

Elaboration of thoughts whilst translating text-based signs  
with graphic symbols: A study on reflection competences  
of pedagogical professionals in primary education sector  
Elaborazione di pensiero mentre si trasformando segni testuali  
con simboli grafici: Uno studio sulle competenze di riflessione  
dei professionisti della pedagogia nel settore della formazione primaria

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DOUBLE BLIND PEER REVIEW

ABSTRACT

In the context of teacher education, there should be various opportunities for pre or in-service teachers to expand their reflective competence as part of their pedagogical professionalism. The professionalisation of teachers for the primary education sector (Schumacher et al., 2020; Stadler-Altmann, 2018) is a central task in the higher education didactic learning environment of the EduSpace Lernwerkstatt [learning workshop] for both the Master's programme in Educational Science and for the sustainable exchange with pedagogical practice, e. g. through corresponding workshops. This contribution focuses on reflexively gained insights from teachers on the design and application of AAC according to the INbook model (Knoblauch, 2017). The data basis is the interviews with primary school teachers conducted after a series of workshops in the EduSpace Lernwerkstatt. The secondary analysis of the interview data is based on the competence categories of Baumert and Kunter (2006), the theory-based reflection definition of Wyss (2013, p. 5) and the multi-perspective reflection tool developed by Keller-Schneider (2020). Finally, it is proposed to mirror the development of professional knowledge with reflection competences for the teaching profession

All'interno della formazione degli insegnanti, ci dovrebbero essere varie opportunità per gli insegnanti in servizio o in fase di apprendimento per approfondire la loro competenza riflessiva come parte della loro professionalità pedagogica. La professionalizzazione degli insegnanti per il settore primario (Schumacher et al., 2020; Stadler-Altmann, 2018) è un compito centrale nell'ambiente di apprendimento didattico dell'istruzione superiore dell'EduSpace Lernwerkstatt [laboratorio di apprendimento], sia nel programma del Master in Scienze dell'Educazione che nello scambio sostenibile con la pratica pedagogica, ad esempio attraverso workshop corrispondenti. Il nostro contributo si concentra sulle intuizioni riflessivamente acquisite dagli insegnanti sulla progettazione e l'applicazione di AAC secondo il modello INbook (Knoblauch, 2017). La base dei dati è costituita dalle interviste con gli insegnanti della scuola primaria condotte dopo una serie di workshop nell'EduSpace Lernwerkstatt [laboratorio di apprendimento]. L'analisi secondaria dei dati delle interviste si basa sulle categorie di competenza di Baumert e Kunter (2006), sulla definizione di riflessione basata sulla teoria di Wyss (2013, p. 5) e sullo strumento di riflessione multiprospettica sviluppato da Keller-Schneider (2020). Infine, si propone di rispecchiare lo sviluppo delle conoscenze professionali con le competenze di riflessione per la professione di insegnante.

**KEYWORDS**

Multi-perspective reflection, professionalization of teachers, multi-modal representation, secondary analysis  
Riflessione multiprospettica, professionalizzazione degli insegnanti, rappresentazione multimodale, analisi secondaria

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## 1. Introduction

The Master's programme for the primary sector is designed to lead to a professional qualification for pedagogical work in kindergarten or primary school in five years. The curriculum of the academic training provides for several feedback loops in the close interlocking of university teaching and internships during the Master's programme, in which academics as well as internship coordinators and students jointly reflect on their experiences and thus see themselves as researching learners. The transfer of scientific findings is achieved through the opening of specialist conferences for interested parties from pedagogical fields of work, especially through the close cooperation of the EduSpace Learning Workshop with the educational board and the school and kindergarten districts (Schumacher et al., 2020). The location of the EduSpace Learning Workshop and the materials offered there serve not only as a physical learning environment for conveying practical professional factual knowledge (see Stadler-Altmann, 2019) or for practicing procedural application knowledge (Schumacher et al., 2019), moreover, they also serve as a social place for theory-guided elaboration of thoughts of hands-on experiences of all actors.

