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High Expectations During Guided Pretend Play in Kindergarten: A Promising Way to Enhance Agency in a Digitalized Society?

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Abstract: As digitalization and digital transformation shape developments in society, children's competence and agency for digital transformation need to be fostered from an early age. Equitable digital education is of utmost importance. Teachers' expectation behavior is relevant for providing equitable learning opportunities for all children. This study focuses on guided pretend play in digital education in kindergarten. This study examines whether high-expectation behavior of teachers is found in the behavior of kindergarten teachers during guided pretend play, and whether teacher expectation play behavior reveals different expectations for boys and girls. Video observations of guided pretend play in 15 kindergartens were analyzed using a qualitative cross-over design. While teachers interacted for equal durations with boys and girls during guided pretend play, significantly more incidents revealed teacher expectations toward girls than boys. Overall, high-expectation play behavior was less prevalent than low-expectation play behavior. In order to support further research and practice, an exploration of video sequences identified characteristics of teachers' high-expectation behavior for guided pretend play, such as holding back or enabling children's agency.

Keywords: agency; digital education; guided pretend play; kindergarten; preprimary school; teacher guidance; teacher expectations



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1. Introduction

The Convention on Children's Rights includes the right to education, play, and participation (United Nations [UN], 1989). In 2021, the "General comment No. 25 (2021) on children's rights in relation to the digital environment" reflected children's rights in the digital age and emphasized the importance of children's evolving autonomy as well as the need for protection (United Nations [UN], 2021). Digital education should aim to enhance children's autonomy. For education, ensuring and enabling children's agency is paramount. For early childhood education, free play supports children's agency. Children's agency as global citizens is played out in early childhood, as children show an early understanding of the economic, social, and environmental dynamics of the world and seek solutions to various problems through pretend play (Kalessopoulou et al., 2023). (Young) children's agency can be defined as children acting independently and making choices (Engeness, 2021). For young children, agency means being respected by adults as social actors (Abebe, 2019) and being given opportunities to engage with them (Jerome & Starkey, 2022). In the context of digitalization, young children's agency is based on early digital education, thus constructing an understanding of the (digital) world. Ensuring children's agency is highly relevant for early childhood education, as early childhood education plays a significant

role in shaping the future developmental and academic growth of children (McClelland et al., 2013; Pace et al., 2019).

As digital transformation is a core dynamic of current and future developments, it is crucial for all young children to experience agency in digitalization. Proficiency in digital technologies and active participation in shaping a digitalized society are becoming increasingly important in many everyday contexts and professions. For both girls and boys, it is crucial to develop an early interest in professions within the field of information technology. Pretend play offers a valuable opportunity to do this (Turja et al., 2009). For early childhood education, one promising way to encourage children's agency in a digitalized society is through guided pretend play, which allows children to imagine being in control of digital technology (Arnott et al., 2020; Bird, 2020; Vogt & Hollenstein, 2021), act independently, and make choices.

Guided pretend play allows for both children to initiate ideas and direct the activity, as well as early childhood teachers to be involved in play (Skene et al., 2022; Zosh et al., 2018). Guided play is more effective for young children's learning in some domains compared to free play or direct instruction (Skene et al., 2022). When involved in play, the teacher interacts continuously with the children. The analysis of teacher–child interactions [in the context of school] revealed that teachers' behavior toward their students can vary based on their expectations (Brophy & Good, 1974; Finn, 1972; Ludwig, 1991; Wang et al., 2018). Through teacher–child interactions, teacher expectations become evident and affect children's self-concept and achievement (Denessen et al., 2022; Wang et al., 2018). The problem is that teacher expectations can be biased (e.g., based on gender, socioeconomic status, or migration background; Gentrup & Rjosk, 2018; Wang et al., 2018). Teacher–child interactions have the potential to reinforce gender-biased expectations; for example, teachers commenting on girls wearing pretty clothes or being helpful, and on boys' physical strength (Chick et al., 2002). The teacher's guidance in play can reveal teacher expectations, for example, regarding children's digital skills. Teacher's expectations have an impact on the learning opportunities provided to a child. In digital education, the risk of teacher bias in expectations is high (Wammes et al., 2022). Guidance based on biased expectations can hinder children's agency in digital education, as it can be strengthened or weakened (Jerome & Starkey, 2022).

Teacher–child interactions based on biased expectations can lead to inequality in education. Although teacher expectations have not yet been widely examined in early childhood education (Timmons et al., 2022), related social inequalities in the early years can lead to long-term disadvantages (Alvidrez & Weinstein, 1999; El-Hamamsy et al., 2023). Therefore, in order to provide equitable digital education and ensure that all children can develop agency in a digitalized society, teachers must provide equal learning opportunities and have unbiased high expectations for all children (Timmons et al., 2022). Providing equal opportunities in education remains a challenge (Erzinger et al., 2023)—especially in digital education (Wammes et al., 2022).

This paper explores the possibility of observing teachers' high-expectation play behavior during guided pretend play sequences on digital transformation in early childhood education and analyzes the difference in teachers' expectation play behavior toward boys and girls. Before presenting the materials and methods, the importance of guided pretend play to promote agency in a digitalized society, teachers' expectation play behavior, and its role in children's development and experience of agency during guided pretend play are discussed.

