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Children's Perceptions on Inclusion of Innovative Technologies in Kindergarten

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Abstract

The aim of the present study was to test children's perceptions on the inclusion of innovative technologies in the kindergarten. The study included 171 Israeli children aged 3 to 6 who participated in in-depth interviews regarding their perceptions on the inclusion of innovative technologies in the kindergarten. The interviews were analyzed using content analysis. Three major perceptions regarding inclusion of innovative technologies in the kindergarten were found: The degree to which the innovative technologies are necessary in the kindergarten; the goals of the use of innovative technologies in the kindergarten; the framework for using innovative technologies in the kindergarten. The conclusions from the children's answers are that most of them understand the importance of using these technologies and their contribution to many fields, and that kindergarten teachers should include innovative technologies in the kindergarten more extensively and wisely than they actually do today, and should do this with adapted mediation.

Social-emotional development in preschool education - the voice and practices of preschool teachers

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Abstract

This study focuses on social-emotional development in preschool education, a crucial period in the growth and development of children, which impacts on the subsequent academic and adulthood life. Building on the concept of Social Emotional Learning (SEL) and how it can be integrated into teaching practices and curricula, our main goal was to understand the educational practices implemented by preschool teachers to promote a balanced socio-emotional development of children, and the development of attitudes that facilitate the management of emotions and the resolution of conflict and disruptive situations in preschool classrooms. For the purposes of this exploratory qualitative study the data were collected through in-depth semi-structured interviews with 13 preschool teachers with different academic backgrounds and professional experiences. The thematic analysis of the data revealed that the teachers' intervention strategies were chosen for the potential to promote meaningful social and emotional learning experiences through the sharing of ideas, the management of conflict situations, joint set of rules, reflection and evaluation. From a theoretical point of view our findings are in line with the view of the teacher as promoter of social-emotional development through the planning and implementation of behavior management and rulemaking activities with the potential to mobilise socio-emotional skills. In terms of practice, our findings point to the benefits of symbolic gaming strategies as a means to improve relationship building, decision making and problem-solving abilities and suggest SEL as the basis for all the learning in preschool education.

Transcoding errors of two-digit numbers by Arab first graders.

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Abstract

The study focuses on the effect of the lexical-syntactic structure on the patterns of errors by Arab first graders in tasks involving reading two-digit number and writing two-digit numbers to dictation. Children made few change or omission errors, indicating that they had little problem with the lexical aspects of the counting system. However, they made frequent substitution errors (e.g. 23 for 32), especially in the number reading task, and especially for numbers that depended strongly on the numerical syntactic structure. Such errors were less common for decade numbers and for the 11 to 19 number range than for other 2-digit numbers. The results suggest particular difficulty with the syntactic rather than lexical aspects of the counting system. The syntactic aspects may be particularly difficult for Arabic-speaking children, due to the inversion feature of the Arabic counting system.

Repeated Narrative Writing(RNW) as a tool to cope with children's behavior problems

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Abstract

The purpose of this presentation is to show how repeated narrative writing(RNW) of emotionally loaded episodes has helped teachers cope with multiple behavior problems in their preschool classes

Expressive writing of emotional loaded episodes as a coping tool was discovered and studied by Pennebaker (Pennebaker & Evans, 2014) and suggested as a teacher's coping tool with behavior problems by Tal(2005).

This study is based on a multiple case study methodology (Yin, 2003). It included three cases: two preschool and one elementary school teacher. The data included the narratives of the episodes (35 in case 1 and 25 in case 2 and 25 in case 3). Methods of analyzing the data were mixed: quantitative and qualitative. Each episode was analyzed using Pennebaker & Evans'(2014) criteria: frequency of positive and negative emotional words, frequency of causal and insight words; in addition, as suggested by Tal(2005) reports related plans and actions focused on direct and indirect coping with behavior problems were counted and content analyzed.

Findings show :1. Teachers using RNW underwent a transformative process focused on "replacing" frequent feelings of helplessness to developing self-efficacy and self-direction; 2. Teachers consciously acknowledged their responsibility for assuring the children's wellbeing and learning .; 3. Teachers seemed to have improved their Classroom Management competencies: in addition to leadership more proactive and ecological perceptions of the class, improved self-regulation skills as expressed in their decisions and improved relationships with children, staff and parents.

Kindergarten children's learning through repairing toys

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Abstract

The study engages with 5-6-year-old children's experiences with engineering through activities in a toy repair workshop. The aim of the workshop is to introduce children to a coherent toolkit as a central component of technical-engineering thinking. The theoretical foundation of the workshop comprises: (1) relevant activity for children; (2) in which they begin as skilled rather than novice practitioners; (3) a process comprising several activities to provide variety and sufficient time to enable learning; and (4) potential learning of declarative knowledge (tools and their uses) and procedural knowledge (problem solving: assessment, planning, and execution). The research questions relate to these hypotheses and examine the development of declarative and procedural knowledge by means of pretest and posttest interviews, and an analysis of the children's problem-solving processes and emotional states. For the study the participant children contended with three different tasks during which they experienced repairing broken toys in different ways. In the activities, they selected the most suitable tools to execute the tasks from a toolbox. The main findings include: (1) Declarative knowledge – the repair activities yielded learning of relevant concepts. The children had a better understanding of the various tools' functions after the intervention; (2) Procedural knowledge – in all the children the repair process included the following components in one order or another: identifying the problem, planning, assessment, changing strategy, investigation, executing the solution; (3) Emotional states – several pronounced emotions emerged during the activities: joy, pride, enjoyment, interest, and frustration

The Influence of Different Types of Mediation on Young Children's Aggression After Watching TV

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Abstract

Children violence, specific violence related to watching television concerned many parents and educators. The purpose of the current study was to examine the influence of adult mediation and mediation assimilated in the television show itself on children's aggressive behavior after watching television. This study was based on the theoretical perspective of mediational learning and we also examined which of the five mediation measures contribute the most to the reduction of aggressive behavior after watching television.

In this study 216 kindergarten children in the ages 4-7 years old ($M=5.11$, $SD=7.78$) participated (114 boys and 102 girls). In each kindergarten the children were divided randomly into seven groups of five children each. Each group watched the same segment from a television show. Afterwards, each group received a different type of mediation.

The findings show that mediation reduces aggressive behavior after viewing television, and that assimilated mediation in the television program can reduce aggressive behavior after watching television. Examination of the influences of different mediation measures on aggressive behavior shows that mediation of meaning contributes in the most obvious way to reducing aggressive behavior after watching television. The implications of this research are relevant for parents, educators and policy makers.

Lest Talk! – Promoting Meaningful Communication through Authentic Teacher- Child Dialogue

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Abstract

The heart of this study is an analysis of teacher–child dialogue in a classroom environment. An authentic dialogue enables children to express their real thoughts and ideas, to present insights, to ask questions, to make comments and to argue about different interpretations (Bakhtin, 1981; Peled & Bloom-Kulka, 2006). The research methodology was a discourse analysis of 20 transcripts of preservice teacher's conversations with Israeli Jewish and Moslem children from ages 4 – 6 years old. The analysis revealed that as teachers provided open conversational spaces with children, authentic dialogue emerged. Both voices were expressed and the child's world was heard (Strickland & Marinak, 2015).

Language education during outdoor play in ECEC-settings

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Abstract

In recent years a lot of schools greened their school schoolyards. Playing in a natural environment helps to reduce stress levels and to enhance concentration. It also shapes children's motor skills and enriches their play. The question arises whether the cognitive, i.e. the language development of children also would benefit from being outside in a natural environment.

In this study 50 children (2-6 yrs) play in three different play environments. The paved schoolyard of the school, a park in the vicinity of the school and a large discovery playground. We record their speech during play and report their play activities. In a within subject design these data are compared to each other to find out how the physical environment in which the children play, shapes their language use and their play activities.

Preliminary results show that children tend to use the natural play environment more in their play activities whereas the paved schoolyard is used mostly as a surface to play upon. This results in using more words and more word types when the children are in the natural play environment, because there is more need to negotiate the roles the children play themselves or the roles the natural materials play in the play activities the children perform.

Implications are discussed with regard to how to use outdoor play time more for language educational purposes.

Process Quality of Family Day Care and Predictors. A Systematic Review and Meta-Analysis

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Abstract:

In addition to center-based care, family day care (FDC) is a well-established setting for the upbringing and education of young children before formal schooling (OECD, 2016). FDC is traditionally provided in home settings and a qualified or registered child minders looks after the child. Process quality of family day care can be assessed through standardized rating system called the Family Child Care Environmental Rating Scales (FCCERS-R or FDCRS). The scales are internationally established and has been translated and validated in German, French and Spanish speaking countries. The quality of FDC is measured with a 7-point scale. However, little is known about the comparability of process quality of FDC in different countries and their predictors. Therefore, a systematic review based on international findings was accomplished that examined family day care quality internationally and summarized predictors of process quality. The electronic data bases ERIC, PsycINFO, SocINDEX and FIS Bildung were systematically searched for. The literature search revealed 213 papers. Out of them 53 studies with the 73 independent samples reported process quality ratings FDC. Only 20 studies included predictors. In sum, family day care quality appears as medium across countries. Further, quality was predicted by funding, professionalization efforts (membership in professional organization, supervision, and networking), and by personal characteristics (in-service and pre-service training, sensitivity, depression). Thereby, the meta-analysis identifies aspects for policy and practice to improve process quality in family day care.

MusiMath: An intervention program for learning rhythm and fractions

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Abstract

Introduction. Music and

mathematics are two disciplines requiring abstract thinking making use of symbolic notations. Controversy exists regarding transfer from musical training to math achievements. Graphical notations can clarify the abstractness. The current study hypothesized that learning musical notation of rhythm can enhance fraction concepts because of the embedded parallel structure ($\frac{1}{4}$, $\frac{1}{2}$ etc.) (Courey et al., 2012).