## 2. Impulses from the EduSpace Lernwerkstatt

Following ancient Greek philosophy Dewey already emphasises, »language is a necessary precondition and tool of thinking« (190, p. 170). Appropriate accommodations, requiring great professionalism, aim to ensure the access to a joyful reading for all, as Caldin et al. (2009) states. Looking together at picture books is a first step towards the development of reading skills as well as learning to write. The professional accompaniment of picture book looking therefore requires not only linguistic expertise but also knowledge of psychological development from the teachers. Additionally, to support the process of language acquisition, teachers must have knowledge of the constitution of gender and the associated identity formation of children, as well as diagnostic expertise for language assessment and didactic-methodological skills.

In general, the principle applies that for understanding and grasping the meaning of purely linguistic as well as visual signs, a two-dimensional graphic sign becomes a symbol through the attribution of a certain meaning. Interpersonal communication will only be possible when the link is permanently established. The particular challenge for teachers in the multimodal expansion of an already formulated picture book text, as well as for children when looking at picture books, is to learn a visual sign in addition to the respective written-language concept (Hallbauer & Kitzinger, 2016, p. 1). Within this context, a successful mental model construction transcends the options and action in a known demand situation, since it must involve both a visual conception without real visualization, and eventuating in an expansion of the ability to communicate. Pre-school children are already capable of achieving these outcomes (Nieding & Ohler, 2008).

## 2.1 Impulses on a media didactic level: working with symbols

Augmentative and Alternative Communication (AAC) uses technical aids to reduce communication and language barriers. One well-known way to make literature accessible to all children is to design (picture) books that completely underlay the text with symbols, so-called IN-books. A number of relevant studies have demonstrated the positive effects on children's attention and language comprehension of using symbols when reading these books (Binger & Light, 2007; Cafiero, 2005; Costantino, 2011; Sistema Nazionale per le Linee Guide [SNLG-ISS], 2015; Miranda, 2014; Raimondi, 2010; Ronski et al., 2015).

Interventions in early childhood education focus on tangible experiences of meaning and activities within interaction with familiar objects and daily routines. Technical as well as non-technical communication aids can be used in joint design with central caregivers and enable experiences of meaning and action. In addition, the overall situation must be taken into account when using the IN-books. During the reading aloud, the rhythm of the reading is kept and at the same time the finger is pointed to the lower part of the framed symbol. Sometimes it is helpful for a child to experience the rhythm of reading better by guiding their hand to correspond with the part of the text they are decoding. In order to promote a communication initiated by the child or to vary the way the conversation is conducted, the caregivers can change over time or different reading settings can be chosen (Wilken, 2002, p. 75, 81).

## 3. Levels and forms of reflection

Reflection is counted among the basic concepts of the human self-relationship and, in summary, aims not only at the substantiation of experiential knowledge, but to a certain extent at the human being-in-the-world (Zimmer, 2004, p. 6 – 7). A prerequisite for the reflection process is that permeates experience is a self-understanding in relation to another self or an object (Fichte, 1997, p. 34). The inclusion of an object within reflection, in turn changes knowledge about it. Concurrently, the object changes for the thinking I by means of elaborated thoughts. Reflexivity holds moments of distance, uncertainty, openness and fundamental questionableness that can only be manifested in reflective actions, which is a precursor to overcoming them linguistically (Plessner, 1981).

### 3.1 Significance of reflection in teacher education

According to Wyss (2013) a reflection process following predefined criteria, is a so-called closed reflection. In turn, situationally chosen criteria according to one's own experiences and interests, is called open reflection. Furthermore, two basic types of reflection can be distinguished. The mental in-situ activities take place during a teaching-learning situation. In contrast, the mental post-activities refer to completed actions.

Processes that refer to interactions with persons

from the daily professional environment are assigned to the micro-level. Reflection processes on the meso level include perspectives that are involved indirectly in processes on the micro level, such as colleagues, the head teacher, guardians or external experts. Persons acting on the macro level are not involved actively in reflection processes on the macro level, e.g., the educational policy level. Rather, they experience the results of the reflection processes carried out by representatives of public authorities. Reflection in the teaching profession not only has an influence on one's own professional development but is at the same time at the system level the basis for teaching development and thus an important component of professional teacher work in the context of school development.

Since forms, levels and dimensions can be combined with each other as freely as possible, the data evaluation in this study is carried out regarding the competence categories according to Baumert and Kunter (2006).

