The INPP-School Programme: Impact on behaviour and reading skills

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Introduction

I first came across the INPP School Programme (Goddard-Blythe, Assessing Neuromotor Readiness for Learning: The INPP Developmental Screening Test and School Intervention Programme, 2012) in my work as primary school teacher in 2013. This Programme was developed by Sally Goddard-Blythe in 1995 for work with groups of children on the basis of the system of clinical Neurodevelopmental Delay Therapy established by Peter Blythe in the 1970ies (Blythe & McGlown, 1979).

Having trained to administer the INPP School Programme, I found that children I had taken through it performed better than the children in my previous classes.

These children also found it noticeably easier to learn to write and wrote altogether more fluently and legibly. Given that writing is a complex motor skill, quite besides its cognitive demands, this struck me as significant. In addition, the colleagues who took over my class in 3rd grade reported a noticeable difference in the children who had completed the Programme as compared to those who hadn't.

All these observations led to the idea of conducting a study into the effect of the INPP School Programme on the academic achievement of first-graders. We were supervised by Anja van Velzen and Ted Pawloff.

Method

During the first weeks of the school year 2016/17, Helena Pawloff and I tested the 26 children of the two first grade classes. Their average age was 6.5 years. The experimental class which subsequently completed the INPP School Programme comprised 11 children. The 15 children of the control class did not take part in an exercise Programme.

The variables which we monitored included neuromotor development, behavioural adjustment and reading skills.

For assessment of neuromotor maturity, we used elements of the INPP Test Batteries (Goddard-Blythe, Screening test for physicians, 2012).

To document the behaviour of the children, the class teachers completed extensive questionnaires (DISYPS-II, 2008). The following dimensions were evaluated: concentration, the capacity to organise oneself, perseverance, distractibility, self-regulation and social adaptability.

Evaluating reading skills turned out to be particularly challenging. We found no standardized German language tests applicable both to preschool children and to school children. We improvised by selecting two subtests from the „BASIC-Preschool-Test" (Daseking & Petermann, 2008) which measure visual-spatial performance and language

comprehension. We subsequently compared these results with those from the „Salzburger Reading Screening“ (Mayringer & Wimmer, 2003). As this test is standardized and allows international comparisons, we assumed that it could be administered by the class teachers themselves. In the event, however, we found that even a standardized test can be administered very idiosyncratically.

To permit comparative evaluation, we assigned the results of all these tests to the categories “fit”, “at risk” and “with difficulty”.

Procedure

Helena Pawloff and I tested both classes at the beginning of the school year 2016/2017. The experimental class followed the INPP School Programme, consisting of daily movement sequences, the control class did not follow any special Programme. The parents of the control class had been promised that their children would also benefit from the INPP School Programme in the following year. At that time, we had not yet reached the conclusion that one school year is too short a time to complete the programme adequately. Therefore, as regards the reliability of our results, we have regretted this commitment. One conclusion could be that such comparisons should generally be carried out between different schools.

At the end of the school year, we tested the children again. At the end of the current school year, when the experimental class will have completed the entire INPP School Programme and the control class will be part-way through, the children will be tested again. In order to arrive at a result regarding reading competence, the children were also tested in February 2018.

Results

1. Comparison of reading competence

The tests produced the following results in the autumn before study-start (Fig. 1 and 2).

In spring 2017 we asked the teachers themselves to administer the reading test. Unfortunately, it became apparent at a later stage that one teacher had given the children more time for the test than the other one. Therefore we do not present these results in detail. In autumn of 2017 the children of the control class (now reduced to 13 children) also started on the INPP School Programme.

Despite the fact that both classes are now following the INPP School Programme, a difference in reading competence is still apparent, consonant with the difference in duration of exposure to the Programme (Fig. 3 and 4).

In the experimental class, of the 27% “with difficulty” and the 27% ”at risk” children, only 9% remained in the “at risk” category.

In the control class, of the 8 % “with difficulty” and of the 54% “at risk” children, 15% remained in the “at risk” category, although this class had been following the exercise programme for a semester by this time.

