

Practices and effects from language assessments and language interventions in Danish early childhood education

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Date
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Page
1/1

Abstract

This paper deals with language assessments and language interventions for three-year-old children in Denmark. The paper presents three studies of language interventions for three-year-old children.

The objectives of the studies are as follows:

- To provide a review of how municipalities have implemented their work to assess three-year-olds' language and to provide a follow-up language assessment.
- To build knowledge about how municipalities have organised their language stimulation initiatives and the effects of these initiatives.
- To describe the three-year-olds' results from the language assessments across municipalities.

The objective of the three studies is to gather knowledge about language work for three-year-olds in Denmark for use in future work on enhancing children's language.

This paper starts with a review of the statutory and administrative framework for language interventions for Danish three-year-old children. It continues with a description of the design and the data basis of the three studies. The final and preliminary results of the three studies are presented.

Introduction to language assessment of three-year-olds in Denmark

Education plays a key role in reducing the transmission of generational inequality and is an effective tool for delivering opportunities for all. In 2007 the Danish Government introduced a national language assessment and intervention programme for all children aged three years. The scheme is internationally unique and one of a number of initiatives in the Danish Government's strategy to ensure equal educational opportunities for all children, irrespective of their social background.

According to the scheme, Danish municipalities must make sure that all Danish parents are offered a language assessment of their child when the child is three-years-old. As approximately 90 per cent of Danish children attend early childhood education programmes, the language assessments are most commonly carried out by the child's early childhood education professionals.

When the Act requiring municipalities to provide language assessments was introduced, the Danish Government had a norm-based language assessment tool developed which is specially designed to be used by early childhood professionals. Language assessments using the material in this tool ("Sprogvurderingsmateriale til 3-årige") takes place in an interaction between parents and the pedagogue. The language-assessment tool includes different language dimensions and it results in recommendations for subsequent pedagogical interventions. Development of the language-assessment material was based on an extensive scientific study of the early language assimilation of more than 6,000 children aged between 8 and 36 months carried out by the Center for Child Language at the University of Southern Denmark (for further information, see Blese et al 2008). The material contains three results categories: a) general interventions, i.e. children with age-appropriate language (standardised at 85%), b) focussed interventions, i.e. children without age-appropriate language and requiring extra interventions at the daycare centre (standardised at 10%) and c) special interventions, i.e. children with significant language difficulties who require a follow-up programme, possibly under the municipal pedagogical, psychological advice unit (PPR) (standardised at 5%). The majority of municipalities use this language assessment tool, but they are free to choose any method to complete language assessments, meaning that some municipalities use other types of language assessment materials.

If the language assessment shows that the child's language development is not age-appropriate, the municipality must offer the parents an intervention for the child, either at the daycare centre or under the PPR unit (see above), where a speech-hearing therapist will usually be responsible for the intervention.

Below is a presentation of the three studies of the organisation of language assessments and language interventions as well as the results for three-year-olds. There is a description of the design of each study as well as the method of data collection chosen. Final and/or preliminary results of the studies are also provided.

Practices in local governments and early childhood education

The organisation of language-assessment work and follow-up language interventions is described, firstly at national level through a questionnaire survey on the work of the municipalities with language assessments and language-stimulation initiatives, and secondly through case studies of practice at the administration and at institution level in two municipalities. This section presents the design of the studies and the final and preliminary results of the two studies.

A national view

The data basis for the study is an internet-based questionnaire survey conducted by the Danish Evaluation Institute in October/November 2009 in all 98 Danish municipalities. Replies have been received from 93 municipalities; a response rate of 95 per cent. This response rate is extremely satisfactory.

The questionnaire survey describes the principal trends relating to municipalities' implementation of language work with regard to communicating the programme to parents of three-year-olds, choice of language-assessment materials, as well as municipalities' registration practices and strategies regarding upgrading professional skills for pedagogical personnel and practices for conducting language assessments and follow-up language interventions.