### 3.2 Aspects of reflection-in-the-action

The importance of reflection-in-the-action can be illustrated by the chosen example of a teacher-training course on IN-books, which must be justified both in terms of communication theory and in terms of perspective for use in educational practice. Bimodal, non-linguistic forms of representation based on graphic signs represent an artificial form of communication. Both in the mere reproduction of experienced perception and in the consideration of the appropriateness of symbolic expression lies an independent achievement of consciousness. Consequently, in a communication situation, the interaction partners have to weigh up what they express, when and how appropriately. This challenge becomes apparent whilst translation of individual words into symbols. The programme Symwriter offers several symbols for each word. Abstract words, such as "love" or "fantasy", are more difficult to translate into graphic symbols, as are articles and prepositions (see Figure 1).

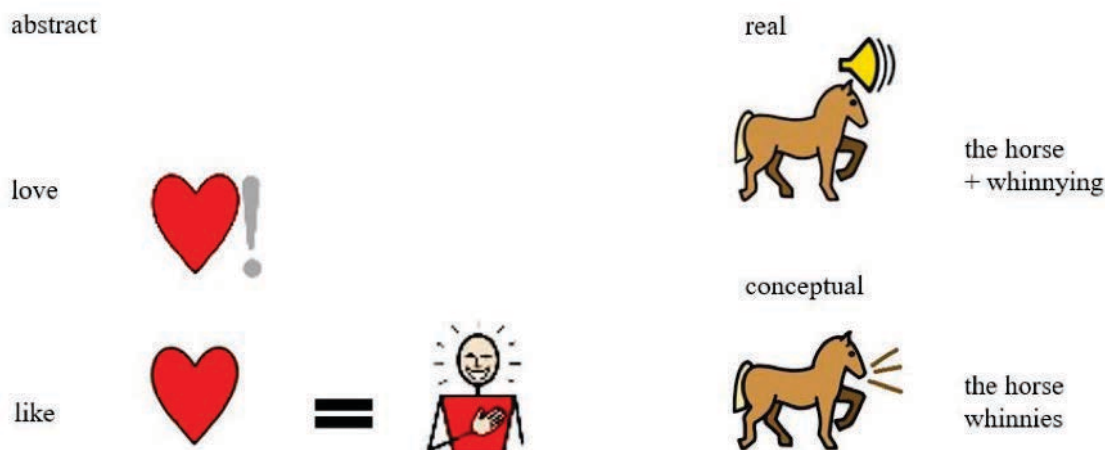


Figure 1. Linking text-based characters with graphic characters

For the pedagogical situation, this communication-theoretical prerequisite must be reinterpreted. Hence, the teachers' performance consists in a reduction of complexity for an adapted communication:

- (1) Searching, finding and discarding signs and meanings.
- (2) Analysing facilitating and inhibiting conditions in production.
- (3) Identifying advantages/obstacles for everyday pedagogical work.

Watching IN-books, the children as communication partners are expected to focus in terms of:

- (1) Searching, finding and discarding signs and meanings.
- (2) Increased/decreased attention span when listening.
- (3) Increased/decreased activity with regard to autonomous reading.

- (4) Increased/decreased activity with regard to peer interactivity.

The research project presented here inspects the educators' thoughts about their communication with children stimulated by transferring picture books or rather children's books into books with symbols.

### 4. Methodology

Semi-structured interviews are used for criteria-guided reflection on the action, i.e. after the actual activity, as these are particularly suitable for collecting data when, on the one hand, everyday and scientific knowledge is to be reconstructed and a high degree of openness is to be guaranteed. On the other hand, the method is suitable for structuring the data collection process through the topics introduced by the interviewer (Niebert & Gropengießer, 2014, p. 121). The structure of the guide follows the temporal structure

of the overall project (see *Figure 2*). It contains technical language phrases that are paraphrased in everyday language. The aim of the interview is to reconstruct the teachers' professional perceptions, but also their

social-systemic impressions. In addition, observations of the reading situation when using the IN-books will be carried out.

