien in der frühen Bildung – Kita wird digital. idw - Informationsdienst Wissenschaft. <https://idw-online.de/de/news744504>

¹¹ Nieding, I., Blanc, B., Goertz, L. (2020) Digitalisierung in der frühen Bildung: Die Perspektive von Kita-Trägern, Institut Arbeit und Qualifikation. <https://doi.org/10.17185/duerpublico/71615>

¹² Kutscher, N, Bischof, B. (2020) „Digitale Medien in der frühkindlichen Bildung - Medienbildung in der Kita“ https://www.kita.nrw.de/sites/default/files/documents/2021-01/bericht_mkffi_medienbildung_in_der_kita_uzk_290420.pdf

media and know how to use them to accompany learning processes in an expedient way. They are both role models and sources of inspiration.

Gearing early childhood educators for working with digital media

Appropriate qualification must take place at various levels. For example, the expedient use of digital media for exploration and investigation with children should already be given greater consideration in the training of future professionals. So far, this topic has only been anchored in a rather unstructured way in the already very diverse curricula for future early childhood educators¹³.

Against this background, advanced training is also indispensable in the everyday pedagogical work of already trained educators. According to the assessments of the training participants (2019/2020), qualifications in the domain of STEM education for sustainable development, such as those offered by the “Haus der kleinen Forscher” Foundation since 2006, lead to more self-confidence in dealing with STEM topics¹⁴. Early childhood educators are more confident in using the learned techniques for exploring and investigating with children, as well as corresponding tools, and overcome hurdles and reservations¹⁵.

The Foundation's professional development programme includes digital media as well as other tools used to promote good learning support. In special programmes, early childhood educators learn how to use digital devices expediently in everyday life and thus promote children's competence development.

Educational professionals therefore need regular access to advanced training as part of their working hours, which, among other things, familiarises them with new digital devices and their use or shows them how to use existing tools. These can be both face-to-face and online professional development programmes. For example, since 2020 the “Haus der kleinen Forscher” Foundation has been offering the training programme “STEM goes digital”¹⁶, in which early childhood educators and primary school teachers learn which digital devices they can use expediently to explore and investigate with children.

¹³ Bundesministerium für Familie, Senioren, Frauen und Jugend [Federal Ministry for Family Affairs, Senior Citizens, Women and Youth]. (2020) Future fields for educator professions - specialist careers in early education. Short survey. <https://www.bmfsfj.de/resource/blob/161224/6e19ca497438d61f75f8952154056003/20201028-kurzstudie-zufunftsfelder-erzieherberufe-data.pdf>

¹⁴ “Haus der kleinen Forscher” Foundation. (2020) Band 13 der Wissenschaftlichen Schriftenreihe: https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/4_Ueber_Uns/Evaluation/Wissenschaftliche_Schriftenreihe_aktualisiert/Wissenschaftliche_Schriftenreihe_Band13.pdf

¹⁵ “Haus der kleinen Forscher” Foundation. (2018/2019) Monitoring-Bericht 2018/2019. https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/4_Ueber_Uns/Evaluation/HDKF_Monitoringbericht_2018-19.pdf

¹⁶ <https://www.haus-der-kleinen-forscher.de/landingpages/mint-geht-digital>

If educators overcome their reservations about digital media through professional development programmes, this also benefits communication with families. Professionals and managers gain insights into the possibilities of digital education through further training and can in turn communicate these to parents, for example at information events in child-care centres.

Requisition 2: Nationwide access to face-to-face and online training programmes for early childhood educators. Employers should treat online professional development programmes as equivalent to face-to-face training.

Advanced training opportunities for all early childhood educators

In 2020¹⁷, around 676,000 employees were working predominantly in the pedagogical and managerial fields of child-care centres and the demand for well-qualified professionals is increasing. A lot has to be done if all early childhood educators are to be given the opportunity to receive training on the use of digital media in child-care centres - regardless of whether the professional development programmes are face-to-face, digital, hybrid or so-called blended learning formats. Innovative educational offers such as "STEM goes digital"¹⁸ of the "Haus der kleinen Forscher" Foundation must be expanded accordingly by providers and, in the best case, be scalable (increase the number of advanced training courses and participants without sacrificing content and quality). Finally, professional development programmes must be sustained in the long term through political funding programmes.

Ensure continuous development

Just as the world is undergoing constant digital change, educational programmes must adapt to the changing demands and challenges of educational work. Professional development, advanced training and qualification programmes must ensure that their offerings evolve and that, for example, new content on digital media, but also innovative learning formats and technical developments are continuously included into these programmes. Since the beginning of the Corona pandemic, actors such as the "Haus der kleinen Forscher" Foundation have developed numerous new digital formats for early childhood educators. In the first few months, there was a real run on online training offers, which continues at a high level. At the end of 2020, the "Haus der kleinen Forscher" Foundation recorded an increase of more than 30,000 users in twelve months on the foundation's own digital learning platform "Campus". This shows the potential of contemporary digital education and the need to expand digital qualification of early childhood educators. Online professional development

¹⁷ Weiterbildungsinitiative Frühpädagogische Fachkräfte. (2020)
<https://www.weiterbildungsinitiative.de/themen/zahl-der-kita-beschaeftigten-waechst-weiter>

¹⁸ <https://www.haus-der-kleinen-forscher.de/landingpages/mint-geht-digital>

programmes have many advantages: Digitally supported learning is flexible, location-independent, more cost-effective and time-saving.

