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Direct Study of Students' Responses to Curriculum

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Abstract.—Many learning, behavioural and developmental problems can limit students' abilities to respond adequately to the school's curriculum. School personnel often join with colleagues, including school psychologists, to assist students in resolving these problems. This presentation describes a model program in which school psychologists and others collaborate during a year-long university facilitated in-service program involving the study of students' responses to curriculum. A poster flow chart provides examples of the activities that involve: (1) writing anecdotes describing students' responses to curriculum; (2) learning to distinguish objective from subjective data/information; (3) identifying the recurring responses of students to curriculum; (4) applying a multiple hypotheses approach to specific responses to better understand them; (5) planning to assist students with curricular tasks and achievement; and (6) engaging in professional reading and research on the students' responses to the subjects being taught. Some benefits of studying students' responses to curriculum include: (1) learning to objectively record and interpret responses of students to curriculum and instruction; (2) learning to apply scientific methods to the study of students' responses; (3) gaining knowledge and appreciation of what students are up against as they respond to the curriculum as a developmental task; (4) perseverance in assisting students with the support and guidance of colleagues; (5) learning about the responses to curriculum and instruction across various academic subjects by all students being studied; and (6) increasing understanding of the influences of technology on students' engagement with curriculum.

Introduction

At the beginning of the school year, many school districts require teachers to assess students with brief screeners to determine students' strengths and weaknesses in various subjects. The screeners include items to assess curriculum learning from the previous grade level and items that will be taught during the first 4 months of the current school year. Screener results are used to identify students who are at risk due to lack of mastery of subject matter taught previously and necessary for success in the current grade. Remediation of the at-risk student(s) usually becomes the responsibility of classroom teachers. It is in the remedial context of studying students' responses to curriculum that teachers can become more helpful and knowledgeable. It is worth noting that, "discovering … issues and problems firsthand has a much greater impact on the understanding and solution-seeking of school personnel than just reading about them. Classrooms are the great laboratories for the study of teachers' implementation of curricula and students' responses to it" (Williams, 2001, p. 87).

The direct study of students' responses to curriculum described here is inspired by a program developed by Daniel A. Prescott, Fritz Redl, Caroline Zachry, and others at the Universities of Chicago and Maryland beginning in the 1940s (Brandt & Perkins, 1956; Commission on Teacher Education, 1945; *Direct Study*, 1989–1990; Eliot & Gardner, 1985; Morgan, 1989; Prescott, 1957, 1962). The program has been offered as a year-long university facilitated in-service course involving the study of students' responses to curriculum by teachers, supervisors, principals, counselors, and school psychologists in elementary, middle, and high schools.

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Participants interested in studying students' responses to curriculum

Join an in-service study group.
Follow the group's code of ethics to insure confidentiality of students being studied.
Choose a student whose responses to curriculum the teacher wants to understand.
Prepare a curriculum study record that includes:

1) Providing a descriptive report of the student's academic history.[2]
2) Daily observation of the student's responses to curricular subjects from assessments, lessons taught, and homework.
3) Record of advice from colleagues and/or research into instructional approaches to understand and/or assist the student.
4) Description of intervention(s), reasons for selection, how helpful, how assessed, and record of the results.

Building the curriculum study record

9/15 Anecdote 1:

Of the two students presented to the group, Bryan was selected for me to study. Bryan is a ten-year-old grade 5 student who does not have any marks below 'B' in any subjects except math. His grade-4 teacher described him as quiet and cooperative. However, she did express some concern that he seems to be having some difficulty with multiplication facts. Her observation was confirmed on his *Grade 5 Math Screener* results.

9/19 Anecdote 2:

Bryan completed only 2 of the 10 multiplication problems on the math practice assigned during class. He seems not to understand what to do when confronted with multiplication problems. Plan is to monitor and document his responses and to share the information with the study group and seek guidance to plan interventions.

Examples of Bryan's recurring responses to curriculum

Bryan says that he is still working at memorizing his multiplication facts. 9/19, 9/23, 10/6, and 10/11.
Bryan does not submit his math homework assignments. 9/26, 9/30, 10/4, 10/11, 10/18, and 10/25.
Bryan has many errors on the multiplication problems of his math assignments. 9/28, 10/6, 10/13, 10/20, and 10/27.
Bryan completes only 2 or 3 of the 10 multiplication practice problems assigned during class. 9/19, 9/20, 9/21, 9/22, 9/23, 10/11, 10/17, and 10/21.
Bryan is heard to complain to classmates that math homework takes too long to do. 9/27, 9/29, and 10/5.