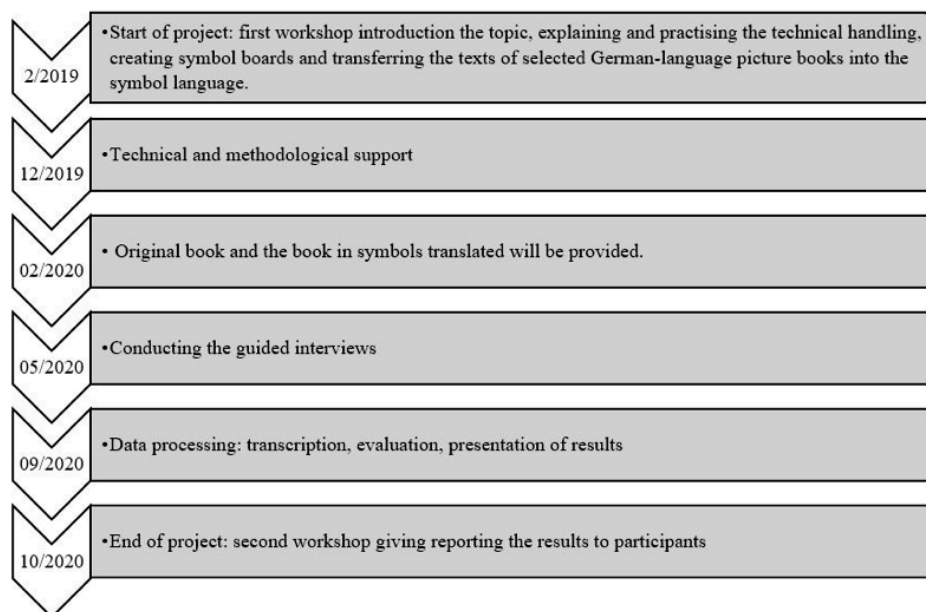


Figure 2 . Timeline of the overall project

#### 4.1 Semi-structured interview

The IN-books production process is in the focus of the interviews and thus, the experiences of the teacher are of main interest. Spontaneous questions to clarify what was said or other impulses are welcome to improve the external understanding of the statements as well as the situations outlined. To collect information, the interviews are recorded. Consent was obtained in advance from all interviewees. The following guiding questions were used to initiate a closed reflection.

Key questions	Reflection
1. How did you find out about the IN-Book project?	Description of situation
2. Which steps were necessary for the translation of the text into symbols?	Description of situation Reflection on the action
3. What was the major challenge/highlight?	Subject didactic, subject competences, pedagogical knowledge
4. What experiences have you had with your IN-book in your everyday work?	Options for action, pedagogical knowledge, pedagogical-psychological knowledge
5. What other projects can you imagine/would you like to see?	Options for action

Table 1. Interview questions in relation to forms, levels and dimensions of reflection

In the course of transcription, personal information is coded and can no longer be assigned to the natural person.

#### 4.2 Sample

Access to the field of science was made through existing contacts in the EduSpace learning workshop and the interested teachers had to actively register for a training event on the topic of IN-books: children's books and symbols. At the same time, they also agreed to participate in the research project. A total of 14 teachers from different kindergartens of one district registered.

#### 4.3 Content analysis

A basic level of transcription is chosen in the first step. The comments and explanations in the transcripts are based on Selting et al. (2009). The main objective of the structured summary according to Mayring (2000) is to derive a system of categories from existing scientific knowledge and to assign the statements accordingly. Thus, methodologically validated characteristics from Baumert and Kunter (2006), Keller-Schneider (2020), Wyss (2013) as well as Wyss and Mahler (2021) were assigned in the second step.

