Developing a Shared Culture of Thinking in Early Years Settings

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ABSTRACT

The aim of this paper is to review the outcomes of a small-scale action research project, which investigated the development of children's thinking in the Foundation Phase. The paper uses a case study approach to discuss the use of Video-Stimulated Reflective Dialogue (VSRD) as a tool to facilitate reflection in both teachers and children. The use of Visible Thinking Routines (VTRs) as materials to promote effective thinking is described, and a link is made to the development of children's communication skills as well as their thinking skills. The teachers formed a Professional Learning Community (PLC) in that they were a group of professionals collaborating and enquiring in order to improve learner outcomes (Harris and Jones, 2010).

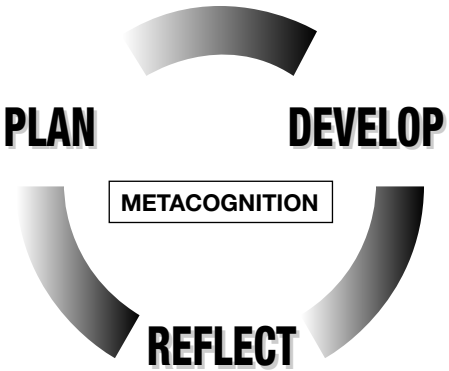
One teacher's development is explored in depth, with particular reference to the change in the nature of interaction that took place as a result of the project. The findings echo previous research, which suggests that VSRD is an effective tool in drawing out practitioners' tacit knowledge about their pedagogy (Powell, 2004). Many children also demonstrated an awareness of their own thinking. They talked about useful strategies, and when and why they chose to use them. VSRD enabled the children to highlight this understanding themselves, rather than the researcher inferring this from behaviour. The tools also provided opportunities for periods of sustained shared thinking, and supported the development of a common language of thinking within the classroom.

Welsh Curriculum Context

The Foundation Phase (FP) curriculum in Wales aims to promote young children's all-round development largely through play and experiential learning (DCELLS, 2008). This draws upon a well-established tradition in the United Kingdom of child-centred, play-based practice (Gray and MacBlain, 2012). The FP aims to improve the quality and continuity of educational provision. It seeks to address the perceived overformalization of early educational experiences, and reported 'narrow range of opportunities for children to show initiative and be independent learners' (Siraj-Blatchford et al., 2007: 45). A play-based approach is designed to provide high-quality learning opportunities, developing children's independence and self-regulation. There is an emphasis on promoting children's positive dispositions to learning or 'habits of mind' (Katz, 1995), such as curiosity and resilience. Evaluations of the FP by the Welsh education inspectorate, Estyn, show that in 'many schools the approaches used in the Foundation Phase are helping to improve children's motivation and their attitudes to learning' (Estyn, 2011a).

In theory, FP provision is shaped by the Welsh Assembly Government's Skills Framework (DCELLS, 2008). This is organized around the development of thinking, communication, ICT and number skills across the curriculum. The Skills Framework offers teachers guidance on

Figure 1 Plan, do and review model



Source: DCELLS (2008: 13)

promoting young children's thinking through a cycle of planning, doing and reflecting (Figure 1).

The Welsh Government guidance for teachers is based on the Developing Thinking Skills and Assessment for Learning Programme (Estyn, 2011b). Despite examples of good practice, the Welsh inspectorate has recently reported significant concern over the implementation of a framework that is non-statutory, forcing the Welsh Government to rethink its strategy (BBC News, 2012). While the programme has improved attitudes to learning, Estyn (2011b) reports that there is too much variation in the quality of teaching. In part this is attributed to a lack of leadership and training. Strategies to teach skills are not prescribed within the FP guidance, and schools and teachers have autonomy in their choice of materials. From a teacher's perspective, the case study reveals that this choice can be overwhelming, and can lead to key principles of effective thinking being hidden or overshadowed by attractively marketed products.

What are Thinking Skills?

