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Part I
Self-Regulation and Instruction
The present study is a contribution to the topic of educational quality in preschools. This topic has been part of an extensive debate in Germany especially since the end of the 1990s (Tietze et al., 1998). For readers who are not familiar with preschool education in Germany, some characteristics should be briefly introduced. Generally, the ministries of social affairs of the 16 federal states carry the general administrative responsibilities for preschools rather than the educational authorities, who exclusively carry that responsibility for primary schools. In Germany, the discussion about educational quality within the field of early childhood education arose in the early 1990s as a consequence of problems that occurred from bringing together the early childhood education systems of Western Germany and the former Germany Democratic Republic after the reunification (Tietze et al., 1998; Tietze & Cryer, 1999). Changing family structures (e.g., growing rates of parental mobility, increasing risk of poverty) are also considered to have played a part in generating discussion about the importance of quality in preschool education (Esch, Klaudy, Micheel, & Stöbe-Blossey, 2006). Another important factor was the relatively poor performance of German pupils in international school benchmarking studies (e.g., Programme for International Student Assessment [PISA], German PISA-Consortium, 2001). This poor performance is considered to be associated with the need to improve the quality of education in preschools (Roux & Tietze, 2007). Last but not least, curricula in early childhood education in preschools were successively introduced in all German federal states in order to enhance the quality of educational practice in preschools (Diskowski, 2008; see also Smidt & Schmidt, 2012, for a critical overview of empirical findings of the implementation of early childhood curricula). In fact, there is strong evidence for the predictive importance of a good quality of preschool education for the development of cognitive and socio-emotional child-related outcomes (e.g., Dearing, McCartney, & Taylor, 2009; National Institute of
Child Health and Human Development, Early Child Care Research Network [NICHD ECCRN], 2006).

There are different ways to conceptualize educational quality. One common way of defining quality involves an approach that distinguishes between process quality (e.g., teacher-child interactions) and structural quality (e.g., child-staff ratio, teacher experience; Cryer, 1999). This paper will focus on the quality of educational processes because these “proximal processes [are] the primary engines of development” (Bronfenbrenner & Morris, 2006: 798). Educational process quality focuses, for instance, on activities and interactions of children and preschool teachers as well as on the schedule of daily routines in preschools. Another important feature that has to be introduced stresses the distinction between educational process quality measured at the preschool level (e.g., with the Early Childhood Environment Rating Scale – Revised Edition, ECERS-R; Harms, Clifford, & Cryer, 2005) and such quality examined at the level of single children (target children) within the preschool class (e.g., with the Observational Record of the Caregiving Environment, ORCE, NICHD ECCRN, 1995). On both levels, educational quality can be captured with high-inferential (i.e., with ratings) and low-inferential (i.e., frequency-based) measures (Brassard & Boehm, 2007). Despite intensive discussions about educational preschool quality with regard to the German preschool system, there is still a strong need for research to address the nature and number of activities that preschool children are involved in. This is especially true for longitudinal research because children's developmental progress across the preschool years is linked to changes in children's activities and interactions (Hyson, Copple, & Jones, 2006). This study therefore examined the development of children’s activities in the first, second, and third years of preschool (see Smidt, 2012, for additional analyses).

**Theoretical background**

Research on educational process quality in preschool can be based on different theoretical approaches that concentrate on specific issues. Bronfenbrenner's (e.g., Bronfenbrenner & Morris, 2006; Bronfenbrenner, 1993) eco-systemic framework allows the quality of educational processes to be viewed from the standpoint of being embedded in preschool classes, which can be described as microsystems. A microsystem depicts a “face-to-face setting” (Bronfenbrenner, 1993: 15), which is defined by specific patterns of activities and interactions. Microsystems are integrated into more extensive systems (meso-, exo-, and macrosystems). This theory also stresses a longitudinal perspective on educational process quality as it postulates that proximal processes (i.e., activities and interactions in preschool classes) vary as a function of time: “As children grow older, their developmental capacities increase both in level and range; therefore, to continue to be effective, the corresponding proximal processes must also become more extensive.
Another theory emphasizes didactical features of educational work in preschool classes. The offer-and-use model (Klieme, Lipowsky, Rakoczy, & Ratzka, 2006; Helmke, 2008) was originally developed for research on the quality of school teaching and then transferred to educational quality in preschools (Kuger & Kluczniok, 2008). One major assumption is that the learning opportunities that are offered must be used by the children to become effective.

