

## **Early childhood educators' competences for supporting children's academic language skills: Empirical evidence from a German context**

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## **Early childhood educators' competences for supporting children's academic language skills: Empirical evidence from a German context**

This study investigates early childhood educators' language training competence that is required to support children's linguistic development. Hundred-forty-four early-years-professionals in Germany completed a computer-based assessment. We first tested knowledge of linguistic topics (e.g., morpho-syntax, developmental stages). Second, we probed their ability to make relevant linguistic observations in videotaped child-educator-interactions. Third we asked them to select adequate language interventions for the observed child. The participants' knowledge and observing ability scores were slightly above 50% but they scored low in selecting effective interventions. More detailed analyses indicate that those with a higher level of secondary education outperformed low educated early-years-professionals. Only those with intensive specialist training were better equipped to choose appropriate intervention methods.

We discuss the results in light of the current German and (inter-)national practice of early childhood educators' professional training and suggest a greater emphasis on linguistics and language awareness in their education.

## **Language in early childhood education and care and growing expectations for early-years-professionals**

The traditional function of early childhood education and care (ECEC) has changed rigorously: it is no longer an environment for social play and care only, rather it is expected to be the locus of effective preparation for primary school. With increasing numbers of young children attending childcare centres/preschools, the quality of ECEC lately has received growing interest by research, policy and parents (Goodman & Sianesi, 2005; Justice, Mashburn, Hamre, & Pianta, 2008; Whitebook & Ryan, 2011). Language awareness as well as knowledge and abilities concerning language acquisition and support are of focal interest in these discussions as the early and successful development of academic language skills lays the ground for literacy and the educational career in general (Dickinson, 2011).

Recent, European and U.S. official standards emphasise language as an important domain for ECEC (Council of Europe, 2008; U.S. Administration for Children and Families, 2013). This is well reflected in some (but not all) regional and local policies in Germany (Lisker, 2010). For example, the formal curriculum of the German federal state Baden-Württemberg (Ministerium für Kultus, Jugend und Sport, 2006) expects early-years-professionals to possess language awareness, create rich learning environments, enhance the academic language skills of children and prepare toddlers for reading and literacy. They also explicitly require early childhood educators to perform supportive language training with children at risk or at least to screen the abilities of individual children for language training placement decisions (see Mroz & Hall, 2003, for similar standards in the UK).

To our knowledge, there is yet no cross-sectional evidence about how early childhood educators can live up to these expectations. Our study therefore examined

144 early-years-professionals' language training competence empirically in a standardized measurement setting.

### **Implementation of language support programmes: The gap between theory and practice**

The awareness that language is important for school success has made most federal states of Germany implement language assessments for children one or two years before they start primary school at the age of four or five (Lisker 2010). If identified as linguistically at risk, children are enrolled in specific language support programmes. However, despite the pedagogical and financial efforts evaluative research found only minor effects. American and European studies provide similarly discouraging results, see evaluations of the US *Head Start Project* (Zill et al. 2006; Dickinson 2011) or German language support programmes (e.g., Wolf, Felbrich, Stanat, & Wendt, 2011).

Justice et al. (2008) were among the first to suggest that these moderate success rates may be related to the competences of involved professionals. They state that 'many [preschool] teachers in the field may not have received explicit and systematic instruction themselves on how to implement these powerful interventions within their own classrooms' (2008: 66). Whitebook and Ryan (2011) confirm these worries for the U.S. context while Fried's (2008) interview studies revealed that German early-years-professionals do not feel well prepared for the growing linguistic needs of their professional life. Along a similar line, linguists (List, 2010; Rothweiler, Ruberg, & Utecht, 2009; Tracy, 2008) argued from a theoretical perspective that giving language training or identifying children in need for support requires knowledge and abilities that are qualitatively different from other pedagogical tasks, e.g., observing motor skill development.

In sum, the attention ECEC stakeholder had for child language acquisition and for the development of programmes that support their academic language skills was not met by an equal amount of attention attributed to the professional development of ECEC-staff. Even though the educators hold a key role, ‘[...] the knowledge, skills and training needs of early-years-professionals in relation to children's speech and language development’ (Mroz & Hall, 2003: 117) have not been identified in any systematic way. The little scientific work that has been undertaken in this regard mostly relied on self-reports and interviews (e.g., Faas, 2010; Fried, 2008) or is restricted to specific linguistic areas (e.g., Moats & Foorman, 2003, focus on spelling and reading) – but see the special issue (authors (eds.), forthcoming) dedicated to language and ECEC professionals.

### **Language training competence**

From other fields of education we know that ‘good’ teachers who give qualified support to and positively influence their students’ learning outcomes are characterised by high levels of (pedagogical) content knowledge of their subject (Loewenberg Ball, Thames, & Phelps, 2008; Shulman, 1986). Educators’ linguistic knowledge and abilities are important factors for reading and literacy development (Cabell et al., 2011; Justice et al., 2008; Moats, 2009; Piasta et al., 2012). Similarly, (foreign language) teachers with high metalinguistic awareness combined with substantial grammatical knowledge can positively influence their students’ learning achievements, in particular, if the pupils are child second language learners (Andrews, 2001; Cajkler & Hall, 2012; Fillmore & Snow, 2002). If we transfer these findings to ECEC with its growing need for systematic support in child language acquisition due to migration and socio-economic developments, we may expect early-years-professionals have an increased language awareness that builds on what we will call ‘language training competence’.