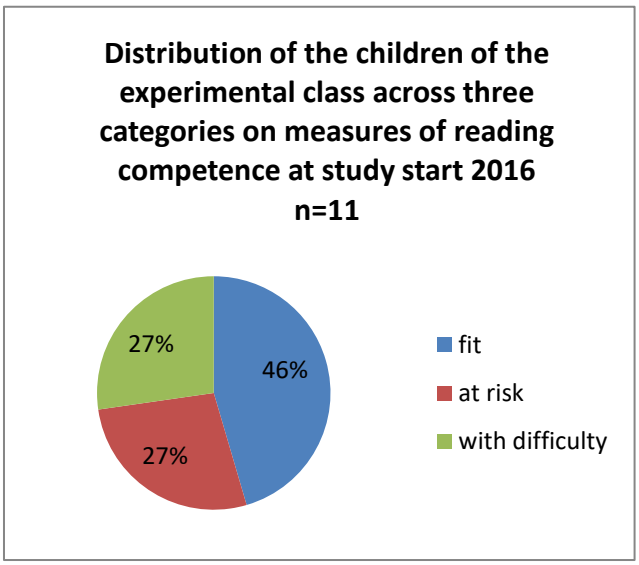

Figure 1

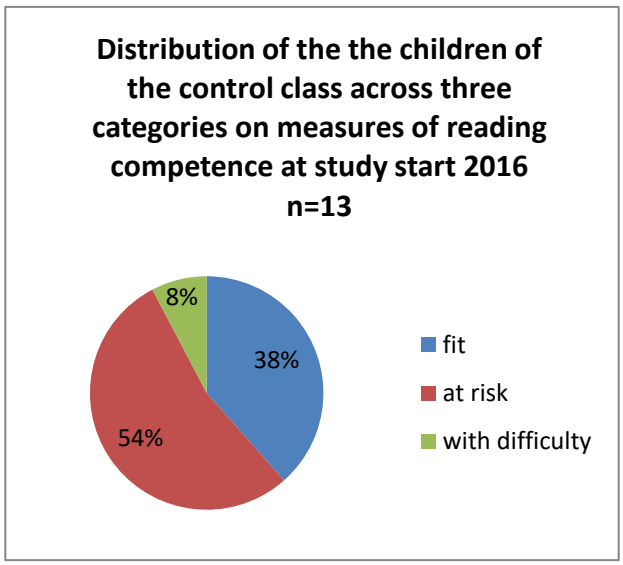

Figure 2

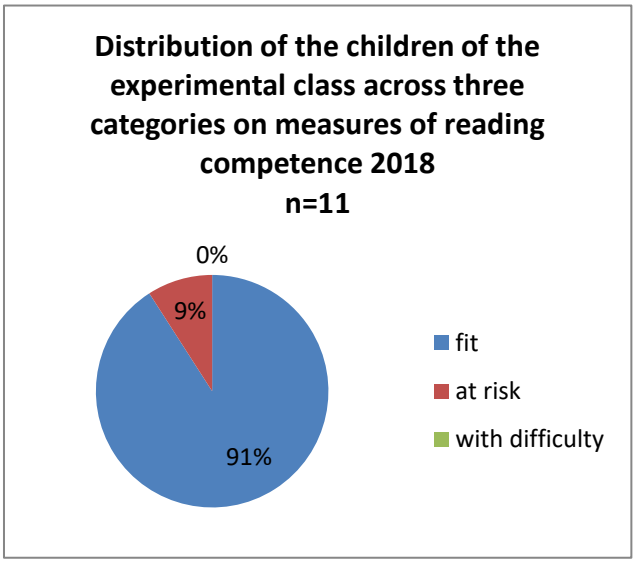

Figure 3

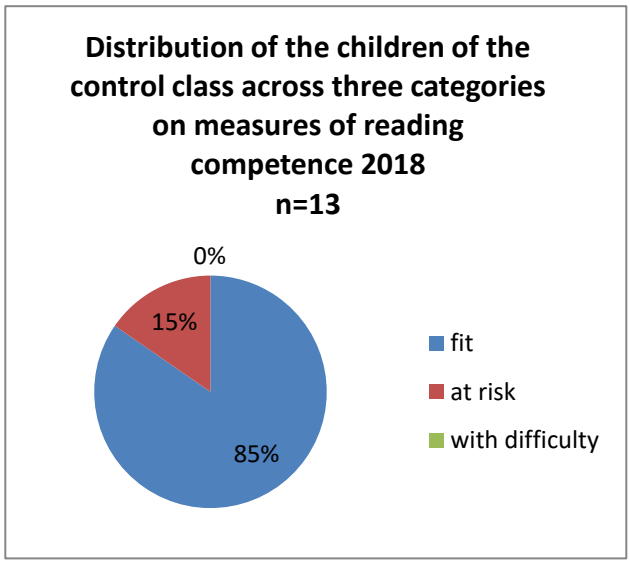

Figure 4

2. Comparison of behavioural measures

After one academic year, we were able to compare the results of the INPP test battery and the behavioural questionnaire in the summer of 2017. Figure 5 shows to what extent the children improved on these measures during this period (at that time, the control class numbered 15 children).

It shows the comparative improvement from either the "at risk" or "with difficulty" category to the "fit" category (100% would mean all possible steps from the categories "with difficulty" and "at risk" to "fit" had occurred).

The improvement in neuromotor maturity of the experimental class was 80%, as compared to 7.7% for the control class.