Levels of reflection and dimensions of professional teacher knowledge according to Wyss (2013) and Wyss and Mahler (2021)	Reflection tool for analysing everyday learning situations according to Keller-Schneider (2020)	Competence categories for teachers according to Baumert and Kunter (2006)	Anchor example <sup>1</sup>
Social context, curricular knowledge. Open reflection in the action at macro level			«Then I told you that different people also speak different languages. But through the symbols everyone can understand because they are the same for everyone»
Closed Reflection on the action at micro level	Situation description of a concrete situation with subsequent analysis based on guiding questions		
Professional knowledge about a scientific discipline. Closed reflection-on-action at macro level	What do you know about this?	Domain-specific expertise + practical access to this knowledge	«and certain symbols are very similar to AAC»
Subject-specific pedagogical knowledge, e.g. on the chronological sequence of the treatment of the sub-topics or the appropriate presentation of the contents. Closed reflection-on-action at the macro level	<ul style="list-style-type: none"> <li>• What do you know from a subject didactic perspective?</li> <li>• What barriers and difficulties does the subject pose?</li> <li>• What prior knowledge might the students have?</li> <li>• How can this be activated and modified?</li> </ul>	Subject didactic-methodical Target group-specific selection of tasks / formulation of work assignments, with particular diagnostic potential	«I have chosen the symbol that I think is most appropriate or that I think children will remember best»
Pedagogical knowledge: Rules for the smooth running of lessons, dealing with children with educational difficulties or the importance of the parental home in explaining and influencing pupil's behaviour. Closed/open reflection on and in the action at meso and micro level	<ul style="list-style-type: none"> <li>• What do you know from a subject-independent and interdisciplinary perspective?</li> <li>• What pedagogical, psychological and general didactic knowledge do you have?</li> </ul>	Pedagogical-psychological knowledge Leadership and orchestration of learning processes, knowledge of development and learning, diagnostics and performance assessment as well as professional behaviour in the context of school and school environment	«With the word many, there are several symbols and a kindergarten teacher has chosen a different symbol and then that tends to irritate children learning to read»
Closed/open reflection on/ in the action at micro level	Self-regulation, readiness <ul style="list-style-type: none"> <li>• What do you feel</li> <li>• What makes you happy, angry, stressed?</li> <li>• What would you like to do to achieve this?</li> <li>• How much commitment do you from yourself?</li> <li>• How can you tell that it is worth it?</li> <li>• What needs to show up, to make you stick with it?</li> </ul>	Affective-motivational level Control beliefs and self-efficacy expectations, Intrinsic motivational orientation: teacher enthusiasm, Self-regulation: commitment and distancing ability	«We got the call for courses and because I'm very interested in books and language, I said I like it»
Closed/open reflection on/ in the action at micro level	Beliefs <ul style="list-style-type: none"> <li>• How do students learn?</li> <li>• What do they need?</li> <li>• What can a teacher contribute?</li> <li>• What is good teaching?</li> <li>• What works?</li> </ul>	Researching and reflexive habits Questioning one's own actions or role while augmenting the picture book or in interaction with the children or colleagues. Critical differentiation of one's own statements.	«We got the call for courses and because I'm very interested in books and language, I said I like it»
Integration of findings into future action designs Closed/open reflection on the action at micro level		Derive options for action and development opportunities	«Books, is not always something that [...] many children are not looking for at all. And that just came to me spontaneously, I could try that again»

**Table 2. Competence categories for teachers based on Baumert and Kunter (2006) extended by reflection forms, levels and dimensions of professional teacher knowledge according to Wyss (2013) and based on Wyss and Mahler (2021) as well as by the reflection**

1 The selected anchor quotations have been translated into English by the authors from the original German-language texts.

## 5. Results presentation

Based on the content analysis, both professional and social-systemic competences are summarised and portrayed in the light of different dimensions of reflection.

### 5.1 Reflections on searching, finding and discarding signs and meanings

In the first workshop in the learning workshop within the research project, the teachers were familiarised with the principle of ACC/UK and the IN-book. They then converted children's books into IN-books themselves, i.e., assigned symbols to the individual words. Since the Symwriter programme for creating the symbols is not available in German and there are no comparable German-language programmes, the teachers first had to translate the text of the children's book into Italian. The corresponding symbols could only be selected after that. This stage was the biggest challenge, as the next two examples from the transcripts show:

For some words, the programme offers different graphic symbols. In these cases, one has to choose the appropriate symbol. In Oscar loves, it, is called Oscar loves <unk> and in loves there were two symbols, then there was a heart and a heart with exclamation mark and <unk> [...] And then I didn't know what do I take now for love and what do I take for like. where should I put the exclamation mark and where not (D12five10:152).

Precise symbols for sounds and noises of living beings are not provided for in the programme. The horse comes and says wiiiieehh to ride, for example. And then with the will you, well the sign for will I found somehow difficult, because just will you I thought to myself that this is simply difficult to represent for the children. [...] And then I added something else, for example with the horse, when it makes the sound, I made a few more lines (M06five14:61).