1.1. Guided Pretend Play to Promote Agency in a Digitalized Society

Digital competence has become a part of the curricula of compulsory education. Many countries in Europe have updated and published educational policies and curricula to embed the development of digital competence (Ferrari & Punie, 2013; Voogt & Roblin, 2012). The current curricula focus on competence in using digital media and specific aspects of computer science, such as coding. Skills such as a basic understanding of evolving digital technologies, their production, and repair, as well as issues regarding artificial intelligence, have received little attention in early childhood education (Friedrichs-Liesenkötter, 2019; Lienau & van Roessel, 2019). Not only competent use of digital technologies is important, but also transversal competence. Transversal competence (often called ‘21st-century skills’) commonly refers to a set of abilities that include communication, collaboration, critical thinking, creativity, and problem-solving (van Laar et al., 2017). Therefore, children should be encouraged to experiment with technology and reflect critically and creatively on digital technology and digital transformation (Grassmann et al., 2022). Given the significant and rapid changes taking place in society through digital transformation, it is important for young children to make sense of these processes and experience their agency. Digital technologies are becoming increasingly important in many professions and everyday contexts.

As children explore in pretend play what society considers important (Hauser, 2013), guided pretend play is a promising way to encourage young children’s agency in a digitalized society. Guided pretend play allows children to imagine being in control of digital technology (Arnott et al., 2020; Bird, 2020; Vogt & Hollenstein, 2021), act independently, and make decisions. Following this, guided pretend play is also a promising approach to encouraging the above-mentioned digital and transversal competencies (Hollenstein & Vogt, 2024; Vogt & Hollenstein, 2021; Vogt et al., 2020). For example, children can pretend to be in a certain role (e.g., an IT expert) and can pretend to manipulate objects without using them (e.g., pretending that a wooden object in the shape of a tablet is a tablet). Prolonged pretend play sequences allow for intense and playful interactions between the teacher and (a small group of) children.

1.2. Teacher Expectations and Teachers’ High-Expectation Behavior

Teacher expectations are beliefs about children’s current or future behaviors or achievements (Good & Brophy, 1997; Rubie-Davies, 2004). Teachers form their expectations based on previous student achievement, classroom behavior, and engagement, as well as demographic characteristics such as ethnicity, gender, socioeconomic status, and special education status (Dusek & Joseph, 1983; Rubie-Davies, 2009; Rubie-Davies & Peterson, 2016). These expectations can be influenced by subjective biases (Lorenz, 2018; Mienert & Pitcher, 2011). Teacher expectations become evident through teacher–child interactions (Denessen et al., 2022; Wang et al., 2018). A growing body of research suggests that teacher expectations can indeed strongly influence the learning opportunities provided to children, leading to equal or unequal learning environments (Timmons et al., 2022; Wang et al., 2018).

Following the Pygmalion study by Rosenthal and Jacobson (1968), numerous studies have been conducted to empirically examine the relationship between teacher expectations and their classroom behavior (Wang et al., 2018; Weinstein, 2002). Assuming that teachers behave differently toward their students depending on their expectations of students’ level of achievement, Harris and Rosenthal (1985) described four behavioral clusters that reveal teacher expectations: (1) creating a socioemotional climate (climate), (2) providing differentiated and appropriate feedback on student achievements (feedback), (3) offering challenging instructional content (input), and (4) increasing the extent to which teachers provide opportunities for students to respond (output). Reviews and meta-analyses have identified “climate” and “input” as particularly important factors (Kunter & Pohlmann,

2015; Ludwig, 2010; Rosenthal, 1993). Rubie-Davies (2007) identified teachers who consistently held high or low expectations for all their students. Teachers with high expectations exhibited distinct behaviors, including treating all students equally, fostering a positive classroom climate, and supporting students during the learning process. Such teachers frequently reorganized students into flexible groups, regularly adjusted seating arrangements, minimized disciplinary measures, and provided clear objectives, progress monitoring, and feedback that promoted autonomy, development, and student achievement. In contrast, teachers with low expectations treated students differently and focused their feedback on behavior rather than the learning process. These teachers often group students into fixed-ability groups. They monitored some students more closely than other students during the lesson (Rubie-Davies, 2014). Subsequently, Rubie-Davies et al. (2015) investigated whether and how teachers can learn high-expectation behavior and analyzed its impact on student achievement. Coaching in high-expectation behavior includes the following four aspects: (1) focusing feedback on content rather than children's behavior, (2) providing cognitive activating input (e.g., asking open-ended questions), (3) giving students opportunities to respond (output), and (4) creating a warm learning environment/classroom climate. The results indicate that it is possible for teachers to learn high-expectation behavior. Children taught by teachers who had already received the aforementioned coaching had significantly higher learning gains in mathematics than children whose teachers had not yet received such coaching. This study focuses on teachers and students in primary and secondary schools (Rubie-Davies et al., 2015).

The theoretical assumption (Brophy & Good, 1970; Ludwig, 1991; McKown & Weinstein, 2008; West & Anderson, 1976), which is partly empirically confirmed (Gentrup et al., 2020; Harris & Rosenthal, 1985; Hollenstein, 2021; Rubie-Davies, 2014; Woolley et al., 2010), is that students are aware of different teacher behaviors (i.e., assessing achievement in feedback, level of difficulty of learning input) and integrate their perceived teacher expectations into their self-concept. Subsequently, self-concept affects achievement. Figure 1 shows the assumed relation between teacher expectations and children's digital competence in early childhood education in accordance with the theoretically assumed and (partly) empirically confirmed relation between teacher expectations and students' achievement in school (Brophy & Good, 1970; West & Anderson, 1976; McKown & Weinstein, 2008). Teacher expectations regarding children's digital competence consciously or unconsciously influence teacher behavior while interacting with children. For example, teachers may or may not provide opportunities for children to contribute to a digital technology topic. A teacher's consistent behavior (e.g., providing opportunities for children to contribute) may make their expectations visible to the children (Lorenz, 2018). Children integrate the experience, whether the teacher provides them opportunities to contribute to the digital technology topic or not, into their self-concept of being seen as capable of contributing to the digital technology topic or not). Children's self-concept in digital technology relates to their digital competence.

