Learning to Question in Kindergarten

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Abstract

Even though young children ask many questions, the request for a question usually receives a story in response. The purpose of this action research was to determine if the implementation of questioning activities throughout the curriculum would make kindergartners aware of questions and enhance the questioning skills of these young learners.

I am 83 years of age and I am still learning. I am fascinated by the computer age, and I am still learning how to use some of the new technology. I just started taking water aerobics and swimming lessons last year. I ask a lot of questions during my swimming lessons. Take a deep breath! You can drown yourself with problems if you don’t ask questions.

Rosa Parks (Parks & Reed, 1996, p.47)

Kindergartners ask many questions; however, the request for a question from kindergartners usually is answered with a story. The research literature indicates that young children have difficulty interpreting questions addressed to them. Therefore, the following problem is important: How do teachers help kindergartners appropriately respond to the request for a question?

Ciardiello (1998) indicated that knowing how to become literate was to know how to question; thus, questioning was the basis for inquiry. Children were naturally curious about the world and sought answers to many questions. Students were better inquirers when they were given the opportunity to generate their own questions and to design ways to find the answers to those questions (Lowery, 1998).

Young children prove to be inquisitive, repeatedly asking questions. Through questions, students reveal what they want to learn, frequently reveal what they know, and reveal what they do not know (Becker, 2000). Questions are a large part of social functioning when students discuss interpersonal relationships and negotiate group activities. Students' cognitive, social, and emotional growth was found to be weakened when questions were not asked (Becker, 2000). Educators taking the constructivist view were found to encourage children not only to be observers but also to become active participants in learning (Waite-Stupiansky, 1997). A child's curiosity and natural need to know fuel the motivation to learn. In order to progress toward intellectual autonomy, a child has to satisfy his or her natural search for understanding. Learning is, in the Piagetian sense, developing and striving for equilibrium. Learners begin with questions
that are meaningful for them (a source of disequilibrium) and move toward learning with a need to know. The educator creates the correct amount of disequilibrium, piques the child’s curiosity, and helps locate the answers to questions in the learner’s quest for equilibrium.

Since most kindergartners are constantly asking questions, this teacher-researcher had devoted very little time in the past to lessons on forming, understanding, and encouraging questions. The purpose of this investigation was to determine if the implementation of questioning activities throughout the curriculum would make kindergartners aware of questions and enhance the questioning skills of these young learners.

The questions guiding this study are as follows: After the implementation of questioning activities throughout the curriculum, will kindergartners produce more questions when requested, as determined by interviews? What kinds of questions will kindergartners produce as determined by interviews, journal writing shared in the author’s chair, questioning games, and in the formulation of KWLQ charts and question maps?

Methodology

This study was conducted in a K-2 southeastern primary school in an intact constructivist kindergarten class where learning was hands-on, minds-on. The 19 participants actively engaged in cross-curricular thematic learning activities throughout the day and had responsibility for their own learning. Project work, singing, listening to and reading stories, structure building, painting, participating in dramatic play, and learning and practicing emerging skills were all part of the school day. Participants were encouraged to initiate, investigate, and follow their own interests. The students’ age range was 5-7 and included 5 white males, 4 black males, 5 white females, 4 black females, and one bi-racial female. One student was speech and hearing impaired, and another student had been identified as autistic.

The study occurred as the class investigated the theme “Our Town,” which provided opportunities conducive to student questioning. The participants were initially interviewed to determine if they were able to produce a question upon request. During the interview, town maps cooperatively created by the participants were used to encourage students to ask a question when prompted. Field notes recorded the results of these interviews, as well as daily observations. The following interviews were conducted individually.

Interview Questions

First Interview:

This interview took place on the first day of the study and the first day of the theme after the completion of town maps which were made cooperatively.