Communication of the language-assessment programme

Since the introduction of the Daycare Facilities Act in 2007, municipalities have been working on implementing the language-assessment programme to all children and developing the practices for follow-up language-stimulation initiatives at daycare centres and PPR units. Many municipalities have come a long way in the implementation process. In fact, 89 municipalities (96%) state that they offer language assessments to all three-year-old children. The questionnaire survey also shows, however, that there are still some municipalities which do not systematically offer language assessments to all three-year-olds. In four municipalities language assessments are not offered to three-year-olds being cared for in a private home, while there are currently nine municipalities which neither offer language assessments to three-year-olds in daycare at private homes nor at daycare centres.

Page
3/11

The majority of municipalities use the same assessment materials

The majority of municipalities (74 municipalities, corresponding to 86%) use as a minimum the standard language assessment materials for three-year-olds; this is 21 more municipalities than in 2008. In 2009, just over one-fifth of municipalities (21%) used the standard materials (Tidlig Registrering Af Sprogudvikling (TRAS)), either as the only materials for language assessments or to supplement other materials. In addition two or three other assessment tools are used by a few municipalities.

Registration practice under development

Compared with 2008, the year 2009 saw progress with regard to the registration practices applied by municipalities in work on language assessments and language stimulation (Danish Evaluation Institute, 2008). Broadly there has been an increase in the total amount of information registered by municipalities. However, it should be noted in particular that, in 2009, more municipalities (two-thirds of municipalities) registered the number of children requiring special interventions by a speech-hearing therapist, or similar, or follow-up language interventions by personnel at the daycare centres. Moreover there has been an increase in the number of municipalities collecting information about the number of children not requiring a language intervention as well as the number of children whose parents have refused the offer of a language assessment.

Upgrading of skills and continuing training for pedagogues and carers

The study also shows that, in connection with implementation in municipalities, there is a huge amount of upgrading of skills and continuing training for pedagogues and carers to help them in language assessments and the follow-up language-stimulation initiatives at municipal daycare centres. Of the 83 municipalities which answered the question, only six municipalities deemed that it was not necessary to offer upgrading of skills courses for daycare-centre personnel, while 80 municipalities have either upgraded the skills of all peda-

gogues, or specific pedagogues (e.g. those responsible for language) at the relevant daycare centres, they are planning courses to upgrade skills, or they have implemented other types of initiative to upgrade personnel's skills.

Performance of language assessments and language interventions

With regard to three-year-olds who are in a daycare centre, by far the majority of municipalities language assessments are performed by a pedagogue with a continuing training qualification within language assessment and language stimulation, or the child's designated senior pedagogue. In a minority of municipalities, a speech-hearing therapist or some other person from the administration/PPR with a language qualification may be responsible for the language assessment.

When focus is on children being cared for in private homes, a home-care pedagogue, a speech-hearing therapist, or some other person from the administration/PPR with a language qualification will often carry out the language assessments. The issue is even more uniform with respect to children who are neither being cared for at a private home nor at a daycare centre. Here, the majority of children are assessed by a speech-hearing therapist or some other person from the administration/PPR with a language qualification.

Page
4/11

Language stimulation for children at daycare centres can be carried out by many different professionals, although the child's designated senior pedagogue or a speech-hearing therapist, or some other person from the administration/PPR with a language qualification is usually involved. For children being cared for in private homes, a speech-hearing therapist, some other person from the administration/PPR with a language qualification, a home-care pedagogue, or childminder, will usually carry out language stimulation. Children who are neither being cared for at a private home nor at a daycare centre almost always receive language stimulation from a speech-hearing therapist or some other person from the administration/PPR with a language qualification.

A total of 47 municipalities (53%) work with 'language groups' in which the relevant children are gathered to receive language stimulation and the daycare centres themselves usually administer how the 'language groups' are organised with regard to the children's language level. Furthermore, the majority of children requiring follow-up language-stimulation initiatives usually receive these within their own institution.