The empirically grounded observation of high-expectation behavior, as developed by Rubie-Davies et al. (2015) for schools, has not yet been transferred to early childhood education and guided pretend play. Biased expectation behavior was found in a study examining parents' play guidance when playing mathematical board games with their children (Moffatt et al., 2009). The results indicate that parents differ in their play behaviors between sons and daughters when they play board games with mathematical content. Both mothers and fathers encouraged sons more often than daughters to become active themselves when it came to mathematical content (Moffatt et al., 2009).

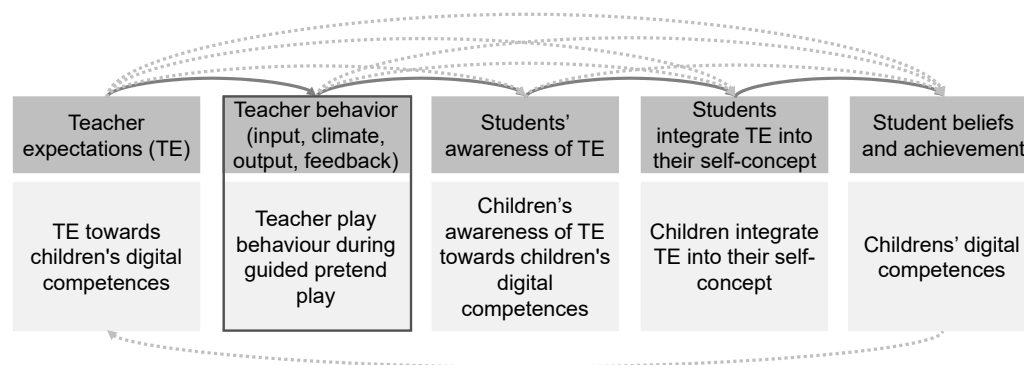


Figure 1. Teacher expectations and their relation to students' achievement (Brophy & Good, 1970; West & Anderson, 1976; McKown & Weinstein, 2008) adapted to expectations and digital competencies. Note. The dark grey boxes show the theoretically assumed and (partly) empirically tested relation between teacher expectations and student achievement in school. The light grey boxes below describe the assumed adaptation for guided pretend play in early childhood education.

1.3. Relevance of Teacher Expectations During Guided Pretend Play

Expectations help reduce complexity (Fiske, 1984) and influence a person's perceptions, decisions, and behavior. Expected events are perceived more strongly, while unexpected events tend to go unnoticed (Good & Nichols, 2001; Weinstein, 2018). Gender bias in expectations for higher digital competence for boys and lower digital competence for girls might lead a teacher to interpret a delayed response to a question related to digital technology differently: the teacher might interpret the girl's delay in responding as a sign of a lack of knowledge, whereas the boy's delay might be seen as an indication that the student is formulating a thoughtful answer. Subsequently, differences in interactions based on gender-biased expectations lead to differences in learning opportunities and thus to inequalities in education (Wang et al., 2018). In digital education, the risk of biased interactions between boys and girls is high: the accuracy of teachers' judgments of technical skills is low and shows a gender bias; teachers had lower expectations for girls. In addition, teachers expressed underestimation more often than overestimation for both boys and girls (Wammes et al., 2022). This underestimation might be explained by the fact that low teacher competence in digital education is associated with low and biased expectations of students' digital competence (Gray & Leith, 2004).

Teachers' guidance in play integrates children's contributions, responds to these contributions, or extends the scope of these contributions in the moment of the teacher playing with the children (Hollenstein & Vogt, 2024; Zosh et al., 2018). Guided pretend play is highly complex. Teachers encounter high complexity of demands during guided pretend play, as they receive a lot of information at the same time and have to process it quickly in the flow of the play interaction. Consequently, the risk of (biased) expectation play behavior during guidance is high. It can be assumed that expectations guide and regulate teachers' perceptions, decisions, and behaviors during guided pretend play. It follows that it is important for teachers to learn to have high and unbiased expectations as part of their training. Intervention studies have shown that awareness and reflection on one's own practice are prerequisites for changing biased expectations into unbiased expectations (de Boer et al., 2018).

1.4. Aims

Expectation research in classrooms underscores the importance of teacher expectations for student achievement (Wang et al., 2018). Teacher expectation behavior is an important factor and is relevant for providing equitable learning opportunities to all children (Hollenstein, 2021; Rubie-Davies et al., 2015). Inequality in digital education can lead to long-term

disadvantages (El-Hamamsy et al., 2023). In addition, the risk of underestimation and biased expectations (lower expectations for girls) regarding digital technology has been identified (Wammes et al., 2022). Therefore, children need gender-unbiased guidance to explore digital technology and digital transformation and to experience themselves as active agents. Within pretend play on digital transformation, children take on different roles, free from traditional gender stereotypes. The teacher's unbiased behavior during guided play is therefore central to children's equal learning opportunities. The aim of this paper is to investigate teachers' play behavior and the differences in this behavior with boys and girls during guided pretend play in the context of digital education. The research questions are as follows: (1) whether high-expectation behavior is present in the behavior of kindergarten teachers during guided pretend play, and (2) whether the teachers' expectation play behavior reveals different expectations for boys and girls.

2. Materials and Methods

This study followed a mixed-method design within the framework of a "qualitative-dominated cross-over study" (Kansteiner & König, 2020; Onwuegbuzie & Hitchcock, 2015). Qualitative analysis allowed for observing teachers' play behavior when guiding play, whereas quantitative analysis was used to determine whether the expectation play behavior differed between boys and girls.

2.1. Sample and Study Design

As part of the exploratory intervention study "We play the future" (Vogt & Hollenstein, 2021), sequences of guided pretend play were examined to analyze teachers' play behavior during guided pretend play in the context of digital education. Additionally, this study aimed to explore whether teachers' expectations play behavior differed between boys and girls.