### 5.2 Reflections on facilitating and inhibiting conditions in the transformation of words into picture symbols.

The technical handling of the free trial version of the software was a challenge mentioned by all teachers: «Downloading the software was a challenge for me» (M06five9:25). Some books had to be enlarged compared to the original in order to create enough space for the symbols so that the children could easily recognise the graphics:

Well, I think space is very important. Therefore, I would even add another space or somehow try it that way, because I have noticed that it is really important that there is a lot of space and a lot of <unk>. Yes, that the symbols are easily recognisable (D12five10:102).

### 5.3 Reflections on advantages and barriers for everyday pedagogical work

The adverse circumstances [lockdown from the end of February 2020] made the application in everyday life and thus also the observation almost impossible:

Unfortunately, it didn't come to that. Then it was closed. It was a bit of a pity. However, that would be an idea for next year. That one gives inputs and then can observe in depth. The observation time was too short (M22four9:54).

Some teachers found the use of symbol books in kindergartens, which are predominantly attended by children with a migration background, advantageous:

The added value in the pedagogical work certainly lies in the fact that for children who have developed little language or for children with a migration background who have a different mother tongue that can be taken in a supportive way (M22four9:52).

Well, I simply noticed that especially in our case, the proportion of migrant... migrant backgrounds is simply very large. That it is very important there. [...] That just came to me spontaneously, I could try that again. We always have a singing circle with the whole kindergarten. There are really all 17 children together in the gym and I noticed how many children are actually not very interested because they simply don't know what we are singing (D12five10:340).

In different kindergartens of the district, the assignment as a stand-in was perceived as inconvenient for observing the children in their self-determined handling of the symbol books on the one hand. On the other hand, the teachers were able to pass on their experiences to other colleagues or even exchange them:

Once I was on assignment in another play school and rummaged through a box of books. A book with symbols caught my eye. At first, I thought they were the same symbols. But, since there was no colleague from this house in the project, I looked it up (D28four15:39).

The teachers' enthusiasm for their self-designed IN-books is a factor that affects the presentation and can be transferred to the children's interest: «It happened to me as soon as I finished it. I give it to them because I had a pleasure to present it. And it went down very well too» (M06five9:144).

In the announcement of the training, it was pointed out to bring books with little text, simple sentences and repetitions. In the production of the symbol books, the teachers (with one exception) attached importance to the object similarity of the original version and the symbol version with regard to colours, formats and haptic features:

So I always placed it right there and was also very happy, and then I also laminated it, so

the individual sheets I wanted to leave inside it in paper, so that it is similar to the classic book. Not that it's also plasticised. Only the cover is plasticised. The inside is just of paper (M06five9:57).

I would have something to say about the picture books themselves. The fact that they are only photocopied and laminated is not very appealing to children. The tactile aspect is totally missing. If they have both versions available, children very much like to choose the original because it is simply a different reading experience (M29four8:45).

Of course, this disadvantage is avoided as soon as the books are published. In the present study, not only the subject-specific but also the subject-didactically appropriate self-production of the IN-books is an essential point. Therefore, it may be appropriate for children of a certain group to adapt the size of the book to their needs:

I made this book, so the picture-supported book bigger, so much bigger than the other one, because the implementation with this, because I needed the space, on the text, then I made this bigger. Therefore, it became a beautiful book. Maybe that also contributed to the fact that the children liked looking at this one so much because it was big. Bigger than the other one, anyway (D12five9:162).

Presentation order and frequency as well as group size play a role in the introduction of symbol books as a new literature format: «I noticed with the smaller children that they need the repetition a lot. Suddenly several ideas come up and then they keep their favourite book for half a year» (M06five14:102).

You presented the book to the children in a kind of closing circle. They were very interested and attentive. The children didn't know the book at all. And also because of the subject matter, the colleagues got into an exchange with the children very quickly. The children also thought and participated right away, because the book is very stimulating (D28four15:52).

If symbol books are already in use, the used software has to be the same:

The only problem I had was that it was too much for the boy with the peep cards, the METACOM symbols, then these symbols. I haven't found the right way yet. However, I know that down in the kindergarten there are quite a lot of children who would have been interested in (M29four17:52).