With interaction theories, it is possible to describe the relationship between preschool children and their teachers in more depth. In particular, the crucial role of the educational preschool staff and the importance of a longitudinal view can be highlighted. Important interaction theories, which are critical for conceptualizing developmentally appropriate support of preschool children, go back to the ideas of Vygotsky (1987), who introduced the concept of the *zone of proximate development*. With this zone, the difference between children’s ability to manage tasks with and without the support of competent others (e.g., preschool teacher, older children) is described. In this context, interaction processes between preschool teachers and children become crucial (Forman & Landry, 2000). Based on the Vygotskian approach, several similar concepts that refer to the encouraging and supportive role of the preschool teacher were developed (i.e., *scaffolding*: Wood, Wood, & Middleton, 1978; *guided participation*: Rogoff, 1998; *sustained shared thinking*: Siraj-Blatchford, 2009). The aforementioned interactional approaches may also be particularly appropriate to be applied from a longitudinal perspective on educational processes due to their emphasis on providing developmentally appropriate support of children. These approaches have been responsible for adaptations that have been made in educational processes in preschools as good educational practices have recommended (e.g., Tietze & Viernickel, 2007; Bredekamp & Copple, 2009).

A final theoretical approach that should be mentioned relates to the domain specificity of educational processes. In accordance with theories that emphasize the domain specificity of children’s knowledge acquisition (e.g., Wellman & Gelman, 1998; Carey & Spelke, 1993), the domain-specific nature of educational processes is stressed. For instance, supporting children can be realized in domains such as early literacy and early numeracy (Rossbach, 2005; Cullen, 1999). In this regard, it is assumed that beginning domain-specific promotion early in children’s educations can benefit their development of specific competencies (Rossbach, 2005).

The introduction of different theoretical approaches may raise questions about what constitutes good educational process quality. Although there are no clear recommendations with regard to specific “compositions” of activities in order to ensure good process quality, in agreement
with pertinent standards (e.g., Bredekamp & Copple, 2009), good educational process quality can be said to exist if there is secure and health-supporting care, a developmentally appropriate support of children across a broad range of domains, a positive climate in the preschool class, and an encouraging and scaffolding role played by preschool teachers (Tietze et al., 1998).

The current state of research

Regarding the nature and extent of activities that preschool children are involved in, there are only a few studies that have provided empirically sound information. However, widening the view to an international perspective, there is some research that should be considered. The key information about these studies is summarized in Table 1.1.

Table 1.1 Study overview

<table>
<thead>
<tr>
<th>Studies</th>
<th>Countries</th>
<th>Sample description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westermann &amp; de Wall (1972)</td>
<td>Germany</td>
<td>52 groups from 52 preschools, varying sample sizes of children</td>
</tr>
<tr>
<td>ECCE-Study-Group (1997); Tietze et al. (1998)</td>
<td>Germany, Austria, Portugal, Spain</td>
<td>86 to 206 children from 43 to 103 preschool groups (country differences)</td>
</tr>
<tr>
<td>Palacios, Lera, &amp; Olivia (1998)</td>
<td>Spain</td>
<td>Children from 59 preschool groups, no information about the number of the children</td>
</tr>
<tr>
<td>Kwan &amp; Sylva (2001)</td>
<td>Singapore</td>
<td>160 children from 16 preschools</td>
</tr>
<tr>
<td>Olmsted &amp; Lockhart (2003)</td>
<td>15 countries: Belgium, China, Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Nigeria, Poland, Romania, Slovenia, Spain, Thailand, USA</td>
<td>4,982 children from 15 countries, varying preschool types</td>
</tr>
<tr>
<td>Early et al. (2005, 2010)</td>
<td>USA</td>
<td>2,061 children from 652 preschool groups</td>
</tr>
</tbody>
</table>
Some studies found that transitions (from one activity to another), waiting periods, and organizational and care activities (i.e., hand washing, going to the bathroom) altogether accounted for at least 20%, sometimes over 30%, of the time during which the children were observed (Early et al., 2010; Olmsted & Lockhart, 2003; Kwan & Sylva, 2001; Tietze et al., 1998; ECCE-Study-Group, 1997). In contrast to these findings, the results of a study conducted by Tizard et al. (1988) revealed a different picture: Altogether, the aforementioned activities took up only about 14% of the observation time. Even smaller was the proportion found by Palacios et al. (1998) in a Spanish study in which these activities accounted for only 7% of the observed time. Regarding the last study, however, it remained somewhat unclear how the activity categories in question were operationalized. Another activity complex referred to role playing, creative activities (i.e., art, blocks, construction games), and music. Altogether, these activities accounted for approximately 20% to 30% of the observation time (Early et al., 2010; Olmsted & Lockhart, 2003; Tietze et al., 1998; ECCE-Study-Group, 1997; Westermann & de Wall, 1972). However, the pattern of results was not consistent. In contrast to these results, a few studies found substantially lower proportions of these activities (Palacios et al., 1998; Kwan & Sylva, 2001). Fine and gross motor activities, which were considered in several studies, comprised another broad part of the children’s activities. The proportions of these activities varied greatly depending on the study; altogether, fine and gross motor activities accounted for percentages between 16% and 38% of the observation time (Early et al., 2010; Early et al., 2005; Olmsted & Lockhart, 2003; Kwan & Sylva, 2001; Palacios et al., 1998; Tietze et al., 1998; ECCE-Study-Group, 1997).