The intervention study was conducted in 15 kindergartens across German-speaking Switzerland. Teachers were recruited through advertisements in professional journals and on online platforms. The intervention comprised a professional development session and the implementation of activities designed to foster pretend play centered on digital transformation. Kindergarten teachers participated in a half-day professional development program facilitated by the research team. The professional development included an introduction to digital transformation and guided play activities, as well as a short input on the importance of gender equity in digital education. The participating kindergartens were equipped with a range of materials for pretend play, such as wooden tablets with replaceable cardboard screens, as well as detailed instructions on how to introduce and implement these activities in their kindergarten (Vogt et al., 2020). The provided materials consisted exclusively of nonfunctional devices to encourage imaginative play. Subsequently, they introduced at least three of the eight pretend play activities provided by the research team in their kindergarten over a period of 3.5 months.

The teachers initiated these activities on digital transformation by engaging in pretend play with the children and demonstrating digital (transformation) processes. Following this, the children were given the opportunity to engage in pretend play independently, with teachers occasionally joining to encourage ideas and collaboratively support reasoning.

The participating children were aged between 4 and 6 years. No data were collected on the children's characteristics, such as their socioeconomic background or prior knowledge.

2.2. Data Collection and Analysis

Given the exploratory nature of the research questions, a qualitative design was developed for this study, primarily relying on video observation. The analyses of the video

observations were enriched with quantitative analyses to compare the differences between teachers' behaviors toward boys and girls.

The database contains video sequences. Children's play was video recorded on two occasions over a period of 3.5 months. Two video cameras on tripods and additional small microphones positioned in the play area were used to capture the play sessions, resulting in 45 h of video material. Teachers frequently joined the pretend play. Written informed consent was obtained from the parents and teachers for the video recordings. On recording days, the children were free to choose whether they wanted to participate in the video recordings or engage in a different play area.

To examine teachers' play expectation behaviors, sequences were selected with an explicit focus on the digital transformation. The second criterion was the presence of a teacher and a group of children with at least one boy and one girl. This resulted in selected sequences of 2 h and 24 min for an in-depth analysis. The video data were primarily analyzed using qualitative content analysis (Mayring, 2022) and coded using MAXQDA 2020. A category system, grounded in the theoretical concepts of high-expectation behavior in classrooms (Rubie-Davies et al., 2015; see Section 1.2 "Teacher expectations and teachers' high-expectation behavior"), was adapted to the pretend play context (where necessary) prior to the analysis of the video data (see Table 1).

Table 1. Extract from category system (deductive developed categories of high vs. low teacher expectation behavior).

Dimensions of High-Expectation Behavior in School (Rubie-Davies et al., 2015)	Category of Expectation Play Behavior During Guided Pretend Play in Kindergarten	Subcategory for the Data Analysis	Example from the Current Data
Focusing feedback on content rather than children's behavior	Feedback	Content *	During a problem-solving process: the educator says to the child: "That is fast, you can take even longer. But it's fine".
		Behavior	"Stop it, not that quick". Teacher to a child running to the IT centre.
Providing cognitive activating input (e.g., asking open-ended questions),	Question (Input)	Open *	"What should we ask the smart fridge?"
		Closed	"Do you want to put eggs in the dough?"
Giving students opportunities to respond (output)	Support (Output)	Requested *	Child: "Can you help me?", Educator: "Take the tablet and put it in front of you".
		Not requested	Educator to the child (without request): "You need to call the technician".
Creating a warm learning environment/classroom climate	Not included, because all recorded play sequences displayed joyful engagement and a warm climate		

* Subcategories mediate high-expectation play behavior (Rubie-Davies et al., 2015).

Each interaction between the teacher and one or several children in a mixed-gender group was coded in detail. The categories were based on three dimensions suggested by Rubie-Davies et al. (2015) as categories of high expectations in schools and were adapted for guided play: 'feedback', 'questions', and 'support' (see Table 1). The dimension 'warm classroom climate', which was suggested for schools (Rubie-Davies et al., 2015), was not included as a category for guided play, because all recorded play sequences displayed

joyful engagement and a warm climate. Following Rubie-Davies et al. (2015), 'feedback on content', 'open questions', and 'requested support' mediate high expectations, whereas 'feedback on behavior', 'closed questions', and 'support provided when not requested' indicate low expectations.

'Feedback on content' is conceptualized as feedback that addresses academic learning processes (Rubie-Davies, 2014). For the pretend play context, feedback on content was coded under the following criteria: evaluation, extension, reinforcement, or categorization of a comment; addition to the content; thinking aloud to model thought processes; or identification of contradictions. 'Feedback on behavior' was coded when the teacher provided feedback on how the child should behave (e.g., not running around in kindergarten). The code 'support not requested' was used to categorize situations in which the teacher provided concrete instructions for the child's playing, yet the child did not indicate a need for such instructions. If the child indicated a need for such instructions (e.g., looking at the teacher and stopping playing, not answering a question, or asking the teacher for help), it was categorized as 'support requested.'

To ensure inter-rater reliability, approximately 20% of the video material was randomly selected and coded independently by two researchers. Inter-coder reliability was very good, with a kappa of $\kappa = 0.84$ (Brennan & Prediger, 1981). From the 2 h and 24 min of analyzed video material, a total of $N = 1231$ incidents were identified that indicated high or low teacher expectation play behavior.

Quantitative analyses were conducted to compare teachers' play behavior (high vs. low-expectation play behavior) between boys and girls. Using chi-square tests, the frequencies of high vs. low teachers' expectation of play behavior toward boys and girls were tested for significance.

In addition to the deductively developed categories and the quantitative analyses of differences between the interactions with boys compared to girls, we analyzed in an explorative and inductive approach what kind of behavior during guided pretend play reveals a teacher's high-expectation behavior. The excerpts presented below are based on a typical case sample to illustrate how teacher expectations are revealed in the teacher's guidance during pretend play.