As regards behavioural measures, the experimental class achieved 75% of the possible incremental steps, the control class only 8.3%.

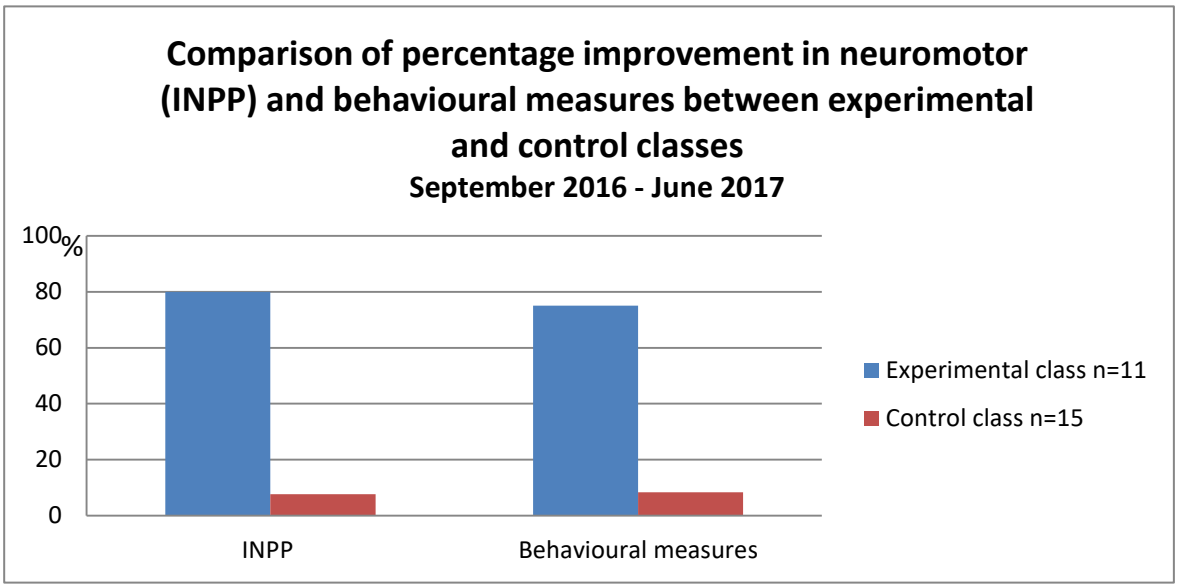

Figure 5

This difference in the improvement of the children's behaviour became apparent through interviews with the teachers well before the test results became available. By the end of the first year, the teacher of the experimental class described clear improvements in the children's self-confidence and ability to concentrate. At the same time, the teacher of the control class complained of distorted self-perception, problems with self-organization, poor focus and other difficulties in relation to several of her pupils.

3. Correlation of neuromotor and behavioural scores

Figure Nr. 6 shows the deviation in percent from perfect scores for both neuromotor maturity and behaviour for each child.