Methods. In the current study, 3 classes of fourth grade students attended 12 lessons about fractions: Class 1 attended the "**MusiMath**" program ($n=30$) consisting of learning to write musical notation of rhythm and melodies. Class 2 attended the "**Academic Music**" program ($n=25$) consisting of learning to write musical notation of rhythm only. Students of both programs learned the analogy between musical duration and mathematical fraction notations. The "MusiMath" program was learned in parallel to a math lesson. The "Academic Music" was learned in 6 lessons that followed 6 regular math lessons of fractions. Class 3 served as a comparison group ($n=22$) and learned 12 regular math fraction lessons. The student's notation was assessed in each lesson. In addition, music and math were assessed before and immediately following the intervention, 3 and 6 months later. Executive skills and fine-motor visual integration of all students were assessed.

Results. Students attending the musical programs outperformed their peers on the post- and delayed-posts tests in fractions. Furthermore, the MusiMath group showed somewhat larger delayed gains (post1-post3) than Academic Music students did, due to formal knowledge. Students with higher EF improved more in Music (Both groups) and in Math (MusiMath group).

The importance of domain-specific math language for early proportional reasoning

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Abstract

Previous research indicates that language (be it general or domain-specific math language) plays a crucial role in mathematical thinking and learning. One part of mathematics that is particularly hard to apprehend for children, is proportional reasoning. At the same time, research suggests that already at an early age children are able to make sense of some proportional situations. However, to our knowledge, there are no studies that investigated the association between language and early proportional reasoning. The present study (n=343) aims to address this gap by longitudinally investigating if general vocabulary in kindergarten and domain-specific math vocabulary for proportional reasoning in the first grade of elementary school are predictors of proportional reasoning abilities in the second year of elementary school. A hierarchical linear regression analysis showed that domain-specific math vocabulary of proportional reasoning in the first grade of elementary school is a unique predictor for proportional reasoning abilities in the second grade of elementary school over and above age, sex and general vocabulary. More attention to domain-specific math vocabulary in young children might stimulate early proportional reasoning. However, more evidence from intervention studies is needed in order to further explore the educational implications of the relation between domain-specific math vocabulary and early proportional reasoning abilities.

Home learning environment, childcare, and academic language proficiency in primary school

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Abstract

Previous studies support the assumption of the importance of rich home learning environments for academic language proficiency, but fail to distinguish its dimensions, which have often been shown to be differentially associated with academic competencies. Furthermore, the role of the quality of early childhood education and care (ECEC) for the development of academic language proficiency has not been focussed so far, although most children in Western countries attend ECEC before they start school. Guided by an ecological perspective, we investigated the effects of various dimensions of the home learning environment and the ECEC quality for student's academic language proficiency in primary school ($N = 554$ children; $M_{\text{age in months at Grade 1}} = 89,23$; 48.1% girls). We use a self-developed test on academic language in which children had to hear a story with features of academic language, which was splitted up in short segments, received questions on text with three statements each, and then decided whether given statements on the text were true or false. After students' age, gender, family background, their general language knowledge and working memory were controlled for, only significant positive effects of students' early literacy activities at home on students' academic language emerged. Our results underline the importance of the stimulating home literacy activities for students' academic language at the start of the primary school. Quality in childcare did not emerge to be important for students' academic language in primary school, which may be due to low variations in German ECEC quality.

Parents' trust in relation to family characteristics and aspects of parent-preschool communication

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Abstract

Trust is considered to be an important prerequisite of effective parent-preschool partnerships (Clarke, Sheridan & Woods, 2010; Blue-Banning, Summers, Frankland, Nelson & Beegle, 2004). In spite of the enormous potential of trust as a vital element in building the parent-preschool relationship, only a few studies investigated factors that may affect level of parents' trust in their child's preschool (Kikas et al., 2011; Lerkkanen, Kikas, Pakarinen, Poikonen, & Nurmi, 2012a; Adams & Christenson, 2000). The present study examines the role of family-related characteristics and aspects of parent-preschool communication in parents' trust. 734 families of 160 preschools participated in the study. All data were obtained in the context of the evaluation of a German governmental preschool initiative. Trust and family-related factors were assessed using questionnaires and aspects of parent-preschool communication were observed. Families who only or mainly speak a language other than German at home have less trust in the preschool than families who only or mainly speak German at home ($\beta = -.24, p = .000$). The more dissatisfied the parents are with the parent-preschool communication, the less trust they have in the preschool ($\beta = -.42, p = .000$). The relation between perceived quality of drop-off situations and parents' trust ($\beta = .32, p = .000$) was positive. Consequently, training programs should make use of these results to enhance professionals' communication strategies and thereby to establish a trustful relationship with all parents.

The Impact of Digital Media on Children's Learning in ECEC. A Meta-Analysis

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Abstract

Despite the intense public debate on the effects of digital media use on children's development there is to date no meta-analysis synthesizing research on the use of digital media in ECEC. We address this gap in our meta-analysis. Our research questions are (1) How are digital devices and media used in free choice activities and interventions? and (2) How does learning with digital media (i.e. apps, ebooks, tablets, computers) in ECEC settings affect children's development between ages 0 and 6? We compare ICT-enriched classrooms to non-digital classrooms and digital interventions to non-digital ones. A systematic literature was conducted in relevant electronic databases, bibliographies and on the web. Intervention studies in ECEC settings with children between 0 and 6 years published between 2000 and 2018 in English or German with control-group design and a minimum of 10 participants per condition were included in the meta-analysis. Studies were screened and coded by two independent reviewers and analyzed using CMA (Borenstein et al., 2014). The analysis of the use of digital media in ECEC (research question 1) in the selected studies revealed that children frequently received an introduction to the device/medium (>71%) and were often supervised (>64%) by an adult both in ICT-enriched classrooms and in digital interventions. Touchscreen devices were offered more frequently in specific interventions than in ICT-enriched classrooms. The impact of digital media in ECEC (research questions 2a and 2b) is currently being analyzed. Preliminary findings will be presented. Political and practical implications of the findings will be discussed.

The "junkyard" as a unique pedagogical communal approach

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Abstract

This qualitative study explores kindergarten children, educators and parents' perceptions about the "Junkyard Communal Approach". The Kibbutz educational system acts as an incubator of EC innovations adopted in Israeli settings. One of these initiatives is the "Junkyard", a unique educational environment, consisting of artifacts of the adult world no longer in use and encouraging children's free play. The junkyard as an educational approach is based on constructivist and ecological principles. Accordingly, it is attuned to the child's developmental needs and to the cultural context of his/her community.

This study involves: 14 in-depth interviews with educators operating junkyards in rural and urban areas; 12 parents; and observations and interviews with children in ten kindergartens.

Findings suggest the junkyard as a space and a pedagogy reflects on the community's environment and cultivates children's holistic development.

Educators' role is perceived as responsible for collecting the junk, building the junkyard, being accountable for routine maintenance, caring for safety, and mediating during activities. Parents' attitudes are characterized by fear that dissipates once the educators clarify the contribution of the yard to their children's development. Observations and interviews with the children highlight their perceptions of the junkyard as their imaginary world.

In today's increasingly sterile living environment, the junkyard is a unique area representing real life and communal experience adapted for young children. This research highlights the great value parents, educators and children attach to this unique approach and the need to support educators, parents, community, and supervisors when implementing this pedagogy within different cultural contexts.

Incorporating the ITERS-3 and CLASS into Israeli early childhood care settings

Efi Stolarski

רסח עדימ

Abstract

Presentation objectives

To describe two initiatives that are taking place in Israel:

1. Translation and adaptation of ITERS-3 to Hebrew
2. A comprehensive ITERS-3 based training for government regulators overseeing the daycares system (Office of Daycare, Ministry of Labor).

We will describe recent ITERS-based programs built by the Academic and Applied Staff from the Center for Child Development at the University of Haifa. The team translated and adapted the English version of ITERS-3 to Hebrew and was trained and certified by Dr. Debby Cryer as ITERS-3 coders and trainers.

The overarching goal of our project is to create a profound shift in perceptions and practices in the early childhood education field in Israel. This include changing perceptions and priorities in the highest levels of decision-making (i.e., the Israeli government) as well as changing the attitudes of early childhood practitioners and regulators working with daycares in Israel. Within this new platform, we used first the ITERS-R and later shifter to the ITERS-3, as the basis for a training program for all of the ministry's regulators as well as coaches, day-care directors, and eventually, all daycare caretakers. The training process includes ITERS-3 courses at different levels, practice assessment, as well as regular supervision by early childhood education experts.

Expectations of educators and childminders towards childcare and preferable age of entry in ECEC

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Abstract

In recent years, Early childhood education and care (ECEC) has increasingly been the focus of German political and public attention, especially with regard to children under the age of three years, as the number of children which are been cared for in their first three years has more than doubled in the last decade (care rate: 33,2%). This enormous increase as well as recent findings from a parents-survey which show that parents have high benefit expectations for institutional childcare, meaning that the development of the child would benefit from attending, allows the assumption that care for children under the age of three years has gained social acceptance. Research gaps can be identified in terms of expectations of educators toward early childcare. Looking at expectations of educators and childminders towards childcare is of high importance as the process model of competence suggests that the expectations influence the pedagogical performance, the behavior and the interaction with the children. The present paper analyzes expectations of educators and childminders with regard to two points: Is non-family childcare perceived as stimulating or risky for the child's development and which age of entry is perceived as stimulating. Therefore, expectations of educators who work in institutional childcare (n=59) and childminders in family-based childcare (n=40) are analyzed. Results show that both groups of educators have high positive expectations towards childcare. Childminders are even more positive with regard to stimulation and percept an earlier age of entry as more stimulating.

The impact of a construction play on 5- to 6-year-old children's reasoning about stability

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Abstract

Young children have an intuitive understanding of science concepts such as stability and construct intuitive theories they can adjust when confronted with counterevidence. With increasing age, children acquire a center-of-mass theory (COM) and succeed in balancing asymmetrical objects. However, it remains unclear how this development can be promoted. Science education in early childhood might be implemented through guided play which comprises elements of scaffolding. Therefore, we compared a guided play group with material and verbal scaffolds (verbal group) with a guided play group with material scaffolds (material group) and a free play group.