3. Results

The presentation of the results follows the research questions: (1) whether high-expectation behavior was found in the behavior of kindergarten teachers during guided pretend play, and (2) whether the teacher's expectation play behavior revealed different expectations for boys and girls.

In order to contextualize the analysis, an overall analysis of interactions between teachers and children is provided: In total, most of the two-and-a-half-hour (144.50 min) interactions occurred when boys and girls were present (104.73 min). There was no significant difference between the total duration of interaction (when girls and boys played together with the teacher) with girls (47.33 min) and boys (44.28 min). The interaction with boys and girls at the same time amounted to 13.13 min.

3.1. Teacher Expectation Play Behavior

Overall, 1231 incidents of teachers' expectation behavior were allocated in the video material. With regard to research question one, the results show that high-expectation play behavior ($N_{CodeHighExpect} = 397$) was coded during guided pretend play sequences, but less frequently compared to low-expectation play behavior ($N_{CodeLowExpect} = 834$; $\chi^2 = 155$; $p < 0.001$). The frequencies of the subcodes are shown in Table 2. In terms of high-expectation play behavior, 'feedback on content' and 'open-ended questions' frequently

occurred in teacher–child interactions during guided pretend play. ‘Support on request’ was less frequent, with only eight incidents. Low-expectation play behavior, such as ‘closed questions’ and ‘unrequested support’, occurred more frequently than ‘feedback on behavior’ (five incidents).

Table 2. Frequency of high- and low-expectation play behavior incidents.

Category	Subcategory	Total		Girls		Boys	
		Absolute	Percentage	Absolute	Percentage	Absolute	Percentage
Feedback	Content *	234	19.00	134	17.40	100	21.69
	Behavior	5	0.41	3	0.39	2	0.43
Question (Input)	Open *	155	12.59	97	12.60	58	12.58
	closed	412	33.47	270	35.06	142	30.80
Support (Output)	Requested *	8	0.65	7	0.91	1	0.22
	Not requested	417	33.87	259	33.64	158	34.27
Total		1231	100.00	770	100.00	461	100.00
Total high-expectation play behavior		397	32.25	238	30.91	159	34.49
Total low-expectation play behavior		834	67.75	532	69.09	302	65.51

* Subcategories mediating high-expectation play behavior (Rubie-Davies et al., 2015).

3.2. Difference in High vs. Low Teacher Expectations Between Boys and Girls

To answer research question 2, the difference in incidents of high vs. low teacher expectation play behavior between boys and girls was tested for significance using chi-square tests. Overall, more incidents of teacher expectation play behavior occurred in interactions with girls than with boys ($n_{girls} = 770$; $n_{boys} = 461$; $\chi^2 = 77.60$; $p < 0.001$), although the duration of the interaction (girls: 47.33 min; boys: 44.28 min) was not significantly different (see above). Table 2 shows that all subcategories of teacher play behavior occurred more frequently (in absolute terms) with girls than with boys. Comparing the percentage distribution of the subcategories, there were no significant differences, except for the subcategory ‘feedback on content’. Here, in the percentage of total incidents per gender group (percentage_{girls} = 17.40; percentage_{boys} = 21.69), girls had less ‘feedback on content’ compared to boys ($\chi^2 = 3.01$; $p = 0.09$).

3.3. Explorative, Qualitative Analyses of High and Low Teacher Expectation Play Behavior

The following excerpts are presented as examples of typical incidents of high- or low-expectation play behavior situations. The excerpts provide deeper insight into play sequences and how teachers’ expectations of play behaviors during guidance are fluid. The aim was to better understand high-expectation play behavior during guidance (research question 1) and different play behaviors toward boys and girls (research question 2).

Excerpt 1:

A girl sits at the IT center switchboard. A phone and a tablet are lying on the table in front of the girl. The screen of the tablet, consisting of a laminated sheet of paper, has become detached from the casing, a wooden clipboard. The girl dials a number on the phone, makes eye contact with the teacher, holds the damaged device in the teacher’s field of vision, and verbally requests assistance (8:40). The teacher arrives at the table and asks: “Did you call me?” (8:46). The child immediately hands the damaged device to the teacher. However, the teacher encourages the girl tackle the repair: “Are you sure you don’t want to do it on your own?” (8:57). Only after the girl answers “yes” the

teacher asks her: “Would you like me to show you?” With the device in hand, the teacher takes a seat next to the girl. Step by step, the teacher attaches the sheet to the clipboard and verbally accompanies her actions (9:10). The girl observes the teacher’s acting. After the device is repaired, the teacher says: “Next time you can do it on your own” (9:12). Later on, the girl request support while pretending to be an IT expert (22:30; 32:30), but the teacher answer “You work in the IT Center, you are the expert”.

In excerpt 1, the initiative for seeking the teacher’s support comes from the girl (8:40). Following this, the teacher makes sure that the girl really needs help by asking her a closed question (8:46), which can be interpreted as ensuring that support is requested. The teacher reiterates the expectation that the girl should do the task (8:57). Then the teacher helps the girl (8:57–9:10) by modeling how she solves the practical task. After completion, she expresses the expectation that next time the girl can do it on her own (9:12). During the interaction, the teacher repeatedly emphasizes her confidence in the girl’s ability to solve the problem without the teacher’s help next time. The teacher encourages the girl to act independently, showing high expectations.