Based on research into language acquisition and multilingualism Hopp, Thoma, and Tracy (2010) developed a model of language training competence for ECEC (Figure 1). The authors define language training as any specific situation an educator creates purposefully in order to provide a child with relevant linguistic input. They state that effective intervention and support take the current linguistic ability of the child as point of departure and emulate processes of natural language acquisition (Hopp et al., 2010). Following models of competence in primary and secondary education (Shulman 1986; Baumert & Kunter 2006), the model distinguishes three main components of language training competence: (1) domain-specific content *knowledge*, (2) pedagogical content knowledge or *abilities* and (3) *actions*.

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Figure 1

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### ***Knowledge***

According to Hopp et al. (2010), the knowledge component comprises knowledge about language as a cognitive and a communicative system. A competent educator is thus familiar with basic linguistic terminology (e.g., morphology, syntax), knows about conceptual differences between production and comprehension, about dialectal and social variation in language, about developmental stages in mono- and multilingual acquisition, and understands that developmental processes may differ due to structural aspects of the target-language or language domain. In other words, childhood educators are expected to have a high level of language awareness. Competent professionals recognise the appropriateness of an assessment tool, can make informed decisions about when and how to use it, can interpret test results and can justify their choices.

### ***Abilities***

Hopp et al. (2010) define this second component as the strategic competence to select

and apply effective diagnostic tools or interventions based on language-related knowledge. A competent early childhood educator can make correct and specific observations of a child's language behaviour, e.g., 'This child overgeneralises regular formation of past participles to an irregular form as given in (1)'.

(1) 'runn-ed' instead of 'ran' for the irregular verb 'to run'

in analogy to the regular form 'work-ed' for the verb 'to work'

An educator has language training competence if she knows how to plan and reflect on appropriate language interventions that could be used to support a child in general. In the example this may be consistent corrective feedback on overgeneralised verb forms.

### ***Actions***

The third component, actions, refers to the skill to put theory into practice, that is, to implement the knowledge and abilities into real-life situations (Hopp et al. 2010). For example, a competent educator monitors her own language performance, job involvement and attitudes towards multilingualism in her daily ECEC practice and is able to choose appropriate specific materials and methods for effective support.

Theoretically, as Hopp et al. (2010) state, ECEC professionals need all the knowledge, abilities and actions named in their model in order to support child language development – knowing that this ideal may not match reality.

### ***Determinants of language training competence***

Qualifications required by employees in ECEC vary considerably between and within countries. The American National Institute for Early Education Research emphasises: 'Those referred to as early childhood educators are as likely to have earned a BA as to have completed a few college units in child development or early childhood education,



depending on program and state standards' (Whitebook & Ryan, 2011: 2). Similar differences hold for Europe, where educators in Finland have to complete a three-year academic BA (many continuing with an MA; OAJ, 2008), while in Germany most early-years-professionals attend a three to four years combination of vocational training and on-the-job training and only recently academic programmes have emerged (Janssen, 2010).

Furthermore, recent research into professionalism in educational settings (e.g., Baumert & Kunter, 2006; Blossfeld et al., 2012) and earlier work on the relationship between language awareness and language biography (Bialystok, 1988) suggest that also personal characteristics influence individual differences in language training competence. Similarly, motivation for the job and attitudes towards multilingualism count as important factors affecting pedagogical competences (Anders, 2012; Gogolin, 1994). In this article, we examine personal and educational factors but put a special emphasis on early childhood educators' formal qualifications in relation to language training competence.

### **The present study**

The present study investigates those aspects of language awareness of early-years-professionals that are linked to their *knowledge* and *abilities* important for language training competence as defined by Hopp et al. (2010). The *actions* component is not part of this paper (see authors, in preparation). We ask the following research questions:

- (1) What do early childhood educators *know* about language as a cognitive and communicative system and what *abilities* do they have based on their knowledge?

- (2) What *personal and qualification characteristics* that interact with knowledge and abilities are relevant for language training competence?
- (3) What levels of knowledge and abilities do early childhood educators have compared to *other professional groups* with expected lower and higher levels of language training competence?

### ***Method and Design***

#### *Participants*

Hundred-forty-four early childhood educators from urban and rural locations in Southern Germany volunteered in the study. They were paid for participation. Most participants were women in their thirties and forties. Half of the participants considered themselves as monolingual. Overall, they reported a low level of foreign language proficiency and a low to intermediate level of language affinity. Most of them had completed lower levels of secondary education and almost half reported to have not followed any specialist training on language related topics. Roughly one fifth each had attended a training of a short, middle or long duration, respectively. These figures contrast with almost 80% of participants' self-reported experience in providing language training. There were large differences in length of experience on the job and self-evaluated levels of job involvement and attitude towards multilingualism. Table 1 summarises exact figures on their backgrounds.