Thinking is a process that takes place individually and socially, but since it is largely an internal act it can be hard to observe. Although Wegerif (2002) suggests that researchers contest the nature of thinking skills, 'Thinking Skills' as a term within the curriculum includes processes such as reasoning, information processing, enquiry and evaluation. Within these processes, higher-order thinking is argued to be complex thinking that 'requires effort and produces valued outcomes' (Wegerif, 2002: 2). Resnick (1987) suggests that while higher-order thinking can prove hard to define, it is possible to recognize, and in the classroom it is the type of thinking that educators need to promote. Within the literature the value of the term 'Thinking Skills' is questioned by some researchers, but supported by the work of others, such as McGuinness (1998). She suggests that thinking can be taught, and that core to any approach that seeks to develop this are key principles such as: the need to make thinking skills explicit in the curriculum; the need to teach thinking through coaching; the importance of valuing metacognition; opportunity to promote collaborative work; teaching to create dispositions and habits of good thinking; and the importance of promoting thinking across the curriculum. McGuinness (1999) also indicates that carefully designed thinking activities allow for the social construction of knowledge through instruction, dialogue, reflection and

discussion. This paper presents a case study, which indicates that activities such as Visible Thinking Routines (VTRs), designed to develop thinking can also support language development and the nature of teacher–pupil interaction in a variety of ways.

Exploratory Talk

A powerful way of working through understanding is through talk, which allows the learner to arrange and adapt what they know. This kind of language is described as 'exploratory talk' (Barnes, 1976), and is characterized as being hesitant and incomplete because it allows the speaker to try out ideas as they attempt to arrange their thoughts. Mercer (2000) suggests that teachers should develop opportunities for exploratory talk in which pupils share, challenge and evaluate their views. By justifying what they say, children get into the habit of making their reasoning visible in the talk, which represents a distinctive social mode of thinking. This kind of talk, argues Barnes (op. cit.), will only take place in supportive learning environments where pupils feel at ease. There is a consensus that teachers should also model good thinking, and invite opportunity for exploratory talk. Ritchhart et al. (2011), for instance, suggest that thinking should be named, noticed and highlighted when it occurs. It is important therefore to ask probing questions and to encourage pupils to think out loud. Myhill et al. (2006) recommend that teachers should refrain from giving answers (when 'critical moments' arise) and instead encourage pupils to use 'think aloud' strategies. One approach highlighted in the literature is 'sustained shared thinking' (SST) (Siraj-Blatchford and Sylva, 2004) where meaning is jointly constructed through dialogue between adult and child. SST is an 'effective pedagogic interaction' (Sylva et al., 2010: 257). However, while this approach is advocated in the FP, suggestions for how to achieve such episodes of collaborative problem solving are not explicitly outlined. Indeed, in a curriculum context where child-led learning is so actively promoted, some practitioners are wary of leading conversations with pupils for fear of restricting their ideas (Robson and Hargreaves, 2005).

However, a child's inability or ability to answer a question is not necessarily a reflection upon their understanding of the concept being discussed or the question posed. It may be a reflection of teacher expectations, or the level to which a child has access to the classroom culture. This may allow certain groups of children to access the educational

process more successfully than others. Children possess cultural capital, which to a greater or lesser extent allows them to make sense of, and interact with classroom practices. Children from more affluent backgrounds, for example, may be more familiar with the art of conversation. Since the schools in this project were all in areas of socioeconomic deprivation, it is possible that teachers themselves may find it difficult to interact with some groups of children (Harris and Williams, 2012). Equally, children may possess the ability to think metacognitively, but the dominant discourse within the classroom may disadvantage them. Exploring strategies to make the largely invisible thinking process more visible, and which develop a shared vocabulary of thinking, may benefit such children.

Reflection and Metacognition

Building on the work of Flavell (1976, 1987), educational psychologists suggest that metacognition involves an individual's beliefs and knowledge about cognitive processes (Eysenck and Keane, 2005). Metacognition relates to learners' self-awareness and how well they understand their own learning and thinking. It implies a higher-order level of thinking and reflection, as well as conscious monitoring of the thinking process (Larkin, 2010). The commonly used definition of metacognition within the curriculum is 'thinking about thinking', however, in this case study this explanation of the term appeared to leave teachers unclear over how to interpret this in terms of classroom practice.

Within this research project, metacognition is understood to be:

- the awareness individuals have of their own knowledge, their strengths and areas to develop and their beliefs about themselves as learners;
- their ability to regulate their own actions in the application of that knowledge (Tanner et al., 2011).

There are implicit connections between metacognition and SST. For example, through dialogue children can reflect on their thinking, considering how their understanding may have developed during the activity. The adult or more knowledgeable peer may scaffold learning, and individuals may change and adapt their ideas.