With regard to the amount of early literacy, early numeracy, and natural science activities of children in preschools, the results of the existing research were also quite inconsistent. In a study conducted in Germany, only language-related activities were captured; they accounted for 6% of the observed time (Tietze et al., 1998). By contrast, findings from Spain and Portugal revealed a much larger amount of children’s language-related activities with percentages of 15% and 17%, respectively (ECCE-Study-Group, 1997). In a study carried out in 15 countries, language- and numeracy-related activities as well as natural science activities together accounted for 9% of the observed time (Olmsted & Lockhart, 2003), whereas Kwan and Sylva (2001) found that these activities comprised 19% of the time in preschools in Singapore. Relatively high proportions of early literacy (17% to 19% of the observed time), early numeracy (8%), and natural science activities (10% to 11%) were detected in a large American study (Early et al., 2005, 2010). Similar results for early literacy and early numeracy activities were also reported by Tizard et al. (1988). The largest amount of early literacy, early numeracy, and natural science activities was found by Palacios et al. (1998): Altogether, the above-mentioned children’s activities took up slightly over 50% of the observation time.
A few studies have also captured the frequency of parlor and board games with the percentages of observation time ranging from 1% to 5% (Tietze et al., 1998; ECCE-Study-Group, 1997). Very occasionally (maximum 1%), technology and media-related activities (i.e., use of computer and videos, listening to CDs) were observed (Olmsted & Lockhart, 2003; Tizard et al., 1988). All of the aforementioned studies referred to cross-sectional findings, but there has been surprisingly little research concerning the longitudinal development of children’s preschool activities over time. In an older study conducted by Blatchford et al. (1987), early literacy and early numeracy activities increased significantly across the time the children spent in preschool, whereas transitions, activities with sand and water, and routines decreased.

In sum, the previous findings may indicate some cross-study activity patterns that children have experienced in preschool settings. However, there is a substantial lack of research on the situation in German preschools as there have been only a few older studies up to now. This is especially true for longitudinal research, which tries to capture feasible changes in children’s activity patterns across the preschool years. In particular, the inclusion of a longitudinal perspective seems rather important because preschool children make major developmental progress in various domains that are considered to be connected to changes in their activity patterns.

Research questions

The current paper will address the question of changes in the occurrence of various children’s activities across the years spent in preschool.

Method

Sample

Data collection was conducted within a German research study with the acronym BiKS-3–10 (BiKS is the abbreviation for Educational Processes, Competence Development, and Selection Decisions at Preschool and School Age, see von Maurice et al., 2007, for an overview of BiKS) carried out at the University of Bamberg, Germany. The analyses refer to a subsample of 65 children (34 of them boys) attending 44 preschool classes located in the two federal states of Bavaria (37 preschool classes) and Hesse (7 classes) who were observed during one “typical” preschool day (i.e., without special events like birthday parties, excursions) in spring 2006 (first preschool year), spring 2007 (second year), and spring 2008 (third year), respectively. Children with a migration background were slightly overrepresented, and 12 children came from families in which the parents’ first language was not German. The average age of the observed children increased from 45.23 months ($SD = 2.89$) in spring 2006 to 69.23 months ($SD = 2.89$) in spring 2008.
Assessment of children’s activities

Children’s activities were captured with a standardized target child observation instrument (Kuger, Pflieger, & Rossbach, 2006), which enabled an observer to record each target child’s activities in the preschool class (see Table 1.2 for a description of the activities).