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Table 1

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#### *Participants of other professional groups*

Twenty-four participants from two other professions served as comparison groups. As a laymen group 18 hairdressers were recruited and paid for participation. Despite the lack

of daily experience in working with young children, members of this profession are roughly comparable to the German early-years-professionals in educational background, age and gender (cf. Bundesinstitut für Berufsbildung [German Federal Institute of Vocational Training], 2012). Their job also requires communicative skills. As compared to the sample of early childhood educators, there were more male hairdressers (28%), and participants were on average younger ( $M_{\text{age}}=30$  years,  $SD=10$ ) and less educated (only 6% had a secondary qualification for university entrance). A pilot sample of six female vocational school instructors, i.e., those who teach future early childhood educators ( $M_{\text{age}}=45$  years,  $SD=10$ , all with a university degree) served as an expert group.

### *Materials*

Through an iterative process of theory-based item generation, extensive piloting with a total of 306 participants including in-service early-years-professionals and relevant students (e.g., of early years and primary education, linguistics) as well as expert ratings, an initial pool of over 300 test items was reduced to the instrument used for the current study (details about the instrument development and the coding of answers are reported in authors2012). For the present study, all participants performed on the computer-based version called *Instrumentname*<sub>v.05</sub>. It consists of 80 multiple-choice questions that tap into linguistic *knowledge* (see example Figure 2). In 29 *observing ability* items participants watched videotaped child-educator interactions and answered related multiple-choice or true-false questions.

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Figures 2 and 3

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In addition, participants justified their choice in a short comment (see example Figure 3). Five *intervention ability* items asked participants to choose two (out of 21)

means that were specifically appropriate language interventions for the observed child. For example, when a child displayed problems with German case assignment, ‘I use various nouns in different cases.’ is an inappropriate option, ‘I forbid the child to use their mother tongue.’ is incorrect, while ‘I would practice the meaning of specific verbs.’ is irrelevant in this specific context. Additional 68 questions addressed the personal and qualification background as well as job involvement and attitudes.

### *Procedure*

*Instrumentname<sub>v05</sub>* was computer-implemented with *LimeSurvey* (version 1.9.1) into four item lists that were counterbalanced over participants. During group sessions in a computer lab up to 25 participants performed simultaneously but individually on the task. Mean time on task was 3h:14min (SD=33min).

### *Scoring and analysis*

The answer key (correctness/appropriateness) to all items was based on the iterative development of the instrument supported by linguistic expert ratings and our own theory-led judgements. Scores on *knowledge* items represent correct responses. After exclusion of items that were too easy ( $M > .85$ ) or did not discriminate well enough, 55 *knowledge* items remained. The *knowledge* component has a fair internal consistency with Cronbach’s  $\alpha = .75$ .

Answers to the *ability* items were double-scored based on the correctness of (1) the selected answer and (2) the justifying comment. Comments were double-blind classified by an author and a second linguistically trained rater. About 10% were rated by a third expert. In case of mismatches, classifications were discussed until agreement. Participants received full credits only when both the marked answer and the comment were correct. Items that were too easy ( $M > .85$ ), yielded low discriminatory power, or

showed frequent mismatches between selected answer and comment were excluded. Finally, twelve items contributed to the *observing ability* score. Based on expert judgements answers to all five *intervention ability* items were scored as either correct, wrong or irrelevant. Totals include correct answers only.

Not least due to low item numbers both *ability* components yielded low internal consistency scores with Cronbach's  $\alpha=.20$  and  $\alpha=.49$  for *observing* and *intervention ability*, respectively. The final instrument *Instrumentname<sub>v06</sub>* (authors, 2012) as a whole has a fair internal consistency with Cronbach's  $\alpha=.77$ . All partial scores were corrected for chance. For the totals, all test components were weighted so that contributed equally to the mean that was normalised to a value between 0 and 1.

## **Results**

The following paragraphs present the data of the main sample of early childhood educators (N=144) focusing on (a) their mean scores on the main- and sub-components of *Instrumentname<sub>v06</sub>*, (b) the interrelationships of components (correlational analyses), and (c) the sources of individual differences. Then we present comparisons with other professional groups (N=24).

### *Scores and relationships of main- and sub-components*

The early childhood educators study reached a mean score of .50, SD=.10, range =.29 - .75. Participants answered on average more than half of the items in the *knowledge* component (M=.56, SD=.14, min.=.28, max.=.85) and in the *observing ability* component (M=.58, SD=.12, min.=.25, max=.90) correctly. For less than a third of the *intervention ability* items participants chose an appropriate option (M=.29, SD=.17, min.=.00, max.=.70).

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Table 2

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Table 2 gives an overview of the scores on different sub-components of *knowledge* (1 to 6) and totals for ‘knowledge about language as a linguistic system’ and for ‘knowledge about language acquisition, assessment and support’ (8 and 9). Generally, they knew more about language acquisition, assessment and support than about the linguistic system. Although some individuals reached exceptionally high or low scores, the sample was altogether relatively homogenous.

*Correlational analyses of main test components with indices of personal and qualification characteristics*

Pearson’s correlations revealed significant relationships (all  $p < .001$ ) between the scores on the *knowledge* and the two *ability* test components. These were moderate between *knowledge* and *observing ability* ( $r = .49$ ) and small between *knowledge* and *intervention ability* ( $r = .28$ ) and between the two *ability* scores ( $r = .22$ ).