Young Learners' Thinking

The question of whether young children are able to think in a metacognitive way is contested (Georghiades, 2004). According to Kuhn (2000), while young children may be able to self-regulate their learning, they are often unaware of *how* they are doing this. Flavell (1999) argues that three-year-olds have awareness of self – and possibly this ability to think and act independently is underestimated by practitioners. However, since metacognition requires the learner to be explicitly aware of their thinking, teachers need to focus on strategies that will assist children in articulating their knowledge. Larkin (2010) argues that metacognitive skills need to be taught. She comments that unless children are trained in how to reflect, they are unlikely to be able to do so in a metacognitive manner.

One set of materials, which may help make the teaching of thinking more meaningful, are those advocated by Ritchhart et al. (2011). VTRs offer simple, structured strategies for teachers to develop key thinking skills such as comparing and contrasting; and reasoning and justifying. The VTRs provide a clear focus on key thinking concepts, and provide a scaffold for teachers. They implicitly link concepts such as collaborative groupwork, SST and metacognition. In this project, teachers were encouraged to use, adapt and reflect on VTRs as tools to promote thinking among the children in their classes.

Video-Stimulated Reflective Dialogue

VSRD is a process where short video episodes involving participants are used as the stimulus for reflective dialogue between researcher and participant. The videoed episodes act as a useful tool to stimulate conversation. When working with adults, these typically involve videoing a session, and then allowing the participant time to watch back the video. They then select an episode that they feel is significant to watch with the researcher. This episode is used as the basis for reflective dialogue. Previous studies have shown that children can offer insights into their learning when using this method (Tanner and Jones, 2007). However, such research reported on work with older children, and analyzed video episodes selected by the teacher. This project invited five and six-year-olds to take ownership in identifying, capturing and discussing episodes of thinking for themselves. The children in this study were asked to make a video of one or two

minutes in duration, which then formed the basis of the reflective dialogue. It was felt that giving children ownership of the process would encourage participation and involvement.

The methodology adopted by the teachers in this study was based on the use of video-recordings to stimulate reflective dialogue. One of the challenges when researching young children's thinking is determining the extent to which they are able to express their thoughts and how this can be evidenced. Put simply, we cannot see into children's minds. VTRs and VSRD allow children's thoughts to be captured in ways other than verbal interaction. Hattie (2012) suggests that teachers do not see actually about 70 per cent of what happens in classrooms. We may miss the process of learning since it may be less apparent than the products. He suggests that professionals need to become more aware of the nature of learning. They should listen and observe students carefully and not just reflect on the overt demonstrations of learning that are evident.

Such an approach enables teachers and young children to see thinking in a broader context than spoken language. Claxton et al. (2012) highlights the importance of body language as an indicator of thinking. He suggests that when children try to explain their thinking they use gesture, and this can convey a deeper level of understanding than words. Indeed, if children are made to sit on their hands, their apparent level of cognitive development and comprehension is reduced. Goldin-Meadow and Wagner (2005) argues that gesture allows us to expand our ability to express and develop our thinking, and Clarke (2007) suggests that we gesture more when actively thinking and reasoning. The value of VSRD is that it offers a means to reflect on verbal and non-verbal means of communication. Teachers should listen and observe students carefully and not just reflect on the overt demonstrations of learning that are evident. This articulation may not rely solely on spoken language. The Reggio Emilia Approach highlights the phrase 'the hundred languages' (Smidt, 2005: 45), suggesting that children need the opportunity to express their ideas and thoughts in many different ways. VSRD allows children's thinking to be observed in ways other than verbal interaction.

The project also considered whether VSRD and VTRs could promote teachers' pedagogical knowledge. Schön (1983) refers to practitioners needing to reflect during activities (in-action) as well as after the event (on-action) in order to improve their practice. However, the art of reflection requires teachers to be self-aware. Perceived areas of strength and weakness may not be actual areas of strength or weakness. It is

challenging for teachers to improve their practice if they are unaware of the aspects that require improvement. VSRD offers opportunity for teachers to gain a better insight into their teaching.

