

Supporting Children's Vocabulary and Thinking in a Magic Potion Laboratory: A Reflective Conversation Between Educators, a Speech-Language Pathologist and a Linguist

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Abstract

This article is a reflective conversation between a kindergarten teacher, a speech-language pathologist, a linguist and a literacy researcher as they reflect on how teachers can intentionally create opportunities for extending children's thinking and supporting vocabulary development. The authors use the context of a magic potion laboratory, involving an educational assistant and six kindergarten students, as a starting point for their reflective conversation. They propose ways in which teachers can take an active role in building young children's vocabulary and deepening their thinking in everyday interactions with others with regard to objects

and literature. The professional learning stemming from this reflective conversation points to the value of collaboration between educators, speech-language pathologists and linguists.

Reflective practice involves teachers examining their practice and their assumptions about teaching and learning—a process that often leads to generating knowledge that can benefit other teachers (Zeichner and Liston 2014). Knowledge creation through reflection can be enhanced through reflective collaboration with other professionals from related fields. This article is a reflective conversation between a kindergarten teacher, a speech-language pathologist, an education professor and former primary teacher, and a doctoral candidate with a specialization in linguistics.

We reflect on interactions in a magic potion laboratory, an imaginative context in a kindergarten classroom where children and an educational assistant combined food items (such as pudding, soda pop and gummi worms) to create "potions" to eat or drink. These interactions were video recorded at the beginning of our four-year collaborative action research project, which explored ways to support young children's writing and oral language through creative, collaborative curriculum activities (Portier et al 2018; Portier and Peterson 2017). As this context was created in the early stages of our research project, the interactions are not presented as exemplary teacher–student interactions but, rather, as starting points from which we have all

learned more about supporting young children's vocabulary and thinking. We benefited from the collegial conversations with colleagues and from time for reflection to propose additional ways in which teachers and educational assistants can support children's language development.

In agreement with Swartz (2019) that words matter in children's everyday lives and that it is important to create contexts that focus on vocabulary development, our conversation here builds on research showing that repeated and meaningful exposure to and use of new words in meaningful contexts support children's vocabulary development (Beck, McKeown and Kucan 2002; Dickinson, Golinkoff and Hirsh-Pasek 2010). Our conversation also draws from research showing the important contributions of exploratory talk to deepening thinking. Exploratory talk involves teachers and students in proposing ideas and possible interpretations that are then examined, critiqued, clarified and shaped through dialogue (Mercer and Littleton 2007). When engaging in exploratory talk, students are active meaning makers who can deepen and extend their thinking processes. In classrooms where teachers create environments that invite interaction, children use talk to construct meaning, drawing on their background experience and knowledge (Weitzman and Greenberg 2002, 2010). These understandings about young children's learning support the assertion that early childhood learning environments should "provide multiple opportunities for children to actively explore ideas and materials, and talk about their ideas with others" (Makovichuk et al 2014, 29).

Pam's Kindergarten Classroom in Alpine Hill

Although this article focuses on our reflections on a particular video-recorded context, we provide contextual information here about Pam's kindergarten classroom to give readers a sense of how it was set up.

Alpine Hill is a rural community in northern Manitoba with a population of approximately 400 people.¹ At the time of the video recording, Pam's junior/senior kindergarten class at Alpine Hill Elementary School had 26 four- and five-year-old students and an educational assistant (Vicki). Of the children, 12 attended for the full day every day, and 14 attended for the full day on every other day. Twenty-two children had European cultural backgrounds, and four were Indigenous. All spoke

English as their primary language at home and at school.

Typical daily activities in Pam's classroom included carpet time; time dedicated to literacy and math; and the teaching of art, science, social studies and health through thematic units across the school year. The children spent 50 minutes every day in free-choice play, either exploring toys and other play materials or playing at a centre based on a thematic unit.

Magic Potion Laboratory

The first unit of the school year focused on the science laboratory, including safety issues and practices. Pam read nonfiction books to the children to provide background knowledge and concrete contexts for discussions about the five senses and safety. Her students made observations and learned to gather information in various ways. For example, they pretended they were scientists exploring science and health topics. Pam invited them to pose questions as they participated in lessons about the five senses, the role of a scientist and safety symbols. They learned procedures for staying safe while measuring, exploring and manipulating a variety of materials and while completing a variety of experiments.

In October, Pam introduced a magic potion laboratory as a fun activity to wrap up the unit and allow the children to create a themed snack. This idea came from a variety of sources, such as Wiggins (2006), as well as from the children's and Pam's interests—especially their interest in books from J K Rowling's (1997, 1998) Harry Potter series, which follows the life and wizarding adventures of a young orphan boy, as well as other books about magic and potions, such as Mem Fox and Julie Vivas's (1990) *Possum Magic* and Tomie dePaola's (1975) *Strega Nona*. These stories are populated by witches, wizards, spells, wands and magic. (See Appendix A for more children's books about magic spells and potions.)