The coding procedure required that two target children per preschool class were each observed for three measurement occasions of 20 minutes.

Table 1.2 Description of activity categories

<table>
<thead>
<tr>
<th>Target children’s activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition, being unoccupied</td>
<td>Waiting for the next activity, changing place, clearing up toys, or wandering aimlessly</td>
</tr>
<tr>
<td>Napping, cuddling</td>
<td>Lunch break, sleeping, cuddling, and resting</td>
</tr>
<tr>
<td>Caretaking routines</td>
<td>All kinds of caretaking routines and personal hygiene: brushing teeth, going to the bathroom, washing hands, or having lunch</td>
</tr>
<tr>
<td>Role playing</td>
<td>Assuming roles, being involved in fantasy play</td>
</tr>
<tr>
<td>Blocks/construction games</td>
<td>Building blocks, playing with mosaics, wooden and plastic bricks, or Legos</td>
</tr>
<tr>
<td>Dance games, group/circle games</td>
<td>All kinds of dancing as well as games that are carried out in a circle</td>
</tr>
<tr>
<td>Puzzles</td>
<td>Putting pieces together</td>
</tr>
<tr>
<td>Movement games</td>
<td>All kind of games related to movement and running</td>
</tr>
<tr>
<td>Parlor and board games</td>
<td>Card games, dice games, and board games with set rules</td>
</tr>
<tr>
<td>Art</td>
<td>Different kinds of art, such as drawing, coloring, sketching, or modeling</td>
</tr>
<tr>
<td>Natural science</td>
<td>Activities that provide concrete experiences with natural phenomena (e.g., the child cultivates plants, or “experiments” in the kitchen)</td>
</tr>
<tr>
<td>Music</td>
<td>Singing songs or playing instruments</td>
</tr>
<tr>
<td>Oral language</td>
<td>All kinds of conversation about different topics with peers or preschool teachers (“academic” discourse, interpersonal communication)</td>
</tr>
<tr>
<td>Technology</td>
<td>Using computers and videos, listening to CDs, watching TV</td>
</tr>
<tr>
<td>Use of print materials</td>
<td>Precursors to reading, reading out loud, being read to</td>
</tr>
<tr>
<td>School preparation</td>
<td>Number and letter exercises that refer explicitly to school-related activities</td>
</tr>
<tr>
<td>Sand, water</td>
<td>Activities with sand and water indoors or outdoors</td>
</tr>
</tbody>
</table>

Note: Kuger et al. (2006).
(min) divided into 1-min intervals during one morning (from approximately 8 a.m. to noon). At the end of each 1-min interval, the observer coded the activity category in which the target child was engaged. If the child was involved in more than one activity, only the dominant activity was recorded. After each 20-min observation, a 10-min quality rating of the prior observation period occurred on a 7-point scale ranging from 1 = inad- equate quality to 7 = excellent quality (see Smidt, 2012, for further details). As soon as the entire 30-min cycle was completed for the first child, observers moved to the second target child for the next 30-min period. This procedure was repeated three times. For the present study, only the frequencies of children’s activities were used. Interrater reliability was satisfactory and was calculated on a sample of 40 children (Cohen’s $\kappa$: $M = 0.71$, $SD = 0.12$, see Landis & Koch, 1977, for cut-off criteria for Cohen’s $\kappa$).