183 5- to 6-year-old children participated. Children's theories about stability were assessed by presenting them with three asymmetrical block constructions. The children rated the stabilities and explained their answer. Two weeks later, the children were assigned to one of the intervention groups and played with blocks according to their group for an hour. The same reasoning task was administered directly after the intervention and ten weeks later.

At the first measurement time, 19% explained stabilities with COM. We applied the binomial distribution, $\sigma=1.64$, to categorize children into children explaining their reasoning with COM consistently or inconsistently after the intervention. Children with ≥ 4 COM explanations of 6 were categorized as consistent. Children in the verbal group were most likely to use COM consistently. Children in the material group were not more likely to use COM consistently than the free play group.

Guided play with material + verbal scaffolds can support children's COM theory.

Parent's Self-Efficacy Beliefs and Sensitivity in Preschooler's Problem-Solving Behaviour

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Abstract

The development of self-regulation is seen as an important hallmark in early childhood. While self-regulation skills are still developing, children are dependent on parents' co-regulation. However, little is known about how parental co-regulation is influenced. Therefore, this study explores the role of parent's affect and self-efficacy beliefs that shape parents' behaviour and sensitivity. Parents of 40 three to six-year-old children were asked to rate their positive and negative affect. Parent-child-dyads were then observed working on multiple problem-solving tasks for ten minutes. Domain-general self-efficacy beliefs regarding parenting as well as domain-specific self-efficacy beliefs regarding scaffolding and sensitivity were measured using questionnaires. Parent's self-efficacy beliefs, but not their positive and negative affect, were found to be associated with parenting and problem-solving performances. The results further showed that this relation differed in dependence of child's age. High problem-solving performances were associated with low self-efficacy beliefs regarding sensitivity in parents of three-and-four-year olds, whereas the relationship in parents of four-year olds showed an opposite effect. Further video-analyses will show, if these effects are related to parents' observed sensitivity.

Attitudes towards complexity of books for shared reading: Parents of TD children and those with ASD

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Abstract

When selecting books for shared book reading (SBR), parents of typically developing (TD) children show greater support for socio-emotional complexity in books and less support for language and structural complexity. Children with Autism Spectrum Disorder (ASD) experience higher levels of distractibility and difficulty with socio-emotional interactions, and parents may demonstrate attitudes towards books that reflect their perceptions of their children's difficulties. To date, parents of children with ASD's views relating to book selection have not been examined. The current study compared the frequency of SBR and the attitudes of these two groups of parents towards books' complexity when selecting books for SBR. Participants included 216 parents (142 of typically developing children (ages 4-7), 74 of children with ASD (ages 4-8). Participants completed a demographic questionnaire and a questionnaire regarding attitudes towards book complexity. Results revealed no significant differences between groups in terms of frequency of SBR, or in terms of their consideration regarding the complexity of books' language, socio-emotional content, and structure. However, a significant interaction showed that parents of children with ASD with a higher education were more supportive of in language and structural complexity compared to those with lower education. Despite the differences in children's functionality between typically developing and children with ASD, parents seem to have fairly similar thoughts regarding the complexity in children's books for SBR. Understanding parents' views may enable researchers and educators guide parents in selecting books that may enrich SBR interactions.

A Kindergarten Educational Escape Room – Insights

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Abstract

This study aims to spotlight a unique kindergarten experience - the “Educational Escape Room” (EER). The EER is based on a social game characterized by a frame story that challenges the players to find clues and solve riddles in order to escape the room. Nowadays, it is used as a pedagogical method which combines “Game Based Learning” and the use of 21st century skills like. Despite its pedagogical value, EER research literature pertaining to kindergarten children is still in its infancy. This study therefore aimed to understand the value of the EER in kindergartens, while focusing on one of the 21st century skills: collaboration. For the purpose of the present study an EER was designed with puzzles and riddles suited to kindergarten children. Fifteen children with a mean age of 50.33 months participated in the study. A qualitative research approach was adopted using video observation and researchers’ notes. Three prominent findings were revealed when focusing on the children’s collaboration behaviors. (1) The children created and adhered to their own rules in an attempt to successfully navigate the EER; (2) the children used plural vocabulary, which they added to most of the verbs; (3) the children offered help to their friends. The results show that the EER stimulated collaborative behaviors which were expressed in “fairness collaboration” and effective team-work, and that can be used in kindergarten to promote collaborative skills. Furthermore, the study may serve to deepen our understanding of the use of the EER in kindergarten.

Supporting Children's Transition from Pre-school to Primary School through software solutions

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Abstract

There is a paucity of information transfer between preschools, primary schools and parents when children are transitioning from preschool to primary school in Ireland (Merry, 2007; O' Farrelly & Hennessy, 2013; O'Kane, 2016; Smyth, 2018). The *National Council for Curriculum and Assessment* has provided optional templates for Early Years settings to complete during the transition period. These templates are paper-based, generic, optional and offer limited translation of the content to the Primary Curriculum for teachers.

20 Early Years Settings. 20 primary schools and 100 parents have engaged in Implementation Science to design, develop and evaluate a new software solution, which supports this significant period in young children's lives (O' Farrelly & Hennessy, 2014). The new transitions tool proposed in this project, supports an ecological perspective on transitions to primary school (Rimm-Kaufman & Pianta, 2000). It will enable better planning for primary school teachers. The proposed new software solution will allow all parties to share and edit the information. This process will be expedient, user friendly and live.

With or without text? Preschoolers' comments and questions on mental states during book sharing

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Abstract

Theory of Mind (ToM), defined as children's understanding of their own and others' mental states, is a foundational social cognitive skill. Recent research showed that preschool teachers' mental-state references during book sharing promote children's ToM development. In the present study, we focused on preschool children and compared their discourse on mental states during two book sharing contexts, with small groups of children and their teacher – reading a book and telling a wordless book. Participants were 505 children from 100 middle SES preschools. Our findings revealed variance among children in all the measures. Some children frequently commented on the books, asked questions, or referred to mental states, and others did so rarely or not at all. As we expected, in the telling context, preschoolers elaborated more frequently on mental states (cognition, emotion and desire terms, and references to false belief), asked more questions and took more initiatives than during the reading context. The findings highlight the contribution of telling wordless books, in which teachers do not have to stick to the text, for enhancing children's ToM references and active participation in discussions on books.

Emotional exhaustion in preschool teachers: the role of structural, personal, and social conditions

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Abstract

Research has shown that preschool teachers are especially prone to develop work-related stress symptoms, such as burnout. However, the specific underlying factors at the workplace associated with emotional exhaustion—generally perceived as core dimension of job burnout—in early childcare professionals are widely unknown. Hence, this study aims at identifying structural and personal (pre)conditions as well as social experiences associated with emotional exhaustion. Further, we want to disentangle center-related versus teacher-specific predictors. We draw on data collected from a nation-wide sample of early childhood professionals participating in the German federal program *Sprach-Kitas* [language day care centers]. We used structural, personal, as well as social variables from 1394 early childhood professionals in 204 centers. Multilevel analysis demonstrated that center differences explained only 5.8 % of the overall variance in levels of emotional exhaustion. Further, our findings revealed that emotional exhaustion in preschool teachers was strongly associated with social working conditions, such as perceived teamwork and collaboration with parents, but hardly with any structural or personal conditions. This has important practical implications for interventions, which should strongly focus more on social experiences at the workplace, such as team cohesion and communication with parents, than on structural regulations.

Promoting kindergartners' intergroup knowledge and positive attitudes

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Abstract

In many countries, including Israel, a major challenge of education is to promote children's positive attitudes towards diverse cultural groups. The study evaluated the efficiency of an intervention, aimed at promoting knowledge and positive attitudes among kindergarten children towards out-groups.

109 secular and religious Jewish Israeli children participated in 16 small-group sessions over four weeks. Experimenters introduced to the children four persona dolls that represented Israeli social groups: secular Jew, religious Jew, Ethiopian Jew, and Arab. Children were exposed to the dolls' individual and group characteristics, and to positive encounters among the dolls. Children's knowledge and attitudes were assessed before and after the intervention.

There was a positive change in children's knowledge about both their in-group and out-groups, as well as in religious children's liking of- and willingness to sit close to an Arab child. Both secular and religious children also selected to sit closer to an Ethiopian child after the intervention. There were no significant changes in children's empathy towards Arabs and Ethiopians, nor in trait attribution. Thus, the intervention program was successful in enhancing children's knowledge and partially successful in changing attitudes. It was more effective for religious children whose initial attitudes were more negative than those of secular children. Empathy and trait attribution seem to be more resistant to change than liking and proximity. The findings highlight the potential of intervention programs to promote children's knowledge about- and positive attitudes towards out-groups and can assist policy makers and teacher training professionals in designing courses in this vein

The acceptance of digital media by ECEC professionals in Germany

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Abstract

Digital media plays an important role in children's everyday life. Daycare centers are, on the one hand, called to deal with these changed living conditions of children and on the other hand to implement Information and Communication Technology (ICT) in their pedagogical practice. In order to guarantee a high quality of learning opportunities by using ICT as tools, professional competences and ICT equipment are required. The study follows the theoretical assumptions of the Technology Acceptance Modell (TAM). Accordingly, we will examine the impact of motivation, beliefs regarding ICT and the equipment as predictors for behavioral intention to implement ICT in learning experiences in daycare centers. Data consist of 200 preschool teachers in Germany who gave information on their beliefs and their behavioral intention to use ICT in the pedagogical practice via an online questionnaire. Results show a strong relationship between the beliefs and the intention to implement ICT in practice but no significant relationship to the professionals' satisfaction with the technical equipment. The findings will be discussed regarding the prerequisites for ICT usage in ECEC daily pedagogical practice and implication for professional development.