We aggregated the responses on personal and qualification background into four indices based on categories defined by Blossfeld et al. (2012). An index for personal characteristics (1) comprises language biography and self-reported language affinity. A qualification index (2) summarises responses on the highest level of secondary education, the institution of professional education (vocational, university of applied sciences, university), position at work (stand-in educator, early childhood educator, head of ECEC centre) and the duration of specialist training on language-related topics. An experience index (3) considers years on the job, experience in giving language support, and reported knowledge about and experience with language assessment tools. A motivation and attitude index (4) integrates job involvement and the attitudes towards multilingualism.

Spearman's correlations between these indices and the components of *Instrumentname\_v06* showed significant moderate relationships between *knowledge* and personal characteristics ( $\rho=.38$ ,  $p<.001$ ) as well as qualification ( $\rho=.47$ ,  $p<.001$ ). The qualification index correlated moderately and significantly with *observing ability* ( $\rho=.27$ ,  $p<.001$ ), while *intervention ability* was similarly related to experience ( $\rho=.25$ ,  $p<.01$ ), but linked weakly to motivation ( $\rho=.19$ ,  $p<.05$ ). *Knowledge* and experience correlated modestly ( $\rho=.18$ ,  $p<.05$ ). Personal characteristics showed weak to moderate correlations with *observation ability* ( $\rho=.18$ ,  $p<.05$ ) and *intervention ability* ( $\rho=.24$ ,  $p<.01$ ).

#### *MANOVA of main components with characteristics of qualification*

Since the qualification index correlated most strongly with the components of language training competence, we performed a multivariate analysis of variance (MANOVA) with 'level of secondary education' (3 levels), 'job position' (3 levels), and 'duration of specialist training' (4 levels) as independent variables. The dependent variables were the scores on *knowledge*, *observing ability* and *intervention ability* (cf. Table 3).<sup>1</sup>

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Table 3

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The MANOVA showed that 'level of secondary education' had a significant and large multivariate effect on the three components. Between-subject analyses indicate that these effects were large for *knowledge* and *observing ability* but moderate for *intervention ability*. 'Job position' generated a significant moderate multivariate effect. Here the between-subject analysis revealed moderate effects on *knowledge* and *observing ability* but a large effect on *intervention ability*. 'Duration of specialist training' did not show any multivariate or main effects. Together with the other two

factors it yielded a significant three-way interaction effect on *intervention ability* of moderate size. None of the other interactions reached significance.

Planned pairwise comparisons for the three factors ‘level of secondary education’, ‘job position’ and ‘duration of specialist training’ revealed interactions: Participants with a qualification to enter university outperformed those with a (general) certificate of secondary education on *knowledge* and *observing ability* (all  $p < .001$ ). The two lower educated groups did not significantly differ from each other.

Participants who were the head of an ECEC centre significantly outperformed regular and stand-in educators on *knowledge* and both *ability* scores (all  $p < .01$ ). Professionals who had followed an intensive specialist training about language of 11 days or more scored significantly higher ( $M = .37$ ,  $SD = .16$ ) on *intervention ability* than those with no training at all ( $M = .26$ ,  $SD = .16$ ;  $p < .01$ ) or those with a shorter training of five to ten days ( $M = .26$ ,  $SD = .19$ ;  $p < .05$ ).

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#### Figure 4

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Figure 4 visualises the three-way interaction of the factors ‘level of secondary education’  $\times$  ‘job position’  $\times$  ‘duration of specialist training’ on *intervention ability*. As visible in the top graph, educators with a certificate of secondary education seem not to profit from specialist training that is ten days or shorter. Furthermore, if they work as a head of an ECEC centre, specialist training may not add much to their *intervention ability* – which is above average already. In contrast, educators with a qualification allowing university entrance who work as a head of an ECEC centre show a growth in *intervention ability* after a shorter specialist training and gain even more when the training is intensive (11+ days). Highly educated stand-in teachers may not benefit that much from any training at all.



### *Comparison of professional groups*

Figure 5 illustrates the scores on *knowledge*, *observing ability* and *intervention ability* of the three different professional groups of the study.

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Figure 5

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A one-way ANOVA revealed significant group differences on *knowledge* ( $F(2,167)=24.38, p<.001$ ), *observing ability* ( $F(2,167)=16.03, p<.001$ ) and *intervention ability* ( $F(2,167)=4.11, p<.02$ ). Planned post-hoc Games-Howell tests correcting for inequality of variance among the groups confirmed that early childhood educators scored .20 points higher than hairdressers ( $p<.001$ ), but .16 points lower than vocational school instructors ( $p<.05$ ) on *knowledge*. Concerning the ability scores the educators outperformed only hairdressers (*observing ability*:  $p<.001$ , *intervention ability*:  $p<.01$ ).

In order to correct for group dissimilarities, a subsample of the educators ( $n=18$ ) matched for age and educational level was compared to the hairdressers. The matched group differences were smaller but remained significant for two components. The early childhood educators' *knowledge* was .11 points ( $t(34)=-3.64, p<.001$ ) and their *observing ability* .17 points ( $t(34)=-4.87, p<.001$ ) better than the hairdressers'.

### **Discussion**

The present study investigated early childhood educators' language awareness with a focus on language training competence as defined by Hopp et al. (2010). To answer our research questions about the state, sources and differences in language training competence, we developed the computer-implemented tool *Instrumentname<sub>v.06</sub>* (authors, 2012) and assessed 144 German early-years-professionals as well as smaller control groups. The following sections summarize and discuss the findings against the background of these three questions.