According to the teachers, the added value of IN-books in working with children with impairments has only partially materialized: «Maybe I can answer that in a year. [...] Whether there is benefit for children, I can't say. A child with Down Syndrome for instance, was not interested. For deaf people it was too confusing» (M29four17:78).

Due to the national COVID-19 lockdown and closure of all educational institutions, the self-produced IN-book was only in use for a very short time. Even if teachers would have preferred more time for observation, however, not all children are interested in books either:

Well, my child, my inclusion child was totally not interested in the pictures. Not interested in the picture books at all. He wasn't interested in that at all (D12five11:115)

the other child has an impairment, also a more severe one, she was also interested in the book (M06five910:25).

The picture book enhanced with graphic characters motivated some children to be active on their own and, according to the teachers' assessment, also to expand their vocabulary:

One child has picked up the book again and again and has enjoyed reading the book himself. The boy is four years old. The colleague was very surprised at how quickly the children remembered the symbols. Logically some are obvious, like cherries. Nevertheless, other words that you have to have heard at least once, the children remembered very quickly. They memorised that very quickly (D28four15:59).

#### 5.4 Reflections on options for action.

Teachers presuppose for their future activities in the production and use of IN-books access to technical equipment as well as software that is easy for them to use: «Yes, of course it would also be interesting if the software were available in German» (D23four9:54). Organisational requirements that would facilitate work at the bishopric level were also discussed: «We have got only one laptop for the whole district. This was difficult as well, because several people were working in parallel. If you can take it later, I'll take it right now or only once a month and so on» (D12five10:450). Furthermore, content modifications of the original story are designed for a more intensive interaction with the learning group:

I would be willing to continue working on it next year. You once talked about there being the possibility of something moving. [...] Where practically one main character or one object is particularly emphasised, which then moves through the whole book (M06five11:118).

Moreover, the reflection on the action expresses a researching attitude with regard to a didactic overall conception of future teaching-learning situations:

The colleague asked what would have happened if we had read the other book first? Maybe we will have the opportunity to try it out with another book. This way, the children have already chosen the book very specifically, also in free play (D28four15:66).

## 6. Conclusions

The aim of the training programme and the research project described is to stimulate reflection on everyday pedagogical work through active work on an IN-book. The interviews, in turn, opened up the possibility to think specifically about certain actions. According to Fabbri et al. (2008, p. 9) these constructs of “transformative learning” or reflexivity of professional practice, provide teachers new lenses to re-interpret and reframe their professional action. It could be demonstrated (see Table 2) that teachers could broaden their perspective and use curricular knowledge to illustrate a learning context.

Furthermore, it is evident that the teachers succeed in applying both subject-specific and pedagogical knowledge in reflecting on the teaching-learning situation for an addressee-appropriate, supported communication. In addition it becomes clear that the interviewed actors perceive themselves as “inquiring learners” (Stadler-Altman, 2021) or “reflective practitioners” (Schön, 1983) as they articulate subject their own values to revision.

The closed self-reflection on a micro and meso level was particularly evident during the translation of the texts into graphic symbols. In multiple revision cycles, the appropriateness of the symbols was checked and adjusted, which can be seen as professionalisation. In parallel, the teachers linked subject knowledge with psychological-pedagogical knowledge in the production of the teaching material by including developmental levels and reading habits in the reflective considerations.

With regard to the integration of the knowledge gained in relation to future action designs, two tendencies are observable. Reflective moments among managers refer to possible ways and the time needed for the implementation of a new method for language work, while teachers focus more on the concrete staging of a teaching-learning situation.

Overall, the IN-book project enabled teachers to engage in open self-reflection: «It did something for myself. Many things have been forgotten» (M22four9). However, it also becomes clear that pedagogical professionals are often only willing to reflect on their pedagogical actions in everyday life when they can derive concrete, realisable input for their work. Without being able to use the perspective of the product from the training directly in their everyday work, their examination of their previous language work in the context of language support would certainly have been different. This reveals attitudes and characteristics of the willingness to reflect as described by Rothland (2020) in the discussion of research on the theory-practice relationship in teacher education.

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