Effect evaluation of language work in two case municipalities

The annual studies presented above of municipal organisation of language interventions for three-year-olds provide knowledge about developments and general trends in municipal organisation of language interventions.

However, quantitative studies do not enable more subtle knowledge about how language interventions are organised and implemented at institution level. In order to obtain deeper knowledge about language work at daycare centres, the Danish Evaluation Institute is currently carrying out case studies of language work in two municipalities. In addition to obtaining more detailed knowledge about language interventions, there is also an ambition to try and identify the effects of the language interventions for children. As mentioned above, the study of the follow-up language interventions and their effects has not yet been completed, so the presentation here is of preliminary results.

The Act which implemented compulsory language assessments for three-year-olds, and the standard assessment materials which have been developed (Sprogvurderingsmateriale til 3-årige) have brought increased focus on language work at daycare centres for children who need more focussed language interventions. On this basis, in the case studies we have decided to concentrate on the interventions being carried out at daycare centres for children who do not have age-appropriate language skills and therefore require extra interventions at the daycare centre; what are called 'focussed interventions'.

Two municipalities are taking part in the study which, on the basis of their replies to a questionnaire on implementation of language interventions in 2008, are considered as well advanced in organisation and implementation of language work at both administration level and at the individual municipal daycare centres. Three institutions from each municipality are taking part in the study. A central criterion for selection of institutions was that they should have experience in working with children whose language assessment has showed that they should have focussed interventions at the daycare centre.

Study of effects

The study of the effects of the language interventions taking place in the daycare centres participating in the study involves a number of methodological challenges. Firstly, effect studies in general involve certain methodological challenges, for example it is often difficult to isolate the effect of a specific intervention from other activities and from the natural maturing process which often takes place. Setting the optimal time for measuring short-term and long-term effects respectively can also be challenging. Secondly, there are some special challenges linked to a study of the effects of language interventions at daycare centres. One challenge is that interventions to enhance children's language at Danish daycare centres are rarely described in detail and often vary from institution to institution. Another challenge is that in Denmark there are currently only standards for 'normal language development' for children aged between 18 and 36 months, making it difficult to say whether an intervention at three years leads to the child having normal language level at 3½ years old, as there are no standards for normal language development against which to measure the individual 3½-year-old child.

When evaluating the effects of an initiative, it is possible to apply different methods or approaches. 'Classical' effect measurement is a quantitative-oriented tradition which builds on random sampling trials or various similar statistical approaches. An alternative to this is the more process-oriented approach known as 'realistic evaluation' or 'effects evaluation' (see Tilley and Pawson, 2003 or Dahler-Larsen and Krogstrup, 2003 for example). The idea behind effects evaluation is to start with the existing perceptions of how an intervention is working and, through a study of the practice, ascertain whether these perceptions have been transferred into practice, whether they have had the desired effect, and if so, for whom and under what circumstances. By designing the study as an effects evaluation, focus is on how an intervention is to lead to a specific result.

The effects approach has a number of advantages compared with a study focusing on both how interventions are organised and the effects of these interventions. The approach makes it possible to get very close to the interventions and describe these and the causal relationships which contribute to making the interventions effective. The design of the ef-

fects evaluation does not meet all the methodological challenges mentioned above, but it does make it possible to identify the sub-interventions which are especially effective and to assess whether the various sub-interventions are contributing to the outcome.

With this background, it was decided to design the study as an effects evaluation. This means that, as part of the study, we described municipalities' and institutions' perceptions of what interventions are leading to the desired effects or results, i.e. what causal relationships can be identified. A programme theory was set up which describes the most important activities in municipal language interventions, as well as the desired short-term results of the activities (results which are expected in relation to the immediate target group, e.g. pedagogues) and the desired long-term results (results in relation to the final target group, the children).