### ***Early childhood educators' knowledge and abilities***

Our first research question asked what early childhood educators know about language as a cognitive and communicative system. Furthermore, we were interested in their abilities to observe a child's linguistic performance and the language training behaviour of other early childhood educators as well as in their skill to choose appropriate language intervention methods.

Our participants' level of knowledge was slightly above 50% of what linguistic research and theoretical models suggest as being essential to adequately support children's early language development (Hopp et al., 2010; List, 2010). It is encouraging that knowledge about language acquisition, assessment and support reached somewhat higher scores (59%). Similarly, when asked to observe child-educator-interactions early-years-professionals scored at almost 60% of the target observation ability. Finally, in just one-third of the cases participants could select means of language intervention that were appropriate (as defined by linguistic experts).

Altogether these results suggest that our participants may not meet the level of language training competence, which is scientifically and politically desired in ECEC. Even though there were high-scoring individuals (see Table 2), inter-individual variation was low. Given that policy makers and parents rely on ECEC professionals to foster the (academic) language skills of children, in particular, of those from a family with low socio-economic status or with different home languages, these findings are worrying. Yet they corroborate earlier calls for paying more attention to the linguistic needs of ECEC professionals (Dickinson, 2011; Tracy, 2008).

### ***The differential role of pre- and in-service qualification***

Our second research question addressed interactions between early childhood educators' personal and qualification characteristics and their language awareness and training

competence. We assessed a large set of background variables and aggregated them into four indices. The moderate but significant relation between the qualification index and the scores on the *knowledge* and *ability* components is in line with earlier work that emphasises the role of personal characteristics such as multilingualism for language awareness (Bialystok, 1988). The finding that experience and observed language training competence were uncorrelated suggests that highly relevant linguistic/pedagogical content knowledge requires external qualification and cannot be learned ‘on the fly’ by repeating well trained behaviours on the job. Similarly, high involvement and positive attitudes cannot correct for lack of knowledge (see Brunner et al., 2006 for similar findings with teachers of mathematics).

Detailed analyses on the different aspects of pre- and in-service qualification revealed remarkable findings. First, the level of secondary education seems to be highly relevant for an educator’s *knowledge* and *ability*. Those qualified to enter university outperformed professionals with lower degrees of secondary education. Second, additional hours of in-service specialist training about language did not change this picture, unless it lasted more than ten days. Only then they were better able to choose an appropriate language intervention. Third, three-way interactional effects showed that those with an initially higher level of secondary education did benefit from shorter trainings already. Finally, it is encouraging to see that head educators of ECEC centres revealed a relatively high language training competence.

The finding that *knowledge* correlated positively with educational level provides evidence that we assessed relevant knowledge as defined in the construct by Hopp et al. (2010). Language awareness, formal linguistic knowledge about the language system and experience with language acquisition are likely to grow in secondary education. They form the basis of language training competence.

One may criticise that better educated participants will be more familiar with standardised assessment and therefore score higher on any test. However, given that lower educated ECEC professionals outperformed laymen with a comparable educational level and testwiseness (i.e., hairdressers), this cannot fully explain the relationship.

It is yet another question whether this *knowledge* indeed adds to better implementation of language support as hypothesised by Hopp et al (2010). In order to address this issue in the future, we will compare high- and low-scoring early-years-professionals' language training *actions* in their work environment (authors, in preparation). In addition, we will investigate transfer effects on the development of academic language skills in young children that were trained by an educator with a demonstrable high versus low language training competence (authors, in preparation). Both may serve as further support for the instrument (authors, 2012) and the model it is based on (Hopp et al., 2010).

So far, our findings are in line with earlier research that stresses the importance of language awareness and (content) knowledge for educational professionals (Cajkler & Hall, 2012; Fillmore & Snow, 2002; Loewenberg Ball et al., 2008; Shulman, 1986).

### ***The role of profession***

The third research question asked what levels of *knowledge* and *abilities* early childhood educators have compared to other professional groups with expected lower and higher levels of language awareness and training competence. The results of the comparisons with hairdressers (laymen) and vocational school instructors (experts) are encouraging when compared to the early childhood educators' performance against standards set by linguistic theory and educational policy makers. The early-years-professionals showed significantly higher competencies – in particular, on the

components *knowledge* and *observing ability* – than laymen with a similar educational background (hairdressers).

In sum, the comparisons with other professions suggest that, based on the construct by Hopp et al. (2010), we tested *knowledge* and *abilities* that are relevant for the ECEC context. This interpretation is supported by face validity evidence: many of our participants commented on the fact that they lack linguistic knowledge and that they would need more training in this respect.

From methodological perspective, the test *Instrumentname<sub>v06</sub>* we developed for the present study generates performance data that allows differentiating between different levels of language awareness and language training competence. Keeping in mind the psychometric results on reliability and discriminatory power, however, this statement is highly valid for the *knowledge* component but limited for the *ability* components.