Equal status for face-to-face and online professional development programmes

In its position paper “Digital Education - an opportunity for good early STEM education for sustainable development”¹⁹, the “Haus der kleinen Forscher” Foundation calls for online professional development programmes to be recognised by educational institutions and employers as equivalent to face-to-face training courses. Pedagogues should have the opportunity to participate in online development programmes during their working hours. This requires technically well-equipped and digitally networked educational institutions, because adequate technical equipment and infrastructure enable early childhood educators to participate in the corresponding educational offers.

Requisition 3: Targeted digital media equipment in groups at child-care centres for expedient use in educational work. Early participation promotes educational equity and the development of important future skills in children.

Groups of child-care centres are not sufficiently digitally equipped

Digital devices have long been part of everyday lives of children of kindergarten age. While almost every household with small children has a television, computer and mobile phone, some of the under-six-year-olds already own smartphones, game consoles, children’s computers or digital cameras.²⁰

In the day-care centres themselves, children have had little exposure to digital media so far and are not being sufficiently encouraged. According to a representative survey of the “Haus der kleinen Forscher” Foundation²¹, in around 71 percent of child-care centres, children were able to use at least one device together with their educators. Here, the digital camera is the most frequently used device (53 %), followed by the laptop (31 %) and PC (24 %). However, most of the institutions surveyed only had one type of device that they could use for exploring and investigating with the children. Digitalpakt Kita (Digital Pact for Child-care Centres) must ensure adequate digital equipment for kindergarten groups in the next five years.

¹⁹ “Haus der kleinen Forscher” Foundation. (2021) Digitale Bildung - Chance für gute frühe MINT-Bildung für nachhaltige Entwicklung https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/4_Ueber_Uns/Stiftung/Positionspapier_Digitalisierung_Hdkf.pdf

²⁰ Medienpädagogischer Forschungsverbund Südwest (2020) KIM-Studie 2020 http://www.mpfs.de/fileadmin/files/Studien/KIM/2020/KIM-Studie2020_WEB_final.pdf

²¹ “Haus der kleinen Forscher” Foundation. (2017) Telefonumfrage: Wie nutzen Erzieherinnen und Erzieher digitale Geräte in Kitas? [Telephone survey: How do educators use digital devices in child-care centres?] https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/3_Aktuelles/Presse/171213_Ergebnisse_zur_Telefonbefragung_Digitales.pdf

Multimedia exploration and investigation promotes future skills in children

In its position paper “Digital education - an opportunity for good early STEM education for sustainable development”, the “Haus der kleinen Forscher” Foundation points out the possibilities for using digital media for joint exploration and investigation with children. Digital devices are tools that are on an equal footing with other aids such as magnifying glasses, scissors or books. The digital does not replace the analogue medium, but complements, supports and enriches it²². In its pedagogical approach²³, the Foundation describes how STEM education for sustainable development promotes a variety of skills in children, such as critical thinking, creativity, collaboration and mutual interaction, among others, to make them strong for a world shaped by digitalisation.

Early childhood educators have the task of competently guiding the children in their individual development. This also involves enabling the children to use different media actively and expediently to discover their world independently. They should use digital media for individual, child-oriented, creative, self-determined, responsible, as well as reflected learning in educational institutions.

Creating more educational equity

By providing all early childhood education and care facilities with a comprehensive range of digital devices and competent learning support, all children can experience education with and through digital media - especially those who do not have access or competent support in their social environment. According to results of School Barometer 2020²⁴, 15 percent of the households surveyed state that they do not have sufficient digital equipment at home. However, the survey also points out that the number of unreported cases is much higher, as teachers in schools, for example, report insufficient digital equipment at home much more frequently (around 45%). According to the “miniKIM” survey²⁵ of Medienpädagogischer Forschungsverbund Südwest, children are sometimes unsupervised when using digital media at home.