Teacher-researcher: “I am going to ask you some questions.”
1. “Did you enjoy making the town map?” (Yes/no answer)
2. “What did you draw on the map?” (1 or 2 word answer)
3. “How could we make other maps?” (Open-ended answer)
   “Please ask me a question.” The question attempt was recorded.

Second Interview:

This interview took place on the fifth day of the study. The doctor’s bag and stethoscope had been introduced at circle time and were on the table in front of the student.

Teacher-researcher: “I am going to ask you some questions.”
1. “Would you like to put this on (points to the stethoscope)?” (Yes/no answer)
2. “What is this?” (1 word answer)
3. “How could we make a stethoscope?” (Open-ended answer)
   “Please ask me a question.” The question attempt was recorded.

Third Interview:

This interview took place on the tenth day of the study. The firefighter’s helmet had been introduced at circle time and was on the table in front of the student.

Teacher-researcher: “I am going to ask you some questions.”
1. “Would you like to put this on (point to the helmet)?” (Yes/no answer)
2. “What is this?” (1 word answer)
3. “How could we make a firefighter’s helmet?” (Open-ended answer)
   “Please ask me a question.” The question attempt was recorded.

After the initial interviews, questions saturated the curriculum. The morning sign-in sheet asked a question. Participants signed-in under the response to the question they thought was correct or wrote a response. The question of the day was used frequently; it was a variation of the morning sign-in sheet using a pocket chart and index cards to record responses. The teacher-researcher reviewed the results of this document on a daily basis with the participants, emphasizing the use of the question and referring to it as a question.

Using a K-W-L chart (Huffman, 1998) with questions, the Our Town theme was graphically organized. Under the K (what I know), the teacher recorded the participants’ prior knowledge. The participants and teacher generated questions about the topic and recorded them under W (what I want to learn). If necessary, the teacher modeled questions for the students (Galda & Beach, 2001). The participants and teacher discussed where the students might locate this information (Bryan, 1998). After researching the topic through various media, the students and teacher recorded what they learned under the L. Focus questions were incorporated into the basic procedure K-W-L. A Q (what other questions do you have about this) encouraged further questions (Schmidt, 1999).

Throughout the Our Town theme, questions were modeled and referred to as questions by the teacher. Children’s literature included during this thematic unit also encouraged student questioning. Participants were asked to identify questions within the text. The group, as a whole, was asked to make a question mark in the air or raise their hand each time they heard a question. Readers were instructed to establish the question on the page of the book or to read the question to the group.
Question maps supplied a graphic depiction of the content and organization of a topic within the theme, i.e., maps. The teacher-researcher served as a recorder of student-generated questions and modeled questions. These maps were prominently displayed for participants to review and extend.

The learning games “What’s in the bag?” and “What’s my occupation?” (Thomas & White, 1999) are variations of the Twenty Questions game (Lindfors, 1999; Courage, 1989; Siegler, 1977; Denney & Connors, 1974) that were played during this theme; What’s in the bag? was played daily. Two participants each took home a large canvas bag and returned the next day with an object from home in the bag. The other participants asked questions to determine the contents of the bag. What’s my occupation? was played bi-weekly. A participant picked an occupation, and the other participants could only ask a total of five questions to determine his or her occupation. Participants were encouraged to ask open-ended questions and modeling occurred as needed.

Through Writer’s Workshop, the teacher or another participant, modeled questioning verbally and in writing. Participants were encouraged to include questions in journals and learning logs. These documents were examined for evidence of questioning. Daily theme ABC journals included questions. Teacher and students brainstormed a question to coincide with a particular letter.

After one week, the participants were interviewed a second time to determine if they were able to produce a question upon request. During the interview, real-life medical tools and a doctor’s bag individually created by the participant were used to encourage the participant to ask a question when requested. The results of these interviews were recorded as field notes.

All of the students’ question-promoting learning techniques previously implemented in the Our Town theme were replicated in slightly different activities during a second week. After the second week, students were interviewed again. During this interview, an actual fire fighters’ helmet and a visit from local firefighters in an authentic fire truck provided motivation. Once again, the participants were instructed to provide a question when asked by others.