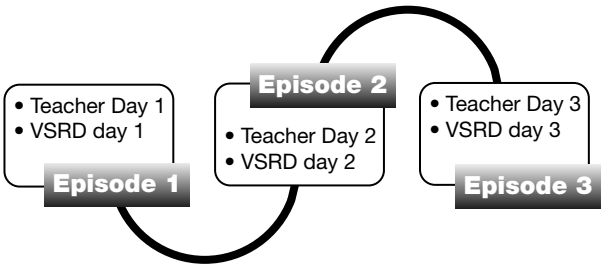
Methodology

This project was based on an action research design comprising three research cycles (Figure 2), consisting of a 'Teacher Day' and subsequent school visit where VSRD was used.

Seven FP practitioners with varied lengths of teaching experience took part in the project. They were working in Reception, Year 1 or Year 2 settings. During the Teacher Days, the group discussed and explored examples of simple VTRs, which provided very clear scaffolds relating to thinking skills and specific vocabulary. Teachers then implemented these in their own contexts. Teachers were encouraged to keep a 'Reflective Journal' of their own experiences during the project, noting any shifts in pedagogical understanding. The Teacher Days were followed by an observational visit in each school, where teachers were videoed using VTRs when working with small groups of children. Teachers then watched their video and used it as a basis to reflect upon both their teaching and the children's learning.

Children also made short videos of classmates – looking for those peers demonstrating 'good thinking'. An initial pilot of the VSRD technique indicated that children could understand and work the video camera, and explain the reasons for their choice of clip (Tanner et al., 2011). Pairs of

Figure 2 Outline of the project cycle



children were asked to video two-minute 'movies' which demonstrated 'good thinking' in their classrooms. They were questioned as to what they had selected to record, and why they thought it was a good example of thinking. This was intended to promote dialogue and justification of decisions. Choi et al. (2005) propose that this process of discussion can guide and facilitate metacognitive activities. In this way, peer interactions, particularly verbal interactions, have the potential to 'expand learners' awareness of what they need to learn'.

Throughout the research process, the project followed the ethical guidelines of the British Educational Research Association (2011).

Findings and Discussion

The teachers

The teachers in this case study were questioned at the start to find out their understanding of thinking skills. Their comments echoed Wegerif's suggestion (2002) that there is not a universally held agreement regarding the nature of thinking skills. For example, they had a mix of attitudes towards thinking skills teaching. One teacher believed that 'thinking skills can just be a gimmick, we do still need results not just process'.

In contrast to those who emphasize metacognition, which requires an awareness of thinking, one teacher felt that thinking should be 'automatic and unconscious and habitual'. Another teacher placed more emphasis on metacognition, suggesting that 'young children need to show an awareness of their thinking. They need to say what they think, not what they think the teacher wants to hear.' Teachers also discussed dispositions as valuable – not in specific terms, but about qualities and habits good learners possess such as perseverance and interpersonal skills.

The teachers enjoyed using the VTRs, and found that they could be adapted to meet the needs of young learners in a variety of curriculum subjects. The VTRs gave teachers a focus on the underlying thinking skills that they were aiming to develop, and helped them to consider what 'good thinking' would look like and effective ways that this could be promoted with young children. This focus meant that they were able clearly to express the thinking strategies to the children. They also promoted a shared language in which to discuss their own practices.

In initial VSRD episodes, the teacher comments tended to focus on the superficial – often associated with physical appearances or voice. Teachers

did not enjoy watching themselves at first. 'Initially I felt self-conscious and did not fully understand what I was looking for.' They made comments about their physical mannerisms, such as 'What would I do without my hands – I use them so much!'; 'It's my voice - it's not nice. I just say "right" a lot!' Gradually the teachers were able to focus in on the actual teaching and learning that was being demonstrated. After using VSRD to reflect on teaching episodes, the teacher participants all expressed an increased awareness of what 'effective thinking' looks like in young children. For one teacher in particular (Teacher 1), this project created an opportunity to reflect deeply upon her own development. As an experienced practitioner she initially felt confident about her teaching but was sometimes frustrated by perceived lack of progress with certain children. For her, the project provided time and space to look closely at her practice, and, in particular, her ability to promote exploratory talk in her classroom. It seems that having the chance to watch the episode again allowed the opportunity to reflect in a way that is difficult in a busy classroom setting (Box 1).