The programme theory was set up on the basis of information received from the participating municipalities/institutions and from contributions from a group of experts with special expertise in child language. After this, we examined whether the practice was the same as that predicted by the programme theory. This was done by testing the effect chain, link by link. During this process we also focussed on how/when the people taking part in the interventions perceived that the interventions were working, as well as collecting other data to identify the outcomes of the interventions.

Data sources involved in testing and analysing the programme theory included: Interviews with specialist consultants in the municipal administration, speech-hearing consultants, heads of daycare centres, pedagogues at institutions responsible for language, senior pedagogues, parents of children who have received a focussed intervention, results of language assessments, action plans for specific children prepared on the basis of language assessments, reassessments of children who have received follow-up language interventions, as well as other written material on language work from administrations and institutions.

Language interventions in the two municipalities - hypotheses and rationale
In both municipalities participating in the study, introduction of statutory language assessments of three-year-olds has served as a stepping stone for initiating extensive interventions at municipal level. These interventions involve organisational changes in both administrations and institutions, prioritising continuing training in children's language for pedagogues, increased supply of resources for carrying out the task at institutions, as well as increased focus on the language task in the ongoing communication between institutions and the municipal daycare centre administration.

Both municipalities have decided to introduce pedagogues responsible for language as central figures in the municipal language interventions. The pedagogue responsible for language is a pedagogue from the institution, who has participated in a competence development process regarding language assessments and children's language, and who has been assigned individual responsibility for language work at the institution.

The programme theory behind establishing a function with pedagogues responsible for language is that anchoring the task with one or two pedagogues responsible for language ensures focus on the task, both administratively and as regards to content. This means that all three-year-olds are offered language assessments and follow-up as required and the

necessary specialist knowledge for carrying out language assessments and language stimulation is present at the institution. Follow-up language interventions, in particular, require knowledge communicated from the pedagogue(s) responsible for language to the other pedagogues at the institution; i.e. 'peer learning'. The pedagogue responsible for language also acts as a contact person in relation to the municipal administration and is responsible for disseminating information between the institution and the administration.

The programme theories behind the specific interventions for three-year-olds in the two municipalities express an overall hypothesis that language interventions for three-year-olds must contain the following three elements in order to be effective:

- Language activities in small groups (composed of children with the same language requirements or different requirements, depending on the emphasis on an inclusive approach to the language work),
- Ongoing general interventions from the senior pedagogue integrated in daily pedagogical practices, and
- Parents taking part in the interventions by continuing language interventions at home.

Effects of language interventions for the pedagogical personnel

Employees at participating institutions and at municipal administrations state that focus has increased on language at the institutions after having implemented language assessments for three-year-olds. The development has also led to a change in how pedagogues and administration employees perceive how responsibilities for children's language development are allocated. Prior to the introduction of language assessments, the perception was that, to a large extent, external speech-hearing therapists were responsible for helping children with their language difficulties. However, enhancing the qualifications of internal personnel and changing the organisation of institutions has initiated a change in the attitude, so that the perception is now that institutions have primary responsibility for children's language development and specific language problems.

Pedagogues responsible for language - advantages and difficulties

As mentioned earlier, the introduction of one or more pedagogues responsible for language at the institutions is an important element in the implementation of language interventions in the municipalities participating in the study. Preliminary results indicate a number of advantages, but also some difficulties connected with the introduction of pedagogues responsible for language at institutions.

Pedagogues in the study find it important that the pedagogues conducting the language assessments of three-year-olds build up a routine in conducting these assessments and the subsequent preparation of action plans based on the results of the assessments. In addition to this, language assessments benefit from being conducted by a few designated language pedagogues at the institutions.

The institutions also benefit from having a person with specific knowledge on language assessments, children's language development, and tools, which can be applied to help children with various language problems.

However, the policy of designating one or more language pedagogues with special responsibility for conducting language assessments poses a number of challenges. Many institutions have a low degree of knowledge dissemination on language assessment results and on relevant follow-up interventions from language pedagogue to senior pedagogues. This makes it difficult to implement follow-up efforts, if the language pedagogue, who has assessed the child's language, does not work with the child on a daily basis.