Two styles of infant-directed input modifications in Israeli sign language (ISL)

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Abstract

The study deals with the question: do deaf parents seek to explicate the iconic basis of the signed words they address to their infants in order to facilitate word learning? Two longitudinal case studies followed two hearing infant's bimodal bilingual acquisition of ISL and Hebrew from the age of 10 to 40 months. Once every two months we analyzed the input that the deaf mothers addressed to their infants. The results show that both mothers were sensitive to the communicative abilities of their infants in different periods of language acquisition, adapting their inputs accordingly. In the pre-linguistic period infant-directed input was characterized by repetitiveness to facilitate infant's visual perception. During the mid-one-word period mothers used pantomimic productions to promote form-meaning mapping. The mothers used additional communicative actions for clarification, such as: pointing to the iconic base of the form of referent, acting upon an object the form iconically represents or playing 'games' with the form, allowing their infants to interact with iconicity. Our results lead to the conclusion that motherese was not only perceived by caregivers as scaffolding for language learning, but also that caregivers actually change the scaffolding they think is useful for infants' learning over the course of language development. They support recent claims that in the early stages of language development the infants' vocabularies are formed in part by iconicity in infant-directed communicative input.

Who teaches teachers? An investigation of teacher educators in early childhood teacher education

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Abstract

Teacher education is seen as an important precondition for the development of early childhood student teachers professional competence. However, there is only less research on teacher educators, as responsible for the implementation of opportunities to learn. This problem becomes even more relevant when investigating the role of domain-specific early education in teacher education, like early mathematics or early science education. In an online-survey with teacher educators from German teacher education we investigated, what amount of opportunities to learn and self-efficacy regarding teaching early mathematics and science teacher educators report and how both are correlated. We measured the OTL in mathematics and science content as well as mathematics pedagogical and science pedagogical content knowledge (OTL MCK/SCK, OTL MPCK/SPCK) and self-efficacy with standardized and well-established questionnaires. Results indicate that teacher educators report a higher amount of science and science pedagogical content OTL, and only a limited amount of OTL in mathematical content. Furthermore, the results indicate substantial correlations between the reported OTL and teachers self-efficacy. Differences in the role of OTL in math and science are discussed. Furthermore, the role of self-efficacy will be discussed.

Subteacher's discourse during children pretend play

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Abstract

This article engages with a special kind of peer interaction: subteaching (Tholander & Aronsson, 2003) during pretend play in the wake of reading stories. Namely, it discusses the child's use of discourse strategies typical of teacher talk, while assuming responsibility for mediating, explaining, supporting, and solving problems, and at the same time making sure that the play carries on.

The study is based on the assumption that pretend play and literacy are interrelated, such that the play can potentially promote academic capabilities in young children (Roskos, Christie, Widman & Holding, 2010).

The research methodology is discourse analysis, i.e. analyzing the use of language while carrying out an act of communication in a given context (Schiffrin, Tannen & Hamilton, 2001). The work is grounded in the sociolinguistic approach, emphasizing the functionality of language (Vardi-Rath, Teubal, Aillenberg, & Lewin, 2014). It presents a quantitative and qualitative analysis of 15 transcripts of children's discourse between the ages of 4 and 7 during pretend play in the wake of reading stories.

Our findings frame four styles of sub-teaching discourse rising from the data: 1) sub-teacher as social leader; 2) sub-teacher as director; 3) sub-teacher as parent; and 4) sub-teacher as tutor.

The analysis reveals the significance of the phenomenon of subteacher discourse as a typical literacy discourse, and as such advances the children toward initial literacy (Blum-Kulka & Snow, 2004).

Challenges facing ECE interns regarding their relations with parents in a culturally diverse society

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Abstract

Communication with parents is a central aspect of the teaching profession. Far-reaching changes in the social reality (such as, cultural heterogeneity, new family structures, integration of special-needs children) have influenced family-school relations, making them particularly challenging. Accordingly, many teachers feel anxiety when communicating with parents and experience difficulties in resolving conflicts.

The present study examines how interns in Early Childhood Education (ECE) interpreted communication with parents, and what challenges faced them. Participants were 143 student teachers in their last year of ECE studies, enrolled in the course “Working with Parents in the 21st Century”, in the Early Childhood Education program at Levinsky College of Education. All participants were interns filling positions of preschool or first and second grade teachers. They were asked to write accounts of social episodes describing a significant event with regard to relations with parents. The accounts were analyzed according to qualitative, content analysis, combined with several quantitative analyses.

Data analysis yielded six central themes. Most of the themes described difficulties in working with parents, centering around two complementary core dimensions: (1) building close and caring relations with parents; (2) setting boundaries for parental behavior. In addition, two meta-categories were revealed to be significant axes, expressed in all of the central themes: (1) cultural diversity and parent-teacher power relations; (2) differences in teachers' communication patterns with fathers, in comparison to mothers. These findings show that there is a need to cultivate cultural competence among teachers and student teachers and to strengthen the educational partnership with fathers.

Segregation in early childhood education and care (ECEC) in Germany

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Abstract

Segregation prevents diversity and social inclusion (European Commission, 2011; Vandebroek, 2015). The project “Segregation and Preschool Providers” funded by the German Federal Ministry of Education and Research (funding code: 01NV1809B) investigates social and ethnic segregation in German ECEC using data from the National Educational Panel Study and surveys from the project “Early childhood education and care quality in the Socio-Economic Panel”. On the basis of information reported by preschool teachers (n=149 to n=685) and directors (n=165 to n=657), we explore segregation on group and setting level using empirical-quantitative methods.

Our findings indicate pronounced segregation in ECEC throughout Germany. The proportions of children a) having a migration background, b) not speaking German as their mother tongue, c) in need of language support, d) living in poverty, and e) whose parents have a university degree vary from 0% to at least more than 90% or even up to 100%. On average, the proportions of migrant children are almost twice as high for this population group (30%) in comparison to the non-migrant population (17%). High correlations ($r = 0.78$ to $r = 0.93$) between setting and group composition imply that there is no further segregation within individual organizations. The observed high concentrations of certain population groups in particular settings as well as their absence in others generally restricts experiences of diversity for all children and especially put migrant children at additional disadvantage. Policy makers should try to find ways to avoid segregation and develop concepts for a socially and ethnically inclusive ECEC system.

In sync?! Exploring dynamic characteristics of mother-child interactions during early childhood

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Abstract

During early childhood, the caregiver-child relationship plays a crucial role in a child's cognitive, language, and social-emotional development. We aimed to understand how coordinated and adaptive mother-child relationships emerge from everyday moment-to-moment interactions between mothers and their typically developing 3- or 4-year old children. Additionally, as early childhood is a period of rapid development and changes in the nature of interactions, we aimed to explore the developmental trajectory of mother-child interactions. Accordingly we adopted a bidirectional and microgenetic approach, by including both mother and child behavior, and zooming in on the dynamics of moment-to-moment interactions. In doing so, we shifted away from a focus on maternal behavior on a more global level (e.g., over the course of a whole interaction session) which has prevailed interaction studies so far. Video-observations from 30 mother-child dyads were available from an ongoing longitudinal study on motor skills, executive functions and language abilities of 3- to 6-year old children from Dutch-speaking families. Dyads carried out a semi-structured play task, the Etch-a-sketch. As interaction is a multifaceted and multimodal phenomenon, we included measures of interaction behavior in several modalities, that is, verbal communication, affective states, and postural movement. Coding procedures were designed to provide bivariate time-series data. Nonlinear time-series analysis, such as recurrence quantification analysis, will provide insight into how mothers and children mutually coordinate interactions within and across modalities. Given the malleability of maternal- and child behaviors, and sensitivity to interventions during early childhood, our findings may aid in facilitating healthy and adaptive caregiver-child interaction.

Development of Reasoning About Complexity Among Young Children

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Abstract

The paper explores how young children explain complex systems, focusing on developmental (kindergarten and second graders), and contextual (physical or social) aspects. Understanding complex systems is becoming a critical ability as many world problems and local contexts are entwined and inter-related.

Existing research about learning about complexity has rarely been tailored for younger children and has investigated children's capacities to understand simpler complex systems, for instance robots (Levy & Mioduser, 2010), and beehives (Danish, Peppler, Phelps, & Washington, 2011).

The study used individual videotaped interviews with 16 kindergarteners and 17 second graders. The items concerned familiar phenomena: marbles colliding in a box (physical) and congestion when leaving class (social). Interviews were analyzed for systems-related ideas using a coding table derived from the literature (Jacobson, 2001, Levy & Wilensky, 2008, and Danish et al., 2011), including dimensions such as levels, emergence, and interactions.

Seven-year-olds used a greater variety of complexity ideas than four-year-olds for the physical system, but not for the social system. Some complexity ideas e.g. interactions between entities were highly frequent; other ideas such as the stochastic nature of complexity and emergence were rarely used. More older children used certain complexity ideas e.g. levels and non-linear events than younger children.

A key finding is that young children use complexity ideas. This is surprising because in previous studies into adults' complexity thinking, difficulties were found unless they were experts in their respective fields (Jacobson, 2001; Hmelo-Silver, Marathe, & Liu, 2007).

The role of play and pedagogy in shaping preschool children's self-regulation

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Abstract

The present study examined the efficacy of a behavioral self-regulation program in two preschools ($N = 65$). Using a self-regulated learning (SRL) framework, we investigated how behavioral SRL may be scaffolded by teachers in a preschool classroom through a voice regulation training program (VRTP). The VRTP preschool ($N = 31$) comprised the experimental group (EG), which was compared with a control group (CG) preschool that received no training. The VRTP uses age-relevant techniques, such as games and visual aids, to provide the teacher a platform for enhancing voice awareness and modulation, thereby enhancing behavioral SRL. Behavioral, emotional, and cognitive SRL and early achievement of math and verbal skills were assessed before and after the VRTP, and levels of noise were assessed on a weekly basis using an electronic noise meter in designated areas. The EG participants demonstrated significant improvement in behavioral and emotional SRL, in language, and in voice regulation compared with children in the CG. The current findings provide evidence that SRL can be scaffolded in preschools by the teacher. These results have the potential to inform preschool curricula that enhances student self-regulation in preschool. Implementation of programs that enhance SRL in preschool may also have beneficial implications for developmental trajectories.