Pam and Vicki searched Pinterest to find ideas for making the magic potion laboratory come to life. Vicki found instructions for a craft activity for making magic wands. Pam provided a variety of edible treats the children could use to make their own imaginative magic potions (for example, green, purple and yellow Jell-O; chocolate and vanilla pudding; gummi worms, frogs and teeth; sprinkles; coconut flakes; and soda pop for the fizzing effect).

We recognize that in some kindergarten classrooms, especially in urban schools, sugary foods are banned, but we hope that readers will respect the culture of Alpine Hill (a northern, rural

community) and find ways to adapt the magic potion laboratory for their contexts. It is important that the oft-unheard voices of rural teachers can join the voices of urban teachers, whose work is most frequently presented in educational research (Burton, Brown and Johnson 2013; Corbett 2014). In Alpine Hill, children have abundant opportunities to play and be physically active outdoors, and sugar in children's diets (in moderation) is accepted throughout the community. Parents and other members of the community have a close relationship with the teachers and other school professionals, and they support teachers' professional judgment about what foods are appropriate to use in classroom activities.

On the final day of the unit, the 26 students were placed in groups and rotated through five stations: the magic potion laboratory, a sorting bugs activity, a patterning with bugs activity, an "If I Had a Magic Wand" craft and a writing activity. Pam facilitated the writing activity, and Vicki facilitated the magic potion laboratory.

Vicki introduced the activity by welcoming the children and explaining the purpose of the station. She set the stage for imaginary play by vividly describing the ingredients available for the children to use in their potions. Vicki and the children made their magic potion snacks (see Figure 1). They discussed the wording to use in spells (for example, *abracadabra* and *hocus pocus*); described their observations as they mixed various edible solids and liquids; and predicted what might happen after they ate their potions. The children then used their magic wands to cast their own spells on their potions, and then they enjoyed eating their snacks. They then moved on to the writing station to write about their magic potions.



FIGURE 1. Vicki and children at the magic potion laboratory.

Our Reflection Process

As part of our collaborative action research project, Pam set up an iPod at the magic potion laboratory to video record the children's and Vicki's

interactions. Their actions and language in a five-minute video were transcribed, and the four of us reviewed the video multiple times individually, taking notes about our observations of the children's language and use of imagination, as well as the kinds of supports Vicki provided.

We met once, in a video conference, to discuss our observations. We then used notes from our observations to guide a second round of individual viewing of the video, this time reflecting on how other types of support could have been provided. To do so, we drew on the literature (Beck, McKeown and Kucan 2002; Dickinson, Golinkoff and Hirsh-Pasek 2010; Weitzman and Greenberg 2002, 2010) and on our own experiences in teaching and supporting the speech and language of young children.

In a second video conference, we agreed to focus our reflections on two goals for children's learning:

- Building vocabulary and conceptual learning
- Extending children's thinking processes

With reference to examples from the transcript of the video recording, we present our reflections on Vicki's interactions with the kindergarten students at the magic potion laboratory using these two goals.

Building Vocabulary and Conceptual Learning

In our interdisciplinary discussion, we concluded that during the activities leading up to the magic potion laboratory, Pam and Vicki supported students' vocabulary learning by modelling and encouraging the use of scientific terms, safety symbols and words, and names of tools in the lab.

Vicki continued to focus on vocabulary in the magic potion laboratory by introducing less familiar words (such as *wand*, *spell* and *potion*). These words are referred to as tier 2 and tier 3 words (Beck, McKeown and Kucan 2002; Biemiller 2009). Tier 2 words tend to be more sophisticated and to occur less frequently, and they are generally not part of children's everyday vocabulary. Tier 3 words occur even less frequently and are generally tied to a specific topic.

Through our interdisciplinary reflections on the activities in the video, we agreed that scaffolding students' vocabulary and conceptual learning could include explaining the meaning of these new words and providing specific examples of how they relate to magic. Teachers and educational assistants can deepen children's understanding by relating the words to children's previous knowledge or experiences. Reading books can be a particularly helpful way to expose children to knowledge or experiences they do not encounter in everyday life.

In the following examples, we propose additional ways Vicki could have supported and enhanced students' learning:

What Vicki said: "Welcome to our magic potion lab."

What Vicki could have said: "A potion is a special mixture that is supposed to have magical powers. Remember when we read the book *Possum Magic*? Grandma Poss looked for a magical potion that would make Hush visible again."

What Vicki said: "Hold your magic wand like this."