Results

The first question guiding this investigation was as follows: Will kindergartners produce more questions, when requested, following the implementation of questioning activities throughout the curriculum as determined by interviews? Field notes recorded during and immediately following the interviews were used to investigate this question. Table 1 presents the results of the interviews and indicates the number of students who could ask a question when prompted to do so.

Each male student was assigned a number between 1 and 9, and each female student was given a number between 1 and 10. During the first set of interviews, Trial 1, male student number 6 and female student number 10 could produce a question when requested to ask a question. In Trial 2, the second interviews, male students 1, 4, 5, 6, and 9 produced questions. Female students 1, 3, 6, 7, 8, 9, and 10 were capable of producing questions upon demand. The final interviews, Trial 3, indicated that only four students—male students 3 and 8, and female students 2 and 4—were incapable of producing a question when requested to do so. Table 1 indicates that once a student was capable of
formulating a question in an interview, his or her ability to question continued in consecutive interviews.

Table 1

Results of Interviews Indicating the Number of Questions Asked by Interviewees

<table>
<thead>
<tr>
<th>Trial #</th>
<th>Males (n=9)</th>
<th>Females (n-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>1</td>
<td>0 0 0 0 1 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>2</td>
<td>1 0 0 1 1 1 0 0 1</td>
<td>1 0 1 0 0 1 1 1 1</td>
</tr>
<tr>
<td>3</td>
<td>1 1 0 1 1 1 1 0 1</td>
<td>1 0 1 0 1 1 1 1 1</td>
</tr>
</tbody>
</table>

In Trial 1, only two students (11%) consisting of one male and one female, were able to ask a question. The other students responded with non-question statements. In Trial 2, twelve students (63%) were able to produce a question when requested. One remaining student refused to respond, and the other six answered with a statement. In Trial 3, only four answered with a declarative statement while the other fifteen were all able to ask a question.

The results by gender are indicated in Figure 1. Throughout the initial interview, Trial 1, one male student and one female student responded positively. Seven females and five males formed questions during Trial 2. The final interview revealed that eight females and seven males could construct questions when requested to present questions.

Figure 1

Results by Gender of the Interviewees Responding with a Question

![Bar graph showing results by gender across trials]

The second question guiding this investigation was as follows: What kinds of questions will kindergartners produce as determined by interviews, journal writing shared in the author’s chair, questioning games, and in the formulation of KWLQ charts and question maps? Documents, sign-in sheets, learning logs, photographs, and journals were
reviewed, and essential information was analyzed. Independently formulated questions produced when requested during interviews, questioning games, in journals, and in the formulation of question maps and KWLQ charts were recorded and divided into one of three categories: 1) questions with yes/no answers, 2) questions with one or two word predictable answers, and 3) open-ended questions with many possible answers. The results of this review are reported in Figure 2 and Table 2. Of the 462 total questions asked in response to a request, 311 (67%) were yes/no type questions while 125 questions (27%), required only a 1 or 2 word response. Twenty-six questions (6%) were open-ended.

Table 2 illustrates the types of questions students asked over a two-week period of 10 class days. The total number of questions on the first Monday and both Fridays included interviews. The numbers of yes/no questions and 1or 2 word questions formulated appeared consistent. The number of open-ended questions increased over the 10 class days.