The historical roots of the regulatory deficit in Israeli childcare

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Abstract

Israel is characterized by low quality of early childhood education and care (ECEC) services (birth to three years). Legislation imposing regulation on childcare facilities was never implemented, leaving the majority of children in unsupervised facilities. In addition, the quality of care in voluntary supervised childcare facilities is relatively low in comparison to average standards in OECD countries. Last, Israel's investment in ECEC per capita is the lowest among the OECD.

This paper looks for the sources of the regulatory deficit and low public investment in ECEC services in Israel. I use historical institutionalism analysis to explore Israel's weak regulatory governance from the 1920s to the 1980s. The analysis will explore three tensions that shaped ECEC policy: (1) ECEC as a private service vs. ECEC as a public service, (2) ECEC as a mean to support the Zionist vision vs. ECEC as a universal service and (3) ECEC as a mean to support women's employment vs. ECEC as means to promoting disadvantaged children and families. The historical analysis shows that the ambiguity and duality which characterized ECEC policy in these issues brought to indecisive policy, weak regulatory governance and low public investment.

Dialogue through the eyes: Exploring teachers' focus of attention during educational dialogue

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Abstract

There has been a growing interest in studying educational classroom dialogue and its diverse forms and qualities (Howe et al., 2019). However, to our knowledge, no previous studies have examined the quality of educational dialogue in conjunction with the teacher's focus of attention. The present exploratory study focused to find out: 1) How do teachers distribute their focus of attention among students during educational dialogue? and 2) Does teachers' focus of attention on students vary according to the quality of educational dialogue? Teachers' focus of attention was video recorded in 54 classrooms (n = 780 students), using Tobii eye-tracking glasses. From the video recordings, episodes of educational dialogue were identified and categorised by quality. In further analysis, the teacher's focus of attention on students was examined during the dialogue episodes. Results showed, first, that teachers allocated their visual attention relatively unevenly among the students during educational dialogue. Second, more students got visual attention from the teacher during high-quality educational dialogue than during moderate-quality dialogue. This study provides important insight into the quality of educational dialogue by combining assessment of the verbal dialogue with observations of the non-verbal focus of attention. Although the findings provided hints about variation in both verbal and visual attention, a larger sample is needed in the future to capture differences in teachers' focus of attention linked with the quality of dialogue.

The stability of individual differences in scientific reasoning: Findings from a 5-year-long study

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Abstract

A growing body of research shows that children as young as kindergarteners are able to reason scientifically. In line with this research, Koerber and Osterhaus (2019) found substantial individual differences in scientific reasoning between kindergarten children. Whether these individual differences are stable across longer periods of time (i.e., across elementary school) has not previously been investigated. Across five measurement points from age 6 to 10 ($N=161$), we investigate the stability of individual differences in scientific reasoning, controlling for general cognitive abilities (intelligence, inhibition, and language). Scientific reasoning was assessed using the Science-K inventory (Koerber & Osterhaus, 2019), which measures children's understanding of the nature of science and their experimentation and data-interpretation skills. Inhibition (Stroop) was assessed at ages 9 and 10, intelligence was measured yearly. Children's language skills were assessed with a test of children's comprehension of spoken (ages 6 to 8) and written text (ages 8 to 10). The results revealed significant correlations (and partial correlations) between scientific reasoning across almost all points of measurement, ranging between .14 and .65. The strongest predictor of scientific reasoning abilities at the end of elementary school was neither aspect of children's general cognitive abilities, but the kindergarten scientific reasoning score ($b=.41$, $p<.001$). Our findings support the view that individual differences in scientific reasoning are substantially stable, and they suggest that an early fostering of these abilities (even before children enter formal schooling) is necessary to reduce the differences between children that all too often are influenced by social rather than cognitive factors.

Analysis of authors' beliefs on implementation of ICT in day care centres in Germany

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Abstract

The implementation of digital media in day care centres is a highly discussed topic in Germany. On the one hand, it is assumed that the use of Information and Communication Technology (ICT) leads to impairments of child development (Bolstad, 2004). On the other hand, the use of ICT recognizes great potential for child development (Kalaš, 2010). This discourse is represented in articles of practical Early Childhood Education and Care (ECEC) journals. Authors of ECEC articles can influence the beliefs of the ECEC professionals (Wirth & Kühne, 2013). These beliefs are elementary for pedagogical practice and have an impact on process quality (Anders et al., 2018). The present study examines the question which types of authors' beliefs can be found in articles of practical ECEC journals by means of type construction. On the basis of a document analysis 234 articles were identified. Qualitative content analysis revealed four types of beliefs. The first type is digital-affine, which support the implementation of ICT in the daily routine of children and professionals. The second type support the use of ICT for professionals in the workplace and in administrative work and also in the pedagogical practice with children under certain conditions. The third type support the use of ICT exclusively for professionals in the workplace and in administrative work. The fourth type is digital-averse, which demands day care centres without ICT. The results will be discussed in the context of the debate and the professional skills needed for the use of ICT in day care centres.

The design of play-based learning environments

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Abstract

The kindergarten in Switzerland is part of the public school and is attended by four to six year old children. The new curriculum underlines the importance of combining play and learning. At the same time, a targeted development of skills have to be reached, which increase the temptation to rely on instructional settings. This early formalized learning experiences were not as effective as child-centered learning. The combination of self-chosen and self-directed activities with targeted competence building can be perceived as a conflict of goals. One solution is the idea of *guided play*, in which the adults initiate a variety of play situations, but the child directs the play process. How such play and learning situations are actually made possible in the school context through the design of play environments has so far hardly been empirically investigated. The question that arises is how learning environments must be designed in order to be attractive and motivating for children and also promote curriculum-based competence. Through expert interviews with teachers, 18 most popular play offers (best practice examples) in different kindergartens have been analyzed. In addition, the structure of the environment was examined with photographs of the materials and room sketches. The analysis of the transcripts is based on the summary qualitative content analysis. The results can be compared with existing research findings on the structure of play environments. In summary, important characteristics for the design of play-based learning environments are derived and new hypotheses are generated.

Children's school transition: relation of parental self-efficacy, home activities and child outcome

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Abstract

The transition from preschool to primary school is perceived as a vulnerable phase both for parents and children (e.g., Griebel & Niesel, 2011). Parental self-efficacy (PSE) is positively related to child outcomes and a stimulating home learning environment (HLE) which in turn fosters children's socio-emotional skills (Day, Factor, & Szkiba-Day, 1994; Giallo, Kienhuis, Treyvaud, & Matthews, 2008; Jones & Prinz, 2005; Peacock-Chambers, Martin, Necastro, Cabral, & Bair-Merritt, 2017). PSE is also linked with children's adjustment in primary school (Giallo, Kienhuis, Treyvaud, & Matthews, 2008). The HLE is linked with children's school readiness in the areas of emerging literacy skills and social functioning (Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005). Children's socio-emotional Skills help them to adapt to the new environment 'school' (Miller et al., 2003). Yet, it has not been investigated, if PSE during the transition phase is related to the HLE and children's socio-emotional competencies. This study draws on data from 746 parent questionnaires that were conducted within the German federal programme 'Language daycare centers: because language is the key to the world' in 2019. First results show significant relationships between PSE, HLE and children's socioemotional skills, e.g., a significant negative association between PSE support in transition to school and SDQ problem behavior, ($r(108) = -.27$, $p = .005$). The results point to the importance of PSE and HLE for child outcomes at the transition phase. Based on the results, support for parents, e.g., through pre-schools, would be helpful for their self-efficacy and the quality of HLE.

Situation-specific Skills of Educators in the Field of Language Education in ECEC

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Abstract

The improvement of the quality of interactions in language education, and emphasising the professional development of educators, is one of the central goals in ECEC. With respect to the professional competence of educators, it has been argued that their so-called situation-specific skills, i.e. their perception and interpretation of educational situations as well as their decision-making with regard to action, influence the quality of interactions.

According to current research on ECEC, there is a need to examine how situation-specific skills in the field of language education are shaped and how they are related to linguistic knowledge. The objective of this empirical research is to shed light into this complex issue.

In the context of qualitative, in-depth case studies on six ECEC-institutions, we conducted two video-stimulated-recall interviews with six educators whose linguistic knowledge was developed differently. In these interviews, we asked each professional to reflect on selected video-recorded scenes of their verbal interactions with children. First content analyses show that educators with high linguistic knowledge have a differentiated perception of these interactions, and their interpretation is well-grounded on the state of the art with regard to child language development and language education. Furthermore, their decision-making is not only oriented towards language promotion but towards the promotion of children's development. In contrast, the situation-specific skills of educators with less linguistic knowledge are restricted to some phenomena of child language development and language promotion strategies. Thus, the data we analysed so far point out that distinct situation-specific skills are related to high linguistic knowledge.

Self-efficacy beliefs for guiding young children's technology use: Data from parents and educators

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Abstract

Background/Purpose. Currently, the number of young children using screen-based technologies is unprecedented. Consequently, there is a growing need for parents and early childhood educators to be more active in supervising and guiding children's uses. Presently, little is known about the beliefs of parents and early childhood educators regarding how they guide young children's (i.e., 5 and under) technology use. This study addresses this gap by investigating the self-efficacy beliefs of parents and early childhood educators for guiding young children's technology use. Self-efficacy is a well-known predictor of effort, perseverance, decision-making and performance.

Design/Method. A multi-method design was employed involving the collection of various sources of qualitative data, specifically, interviews, open-ended questions, and Facebook comments. Thematic analysis was used to analyse the qualitative data. The themes from the qualitative data informed the development of an online, national survey that was made available to all parents of young children and early childhood educators in Australia. Multivariate techniques were used analyse the survey data.

Results. Five key themes emerged from the qualitative analyses: i) Guiding young children's technology use for learning ii) protecting child safety online iii) screen time habits iv) promoting social skills v) physical health and technology use. Quantitative analysis revealed that self-efficacy for child safety and guiding learning with technology was relatively high compared to self-efficacy for promoting social skills and physical health.

Conclusions. It may be advantageous for future interventions to focus on improving domains of self-efficacy beliefs for which parents and educators had weaker self-efficacy.