### **Limitations**

This study has its limitations and we will specifically address two of them. First, the reliability of the instrument *Instrumentname<sub>v06</sub>* overall is fair but the internal consistency of the *ability* components is not satisfactory. One plausible reason may be the low number of items in these components, which negatively affects correlational reliability coefficients. However, their number is not easy to increase because the format of these items with questions and comments based on authentic videotaped child-educator interactions already reaches limits of time and test-takers' fatigue. Furthermore, these videos show authentic but highly complex situations. It could be that participants performed low because they were overloaded in terms of working-memory demands or distracted, e.g., by background noise in the videos. In the future we will use alternative methods to assess the *ability* components. Foremost, we will reduce the

complexity of the *ability* items – be it at the cost of authenticity – such that they generate optimal circumstances for good test performance. We consider item formats that have a greater emphasis on ranking response options or making situation-specific decisions (e.g., situational judgement tests, Lievens, Peeters, & Schollaert, 2008) and are more time-efficient.

Second, our findings are limited to current educational settings of early-years-professionals in Germany. As the instrument is available online ([www.projectname.de](http://www.projectname.de)), a first step towards international generalizability would be to examine educators in other German speaking countries (e.g., Austria).

### **Summary and conclusion**

Following the growing awareness that language in educational settings matters at an early stage of child development and that early childhood educators play a key role for the development of academic language skills in children, the present study aimed at investigating early-years-professionals' language awareness with a focus on language training competence. We developed the test *Instrumentname<sub>v06</sub>* and assessed the *knowledge* and *abilities* regarding language training and support of 144 early-years-professionals in Germany. The findings reveal that there are considerable gaps between the theoretical ideal (Hopp et al. 2010) and the current level of competences of professionals working in ECEC. As a whole, our findings corroborate Dickinson's (2011) call: 'preschool programs have had some success in meeting children's needs, many have failed to help teachers' language-enhancing practices that are needed to bolster language learning.' (p. 964).

Our data showed some individual (e.g., based on level of secondary education) and professional (i.e., hair dressers versus early-years-professionals versus vocational school instructors) differences for *knowledge* and *observing ability*. Length of specialist

training was positively related to *intervention ability* but only if the training was intensive (i.e., >11 days). This suggests that the test has good discriminatory power and that it assesses competences that are relevant in ECEC.

In sum, based on our findings and keeping in mind the methodological caveats, we recommend to continue the restructuring of ECEC professionals' pre- and in-service qualification. First and foremost, we need more well-educated early-years-professionals who would need to be more appreciated too, e.g., in terms of salary (Whitebook & Ryan, 2011). Second, although it may not be required for future early-years-professionals to attend a university, our data call for a substantial linguistic component in their initial qualification. Third, this study supports earlier insights that only intensive instruction on language training and support, ideally followed by (individual) coaching, of in-service early-years-professionals affects their language training competence (Cabell et al., 2011; Dickinson, 2011; Girolametto, Weitzman, & Greenberg, 2003; Moats, 2009; Piasta et al., 2012; Podhajski, Mather, Nathan, & Sammons, 2009). In short: rather than trying to solve problems with quick-fix workshops, the role of language and early development of academic language skills for the future of children deserve it that the stakeholders of ECEC acknowledge that language awareness and language training competence needs to be learned and taught intensively.

### **Acknowledgements**

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### **Notes**

1. At first, the factor 'age' was included as a covariate. It was removed from the reported analysis because it did not reach significance. Also 'institution of professional education' was excluded for collinearity with 'highest level of secondary education'.

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N.B. All references to authors' publications withheld during review process.

## Tables

Table 1. Background information for early-years-professionals (N=144)

<b>personal</b>				
age in years, mean (SD), range	38.7 (10.4), 21 to 60	gender, N (%)	male 7 (5%)	female 137 (95%)
language affinity <sup>a</sup> , N (%)	low 43 (30%)	intermediate 65 (45%)	high 36 (25%)	
language biography <sup>b</sup> , N (%)	monolingual 72 (50%)	some FL 45 (31%)	many FL 15 (10%)	bilingual 12 (8%)
<b>qualification</b>				
level of secondary education <sup>c</sup> , N (%)	certificate of secondary education 64 (44%)	general certificate of secondary education 40 (28%)	qualification for university entrance 39 (27%)	missing 1 (1%)
specialist linguistic training <sup>d</sup> , N (%)	none 62 (43%)	1-4 days 31 (22%)	5-10 days 25 (17%)	11+ days 26 (18%)
<b>experience</b>				
work experience in years, mean (SD), range	13.7 (10.9), 1 to 42	experience with giving language training, N (%)		113 (79%)
<b>involvement and attitude</b>				
job involvement <sup>e</sup> , mean (SD) out of 5, range	3.04 (0.54), 1.22 to 4.33	attitude towards multilingualism <sup>f</sup> mean (SD) out of 5, range		3.54 (0.47), 2.40 to 4.60

Note. <sup>a</sup>=Language affinity: an index category based on self-reported information about grammatical education at school, reading behaviour, love for language and time spent on language related matters; <sup>b</sup>=Language biography: monolingual=knows one language only, *some FL*=has a low level of one or two foreign languages, *many FL* has an intermediate to high level of several foreign languages, bilingual=grew up bilingually from birth; <sup>c</sup>=The German high school system distinguishes three levels: Certificate of secondary education (9 years of school)=allows for entry to vocational training, General certificate of secondary education (10 years of school)=allows for study at university of applied sciences, Qualification for university entrance (12 or 13 years of school)=allows for entry to university; <sup>d</sup>=specialist linguistic training: duration in days of any specialist training on giving language support, 11+=11 days and more; <sup>e</sup>=job involvement: score on 5-point Likert scale adapted from Reeve & Smith (2001); <sup>f</sup>=attitude towards multilingualism: score on 5-point Likert scale adapted from Gogolin (1994).