What Vicki could have said: "A wand is a stick that we wave over something to pretend to make something magical happen [*describing the meaning*]. Have you ever seen someone use a wand to make magic happen? Do you think that was really magic? [*relating to children's existing knowledge*]."

What Vicki said: "This is how you say your spell—'Abracadabra.'"

What Vicki could have said: "A spell is a special word we can say to magically make something happen [*describing the meaning*]. Our spell is *abracadabra*. Do you know any other spells? [*drawing on children's existing knowledge*]."

Vicki had, in fact, read *Possum Magic* (Fox and Vivas 1990) to the children before the magic potion laboratory activity, but here she missed the opportunity to make connections to what the children already knew about potions from the story reading.

Additionally, Pam and Vicki could have been more intentional about introducing new tiers 2 and 3 vocabulary (*magic, invisible, visible, wand, cauldron, spell*) in their prior reading of stories such as *Possum Magic* (Fox and Vivas 1990) and *Room on the Broom* (Donaldson and Scheffler 2001). This vocabulary could have then been reinforced in the magic potion laboratory.

Vicki could have further deepened the children's understanding of vocabulary by introducing the multiple meanings of words such as *spell* and *cast* (as in *cast a spell*), as well as other tiers 2 and 3 vocabulary, such as nouns (*wizard, magician, witch*), for more clearly defining their pretend roles; adjectives (*goeey, goopy*), for describing the muddy concoction created with chocolate pudding; and verbs (*transform*), for describing what the magic wand did as she waved it over the chocolate pudding.

Extending and Deepening Children's Thinking

Vicki set the imaginary context by introducing the concepts of magic wands and spells. She continued the theme of magic by telling the children that they could wave their magic wands while saying the magic spell, by providing language for use with the magic wand (*hocus-pocus, abracadabra*) and by providing imaginary labels for the potion ingredients (coconut flakes were called snowflakes, and chocolate pudding was called mud). Vicki maintained the pretending by telling the children, "You have to use your imagination" and "We can make it what we want." This activity interested the children and successfully engaged them in making observations and comments about the potions.

The following is an interaction from the video:

VICKI. Put that in there. That's where the special potion is going. Oh, look at the bubble. Did you see a bubble?

DAVID. Oh!

VICKI. You can have two droppers.

SIMON. I did two drops.

VICKI. Two drops.

Here is a later interaction:

VICKI. Do you want some mud?

DIRK. Yeah

DAVID. Looks like chocolate pudding.

VICKI. You have to use your imagination. It's mud today with our magic wands. We can make it whatever we want.

In our reflective conversations about these interactions, we proposed ways to modify them to extend children's thinking so that they would have opportunities to predict, explain, evaluate, describe, problem solve, project and make connections to previous knowledge and experiences.

Predicting

- "What do you think will happen if we add more drops?"
- "What is happening here?" [*pointing to a bubble*]
- "What do you think might happen if someone drinks this magic mud?"

Explaining

- "Why do you think there are bubbles in our magic potion?"
- "Why did our potion turn brown like mud?"

Evaluating

- “Which potion do you think will be stronger, the one with bubbles or the muddy potion? Why?”
- “Do you think this potion looks like a potion a real wizard might make? Why or why not?”

Describing

- “What do all these bubbles look like to you?”
- “Tell me why this potion looks like mud.”

Problem Solving

- “What can we do if the spell doesn’t work?”
- “I think we need more bubbles in this potion to make it more powerful. Which ingredient do you think we should add?”

Projecting

- “What do you think it would be like to have magical powers?”
- “What kind of spells would you cast?”
- “If I was a real wizard, I would want to make sure my potions were very powerful!”
- “I would be afraid to drink this potion if I did not know what would happen to me!”

Making Connections to Previous Knowledge and Experiences

- “Have you ever seen anyone else mix up potions like this?”
- “I remember that Harry Potter made a magic potion that looked like this in the movie.”

Making explicit connections to the background knowledge and experiences children have gained from stories they have previously heard can be effective in deepening their understanding. In this situation, children could have drawn upon their memory of the Harry Potter story to assume pretend roles in the magic potion laboratory, in a teacher-directed pretend activity and in subsequent child-led dramatic play scenarios. Adding props similar to items described in the story would also help extend their pretending and understanding. Re-enacting a related story can also deepen children’s understanding of a story narrative. Through assuming pretend roles, children gain increased understanding of the sequence of events in a story and the personalities and motivations of the characters.