Autonomy support, controlling parenting and child behavior problems at toddlerhood

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Abstract

Self-Determination Theory (SDT) is a macro-theory of well-being and optimal functioning. SDT distinguishes between autonomy-supportive parenting and controlling parenting, with numerous studies indicating that the former facilitates academic performance, rule internalization, and social adjustment among preschool and school-age children. Yet little is known about the effect of parenting styles at earlier ages, such as toddlerhood, arguably because of the belief that autonomy has a meaningful part in older children's functioning only. This study attempts to shed light on the importance of autonomy-supportive and controlling parenting styles on very young children, and has two aims: first, to examine how parenting styles are related to child behavior problems at 20 months; second, to investigate the motivational antecedents of parenting styles by assessing parental-role motivations at four months postpartum.

Participants were 326 mothers who took part in a longitudinal study. Parental-role motivations were measured at four months postpartum, and parental styles and child behavior problems were measured at 20 months. Results showed that controlled parental-role motivation predicted a controlling parenting style, which, in turn, predicted child behavior problems (i.e., internalizing and externalizing problems). Autonomous parental-role motivation predicted an autonomy-supportive parenting style.

In sum, this study shows that autonomy plays a considerable role in early childhood adjustment; suppressed autonomy (i.e. controlling parenting styles) may lead to child behavior problems. In addition, parenting styles at toddlerhood may have motivational antecedents, which can be identified as early as four months postpartum.

Characteristics of musical interactions during preschool group-time

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Abstract

The main objective of the current research was to describe and analyze a preschool teacher's musical interactions during morning group time. The research aimed at characterizing musical activities in terms of length, contents and cultivation of developmental domains. The qualitative multiple-case research, comprises observations at five different kindergartens. Two of them included children aged 3-4 and the others, children aged 5-6. Five to seven morning group-time sessions were videotaped in each kindergarten, 30 in all, accompanied by a semi-open interview with each teacher. The findings show that the teachers averagely devote around 23% of the group-time sessions to musical activities which appeared to be plentiful and varied, including activities such as singing, reciting, playing instruments, listening to recorded music, and movement in response to music. The most frequent activity was listening to recorded music. The most frequent genre were game songs and recitations followed by Hebrew songs and children's songs. Contrarily, instrumental music, such as classical music, was less a frequent activity. Great diversity with regard to musical repertoire was found among the kindergartens. The musical interactions served the kindergarten teachers more as a tool for developing extra-musical skills than as an aesthetic goal in itself. Music helped develop cognitive, linguistic, motor, social, emotional, and musical skills. The observations suggest that emotional regulation, calming, and physical contact via music occurred more amongst early-pre-schoolers than pre-schoolers. the study's findings highlight the need to devote significant segment of time during group-time sessions to musical interactions.

How do Educators Engage Preschool Children in STEM-Related Learning Experiences?

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Abstract

In this presentation we focus on STEM education for children aged 2 ½ to 5 years, as we examine how early childhood educators engage preschoolers in STEM-related learning experiences that arise from the children's interests. Despite the acknowledged importance of high quality learning experiences in early childhood, there is limited research on young children's experiences in science and STEM, and even less on preschooler's experiences with STEM. Two theoretical frameworks guide our work with young children: social constructivism and play based learning. Participants were 5 early childhood educators and 25 preschoolers. We made 27 visits to a daycare centre during 2019, and observed educators and preschoolers for 45-50 minutes in a variety of settings. Data consisted of fieldnotes, photos, and reflections. Open coding focused on types of educator-child interactions and lead to the development of three broad categories of interactions: *verbal prompts and support*, *environmental supports*, and *behavior guidance interventions*. Our results provide a starting point for researchers, educators, parents, and administrators who want to learn more about how socially constructed and play based learning can support STEM education for preschool children.

Effects of Computer-assisted Instruction on Learning Outcomes of African American Students

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Abstract

This study randomly assigned kindergarten students on the class level to either use a computer-adaptive reading program throughout the school year or have business-as-usual literacy instruction. Students were low-socioeconomic status (SES), with most (97%) qualifying for free or reduced lunch, and all were African American. This randomized controlled trial (RCT) aimed to study how computer-assisted instruction (CAI) impacts literacy skills of early elementary school students across literacy strands of the Northwest Evaluation Association Measures of Academic Progress (NWEA MAP). The study was conducted in a public school district in Indiana during the 2017-2018 school year, with students assessed at the beginning and end of the school year. Analysis was conducted using hierarchical linear modeling (HLM) to account for the nested structure of the data within classrooms. Findings indicated that students who used the computer-adaptive reading program significantly outperformed their control counterparts across all five literacy strands assessed. Effect sizes were analyzed and, after the nested design of the study was accounted for, were found to indicate substantive benefit from the use of the computer-adaptive reading program, with use in the program accounting for more than half the variance in scores across all five literacy strands. These findings indicate that CAI can positively impact literacy scores of kindergarten students after using the program for one school year and can perhaps address the achievement gap for African American students and low-SES students.

Morphological and lexical knowledge in the second language of bilingual children

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Abstract

Aim: The study examined the influence of bilingualism on the acquisition of Hebrew plural and agreement structures by Russian-Hebrew bilinguals and Hebrew monolinguals, examining similarities and differences in the acquisition between two populations. Studying this issue in the context of two morphologically rich languages has important implications for a discussion of morphological and morpho-syntactic processing in bilingualism

Method: 180 children (95 bilinguals) aged 4-8 years participated in this study. Three structured sentence completion tasks were used: singular agreement task, noun pluralization task, and plural agreement task. The items differed in the characteristics of their singular form, in stem type, in plural suffix, in Hebrew gender, and in Russian gender.

Results: Three main properties of bilingual development were observed in this study: (1) an early and rapid acquisition of the grammatical and morphological rules alongside restricted lexical knowledge pertaining to irregularities in the system, (2) an almost complete identity in acquisition patterns compared to monolinguals, and (3) a consistent gap from monolinguals.

Conclusions: Bilingualism has a distinct effect on the different language domains (lexicon and morpho-syntax). The rapid acquisition of the morphological and morpho-syntactic rules of L2 is possible for two main reasons: the high regularity and transparency of the Hebrew gender and number systems, and the similarity in the properties of the gender agreement systems of Russian and Hebrew. The lexical challenge directly influences on the morpho-syntactic performance of children, as manifested in difficulties in the structures that include lexical exceptions.

Directionality of number space associations

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Abstract

We tested a number line estimation task in a group of young Hebrew speaking children., Words in Hebrew are oriented from right to left, and reading habits have previously been found to affect the directionality of number space associations in Hebrew speaking adults. Two conditions were manipulated 1) Directionality of the number line 2) Presentation (symbolic or non-symbolic).

First, with the number line condition oriented from right to left, we found better fits and lower estimation error rates than in the classical left to right orientation. Fit for left to right orientation improved with age. Hence, Hebrew speaking children retain a cultural bias for number space associations, prior to their formal ability to read.

Second, presentation affected estimations. Symbolic presentation yielded better fits than non-symbolic presentation. Estimations for non-symbolic presentation improved with age. Accordingly, young children possess two separate systems for processing of exact symbolic numerals and approximating non-symbolic magnitudes.

Executive functions development in children across countries: A systematic review

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Abstract

A systematic review was conducted to gain a more nuanced understanding of similarities and distinctions across countries in the development of executive functions (EF). The review includes 26 studies, with child and adolescent participants, that were published between 2006 and 2018. Both similarities and differences within developmental patterns of EF are identified across different countries. Across countries, bilingual children are shown to outperform their monolingual peers. Task improvement with age is not consistently reported in all studies, with no linear effects apparent in children from developing countries or regions. Gender differences on EF measures also vary between countries. Girls perform better than boys on EF tasks and parent and teacher ratings of EF in both Western and East Asian samples. Yet, in Iran and Tanzania, boys receive higher EF scores. From preschool age through adolescence, East Asians outperform Western counterparts on direct assessment measures of EF. However, strong discrepancies can be found between measures of direct EF assessment and parent and teacher ratings of children's EF. Chinese parents rate their children's EF as lower compared with parents from other countries. The role of contextual factors explaining differences in EF development is discussed.

Parental Interaction Quality, Home Environment and Children Academic Outcomes

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Abstract

Aims:

The association between parents' work-family conflict and children's academic outcomes is an understudied topic. This study investigates the role of four measures—parental working hours scale, parental age, parental interaction quality, and socioeconomic status (SES)—and the quality of learning materials at home in relation to children's cognitive outcomes.

Methods:

The study participants included 91 kindergarten children from six different kindergartens in Israel, their parents and kindergarten teachers. Each parent completed a questionnaire to assess the quality of parent-child interaction and the quality of learning materials in the home environment. Further, the kindergarten teacher completed a survey for assessing the child's kindergarten academic behavior readiness. Finally, the researchers observed the children at kindergarten for two-hour periods to measure their academic engagement durations in six types of cognitive behaviors.

Results:

In terms of the quadratic model (parental working hours scale, parental age, parental interaction quality, and SES), the results indicated that personal antecedents played a key role in children's cognitive achievement. Parents who increased their working hours were less likely to be available for their children, thereby providing less qualitative interaction. A conducive learning environment was created by more educated mothers and younger fathers from high-SES households. The quality of paternal and maternal interaction and quality of learning materials at home both played significant roles in children's academic outcomes.

Discussion:

The results are discussed in terms of the resource allocation modality, and they emphasize the importance of parental interaction quality for shaping children's cognitive environment and development.

Change of understanding the concept "number" in kindergarten teaching using Attentive Teaching

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Abstract

Examining the change in the understanding of the concept of number of kindergarten children while experiencing Attentive Teaching (Author, 2019). There is a big gap between the level of understanding the concept of number between children aged 4 and those who are 5.5 years-old (Carey, 2009). All of them attended the same kindergarten class, and were taught together the concept of number. We will show the changes that children in different ages experienced. The examination of children's drawings enables us to analyze the nature of their change of understanding of the concept of number.