Teacher 1 was therefore able to use VSRD to reflect on and develop her teaching skills – for example, in becoming more specific in the terms that she used with children:

> I realized I used the word 'think' a lot. I am really aware of it now. I try to focus on better key words or phrases like 'make a connection'. When I hear myself say think I try to add the actual word as well – like 'connect' or 'compare' or 'justify' or something like that.

This is important as a strategy that helps children become more aware of effective thinking. Ritchhart et al. (2011) advocate that teachers should highlight specific types of thinking clearly to children, and in this project, teachers became better able to do this. Teachers became more aware of their role in learning – and how sometimes they needed to take a step back and allow the children time to think and to talk. When watching back VSRD episodes, the teachers began to consider how to promote genuine dialogue between themselves and the children.

All of the teachers used simple VTRs with enthusiasm, and these proved effective at enabling teachers to identify specific thinking skills. Some teachers made dramatic changes to their practice, while others made more subtle shifts. Teacher 1 began to model clearly the language of thinking: 'That's a good connection to make'; 'I like the way that you are persuading each other.' This teacher also began to refine and develop her questioning as a result of the VSRD process. In the first episode observed, she asked

Box 1: Focus Group discussion of VSRD

Researcher (R): Has VSRD helped you in your teaching?

Teacher 1: (T1) Realizing that the quiet child is actually thinking and not disengaged was a eureka moment.

T2: Yes – sometimes good thinking can be a child looking into space and daydreaming.

R: Can you think of an actual example of that from the VSRD episodes?

T3: Yes, I watched a boy, I realized he had thought about what he was going to do when he was stuck – he didn't rush. Then he was able to tell me what he'd done. Otherwise I might just have thought he wasn't bothering – watching it back helped me see his learning.

R: Has that been the same for anyone else?

T1: Sometimes they need to fiddle with something – it's not bad behaviour. It used to annoy me, but now I can see that the movement sometimes is . . . um . . . like a way of helping makes sense of tricky stuff.

T2: Yeah – like self-talk – I can see why that is helping some of them now – when I take time to watch the video. Before I would have said 'stop chatting', or I'd have thought they were being disruptive or off task. Now I can see that for some of them they talk as they are … kind of trying to understand the ideas.

T1: I think I am also a bit clearer I think now I have watched things. I could see sometimes before I would say things and they didn't get what I was saying – but sometimes if I used better terms . . . um . . . clearer words like 'connection', they could do it better.

clusters of questions and spoke rapidly offering little opportunity for SST (Box 2).

The teacher spoke far more frequently than the children, and used the word 'think' several times. At the end of the lesson, before undertaking the VSRD, the teacher commented that she felt her 'questioning had been good' in this session. In the VSRD discussion this teacher realized that she often targeted certain children first with questions, and that her body language had an impact on the children's contribution: 'When they are in a paired discussion, if I look away they talk to each other – as soon as I look at them they stop – freeze.' She realized that this could interrupt the flow of a genuine discussion, and was an aspect of group work she wanted to improve. She also realized that she asked a lot of questions with very little

Box 2: First observation of teaching

T1: I've got some answers; you are going to make the questions. We can make as many as we like. Are they all the same? Are they still the same shape? Shall we read them all together? Or one at a time? Can anyone come up with a question? Have a think. It's time to think. Have a minute to talk with each other.'

The group chat for 45 seconds.

T1: What are your ideas? What do you think?

Child 1: Too close?

T1: Why do you think they were so close?

Child 2: Why were they close together?

T1: What a good question.

time given for responses, and decided that this was an area she wanted to focus on – particularly in varying the type of questions that she asked. As such, she noted little opportunity for genuine exploratory talk or SST. At the end of the project this teacher reported feeling far more confident in her questioning and ability to facilitate discussion. This development is highlighted in the reflective comments she made to herself in her journal. For example, midway through the project she noted that: 'I now spend more time highlighting and celebrating their questions – not just asking my own.'

In the final videoed episode with the teachers there was more evidence of genuine discussion and the use of shared vocabulary as they worked with the children to find out more (Box 3).

Encouraging teachers to reflect upon their questioning and interaction with pupils is important. Black and Wiliam (1998) suggest that if teachers allow children more time to answer questions the answers provided are more thoughtful in nature. They also suggest that a focus on understanding rather than knowledge of facts may promote richer learning opportunities. Further analysis of the data, including coding responses will explore the extent of these shifts in the nature of questioning and interaction.