With these examples of interactions in the magic potion laboratory, we have focused on how Vicki could have enriched her use of vocabulary and questions to extend and deepen the children’s thinking. However, we also agreed in our reflections that although what the teacher asks and tells children is important, it is also critical for teachers to pause and take the time to observe, wait and listen

in order to allow children to initiate their own comments and ask their own questions. This may be particularly helpful for children who have limited background experiences or less developed language skills, or who might simply need more processing time and more support to join the conversation (Weitzman and Greenberg 2010). What children contribute on their own helps teachers understand their interests, their level of comprehension and the background knowledge they bring to new learning. Teachers can then follow children’s lead by validating and expanding on their message. Moreover, when teachers follow children’s interests in this way, children will be more motivated to continue the conversation (Weitzman and Greenberg 2010).

Some children have more difficulty joining in a conversation than others. Ways to support these reluctant communicators include positioning them in the teacher’s view, offering them a role to play or a task to perform, and providing them with additional language models.

Bringing What We Have Learned to Other Classrooms

Drawing on our reflections on the interactions in the magic potion laboratory, we have come to see that teachers and educational assistants need to explicitly plan intentional conversations to facilitate language development when setting up teacher-directed, curriculum-related activities and dramatic play centres for child-directed play. Often, teachers focus on planning and implementing the learning activity, and language is an afterthought.

Through our interdisciplinary conversations, we have created understandings about how teachers can take a more active role in building children’s vocabulary and conceptual knowledge and in extending their ideas and understanding. Teachers should consider the following strategies:

- Learn about and take into account the existing knowledge and experiences children bring to a planned learning activity, which can be drawn upon to deepen their understanding.
- Intentionally select related books for prior shared reading to introduce new vocabulary and establish necessary background knowledge and understanding. Pay particular attention to children who may lack this knowledge.
- Brainstorm new words that can be introduced, and if necessary, consult resources for the best way to describe word meanings and relate the

meanings to children's previous knowledge and experiences.

- Be prepared to take time to pause and listen to children, to allow them to spontaneously initiate comments and questions, and to expand on their interests in order to extend the conversation.
- Identify strategies for engaging children who are reluctant to participate in group conversations.
- Plan specific ways to extend the conversation, with comments and questions that model thinking and encourage children to go beyond the here and now in order to predict, explain, evaluate, describe, problem solve, project and imagine.
- Select props that support children's ability to assume roles and extend the pretending (for example, long wizard coats, dimmed lights and wizard hats).

Our reflections on the interactions in the magic potion laboratory highlight the great potential of contexts (where children and their teachers interact with objects and materials and with each other) for promoting language development. Children can be actively engaged in back-and-forth conversations in which adults validate and expand children's messages, to expose them to more-complex language models, new vocabulary and new ideas. Teachers can maximize the language learning opportunities in classroom activities by intentionally planning possibilities for supporting children's vocabulary and extending and deepening their thinking while stimulating their imagination and making connections to literature. In the process, teachers establish a culture that values talk in the classroom. Although our examples come from one learning activity in a particular kindergarten classroom, we hope that other teachers will find our reflections and suggestions useful for supporting children's language, literacy and learning across the curriculum and across age levels.

Appendix A: Children's Literature About Magic Spells and Potions

The Haunted House That Jack Built, by Helaine Becker and David Parkins (illus). 2010. Toronto: Scholastic.

The imagery in this read-aloud, which is a haunted version of a classic rhyme, provides an opportunity for a class discussion about edible potions.

Strega Nona, by Tomie dePaola. 1975. Upper Saddle River, NJ: Prentice Hall.

When Strega Nona goes off on a visit, her apprentice, Big Anthony, tries the spell that makes her magic pasta pot start producing a large amount of pasta, but he cannot remember the spell that makes the pot stop producing pasta. This traditional tale provides children with another perspective on magic spells and is a rich source for dramatic play.

Room on the Broom, by Julia Donaldson and Axel Scheffler (illus). 2001. Toronto: Scholastic.

A witch loses her personal items while riding her broomstick. She meets some animals along the way that help her find those items in exchange for a ride. With too many riding on it, the broom snaps in two. The witch must use her cauldron and cast a spell to fix her broom. This rhyming book provides a lot of descriptive vocabulary and an opportunity for dramatic retell.

Possum Magic, by Mem Fox and Julie Vivas (illus). 1990. Sydney, Australia: Omnibus.

Grandma Poss makes a potion to make her granddaughter Hush invisible, but she forgets the spell to bring Hush back to visibility. The search for a way to reverse the spell makes this story a good pairing with *Strega Nona*, with lots of potential for dramatic play.

Shivery Shades of Halloween: A Spooky Book of Colors, by Mary McKenna Siddals and Jimmy Pickering (illus). 2014. New York: Scholastic.

In this rhyming book, a little monster ventures through the colours of Halloween. This story is a good source of Halloween- and magic-themed vocabulary and allows children to learn about colour, a kindergarten science curricular outcome.

Note

1. All names of places and people are made up.

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