23 kindergarten children experienced a series of 8 mediated interactions of the concept "number", constructing a Thinking Journey (Author, 2019). There was no direct teaching of digits or the connection between counting and quantity. The children experienced the use of numbers in a variety of activities and contexts.

One can see that each child had a very different way of understanding the concept "number", though the children experienced the same classroom teaching. Out of the whole group of children who studied together, we chose to examine in details the proposed presentation the change of understanding of two children.

Each child constructed a unique personal understanding process. The Thinking Journey that each child experienced shows a way to enable children to relate in multiple and creative ways to a learning topic like the concept of numbers.

Language-Related Pedagogical Beliefs and Their Relation to Observed Classroom Quality

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Abstract

The paper explores pedagogical beliefs of 205 preschool teachers in the field of language education and their relation to observed classroom quality. The database comes from the evaluation of the German federal program “Language day care centers” that has a focus on fostering language-related process quality. Beliefs are differentiated into two main dimensions according to the differentiation of strategies of language support in preschools: beliefs supporting additional language programs (a more teacher-directed approach) and beliefs supporting language education embedded into daily routines (a more child-centered approach). We investigate their relation to the Sustained Shared Thinking and Emotional Well-being Scale (Siraj et al., 2015), a quality measure that focuses on the promotion of socio-emotional as well as language skills. The two belief facets were assessed via a standardized survey right after the observation. Structural equation modeling indicates positive, although small, relationships between beliefs supporting language education embedded into daily routines and the SSTEWS-subscale “Supporting learning and critical thinking”. Additionally, the proportion of children with languages other than German spoken at home as well as the teachers’ qualification predicted quality. The findings highlight the importance of beliefs that relate to a language education embedded into daily routines. As beliefs are regarded to be a modifiable construct, results are relevant for preschool teachers’ initial education and professional development.

Incorporating the ITERS-3 and CLASS into Israeli early childhood care settings

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Abstract

Incorporating the ITERS-3 and CLASS into Israeli early childhood care settings

Interactions between adults and children are a key mechanism through which learning and development are supported in early years. There is a steady increase in the number of children attending group care settings for many hours a day. Studies conducted in Israel show that the quality of day care centers is characterized by low levels of structural and process aspects. Moreover, it has been found that support of young children's learning and language development is low.

CLASS toddlers and ITERS-3 are assessment tools for evaluating quality of care and education in early childhood group settings. These tools emphasize the importance of the caregiver's role in supporting learning in young children through high quality daily interactions, with a focus on the ways in which adult interact with children to facilitate learning and support language development. The CLASS and ITERS-3 can serve as new models of pre and in-service training that can provide caregivers guidelines how to promote high quality interactions with children.

Over the past year, academic and applied team from the Center for Child Development at the University of Haifa translated and adapted the English version of ITERS-3 into Hebrew and were qualified to train professionals using this tool. Furthermore, CLASS based programs were constructed to guide caregivers and preschool teachers on how to effectively promote children's learning and thinking processes. During the lecture these programs and the rationale behind them will be presented, as will their method of implementation.

How the home learning environment contributes to children's early science knowledge

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Abstract

The growing attention to early education including early science education results from its positive impact on children's cognitive development and its long-term effects on later academic success. Children are curious about the world around them and gain various science-related experiences in everyday life. For young children, the most important learning environment is the family context and parents play a pivotal role in introducing their children to science. Although the fundamental role of the home learning environment is well documented for domains like literacy or numeracy, little is known about the nature of an early science-specific home learning environment. Therefore this study of 257 five-year-old children and their parents from (around the town of) Münster in Germany, who participated in the *SNAKE* study, examines the interplay of different aspects of the home learning environment, such as socio-demographic factors, parental beliefs and attitudes as well as science-related activities at home and their associations with children's science knowledge. Mediation analyses show that (1) parental engagement in science-related learning activities with their children predicts children's science knowledge, (2) socio-demographic factors as well as parental interest in science are associated with the frequency of these activities, and (3) effects of socio-demographic factors and parental interest in science on children's knowledge are mediated by science-related activities. The results emphasize the important role of parents in children's early science education.

Keywords

Home learning environment, preschoolers, early science education, mediation analysis

How does home learning environment explain bilingual language skills of Turkish children in the UK?

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Abstract

Migration to the United Kingdom has led to increasingly diversified school populations in the last few decades. Children who grow up in minority families tend to struggle at school if they receive less support from their families to acquire the language skills that are necessary for their school achievement. The home learning environment (HLE) has been found to be important for language and literacy development; school readiness and socio-cognitive development of children. For minority children home environment plays an important role for their language attitudes and identity development. This paper investigates how HLE characteristics (mothers' language use, language, literacy, and learning activities, and language experiences) predict Turkish (receptive vocabulary and sentence repetition) and English (receptive vocabulary) language skills and language attitudes of 4- to 6-year-old Turkish-speaking children in the UK ($N = 68$) after controlling for socioeconomic factors. The data was collected in two home visits for each child using language tests, a structured HLE questionnaire, observations and voice-recordings of experimental mother-child interactions, and semi-structured child interviews (child interviews $N = 27$). Findings show that mothers' language preference at home and literacy and language activities with children are the most important predictors of children's language skills. Mothers' active involvement in conversation with their children is especially important for maintaining children's heritage language skills. Interviews with children revealed that negative feelings towards Turkish or English are related to attempts to refrain from using the language and children's experiences of discomfort in using Turkish or English in some situations.

The relation between self-regulation and cognition of pre-school children: a longitudinal study

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Abstract

This study investigates predictors of self-regulation (SR) at 51 months and its relation to verbal and non-verbal cognitive abilities (VCA, NVCA) as indicators of school readiness using data from the longitudinal Families Children and Child Care-study (n = 886). Age-specific measures for self-regulation (i.e. Bayley Social- and Emotional Development Index) and cognition (i.e., Bayley Developmental Index (18m), Reynell Language Scale 36m and British Ability Scale 51m) at 18 months, 36 months and 51 months were used to assess the children's abilities at each time point. The analysis was carried out using SEM in MPlus. Prior measures of SR and cognitive abilities (CA) at 18 months showed an indirect effect of these measures on SR 51m and VCA, where CA 36m mediated the effect. Here, also family SES, female sex and time spent in day-care (more or less than 12h/week at age three) predicted SR 51m. For NVCA, only family SES predicted SR 51m and early CA 18m only had a mediated effect on SR 51m through SR 18m. For VCA, the development of SR in relation to the parents and child features seemed to make a larger difference than for NVCA. This suggests that NVCA and VCA as components of school readiness and SR as an important predictor of educational outcomes are acquired through different pathways and educational settings in a child's cognitive and behavioural development and preparation for school readiness.

Children's beliefs concerning their school performance at the end of the first school year

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Abstract

This study examines primary-school children's beliefs and gender differences in their beliefs concerning their school performance at the end of the first school year, and further more children's conceptions about feedback that they receive concerning their school performance. Children from grade 1 (N=540; age 7–8) were interviewed about their beliefs of their school performance. They were asked in what they perform especially well and quite poorly at school and how are they aware of that. The study was conducted using a qualitative design and analysed by five-step problem-driven content analysis and inductive reasoning. The analysis revealed ten categories of children's beliefs of own success or failure. Categories focused mostly on school subjects and were connected to formal schoolwork. More boys than girls mentioned that they performed well in mathematics, and more girls than boys mentioned that they performed well in reading and writing. More than one third of children were satisfied with their school performance. Approximately 10% of the children expressed that they received feedback from their teachers when they performed well. Girls reported to get slightly more feedback than boys did. Four percent of children who conceptualized that they did not perform well on certain tasks received feedback from their teachers. To enhance children's learning motivation and to support their positive self-concept as a learner, more attention should be paid to teachers' instructional and emotional support in classroom interaction and on the feedback they give to children of their learning.

Setting Up a Lab Center in Preschools – Fostering Scientific Thinking and Inquiry among Preschoolers

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Abstract

Science education in early childhood is critical for development of cognitive skills and positive attitudes towards science. To enhance scientific thinking, an inquiry-based learning approach should be utilized, and the design and arrangement of the learning environment must match the pedagogy and foster curiosity and exploration. Considering that learning environments bear much influence on children's learning, this intervention study examines how designing a Lab Center in the preschool, encourages scientific exploration, promotes inquiry skills and influences children's preferences regarding the Lab Center.

We surveyed 198 preschoolers, mean age 65.15 months ($SD=4.5$), regarding their preferences of the existing Science Center using a research tool developed for this study - Photograph-Interview with Children. 130 children, of the survey participants were randomly divided into intervention ($n=66$, with Lab Center) and comparison group ($n=64$, preschool enriched with non-scientific elements). All children participated in an Open-Ended Scientific Task (PRE/POST), to examine scientific behaviors and inquiry skills (e.g. hypothesizing, planning) which were videotaped and coded using an Open-Ended Scientific Task coding scheme.

Results show that the intervention group scored higher in their level of hypothesizing, experiment planning, competent use of scientific tools and concluding. Furthermore, the intervention participants, increased the selection of the Lab Center as one of three preferred centers from 25.8% to 57.6% and it was elevated to third favored center. The study shows the contribution of establishing a dynamic Lab Center in preschools that encourages children to engage in daily, free-choice scientific exploration, to enhance their scientific thinking and inquiry.

Specific vs. Generic Instruction For Expressive Arts

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Abstract

This study seeks to examine the impact of specific versus generic instructions for Expressive Arts Assignment on preschoolers (ages 5-6) on creativity, Self-Regulated Learning (SRL) and Co-regulated learning. A research set was built that included two research groups: one group that was given specific instructions for carrying out an expressive art assignment (which topic to create), and the second group was given generic instructions (to create on any topic of their choice). Mixed-methods of quantitative and naturalistic qualitative research methods were used. The data was collected by analysis of observations, recordings and videos, as well as analysis of the finished art products that the children created. In the Specific Instructions group a greater degree of SRL and Co-SRL was found, as well as a greater number of times addressing a friend. Finally, in the specific Instructions group, there was a greater degree of creativity that was reflected in materials elaboration and Repleteness (the number of elements), but a lesser degree of creativity that was reflected in Flexibility. The emphasis according to the Ministry of Education and researchers is to leave the freedom of choice with the children without giving any specific instruction. The results of this study may raise doubts in this guideline and have practical implications for the way in which an art assignment should be presented in order to develop a creative, self-regulated learner in an age when new and different skills are needed. These implications can also affect the parents at home.