Statistical analysis
To address the question of changes in the number of children’s activities across the preschool years, doubly multivariate repeated analyses of variance (doubly multivariate designs; Stevens, 2009; Tabachnick & Fidell, 2007) were conducted. This statistical procedure makes it possible to consider multiple dependent variables at the same time of measurement. This is required if the repeated measures refer to multiple variables of mutual dependency. The dependent variables were the 17 activity categories of the children. Therefore, the frequencies of the three 20-min observation periods were summed to produce a potential range from 0 to 60 min for each activity category. Wilks’ lambda ($\Lambda$) was used as the multivariate test statistic. Due to a violation of the assumption of sphericity in many cases and the unreliability of Mauchly’s to adequately demonstrate sphericity (Rasch, Friese, Hofmann, & Naumann, 2006), corrections of the univariate tests according to Greenhouse-Geisser were usually conducted. Post hoc analyses of significant univariate tests were performed with a Bonferroni adjustment (e.g., Scheiner, 2001, for Type I error inflation). Partial $\eta^2$ ($\eta_p^2$) was computed as the effect size.

Results
The results concerning the nature, number, and change in the target children’s activities in preschool are depicted in Table 1.3. In general, the findings indicate changes in the frequencies of the target children’s activities from the first to the third preschool years. The time factor accounted for 26% of the variance in these activities. According to Cohen (1988), this can be interpreted as a large effect. In the following, some main results will be presented in greater detail.

Post hoc tests revealed significant changes in five activities (transitions and being unoccupied, role playing, oral language, school preparation, sand and
<table>
<thead>
<tr>
<th>Activities</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>η²p</th>
<th>Post hoc differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition, being unoccupied</td>
<td>14.06</td>
<td>7.98</td>
<td>10.97</td>
<td>6.39</td>
<td>11.42</td>
<td>6.82</td>
<td>ΛF(34, 224) = 2.30</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td>Napping, cuddling</td>
<td>0.58</td>
<td>1.73</td>
<td>0.17</td>
<td>0.52</td>
<td>0.23</td>
<td>0.79</td>
<td>F(1.20, 76.79) = 2.63</td>
<td>.04</td>
<td>ns</td>
</tr>
<tr>
<td>Caretaking routines</td>
<td>8.18</td>
<td>8.02</td>
<td>7.12</td>
<td>6.93</td>
<td>6.95</td>
<td>5.85</td>
<td>F(1.80, 115.21) = 0.59</td>
<td>.01</td>
<td>ns</td>
</tr>
<tr>
<td>Role playing</td>
<td>3.20</td>
<td>5.95</td>
<td>5.80</td>
<td>6.91</td>
<td>3.18</td>
<td>5.08</td>
<td>F(1.88, 120.57) = 3.87*</td>
<td>.06</td>
<td>2nd year &gt; 3rd year</td>
</tr>
<tr>
<td>Blocks/construction games</td>
<td>4.06</td>
<td>7.35</td>
<td>3.05</td>
<td>4.82</td>
<td>4.20</td>
<td>7.88</td>
<td>F(1.73, 110.44) = 0.75</td>
<td>.01</td>
<td>ns</td>
</tr>
<tr>
<td>Dance games, group/circle games</td>
<td>1.05</td>
<td>3.12</td>
<td>1.69</td>
<td>3.67</td>
<td>2.32</td>
<td>4.24</td>
<td>F(1.97, 126.10) = 1.79</td>
<td>.03</td>
<td>ns</td>
</tr>
<tr>
<td>Puzzles</td>
<td>0.77</td>
<td>2.21</td>
<td>1.63</td>
<td>3.92</td>
<td>0.89</td>
<td>2.82</td>
<td>F(1.84, 117.99) = 1.81</td>
<td>.03</td>
<td>ns</td>
</tr>
<tr>
<td>Movement games</td>
<td>4.94</td>
<td>6.18</td>
<td>4.26</td>
<td>6.02</td>
<td>5.09</td>
<td>7.07</td>
<td>F(1.99, 127.18) = 0.34</td>
<td>.01</td>
<td>ns</td>
</tr>
<tr>
<td>Parlor and board games</td>
<td>3.72</td>
<td>6.17</td>
<td>2.31</td>
<td>4.63</td>
<td>2.45</td>
<td>5.55</td>
<td>F(1.83, 117.25) = 1.38</td>
<td>.02</td>
<td>ns</td>
</tr>
<tr>
<td>Art</td>
<td>6.57</td>
<td>9.43</td>
<td>5.72</td>
<td>6.89</td>
<td>4.23</td>
<td>6.27</td>
<td>F(1.90, 121.27) = 1.65</td>
<td>.03</td>
<td>ns</td>
</tr>
<tr>
<td>Natural science</td>
<td>0.94</td>
<td>2.04</td>
<td>0.69</td>
<td>1.79</td>
<td>1.26</td>
<td>3.23</td>
<td>F(1.81, 115.55) = 0.88</td>
<td>.01</td>
<td>ns</td>
</tr>
<tr>
<td>Music</td>
<td>1.62</td>
<td>2.54</td>
<td>1.71</td>
<td>2.60</td>
<td>1.17</td>
<td>2.03</td>
<td>F(1.98, 126.94) = 1.02</td>
<td>.02</td>
<td>ns</td>
</tr>
<tr>
<td>Oral language</td>
<td>6.60</td>
<td>5.75</td>
<td>8.09</td>
<td>6.31</td>
<td>10.45</td>
<td>9.24</td>
<td>F(1.71, 109.42) = 5.00*</td>
<td>.07</td>
<td>3rd year &gt; 1st year</td>
</tr>
<tr>
<td>Technology</td>
<td>0.14</td>
<td>1.12</td>
<td>1.15</td>
<td>5.16</td>
<td>0.46</td>
<td>2.59</td>
<td>F(1.34, 88.09) = 1.49</td>
<td>.02</td>
<td>ns</td>
</tr>
<tr>
<td>Use of print materials</td>
<td>1.43</td>
<td>3.91</td>
<td>1.68</td>
<td>3.52</td>
<td>1.43</td>
<td>3.51</td>
<td>F(1.88, 120.26) = 0.11</td>
<td>.00</td>
<td>ns</td>
</tr>
<tr>
<td>School preparation</td>
<td>0.17</td>
<td>0.84</td>
<td>1.11</td>
<td>3.77</td>
<td>3.83</td>
<td>7.03</td>
<td>F(1.34, 85.65) = 10.77***</td>
<td>.14</td>
<td>3rd year &gt;1st year, 2nd year</td>
</tr>
<tr>
<td>Sand, water</td>
<td>1.29</td>
<td>4.34</td>
<td>2.57</td>
<td>5.20</td>
<td>0.54</td>
<td>2.31</td>
<td>F(1.46, 93.52) = 4.47*</td>
<td>.07</td>
<td>2nd year &gt; 3rd year</td>
</tr>
</tbody>
</table>