It is striking that children with high scores on behavioural difficulty always also show high levels of neuromotor immaturity. Similarly, there is a strong correlation of the two measures for most of the other children.

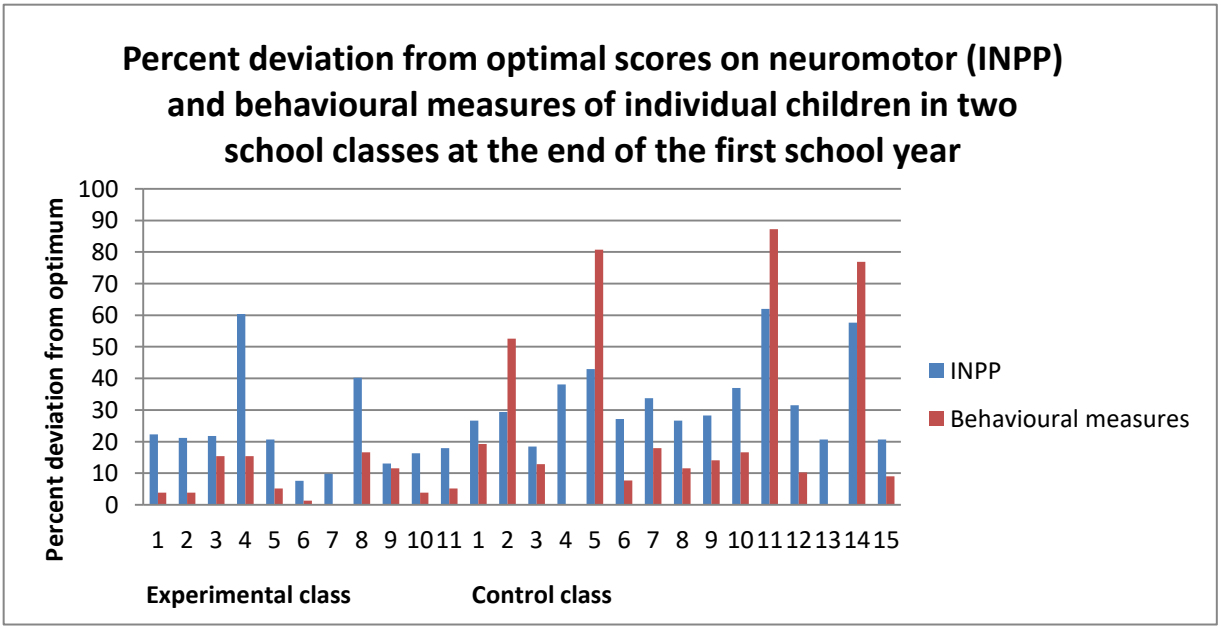

Figure 6

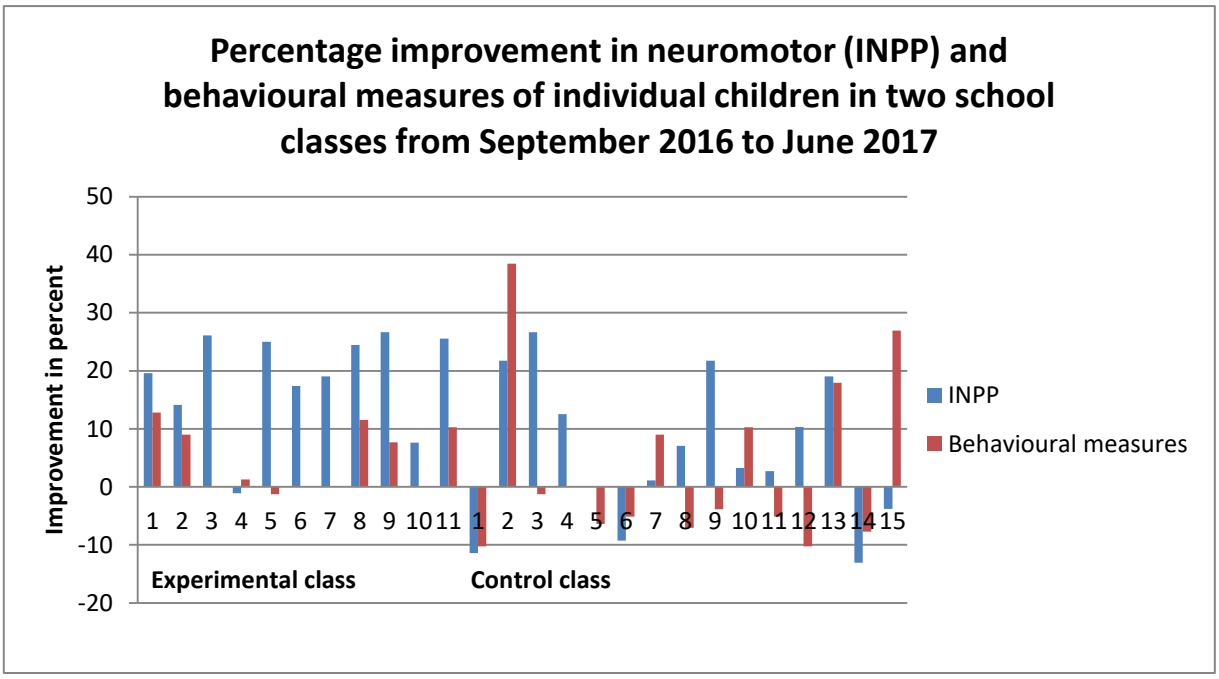

Figure 7

Figure Nr. 7 shows that changes in behavioural measures and in neuromotor maturity also tend to occur in parallel. It is particularly noteworthy that almost all the children whose neuromotor results worsened also show a worsening of behavioural measures. One exception is a girl whose behavioural results improved but whose neuromotor scores deteriorated. A plausible explanation could be that her parents separated at the time of neuromotor testing, thus possibly affecting her stability.

This graph very clearly demonstrates the difference in improvement between the two classes. The first 11 scores – those of the experimental class – are positive (upward direction) in neuromotor measures with minimal exceptions, and either unchanged or improved in behavioural measures. In the school context, unaltered behavioural scores mean that the children were able adequately to adapt to increasing demands over the course of the school year.

As these tests were carried out at the end of the school year, one could conclude from the results that children who are enrolled in the INPP School Programme are better able to cope with the demands of a whole school year. A possible explanation for the worsening in neuromotor maturity scores for some children in the control class may be that their compensatory capacity has reached its limit. Teachers often observe a decrease in children's motor and behavioural stability towards the end of the school year. Thus, the INPP School Programme may provide such children with the necessary grounding for success throughout the academic year.

Remarks on the practical implementation of the INPP School Programme