Box 3: Final VSRD episode

The children and teacher are sat around a mat with images of animals to look at – they are trying to make connections between the animals.

T1: Do you agree with Carys?

C1: Yes . . . ummm . . . well. Sort of.

T1: It doesn't matter if you disagree, because this is Carys's thinking. You may have a different idea. Sometimes we need to listen to lots of ideas before we find a good idea.

C2: It could be on a rock – some of them are.

T1: I would never have thought of that connection. We could try to find out why those sit on the rocks. Well done. You have thought differently to us all – that's interesting. Well done.

C2: I would have done it . . . not the rocks . . . 'cos they have black paws and so does that dog.

T1: Well done. Can you think of something else – do you need some time?

C3: Let's try to think of another reason. We might find a pattern.

C1: Yes – there's more with black on. That might work.

T1: You two are not thinking the about the same reasons – but it doesn't matter if you can explain your reasoning and thinking. I am wondering why they might have black paws. I think I need some thinking time to try to make a good connection with these.

The children

Analysis of the pupil responses demonstrated a growing awareness of aspects of the thinking process, and the beginnings of a common language of thinking between children and teachers and peers. At the beginning of the project, when asked about thinking, children described 'good thinkers' as people who 'have big brains', 'smart dressers', 'are quiet' or who 'sits on chairs'. These comments possibly reflected perceptions of 'good workers'. When teachers asked children to describe good thinking, their responses included 'We put our thinking caps on' – which seem to be a phrase that they used without necessarily understanding why. When asked what to do when they were stuck, most children responded by saying they would ask

the teacher. They did not demonstrate awareness of the strategies they could use in tricky situations.

By the end of the project the same children described good thinkers as people who 'look up and close their eyes', 'put their fingers on their heads to get the ideas', who 'make good connections' and who 'you could use a number line and good thinkers might just put it in their heads for when they are stuck'. There was a shift towards greater awareness of gesture, body language and more specific metacognitive strategies. The idea of pictures and images in your head as an effective strategy was common:

> If you get stuck you have to sound out the word – it's like having the letters in your head and putting them together – that is really a lot of thinking. You need to look to remind you what to do. You could put string around your finger to remember something, but it's good to close your eyes and look into your mind.
>
> Child A, aged 6

VSRD proved a useful tool for helping children to articulate what they were doing during the small-group activities. The researcher was not reliant on inferring thinking from behaviours. For example, one child commented that it showed how she was thinking:

> I was biting my cheek and looking at you, thinking about what you were saying. I tried to make a link to what I knew. I was listening to what everybody was saying. So I could change my answer if I needed to. Or I might get a new idea from listening.
>
> Child B, aged 6

Teachers also noted a change in the children. After episodes of VSRD, and discussion about the thinking that was going on, one noted that pupils were 'better at talking about what they find hard. Watching themselves back on video helped them see what was hard . . . and what they could do about this.'

Summary

This study has all the limitations of a small-scale piece of action research. However, it demonstrates that the use of VTRs can be a successful strategy in helping to promote a shared understanding and language of thinking. This project may have allowed children and teachers to create a more visible and more valued culture of thinking in their classrooms. As Perkins (1993, in Costello, 2000: 4) suggests, this is more important than merely

teaching thinking skills – we need to help 'enculturate students into good thinking practices'. This study sought to help both teachers and children see, understand and become increasingly aware of the thinking happening in their classrooms. VSRD was a tool that teachers and children enjoyed using, and which afforded the opportunity to discuss, reflect and return to episodes of thinking. Allowing children ownership of the process offered insight into their thinking. It demonstrated that some young children, when given appropriate opportunity, were able to demonstrate an awareness of their own thinking, and that of peers. VSRD enabled the children to articulate this understanding, rather than the researchers inferring thinking strategies from behaviour. VSRD allowed teachers the opportunity to reflect on their own pedagogy in a way they had previously not done. For some this was uncomfortable, but all reported that the process was beneficial. Revisiting episodes of teaching allowed reflection in a new manner. It allowed them the chance to think about the teaching and learning that occurs during small group interactions, and to consider ways that they could improve their pedagogy. There were also positive effects on the children's and teacher's communication skills.

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