Co-teaching in ECE practice for student teachers - a dyadic process of growth and development

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Abstract

Practicum is the utmost way to link theoretical concepts learned during teacher preparation programs in College with the real-world application needed for ECE teacher success in preschool setting. In this research we examine attitudes and beliefs influencing learning-teaching processes of the participants in the new co-teaching model of training. Subjects were student teachers in their third year in the ECE program in Levinsky College and their teacher mentors. Results revealed that participation of mentor teachers in a professional development program, guided by pedagogical mentors from Levinsky College nurtured mentoring strategies, contributed to transformation process and created shared language between student teachers and mentor teachers which contributed to the student teachers learning process. In addition, from the student teacher perspective, a transformation process was also observed as an outcome of the learning process. Theoretical and practical significance of empowering the dyadic process of growth and development will be discussed.

Facing challenges: Translation and adaptation of vocabulary measures to other languages or cultures

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Abstract

Vocabulary indicates verbal ability and is an important component associated with reading, learning and cognitive ability. Diagnosing a child's vocabulary enables assessment of strengths and difficulties and construction of a treatment plan. An appropriate tool is needed for researchers, therapists and educators.

One of the most frequently used receptive vocabulary tests is the Peabody Picture Vocabulary Test- PPVT, which has been updated several times. Others have attempted to translate the stimuli without considering crucial adaptations needed for reliability, validity, suiting another language and culture, or providing local standards.

The first aim of the present study is to translate and adapt the PPVT-5 to the Hebrew language and the Israeli culture. The second aim is to create local receptive vocabulary standards for the Israeli Hebrew speaking population with a special focus on young children.

The recent PPVT-5 translation and Raven's Progressive Matrices -RPM are currently being administered to 500 participants. Preliminary findings indicate that our version closely matches the American standards. Furthermore, kindergarten children with developmental language disorder portrayed a level of 15 months below than their peers, while kindergarten children with ASD portrayed a level of children half their age.

Our hope is that upon reaching local standards, the Hebrew PPVT-5 will become a main indicator of verbal ability for children and will aid early assessment and construction of personalized treatment plans for children with special needs. We also believe our experience will bring awareness to others interested in translating and adapting similar measures to other languages and cultures.

Assessing Autonomous Motivation in Students with cognitive impairment

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Abstract

Background Applying Benson's program of validation (Benson, 1998) we provide evidence supporting the validity of a projective instrument that assesses the autonomous motivation of students with impaired cognitive abilities. *Method* Eighty-eight grade 5–7 students diagnosed with cognitive impairment participated in this study. Participants' motivation was assessed using a projective instrument. Participants' affect, task value, and perception of the teachers as supportive were also assessed. The questionnaires were applied individually. Zero order correlation and regression analysis were conducted. *Results* The study demonstrated internal relations among the observed elements of the projective instrument, as well as relations between the projective instrument with other constructs and the predictive validity of the instrument. *Conclusions* The evidence provided herein suggests that the projective instrument can be used to validly measure the autonomous motivation of students with cognitive impairment.

Relationships between digital technology use, motoric development and temperament of children

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Abstract

While children get in contact with digital technology from an early age on, it is still unclear how this exposure effects the children's physiological development. The study „Young Children in the digital world (KiddiW)” gathered questionnaire data of the family's extent of media and technology use, parents' pedagogical objectives and parenting behavior as well as children's temperament and motoric development. In an experimental parent-child-play setting, the children's heart-rate was measured with a 30-hour Holter-electrocardiogram, while playing two apps on a tablet and reading a picture book, followed by a standardized motoric test. This paper focuses on how much and what kind of digital technology Austrian families with young children, aged 18-30 months, use and which relationships with children's motoric development and temperament can be detected. The questionnaire-results show that 31.6 % of the children in the sample ($N = 69$) started to use digital technology before their first birthday. For the children television is the most used digital device, but books are the most used medium. One example for the influence of digital technology, is that the aspect of temperament “endurance/attention” correlates highly significantly with the children's use of digital media and technology, $r = -.349$, $p = .007$.

The use of diversity-related practices in German ECEC centres – does staff's background play a role?

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Abstract

In Germany, more than every fourth child in ECEC (28%) has at least one parent who is born outside of Germany and 65% of those children do not primarily speak German in their family (Autorengruppe Bildungsberichterstattung 2018). Without doubt, not only in Germany, ECEC settings are linguistically, culturally and ethnically diverse environments. Many ECEC curricula address this issue and provide guidance on how ECEC professionals can foster intercultural understanding among children. It raises the question: what type of practices are ECEC staff actually employing to increase children's awareness for differences and commonalities between people? Data from the newly released OECD TALIS Starting Strong Survey 2018 sheds light on this aspect and shows that the perceived use of diversity-related practices can differ a lot between countries. But what role does staff's background play – specifically 'country of birth' and 'participation in diversity-related professional development (PD)'? Empirical findings already point to associations between staff's PD experience and self-reported pedagogical practices (e.g. Slot, Leseman, Verhagen & Mulder 2015), but have not yet focused on diversity-related practices. Therefore, using self-reported data from OECD TALIS Starting Strong Survey, this paper investigated whether staff judge the extent to which diversity-related practices are taking place in their centre differently depending on their background. Group comparisons showed that with regard to staff's perceptions of diversity-related practices in their centre, staff's birth country did not seem to play a role but staff's participation in diversity-related PD activities did. Possible interpretations and implications for pedagogical practice will be discussed.

Emergence of Gender Differences in Mathematical Competencies in Light of Mother-Child-Interactions

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Abstract

Whereas gender differences in mathematical competencies favoring boys are well researched for school-age and late Kindergarten age, not much is known about their emergence. Using data from the first wave of the German longitudinal study *BiKS-3-10* (N=488), this contribution focuses on children age 3 and concentrates on the effects of early numeracy and literacy stimulation during observed mother-child interactions. First analyses using hierarchical regressions show slight and persistent gender differences in mathematical competencies in favor of girls under control of the domains of stimulation, as well as the structural characteristics of the learning environment, child characteristics, parental views and observed general interactions between mother and child. Thus, the specific domains of stimulation within the mother-child interaction cannot explain the advantage of girls over boys. Nevertheless, the analyses show, that there seem to be no different intensity of numeracy and literacy stimulation for boys and girls. Since all models controlled for structural characteristics of the family as well as child's characteristics, we conclude that at this early age girls seem to have a small developmental advantage with regard to mathematical competencies.

Types of (domain-specific) home learning environments in early childhood

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Abstract

Various study results underline the importance of the home learning environment (HLE) which includes parent-child interaction and home learning activities for child's general and domain-specific development. Until now, less is known about early domain-specific stimulating behavior. The present study uses data that focusses on various aspects of mother-child interaction in a semi-standardized play situation as well as information on a variety of joint activities of mother and child. These facets are used to investigate whether different types of mother-child interaction behavior and home learning activities are apparent. In a next step the (potentially differential) relation between these types and other mother and child related characteristics are analyzed. Regarding facets of mother-child interaction behavior and of home learning activities three types of HLE can be found that differ in the amount of home learning activities and the displayed mother-child interaction behavior. Those types differ with respect to various mother and child related factors such as being the first child, child's sex and the productive language of the child.

Getting across programming concepts to Preschoolers

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In my PhD study I investigate preschool interventions conveying programming concepts, e.g. predicting the effect of a command sequence. I want to examine whether these concepts can be improved by training, and whether a training with a digital tool or an unplugged (non-digital) training is superior. For assessing learning gains I developed extensive pre- and post-tests reflecting precursors of Computer Science competencies: pathfinding, sequencing, and pattern recognition. The experimental study with Swiss preschool children in a 3 (group: digital, unplugged, control) x 2 (time: pre- and post-test) design involved 45 children in the digital group, 41 children in the unplugged group, and 33 children in the control group. For both, the digital and the unplugged condition, I developed 11-lessons curricula implementing the same underlying programming concepts. In the former one children worked with the digital tool “Bee-Bot®”, in the unplugged condition children were mainly engaged in a board game with a zoo setting. Currently, as part of my dissertation, the study is replicated with 170 kindergarten children. A follow-up intervention in Grade 1 is planned.

First results of comparison of means of pre- and posttest show an obvious shift of the unplugged group in pathfinding performance, and also some notable high-scorers regarding the sequencing task. The mean of the digital group in the pattern task shifted from the lowest mean value compared to the other two groups in the pretest to the one with the highest mean value in the posttest.

The “How’s” and “Who’s” in Storytelling: Scaffolding the Neural Networks for Reading in Preschoolers through Storytelling: Functional MRI, EEG and Eye Tracking Evidence

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Reading development is dependent on genetic and environmental components. Neuroimaging studies have demonstrated the involvement of executive functions, visual processing and language networks, all support future reading abilities in young children listening to stories. Environmental components include home literacy environment, joint storytelling and the identity of the reader, which help scaffolding future reading. However, the neurobiology of the storytelling approach and the role of the storyteller identity in setting up the scaffold for future reading abilities are still unknown.

In a series of studies, we examined the neurobiological correlates for home literacy environment, dialogic reading approach and the role of the reader (parent vs an experimenter) focusing on networks and components related executive functions, language and visual processing in young children using functional MRI, EEG and an eye tracker device.

Results demonstrate the recruitment of visual processing, language, and executive functions networks, as well as white matter tracts related to these abilities both crucial for reading, in preschoolers while listening to stories, engaged with the parent in reading activity and when participating in a dialogic reading activity. Greater fixation on the text vs the images was observed when participants were read to by the parent vs by the experimenter.

We conclude that when preschoolers are exposed to books, participate in a dialogic reading activity as well as when reading with a parent, neural circuits supporting future reading ability are engaged and set up the foundation for future reading abilities.