The implementation of the INPP School Programme requires a good deal of discipline and perseverance from both children and educators. The children should perform the exercises in a calm and concentrated manner. The teachers should create an atmosphere in which this becomes possible. In my experience, the programme is not infrequently broken off prematurely. Three factors contribute to impede the implementation of the INPP School Programme:

1. The classrooms often lack the necessary space.

2. The teacher has to find time for the exercises in the face of many demands; only those who are truly convinced of the benefits of the Programme will take that time.

3. Some children are not able to follow the Programme – in my experience they are those who require the clinical INPP remediation. When such children act out and disturb their peers, it becomes very difficult for teachers to lead the class through the exercises.

However, evidence that the children's behaviour improves due to the INPP School Programme would make a strong case for carrying it out with particular regard to children with behavioural problems. Such evidence may convince teachers to take a few minutes from their other activities to make time for the INPP School Programme.

Conclusions

- A change in neuromotor scores tends to be associated with a change in behavioural adaptation.

- Children who follow the INPP School Programme demonstrate improvements in self-regulatory abilities which keep pace with increasing academic demands.

Objectives

Given the context of our study and the size of the current data set, we have not yet applied tests of statistical significance. However, in our opinion meaningful differences are clearly discernible.

Our research has also aroused the interest of the College of Education where I have been invited to offer seminars on the INPP School Programme.

Altogether, we are highly enthusiastic and a number of classes have shown interest in getting involved in the work starting this and the next school year. We particularly want to compare the reading skills of these children. Our goal is to continue to do research in the measure and context in which this is possible for us and we are convinced that we shall be in a position to put forward statistically significant results in a few years.

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