Table 2. Scores on sub-components of *knowledge* of participants of main study

<b><i>Knowledge: sub-components</i></b>	<b>Mean</b>	<b>SD</b>	<b>Min.</b>	<b>Max.</b>
(1) Phonology	.43	.27	.07	1.00
(2) Lexicon	.62	.19	.30	1.00
(3) Morphology	.52	.28	.00	1.00
(4) Syntax	.55	.28	.00	1.00
(5) Semantics/Pragmatics	.63	.31	.00	1.00
(6) Sociolinguistics	.56	.30	.00	1.00
(1-6) <i>Knowledge: linguistics</i>	.55	.15	.24	.88
(8) Language acquisition	.58	.14	.23	.93
(9) Language assessment/support	.59	.18	.08	.98
(8 and 9) <i>Knowledge: language acquisition/assessment/support</i>	.59	.13	.20	.96
(1 to 9) <i>Knowledge: total</i>	.56	.14	.28	.85

Note. SD=standard deviation; min.=minimum; max.=maximum

Table 3. Results of MANOVA with level of secondary education (3 levels), job position (3 levels) and duration of specialist training (4 levels) as independent variables and *knowledge, observing ability* and *intervention ability* as dependent variables. Only significant results are shown.

Multivariate effects		Value	F	df	Error df	p	partial $\eta^2$	
Level of secondary education		.358	7.857	6	216	.000***	.18	
Job position		.230	4.684	6	216	.000***	.12	
Duration of specialist training		.055	1.016	6	216	.416	.03	
Between subject effects		Sum of Squares	Mean Square	F	df	Error df	p	partial $\eta^2$
	Dependent variable							
Level of secondary education	<i>Knowledge</i>	.570	.285	21.841	2	109	.000***	.29
	<i>Observing ability</i>	.234	.117	9.092	2	109	.000***	.14
	<i>Intervention ability</i>	.171	.086	3.443	2	109	.035*	.06
Job position	<i>Knowledge</i>	.183	.092	7.014	2	109	.001***	.11
	<i>Observing ability</i>	.093	.046	3.599	2	109	.031*	.06
	<i>Intervention ability</i>	.491	.246	9.874	2	109	.000***	.15
Duration of specialist training	<i>Knowledge</i>	.014	.007	.550	2	109	.579	.01
	<i>Observing ability</i>	.020	.010	.792	2	109	.456	.01
	<i>Intervention ability</i>	.053	.026	1.063	2	109	.349	.02
Sec. education x job position	<i>Knowledge</i>	.060	.010	.765	6	109	.599	.04
x duration of specialist training	<i>Observing ability</i>	.067	.011	.862	6	109	.525	.05
	<i>Intervention ability</i>	.326	.054	2.183	6	109	.050*	.11

Note. df=degrees of freedom; partial  $\eta^2$  (effect size) <.14=strong; .06<partial  $\eta^2$ <.14=moderate; partial  $\eta^2$ <.06=small (Sink & Stroh, 2006); \* =p<.05; \*\* =p<.01; \*\*\* =p<.001; x=interaction

## Figures

Figure 1. Language-training competence translated from Hopp et al. (2010: 614)