*Note:* n = 65, M = mean, SD = standard deviation, F = statistic, Λ = Wilks’ lambda, η²p = partial eta², post hoc differences: pairwise multiple comparisons with Bonferroni adjustment. p < .05, ns = nonsignificant. *p < .05. ***p < .001.
In each of these cases, the effect sizes indicated at least a medium effect. However, the changes were consistent for only two of the activity patterns; that is, the frequencies of the activities increased from the first to the third preschool years. The target children engaged in oral language activities significantly more often in their third preschool year: They were observed to be involved in these activities for an average of 10.45 min (SD = 9.24; out of a possible maximum of 60 min). In the first preschool year, the frequency was considerably lower (M = 6.60, SD = 5.75). Quite noticeable changes were evident with respect to school preparation activities (exercises that refer explicitly to school-related activities). Whereas these activities played only a minor role at first time of measurement, the occurrence of school preparation activities experienced by the children increased in the second and particularly in the last year of preschool, shortly before compulsory school enrollment. Time explained 14% of the variance in these activities, implying a large effect.

Regarding the frequencies of the activity category use of print materials, however, there was no significant increase until the third preschool year. This seems surprising because it can be assumed that precursors of reading, reading out loud, and being read to should become more important at the end of preschool even in the form of informal and nonexercised everyday activities. However, this was not the case; the observed frequencies of these activities were rather low at all of the times of measurement. This pattern of results did not constitute an exception: Fairly low frequencies across all of the times of measurement also emerged for several other activities (e.g., technology, natural science activities).

However, the findings also revealed that some activities were observed comparatively often. Besides the already mentioned oral language activities, transitions, and being unoccupied, as well as caretaking routines like washing hands and brushing teeth, represented activities in which the target children were frequently engaged at all of the times of measurement.