Excerpt 2:

The teacher assigns roles for a play involving online shopping and an IT center. There are two boys and two girls who want to play with the teacher: “Ok, we will play something new with a mother and children”. A girl wants to be a child (27:58). A boy is already sitting in the IT center as an IT expert. A boy and a girl stay next to the teacher and do not say which role they want to play. The teacher assigns the roles and says to the boy, “You will work in the IT center and [girl’s name], you are my second child (28:11). Subsequently, two boys are IT experts in the IT center. The teacher plays the role of the mother in the home corner. The girl who says at the beginning that she wants to be a daughter begins the play, “Mommy, I have no dress. All the dresses are too small” (28:46). They want to order new clothes. This involves a tablet and a suit that can automatically measure the body size to order the correct size of clothes. The teacher pretends that the tablet is broken. (30:10) The teacher takes the tablet to the IT center and says to the boys in the IT center: “Our tablet is broken. Is it possible to fix it here?” The boys nod and say: “Yes” (30:45). One boy picks up the tablet. The teacher asks if she has to wait in the IT center or if it is possible to pick up the tablet later (30:55). The boys fix the tablet (by talking together and typing on their laptop). After this problem-solving process, the teacher picks the tablet up and pays by card (31:45). Afterward, the teacher sits between her daughters and holds the tablet in her hand. One girl is wearing the suit that can automatically measure the required clothing size. (32:59) The teacher opens the interaction by asking this girl 1: “What are we going to order for you?” (33:02). Without giving much space for an answer, the teacher suggests: “We could order a black dress to match your sister’s” (33:09). Girl 2 makes a different color suggestion, which is not taken up by the teacher. The teacher pretends to take note on the tablet and says: “A black one. I’ll write it down” (33:15). The teacher then announces the next step: “And now the size,” while moving the tablet up and down in front of girl 1 to scan the clothing size (33:21). Then the teacher says: “Done. Black dress. You can take the suit off again” (33:29). Girl 2 remarks that she has already grown again, whereupon the teacher says: “We’ll wait for your sister’s order first” (33:40). A third girl in the role of the mail carrier rings the doorbell. The teacher gives instructions to girl 2: “Open the door, [Name of girl]. Will you go” (33:49). The mail carrier hands the parcel and leaves. The teacher calls out “Goodbye” and instructs the girls: “Say goodbye to the mail carrier” (34:00). The girls say goodbye.

In excerpt 2, the play is mainly directed by the teacher. The teacher assigns roles. At this moment, the girls experience for the first time that the teacher does not see them as capable of acting independently, as she assigns the technical roles to the two boys. The girls are daughters and do not use the tablet at all (28:11). The teacher is responsible for all operations involving the tablet. In contrast, the two boys are IT experts. The teacher hands them the broken tablet and asks them a closed question about whether they can help

her (30:45). The boys confirm that they can fix the tablet. The teacher asks whether she can leave the tablet and pick it up later; she fades out and leaves the boys to fix the tablet on their own (31:45). The boys are given the opportunity to experience themselves as being able to act independently and confidently with digital devices. They solve the problem together and independently of the teacher. The teacher collects the tablet and continues the order, thus pretending that the tablet was repaired and is working again. This can be seen as positive feedback on the boys' repair work. The teacher orders new clothes with the girls. As the teacher does not pause after her open question about the order (33:02), she does not give the girls enough time to respond. By not accepting the girl's color suggestion (33:15), the teacher shows little consideration for the girls' agency, as their choice is not integrated into the play. The children receive unrequested support in the form of several successive instructions (33:29; 33:49; 34:00). The girls are less active than the boys and have fewer opportunities to contribute to the play. Throughout the sequence of mother and children, the teacher is the only one handling the wooden tablet, thus demonstrating low expectations of the girls' ability to use digital technology.

Excerpt 3:

Two children sit at an IT center desk. Both have a computer in front of them. The boy sits facing the room, the girl sits at a 90-degree angle to the side. The teacher sits behind both children and leans back. A boy comes to the front desk and says as a customer: "My computer is broken" (4:06). While the customer explains the damage to the laptop, the boy at the front desk takes a tablet into his hands and asks the customer: "What is broken?" The teacher reaches from behind to the boy's tablet and fixes the attachment of the sheet to the wooden tablet without saying anything (4:38). While the customer talks about the language settings of the broken laptop, the teacher briefly turns to the girl at the side desk: "You can log in" (5:00). The girl types on the keyboard. The teacher asks the customer what brand the laptop is. The customer shows his laptop to the teacher, whereupon the teacher says to the girl: "You have to type this in" (5:37). The girl types on the keyboard. The customer states that it is not the right language on the laptop (5:52). The teacher points to the girl's screen and says to the girl: "Oh, look, there's the error message. Could you try to reprogram that?" (6:00). Again, the girl taps the keys.

In excerpt 3, the teacher is leaning back, thus allowing the boy's agency as an IT expert dealing with a customer. The teacher fixes a clipboard without being asked for help (4:38), and at the same time, lets the conversation between the two boys continue without her interference. The teacher probably tries to integrate the girl into the play. She gives unrequested instructions (5:00), keeping the girl busy pretending to type on the keyboard without letting her actively participate in the actual problem-solving process. Her perspective or ideas for solving the broken laptop are not asked for or supported. At the end, the teacher asks the girl for help with the error message and asks if she can reprogram it (6:00). Here, the teacher reveals that she sees the girl as capable of doing so, but she asks her if she can do this with a closed question and not with an open question such as "How you would reprogram that?". The girls' actions during the play are without a verbal contribution, only typing on the keyboard on request.