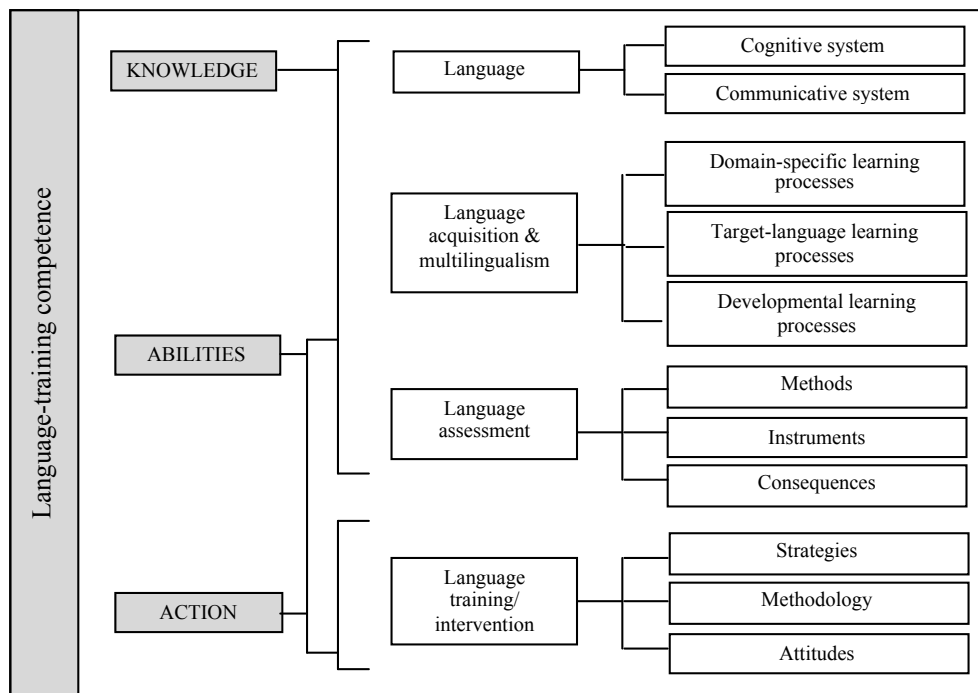


Figure 2. Example item *knowledge*

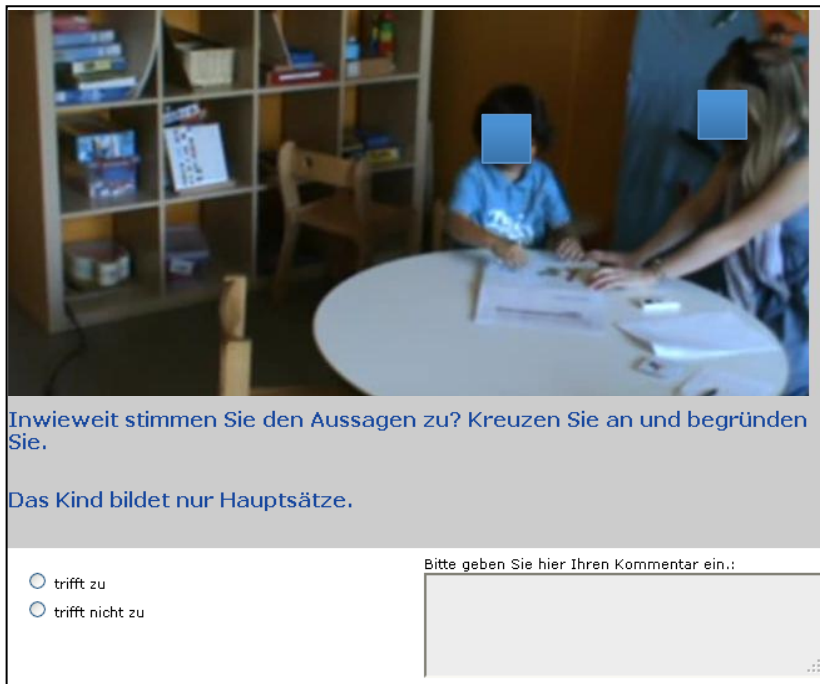
Welche Wörter im untenstehenden Satz sind Pronomen?  
 „Der soll dem Frosch doch nichts schenken“, rief sie und schmolte.  
 Bitte wählen Sie alle zutreffenden Antworten aus.

Der  
 soll  
 dem  
 Frosch  
 doch  
 nichts  
 schenken  
 rief  
 sie  
 und  
 schmolte

**?** Im Test verwendeter grammatischer Begriff:  
 Pronomen = Fürwort

Note. English translation: Which words in the following sentence are pronouns? *‘He was not supposed to give the frog anything!’ she exclaimed and sulked.*  
 Please tick all the correct answers.

Figure 3. Example video-item *observing ability*



Note. English translation: Do you agree with the following statement? Please tick and motivate your choice. *The child uses main clauses exclusively.*  *True*  *False*

Figure 4. Three-way interaction of the factors ‘level of secondary education’ × ‘job position’ × ‘duration of specialist training’ on *intervention ability*

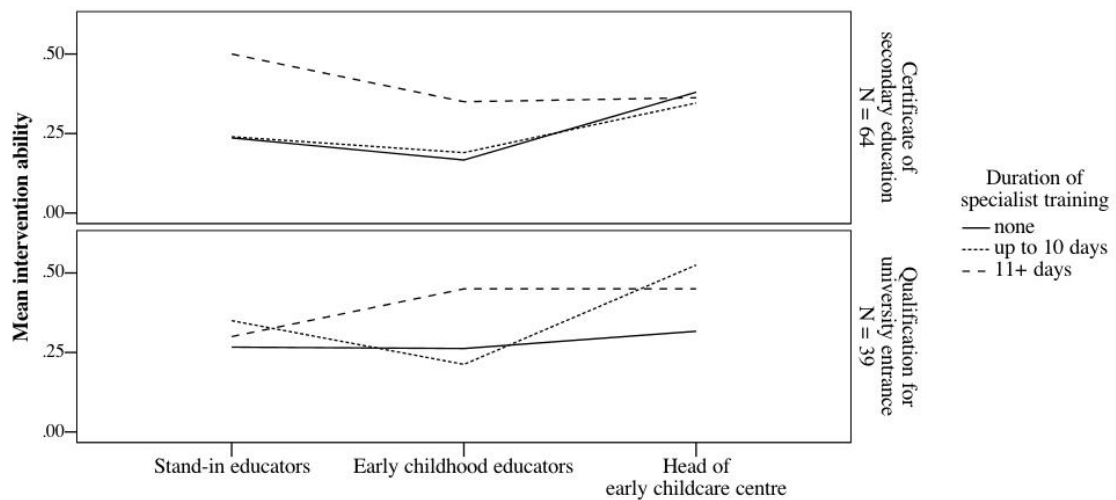




Figure 5. Scores on *knowledge*, *observing ability* and *intervention ability* based on profession: hairdressers vs. early childhood educators vs. vocational school instructors