As a consequence of difficulties in ensuring knowledge dissemination, some institutions have trained more language pedagogues so that there is one for each department of the institution. This reduces the challenge of disseminating knowledge about the individual child.

Pedagogues' appraisal of the language assessment tool

In general, the participating pedagogues believe that language assessments are an excellent tool for developing their practice and assessments are useful in the dialogue with parents. Several pedagogues state that applying the tool legitimises their professional assessments in relation to the parents. They also stress the positive fact that parents participate in the assessment by answering questions about their child's language. This increases parent's awareness of their child's language and their involvement in the interventions that may take place at home.

Page
8/11

The study also indicates that language assessments provide pedagogues with more knowledge about the more subtle aspects of children's language challenges. Whereas pedagogues are not necessarily surprised by the overall results of the assessments, the systematic of the assessments means that knowledge is built on the specific areas that may need support, including children with less serious language problems, e.g. children who are assessed to require general interventions. Moreover, sometimes language assessments provide new knowledge about hitherto unknown resources in children.

Effects of language interventions at child level

The study uncovers children's language development through qualitative interviews with pedagogues and parents about their assessment of children's language development, and through collection of data from reassessments of children three-four months after the original assessment using the material on which the children were originally assessed.

On the basis of the data collected on the effects and results of reassessments, children in the study have been categorised in the following seven groups:

1. Children for whom we do not have enough data to decide whether actual language development has taken place. Either because the period from the first language assessment to data collection was not long enough, or because it was not possible to interview parents or pedagogues who know the child.
2. Children, who have not developed their language or have experienced very little language development from the first language assessment to the time of data collection.
3. Children, who have developed their language, but parents and/or pedagogues suggest that this is due to a physiological development/change or a change in the child's social situation. For example, the child has had his/her adenoids removed, or the

child's parents have been divorced and the child has grown accustomed to a new life after a transition period.

4. Children, who have developed their language and whose parents and/or pedagogues primarily ascribe the change to the fact that the child has started kindergarten and therefore is part of a more challenging language environment, than that in a day nursery/daycare in a private home/the child's own home.
5. Children, who have developed their language and whose parents and/or pedagogues primarily ascribe the change to the interventions at the institution specifically aimed at the child.
6. Children, who have developed their language and whose parents and/or pedagogues primarily ascribe the change to the interventions at home.
7. Children, who have developed their language and whose parents and/or pedagogues primarily ascribe the change to the interventions of a speech-hearing therapist.

Isolating the effects of daycare centre interventions on children's language development is extremely difficult. However, parents and/or pedagogues suggest that institutional efforts can be ascribed to having an effect on around 25% of the children participating in the study. This is either due to the positive effects of interventions aimed specifically at the child, or because the child is generally part of a more challenging language environment at the institution, than the previous environments the child met elsewhere. In cases where institutional interventions have positive effects, the decisive factor has often been that the child has participated in activities in small groups of children.

The effects illustrated in the study are relatively short-term (3 to 12 months). It would be relevant to examine any long-term effects of language interventions initiated at the age of three.

Children's results

The children's results were uncovered through a register study on language assessment results of three-year-olds. The study included data from Sprogvrdering.dk on the results of language assessments conducted with three-year-olds using the language assessment material for three-year-olds in 34 municipalities. Sprogvrdering.dk is an internet-based management system for administration of language assessments conducted with the material. The Center for Child Language at the University of Southern Denmark has developed the system collaboratively with Mikro Værkstedet A/S.