Excerpt 4:

In the home corner, internet of things has been installed, with kitchen utensils being smart technology. Two girls play the family, they call the IT center. A boy is coming to the family home in the role of the IT expert in order to repair the smart devices. He phones the teacher in her role as a fellow IT expert at the IT center and explains to her that he will repair the fridge first. The teacher confirms: "Yes, this is fine. This is the most important device because it is warm outside". A girl is near the teacher in the IT center and also plays an IT expert (37:55). The teacher, who is sitting in front of the computer, asks the girl if she wants to go back to the seat in front of the computer (37:57). The boy says to the girls playing the family that they should turn the fridge on and look if the fridge

will get cold again (38:01). The girl in the IT center sits down in front of the computer, looks at the screen, and says that the fridge is installed correctly (38:15). The boy playing the IT expert checking the device in the home corner mentions on the phone to the teacher that a sensor is missing. The teacher responds that she will hand the phone to the girl, because the girl is sitting in front of the computer (38:18). The teacher pretends to not know: "I do not know yet, I do not have an overview. [Girl's name], maybe you can help [boy's name] in the home corner? Maybe you can have a look on the computer what you see". (38:39). The girl takes the phone, "OK". The teacher says to the girl: "I think we do not have any sensors at the moment, but we can order some" (38:43). The girl answers: "Yes". The teacher adds: "Tell [boy's name] that we can organize a new sensor, but it takes a little bit of time" (38:48). The girl informs the boy on the phone and says good-bye to him (39:07).

In excerpt 4, the teacher, girl, and boy are IT experts (37:55). The teacher offers the girl a seat in front of the computer (37:57), passes the phone to her (38:18), and lets her handle the computer (38:39), a behavior that reveals the teacher's high expectations of ensuring the girl's agency. Then, the teacher stays in the computer center and makes suggestions, thus supporting the girl without request (38:39; 38:48) and without giving her time to react on her own. In contrast, the teacher did not go to the home corner and did not offer unrequested support to the boy. Both the girl and the boy play active roles as IT experts. However, the boy is able to act autonomously throughout the sequence, while the girl is not given the opportunity to act autonomously. Over the course of time during this sequence, the girl changes in agency from that of an active participant with verbal contributions ("The fridge is installed correctly", 38:15) to that of a passive participant who only reacts to the teacher's request.

In summary, the four excerpts show that teacher behavior revealing high expectations during guided pretend play in kindergarten may include the following:

- giving children enough time to respond,
- allowing children to generate their own ideas, e.g., how to solve a digital problem,
- asking children about their ideas,
- fading out or staying in a less active role as a co-player, and
- assigning roles to ensure that both girls and boys play active roles (e.g., as IT experts).

Such teacher behavior indicates that a teacher's high-expectation play behavior can be characterized as fostering children's agency in joint play. In the short sequences there are indications that children's agency diminishes when the teacher does not give them enough time to respond (excerpt 2 or 4) or does not ask for their ideas (excerpt 1 or 3).

4. Discussion

This paper focuses on teachers' high-expectation play behavior during guided pretend play sequences on digital transformation in kindergarten. Guided pretend play is promising for developing agency in a digitalized society. At the same time, it is challenging to ensure such opportunities for agency for all children. During guidance, the risk of biased expectations coming to the fore is high.

4.1. Core Findings of Teachers' Expectation Play Behavior

The first research question focuses on the possibility of observing teachers' high-expectation play behavior in a similar way as high-expectation behavior has been observed in classrooms by Rubie-Davies (2007). The results show that it is possible to reliably observe high-expectation teacher play behavior. Nevertheless, low-expectation behavior is more common than high-expectation play behavior. About two-thirds of the incidents show low-expectation play behavior. Low-expectation behavior, such as asking closed questions and providing unrequested support, is often observed during guided pretend play sequences. These results are in line with other research findings that teachers' judgments of the

technical skills of children are low (Wammes et al., 2022). In conclusion, teachers do not have high expectations of children acting independently and autonomously in guided pretend play situations on digital transformation topics.

The second research question focuses on the differences in teachers' high-expectation play behavior when teacher–boy and teacher–girl interactions are compared. Gender bias and underestimation have been found in other empirical studies (Gentrup & Rjosk, 2018; Wammes et al., 2022; Wang et al., 2018). Gender bias may be based on the stereotype (Chick et al., 2002) that boys are better at understanding digital technology. Low teacher competence in digital education is also associated with low and biased expectations of students' digital competence (Gray & Leith, 2004). The results of the chi-squared tests show that there are significant differences between girls and boys in the overall frequency of interaction, including expectations. In all, 62.55% ($n = 770$ of $N = 1231$ incidents) of all expectation play behavior incidents occur with girls. This means that girls receive more attention from the teacher overall. In terms of percentage distribution, boys and girls receive similar amounts of high- and low-expectation play behavior (high expectations about one-third, low expectations about two-thirds). The percentage distribution of the subcategories also shows no significant differences between boys and girls, except for the subcategory 'feedback on content'. As a percentage of total incidents per gender group, girls tend to receive less feedback on content compared to boys.

Due to the higher number of interactions with girls, the teacher shows both high and low expectations of girls more often than of boys. Rubie-Davies (2007) stated that a high-expectation teacher treats all students equally. Accordingly, boys and girls should receive the same number of interactions regarding their expectations. While the total duration of interactions in this study was equally distributed between boys and girls (girls: 47.33 min; boys: 44.28 min), the incidents of high- and low-expectation behavior were not equally distributed (girls: 770 incidents; boys: 461 incidents). Girls receive more feedback, more questions, and more support than boys. It remains questionable whether girls perceive themselves as capable of acting independently, as they receive more expectation behavior. The teachers' behavior of expressing expectations more often with girls than with boys may affect girls' experience of agency, and they may not develop confidence as active participants in a digitalized society.

The in-depth qualitative analysis presented above with four excerpts highlights five important teacher behaviors that may reveal high expectations during guided pretend play: (1) giving children enough time to respond, (2) allowing children to generate their own ideas (e.g., on how to solve a digital problem), (3) asking children about their ideas, (4) fading out or staying in a less active role as a co-player, and (5) assigning roles to ensure that both girls and boys play active roles (e.g., IT experts). All these behaviors may reveal high expectations of the teachers that the children are capable of being active participants in a digitalized society. In the four excerpts, as examples, the opposite of such behavior was mostly found toward girls: the teacher does not give the girls enough time to respond (excerpt 2), does not allow girls to generate their own ideas, e.g., how to solve a digital problem (excerpt 3), does not ask girls about their ideas (excerpt 1), does not fade out or does not stay in a less active role as a co-player (excerpt 4), and does not assign roles to make sure that both girls and boys play the active roles (excerpt 2). Moffatt et al. (2009) identified parental behaviors that encourage a child to be active in mathematical content and showed significant gender differences (girls experienced fewer behaviors that encouraged them to be active). If the play behaviors identified in this paper are indeed indicative of high-expectation play behaviors, further research is needed to examine teacher expectations and the differences in play behaviors between high- and low-expectation teachers.

