Summary

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Storybook reading can and does play a role in early mathematics development. Anderson, Anderson and Shapiro explore the use of mathematics in shared storybook reading among twenty-one middle class, well-educated, English speaking families in the journal article, “Mathematical Discourse in Shared Storybook Reading” (2004). Since the National Council of Teachers of Mathematics (NCTM) advocates “the use of children’s books as a vehicle for communicating mathematical ideas,” the researchers designed their study to discover the different ways parents and children attend to mathematics while sharing a children’s storybook (5).

The researchers focused on shared storybook reading in a home setting because prior research has shown how decontextualized language used by parents in shared storybook reading with children, who have not yet had formal instruction, is essential for later success in school (6-7). Researchers also focused on shared storybook reading in a home setting because of the popular theories of sociocultural psychologists Lev Vygotsky and Barbara Rogoff. Vygotsky theorizes that a child’s enculturation is a primary tool that guides learning and Rogoff theorizes that social interactions help children to understand their world (9). In addition to sociocultural considerations, Sfard, Nesher, Streefland, Cobb, and Mason (1998) argue for the centrality of conversation in learning mathematics (9). A significant part of this study was to show how mathematical discourse is co-constructed between a parent and child and to show that discourse and conversation is important to retention and the child constructing their own knowledge.

Anderson, Anderson and Shapiro conducted their study by analyzing twenty-one middle class parents and their four-year-old children (9). Parents were audio taped when they read “One Snowy Night” by Nick Butterworth (1989) to their child. This text includes illustrations and text, both providing opportunities for mathematics. The parents were instructed to read the storybook as normally as they would (10). The researchers took the recordings and analyzed the individual recordings and then compared the recordings. They chose to focus on four dyads
(parent-child pair) for the study. Dialogues and summaries of findings were presented in the article. Prior to the study, the researchers anticipated dialogues to be different from one another because of existing research that has documented “the sociocultural nature of this particular literacy event (storybook reading)” (8), and this ended up being true.

Summaries of the findings are as follows: In all four dyads, the children make observations, ask questions, and respond to questions (27). Also in all four dyads, none of the children confirm or repeat statements. In seventy-five percent of the dyads, children call attention to the story or read (27). In fifty percent of the dyads, children offer interpretations, suggest action or strategy and follow suggestions (27). In only twenty-five percent of the dyads, the child retells the story, predicts and sings (27). In all of the dyads, the mother makes observations, offers interpretations, asks questions, responds to questions, suggests action or strategy and confirms (27). In only twenty-five percent of the dyads, the mother called attention to the text and repeated statements (27).

As one can see from the results, the mathematical discourse varied among the four dyads. One interesting point demonstrated by all the children is how the children were able to track their counting and avoid double counting and missing characters, even though characters were not always arrayed in neat rows or groups (26). Also, through analyzing the results, researchers were able to see how parents asked questions that went beyond requiring the child to merely count objects by using illustrations at hand (26). For instance, when one mother read to her daughter, “the rabbits squeezed into bed next to Percy and the squirrel. There wasn't much room,” the parent then asked, “How many were in the bed, do you think?” (13). Some other interesting results were that two of the four children were the ones to initiate the mathematical discourse, as opposed to their parent initiating it, and also the varied mathematical interactions that occurred just between 4 families of the same socioeconomic status. The article suggests for teachers, researchers, and curriculum developers to always look for ways of “embedding mathematical discourse into storybook reading in integral ways” (29) because doing so proves to be extremely beneficial for children's learning.

In conclusion, the study shows that storybook reading is a very valuable method for learning and teaching math. When parents and children share books and attend to mathematics, they do so in the context of meaning making (29). Research has shown how this can be used as a “springboard” from which follow-up questions and activities can be generated (29). It is important to keep in mind that interactions at home will differ from interactions at school because transposing what happens at home to the school and vice versa may be difficult. Lastly, in order to further build upon this study, the researchers described the
importance of conducting more studies to assess different age groups, gender, and diversity. These additional studies will help better our understanding that storybook reading can and does play a role in early mathematics.