Discussion

At least some of the aforementioned results should be critically reflected upon in the light of other findings. In accordance with other research (e.g., Early et al., 2010; Tietze et al., 1998), the target children were comparatively often involved in transitions, waiting periods (including being unoccupied), and caretaking routines. But this pattern of results appears precarious (see also Early et al., 2010, for a similar conclusion) as some studies have indicated negative relations between ratings of educational quality and high proportions of transitions, being unoccupied, and so forth (Sylva et al., 2007; Wishard, Shivers, Howes, & Ritchie, 2003). This seems particularly true as there is evidence that an education of good quality is predictive of the development of children’s competencies (e.g., Dearing et al., 2009; NICHD ECCRN, 2006).
Against the background of the importance of experiences in early childhood in relevant domains such as early literacy (e.g., Dickinson, McCabe, & Essex, 2006), the present findings reveal an inconsistent picture. When the results are transformed into percentages, it can be shown that the percentage of oral language activities increases from 11% at the first time of measurement (first preschool year) to 18% in the third preschool year. These results indicate higher proportions than Tietze and colleagues found (6% of the observed time) in an older study, which was also conducted in Germany (Tietze et al., 1998). One feasible explanation for the differences may be found in the introduction of recommendations that emphasize the need for a better implementation of language-related activities in German preschools (Conference of State Ministers of Youth & Conference of State Ministers of Education and Cultural Affairs, 2004). This may correspond with the introduction of more oral language instruction in educational practice. Additionally, the overrepresentation of children from families in which the parents’ first language is not German may lead preschool teachers to provide a stronger enhancement of oral language activities. Finally, regarding increases in oral language activities across the preschool years, one should bear in mind the sophisticated language skills of the target children, who are on average at the age of 70 months at the end of preschool (see Dittmann, 2010; Weinert & Grimm, 2008, for overviews of language development). This means that it is possible that the increase in oral language activities is partly due to the increasing ages of the target children. A quite different picture emerges on early literacy experiences that do not focus primarily on oral language activities as they were defined in this study. The activity use of print materials (e.g., precursors of reading, reading out loud, being read to) comprised 2% of the observed time during the first preschool year; there was no significant change across the other preschool years. Compared to other findings (e.g., Early et al., 2010; Palacios et al., 1998), the frequencies detected here are quite low. It cannot be ruled out, however, that such literacy-related activities have been covered up by other school preparation activities, which increase substantially up to the third year of preschool. Nevertheless, the small proportions of the use of print materials in the form of informal and nonexercised everyday activities seems a point of concern, in particular in the context of the relatively low written language competencies of children at the beginning of primary school (e.g., Martschinke, Kammermeyer, Frank, & Mahrhofer, 2003).

To summarize, the core message stresses that there is a need for critical reflection on the appropriateness of children’s everyday experiences in preschools in order to avoid biased activity patterns. This is particularly true with regard to the relatively large number of transitions, waiting periods, and occasions in which the children are unoccupied or involved in routine care. Research findings suggest that this activity pattern is not consistent with adequate educational process quality (e.g., Sylva et al.,
2007; Wishard et al., 2003). The situation is quite similar with respect to, for instance, the very low proportions of specific literacy-related activities. Adhering to recommendations that have been made with regard to good educational practices (e.g., Tietze & Viernickel, 2007; Bredekamp & Copple, 2009) may help preschool teachers to deal with these challenging tasks. More broadly, improving process quality in preschools is a challenging task in the context of preschool teacher professionalization, which, inter alia, should be focused on reforming preschool teachers' training (e.g., Mischo & Fröhlich-Gildhoff, 2011).

Finally, it should be noted that the robustness of the findings is restricted by some limitations that should be mentioned (see Smidt, 2012, for a more detailed description of the study limitations). These findings were based on a comparatively small sample size from only two federal states. Therefore, caution should be employed when drawing conclusions. Moreover, since 2006, when the current study began, efforts to reform the training of preschool teachers (e.g., Viernickel, 2008) and to implement new curricula in preschools (e.g., Diskowski, 2008) have been pushed forward. Therefore, it is possible that changes in the educational processes in preschools have taken place in the meantime. Future research is clearly needed to examine whether modifications have occurred and the kinds of effects that these modifications may have had. A last limitation addresses methodological problems of time sampling instruments. This type of measure allowed us to capture only a limited number of activity categories (e.g., Mann, Ten Have, Plunkett, & Meisels, 1991). As a consequence, the spectrum of the considered activities should be critically reflected upon in order to enlarge the number of potential observable activities if needed.

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