The results underline how challenging unbiased high-expectation play behavior is and what kind of behavior reveals such high expectations. The question then arises as to whether it is possible to learn high-expectation play behavior through guided pretend play. Looking at the classroom and teacher–student interactions, high-expectation behaviors in the classroom can be developed through workshops that combine theory on the importance of high expectations, examples of high-expectation play behavior, and opportunities for teachers to exchange experiences regarding classroom interactions. Additionally, analyzing their own videotaped teaching sequences can help teachers to improve their practices (Rubie-Davies et al., 2015). Teacher training courses should address the importance of unbiased high expectations. During internships, pre-service teachers might reflect on their expectation behavior and identify possible biases. Professional development on teachers' expectations in their interactions with children should include reflection and awareness of one's own (biased) expectations and help develop unbiased high expectations for all children.

4.2. Potential of High-Expectation Play Behavior for Children's Agency

The results strengthen the assumption that guided pretend play for digital transformation encourages children's agency in a digitalized society. In guided pretend play, children are given the opportunity to imagine being in control of digital technology (Arnott et al., 2020; Bird, 2020; Vogt & Hollenstein, 2021), act independently, and make choices. For both girls and boys, it is crucial to develop an early interest in professions within the field of information technology (Turja et al., 2009). Guided pretend play offers a valuable opportunity to do so and to imagine future agency.

However, the results also show that guidance based on biased expectations can hinder children's agency in digital education, as their agency can be strengthened or weakened (Jerome & Starkey, 2022). The risk of underestimation and biased expectations toward children's capability to act independently and autonomously in pretend play settings on digital transformation is high. As inequality in digital education can lead to long-term disadvantages (El-Hamamsy et al., 2023), children need gender-unbiased guidance to explore the processes of digital transformation and experience agency in digital education early on.

4.3. Strengths and Limitations

This paper provides the first insight into how teacher expectations can be revealed during guided pretend play in kindergarten. It underscores the importance of unbiased guidance to provide all children with the opportunity to experience agency in a digitalized society. The study indicates that teacher expectations are mediated in guided play, taking similar forms as in primary and secondary school settings, but also involving other aspects. Feedback on behavior, which is considered low-expectation behavior, might not occur as frequently in pretend play in kindergarten as it does in school, as children enjoy playing. In addition, due to the pretend play context, requests for support are less necessary because there is no correct or incorrect solution in pretend play. A strength of this study is that it applies high-expectations research findings from the school setting to the context of guided pretend play in kindergarten. The inductively developed categories provide an initial indication of what teacher play behavior may reveal high expectations.

As a limitation, it was not possible to control for children's competence level or teachers' overall expectations of individual achievement for children. In addition, information on contextual variables such as teachers' previous experience with digital education, class size, or institutional policies on digital learning is missing in this study. To better understand teacher expectation behavior during guidance, teacher expectations should be assessed

quantitatively to compare teachers who overall hold high versus low expectations regarding their behavior during guidance (following Rubie-Davies, 2007, for primary and secondary school teachers and their classroom behaviors). Additionally, contextual variables should be taken into account.

When interpreting the findings, it should be kept in mind that the teachers' professional development was short, only half a day, and covered the topics of digital transformation, guided pretend play activities, and gender-sensitive guidance. Such short professional development is limited in its impact on teachers' expectations of play behavior (Rubie-Davies et al., 2015). In order to address possibly biased expectation play behavior, more intensive professional development may be needed.

Furthermore, the analyses do not account for the consistency of teachers' interactions with each child. Teacher expectations are understood to influence student perceptions, self-concept, and achievement when teachers reveal their expectations through consistently recurring behaviors with children (Lorenz, 2018). In order to assess the consistency, a longitudinal study would be needed. A longitudinal study allows for the analysis over time of how teachers' expectations affect children's agency in the long term.

5. Conclusions

In conclusion, the analysis presented here suggests that gender equity for agency in learning about digital transformation in early childhood education requires more attention for the following reasons: First, teachers show high-expectation play behavior with both boys and girls, but low-expectation play behavior is much more prevalent than high-expectation play behavior. Second, teachers show more incidents of expectation play behavior with girls compared to boys, although the duration in minutes of interaction with the teacher during play does not differ significantly between boys and girls. Third, expectation behaviors in the classroom do not transfer one-to-one to guided pretend play situations in kindergarten. Fourth, the results strengthen the assumption that unbiased guidance by teachers during pretend play in kindergarten has the potential to ensure agency for all children in a digitalized society.

Further research is needed to examine teachers' high expectations during their guidance and to analyze the possibility of learning high-expectation play behavior during guided pretend play on digital transformation in kindergartens. More empirically based findings are needed on kindergarten teachers' expectation play behavior during guidance and its relevance for equitable learning opportunities and equity in the development of agency in a digitalized society.

The research reveals the fluidity of expectation play behavior during guided pretend play: guided pretend play has the potential not only to reproduce gender stereotypes, but also to overcome them and strengthen children's agency in digital education.

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wanted to participate in the video recordings or devote themselves to another play area. There was no ethics committee established at St. Gallen University of Teacher Education; therefore, no ethical approval could be obtained. The St. Gallen University of Teacher Education upholds the regulations of the Swiss Academies, which were followed throughout the study.

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