Table 2

<table>
<thead>
<tr>
<th>Questions</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>TH</th>
<th>F</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>TH</th>
<th>F</th>
<th>Totals</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td>32</td>
<td>20</td>
<td>33</td>
<td>39</td>
<td>39</td>
<td>32</td>
<td>25</td>
<td>26</td>
<td>32</td>
<td>33</td>
<td>311</td>
<td>67%</td>
</tr>
<tr>
<td>1 or 2 word</td>
<td>15</td>
<td>10</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>18</td>
<td>125</td>
<td>27%</td>
</tr>
<tr>
<td>Open-ended</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>26</td>
<td>6%</td>
</tr>
<tr>
<td>Totals</td>
<td>48</td>
<td>31</td>
<td>40</td>
<td>53</td>
<td>52</td>
<td>47</td>
<td>41</td>
<td>43</td>
<td>51</td>
<td>56</td>
<td>462</td>
<td>100%</td>
</tr>
</tbody>
</table>

Of the 332 questions formulated upon request, 72% were produced during questioning games (Table 3). Of these 332 questions, 250 (75%) were yes/no questions, 72 (22%) were 1 or 2 word answer questions, and 10 (3%) were open-ended questions. In the construction of KWLQ charts and question maps, 34 (7%) of the total questions coded were devised, of which 14 were yes/no questions; 12 were 1 or 2 word response questions, and 8 were open-ended questions. Students wrote or read 67 (15%) of the total questions asked in their learning logs and journals; five of these questions were open-ended; 33 were yes/no type questions, and 29 were 1 or 2 word answer questions. The 29 questions formulated during interviews included 3 open-ended questions, 14 yes/no questions, and 12 simple 1 or 2 word response questions.
Table 3

*Results of Types of Questions Formulated by Types of Data Sources*

<table>
<thead>
<tr>
<th>Questions Formulated</th>
<th>Interview</th>
<th>Journals/ learning &amp; Question Logs</th>
<th>KWLQ Charts &amp; Question Maps</th>
<th>Questioning Games</th>
<th>Totals</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td>14</td>
<td>33</td>
<td>14</td>
<td>250</td>
<td>311</td>
<td>67%</td>
</tr>
<tr>
<td>1 or 2 word</td>
<td>12</td>
<td>29</td>
<td>12</td>
<td>72</td>
<td>125</td>
<td>27%</td>
</tr>
<tr>
<td>Open-ended</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>26</td>
<td>6%</td>
</tr>
<tr>
<td>Totals</td>
<td>29</td>
<td>67</td>
<td>34</td>
<td>332</td>
<td>462</td>
<td>100%</td>
</tr>
</tbody>
</table>

% 6% 15% 7% 72% 100% %

Figure 2

*Types of Questions Asked upon Request*

![Pie chart showing types of questions asked upon request:]
- Yes/no: 1 (67%)
- 1 or 2 word: 2 (27%)
- Open-ended: 3 (6%)

Discussion and Conclusions
The kindergartners produced three types of questions: yes/no answers, one or two word predictable answers, and open-ended questions with many possible answers. The results of this research were consistent with that of researchers having studied the young child’s ability to question after training on a Twenty Questions task (Lindfors, 1999, p.73). Courage (1989) discovered that when this task was used in conjunction with a “Listener” task and training, preschoolers exhibited a high level of communicative competence, and young children were able to ask categorical questions and generalize their training to other tasks. In compliance with the research of Denney and Connors (1974), this study indicated that most young children are unable to formulate categorical questions without training in the asking of questions, and strategy modeling teaches young children to formulate constraint-seeking questions when used in conjunction with the Twenty Questions game. The research literature (Denney & Connors, 1974) indicates that elementary students can be trained to eagerly ask an exceptional amount of varied questions. Teachers gain insight into topics that interest students and promote learning from the types of questions asked.

Through the implementation of questioning activities throughout the curriculum, these kindergartners became more aware of questions, and their questioning skills were enhanced. These children produced more questions upon request, following the implementation of questioning activities throughout the curriculum. Questioning instruction and research will continue in this teacher-researcher’s classroom. Future research may compare the age and developmental level of the student with his or her ability to question.

There are naive questions, tedious questions, ill-phrased questions, questions put after inadequate self-criticism. But every question is a cry to understand the world. There is no such thing as a dumb question.

Carl Sagan (1996, p.323)
References


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