A better understanding of Bryan's recurring responses to the school curriculum can be gained by applying a multiple hypotheses approach. To do this, the teacher and/or the study group select one pattern of behaviour that is of interest and relevant to understanding Bryan's responses to curriculum from the list of recurring behaviours. The analysis involves: (1) making a list of plausible reasons for the behaviour (multiple hypotheses)[3] in a format that is as specific and testable as possible; and (2) identifying facts in the anecdotes of the curriculum study record supporting or refuting the hypotheses. The anecdotes are read one by one and the dates of anecdotes with supporting or refuting facts are placed next to each hypothesis. Plus signs [+] indicating support or minus signs [-] indicating lack of it are placed before the dates.

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[2] An example of a format for preparing a comprehensive descriptive report of a student's academic history is provided on pages 31 to 36 of Knoff, Haley, and Gonzales (2011, September).
[3] Some Examples of hypotheses are listed on pages 38 to 41 of Knoff, Haley, and Gonzales (2011, September).

Sample of the multiple hypotheses approach

Why would Bryan or any Grade 4 student have difficulty with multiplication facts? Could it be that Bryan:

1. Did not get adequate feedback about math from his Grade 4 teacher. (No data supporting or refuting this hypothesis.)
2. Has not spent enough time studying his multiplication facts. -9/19, -9/23, -10/4, and -10/11.
3. Has a recent history of difficulty with math. +9/15 and +9/19
4. He has not mastered the prerequisite math skills needed for mastery of the multiplication facts. +9/15, +9/28, 10/6, 10/13, 10/20, and 10/27.
5. Was in a class where his teacher was unfamiliar with math multiplication methods needed by him. (No data supporting or refuting this hypothesis.)

Confidence about the hypotheses supported or refuted can be gained by this activity and the results can then be summarized. In this instance, it was clear that Bryan needs assistance to master multiplication facts. The following are anecdotes written during the ongoing study group process that indicate the beginning of interventions with Bryan.

10/13 Anecdote 15:

Shared with the group the recurring struggles Bryan is having with multiplication problems during math practice sessions in class and on his homework. He says that he has been trying to memorize them but it has not worked. From the mistakes Bryan has been making, it seems that he does not understand what multiplying means. The result is that it is taking him longer to complete his daily math assignments and because of his difficulties, he seems to be losing his interest in math.

10/14 Anecdote 16:

This morning, I started working with Bryan by assessing whether he understood what makes 8 and 16. The ability to quickly double numbers is an essential skill for learning the basic multiplication facts. In working with Bryan, I started with doubling the numbers 1 to 9. I also used a double 10-frame to help him learn the doubles. Then, I introduced a number cube so he could practice and improve his speed.

10/18 Anecdote 18:

A colleague in the direct study of curriculum group reminded me that students are better at making connections between recent math ideas and physical examples. She suggested that the best physical example to represent the idea of multiplication is the area of a rectangle.[4] I began with very basic activities with Bryan to show him how multiplication can be regarded as a rectangle. I showed him groups of rows like rectangles—starting with a row of 2 linked cubes. How many cubes are there? Bryan made 2 rows of 2 cubes and named the total of cubes. He continued making rows of cubes—2 of 3, 2 of 4, 2 of 5 … etc. Also introduced ordinary experiences—if you saw 3 horses, how many legs did you see. [3 x 4].

Benefits to school personnel studying students' responses to curriculum include: (1) learning to objectively record and interpret responses of students to curriculum and instruction; (2) learning to apply scientific methods to the study of students' responses; (3) gaining knowledge and appreciation of what students are up against as they respond to the curriculum as a developmental task; (4) perseverance in assisting students with the support and guidance of colleagues; (5) learning about the responses to curriculum and instruction across various academic subjects by all students being studied; and (6) increasing understanding of the influences of technology on students' engagement with curriculum.

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4 This suggestion reminded me of Ojose's (2008) observation that: "Providing various mathematical representations acknowledges the uniqueness of students and provides multiple paths for making ideas meaningful" (p. 28). See also Moely, Hart, Leal, Santulli, Raoi, Johnson, and Hamilton (1992).

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