The Center for Child Language at the University of Southern Denmark has carried out the register study collaboratively with Mikro Værkstedet A/S, who developed Sprogvrdering.dk. The register study includes around 15,000 children, of whom 13,000 were language assessed in the period 6 February 2008 to 11 November 2009. The remaining 2,000 children have not completed language assessments, as their parents did not accept the language assessments programme. Data on children's language assessment results have been coupled with a number of background variables through the child's civil registration number (CPR number) in order to uncover the extent to which these background variables can explain the results of the language assessments of three-year-olds and whether the variables can explain why some parents refuse a language assessment programme. On the basis of this data, Mikro Værkstedet A/S and the Center for Child Language have set up a multinomial logistic regression model, which analyses whether the variables mentioned

above can explain the child's language assessment results broken down by the three results categories, according to which the language assessment material for three-year-olds works, i.e. children who need general, focused or special language-stimulation initiatives, respectively. A logistic regression model has also been set up to study whether the parent's refusal of the language assessments programme for their three-year-olds can be explained on the basis of the variables mentioned above.

Finally, the around 15,000 children, who have been language assessed with the material and are included in Sprogvrdering.dk, were compared to all other children in Denmark, who were two years' old on 1 January 2009 (around 335,000 children). Results of the comparison show that the group of children in the study can be regarded as representative in relation to their parent's educational background and the child's gender. Note, however, that the two groups deviate, depending on the region in which the child lives. Furthermore, the group of children in the study is under-represented with regard to immigrants and descendants from non-Western countries (5%).

Through the language assessments carried out, 83% of the children were assessed to have age-appropriate language development and required general interventions, 8% were assessed to require focused interventions and 9% were assessed to require special interventions (e.g. speech therapist). Altogether 17% of children were assessed not to have age-appropriate language development. The 9%, who were assessed to require special interventions, is particularly surprising, as this is almost twice the number as standardised (see above).

The register study on results of three-year-olds shows that more language-assessed boys have been assessed to require language interventions than language-assessed girls, even though the language assessment material for three-year-olds has been designed so that boys and girls are equally likely to be placed within the three results and follow-up categories.

Another interesting factor is that the educational level of parents is important for the language assessment results of three-year-olds. Basically, the study shows that the higher the educational level of parents, the smaller the risk that children will require either focused or special language-stimulation initiatives. The register study also shows that both the origin of three-year-olds and their families' labour market association are important for language assessment results. However, the study shows no difference in the children's results with regard to the region of Denmark in which they live.

Regarding parents' refusal of the language assessments programme, the study shows that three-year-old boys are more likely to complete language assessments compared to three-year-old girls. The educational level of parents is also important here, as parents with high educational levels are more likely to refuse the offer than parents with lower educational levels. Finally, it should be stressed that the likelihood of parents being against the offer of language assessments differs greatly across the five regions, whereas the study shows that the families' labour market association does not have an impact on whether they accept the offer of language assessments.

Conclusion and future perspectives

Recent years have seen increased focus on language assessments of Danish three-year-olds. This paper presents the results of our preliminary study of language assessments and follow-up interventions. The study answers a number of questions about practices in relation to language assessments, follow-up interventions and results of language assessments of Danish three-year-olds. The study also raises new questions, which will be relevant to address in more detail. These include the question of whether it will be possible to measure more long-term effects of language assessments initiated at the age of three.

At the time of writing, a number of changes in this area are on their way. The Danish Government has suggested amending the provisions on language assessments of three-year-olds, so that in the future not all children will be offered language assessments, but only children who have been assessed to have language problems. The purpose of this suggestion is to provide pedagogues with the opportunity to concentrate resources at children who actually require help with their language development. Compared to the current scheme, the idea is that pedagogues will play a different role in language assessments of three-year-olds. This means that they will carry out a pre-screening to determine which children require language assessments, rather than assess all children's language. The aim is also to coordinate language assessments of three-year-olds with the language assessments introduced for all children starting school in 2009. The area is therefore constantly changing and developing.

In the years to come, the Danish Evaluation Institute will continue to follow developments in this area and provide knowledge for use in the political decision-making processes, and in pedagogical practices concerning children's language.

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