As educational institutions, child-care centres fulfil the important task of trying to compensate inequalities in education due to social background or individual disadvantages to the best possible extent. In the best case, they pave the way for a successful educational biography for all children. After all, talents can already be

²² “Haus der kleinen Forscher” Foundation. (2021) Digitale Bildung - Chance für gute frühe MINT-Bildung für nachhaltige Entwicklung https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/4_Ueber_Uns/Stiftung/Positionspapier_Digitalisierung_Hdkf.pdf

²³ “Haus der kleinen Forscher” Foundation. (2019) Pädagogischer Ansatz der Stiftung <https://www.haus-der-kleinen-forscher.de/de/fortbildungen/paedagogik>

²⁴ Stephan Gerhard Huber, Paula Sophie Günther, Nadine Schneider, Christoph Helm, Marius Schwander, Julia A. Schneider, Jane Pruitt (2020) COVID-19 –aktuelle Herausforderungen in Schule und Bildung https://edulead.net/schuba/wp-content/uploads/sites/5/2020/04/Schul-Barometer_Huber-Guenther-Schneider-Helm-Schwander-Schneider-Pruitt_Covid-19_und_aktuelle_Herausforderungen_in_Schule_und_Bildung_20-04-24.pdf

²⁵ Medienpädagogischer Forschungsverbund Südwest (2014) miniKIM 2014. Kleinkinder und Medien. http://www.mpfs.de/fileadmin/files/Studien/miniKIM/2014/Studie/Grafiken_miniKIM_2014.pdf

recognised and promoted at an early age. A necessary step towards fulfilling this mandate is the digital equipment of child-care centres as educational institutions in order to enable all children, regardless of their social background, to participate in the use of digital media and the associated development of valuable skills.

Requisition 4: Optimisation of the administrative infrastructure in child-care centres with the help of digital tools (hardware and software) as part of holistic organisational development in line with the media concept of the child-care centres as a whole.

Finally, the opportunities of digital equipment also come into play at the administrative level of child-care centres. Almost all providers of child-care centres surveyed stated that digitalisation simplifies and facilitates work processes. Above all, administrative programmes and special apps facilitate administrative tasks in child-care centres. For example, some institutions already use digital apps for electronic meal ordering or quick check-in of children, which also records attendance times. Communication with parents is also promoted by various apps²⁶.

Managers and early childhood educators of child-care centres have one main expense: Time. They lack this time for their pedagogical work, especially when additional factors, such as staff shortages limit the resources. However, administrative work should not be at the expense of good early education. Therefore, especially at organisational level, the equipment of child-care centres and competent use of digital techniques and programmes can relieve the daily workload.

No alone the Corona pandemic has revealed weaknesses in the early childhood education and care system. While families classified as “system relevant” were able to take advantage of emergency care for their children, a large number of children of early childhood care centres stayed at home and were virtually cut off from any contact with the institution. Often, emails were the only communication channel for informing parents. Surveys revealed that children experienced the lack of contact with their educator as very stressful and often felt lonely - especially children from households with difficult socio-economic backgrounds²⁷. Digital equipment as facilitated by the federal government’s emergency programme for schools within the framework of “DigitalPakt Schule” (Digital Pact for Schools), can prevent children from being disadvantaged in early childhood education already and mitigate developmental

²⁶ Nieding, I., Blanc, B., Goertz, L. (2020) Digitalisierung in der frühen Bildung: Die Perspektive von Kita-Trägern. IAQ-Report. https://duepublico2.uni-due.de/receive/duepublico_mods_00071615

²⁷ Langmeyer, Alexandra; Guglhör-Rudan, Angelika; Naab, Thorsten; Urlen, Marc; Winklhofer, Ursula (2020): Kind sein in Zeiten von Corona. Ergebnisbericht zur Situation von Kindern während des Lockdowns im Frühjahr 2020 <https://www.dji.de/themen/familie/kindsein-in-zeiten-von-corona-studienergebnisse.html>

difficulties in early education. The prerequisite for this is, of course, that early childhood educators are qualified for distance learning.

No equipment without a media concept

Equipping institutions with digital technologies should be closely linked to a media concept. This concept should define the need, the scope, as well as the expedient use of hardware and software at all levels. A survey of early childhood educators conducted by the “Haus der kleinen Forscher” Foundation revealed that the use and handling of digital media is regulated in very few child-care centres (only 19 percent). The vast majority did not have a media concept at the time of the survey. However, professionals were more satisfied with the available technical equipment if their institution had a concept²⁸.

A well-thought-out media concept sees the organisation as a holistic system and must be jointly developed and continuously reviewed by the team²⁹. In this way, early childhood educators and managers, as well as children and parents can benefit from the media equipment and the defined possibilities of use. Such a concept also supports the daily administrative, care and, above all, educational work. The development of a media concept in child-care centres should be a prerequisite for their need-based equipment. It is imperative that providers of early childhood education and care closely support the facilities in the development of such concept.

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²⁸ “Haus der kleinen Forscher” Foundation. (2017) Telefonumfrage: Wie nutzen Erzieherinnen und Erzieher digitale Geräte in Kitas? [Telephone survey: How do educators use digital devices in child-care centres?] https://www.haus-der-kleinen-forscher.de/fileadmin/Redaktion/3_Aktuelles/Presse/171213_Ergebnisse_zur_Telefonbefragung_Digitales.pdf

²⁹ Kutscher, N, Bischof, B. (2020) „Digitale Medien in der frühkindlichen Bildung - Medienbildung in der Kita“ https://www.kita.nrw.de/sites/default/files/documents/2021-01/bericht_mkffi_medienbildung_in_der_kita_uzk_290420.pdf