Assignment 4: Needs Assessment Methodologies

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Overview

Needs assessments entail various types of data collection in order to present an accurate picture of the current practice at an institution and the difference in what is desired, known as the gap. In the following proposal, a description of various data collection tools appropriate for the current project will be presented and discussed. The needs assessment methodologies that will be used for this investigation will be identified in the Instruments section and the specific tools for data collection will be included as appendices. An explanation of the process that will be completed for the needs assessment will be detailed in the Procedures section.

Research Findings

A search of the literature with the terms “needs assessment” and “mathematics teachers” resulted in only a few queries. Several of the articles returned during the search dated back to the 1970’s and 1990’s. The needs assessment methodologies used in the 1990’s investigations and Reviewing methodologies utilized by previous studies for assessing the needs of mathematics teachers revealed the use of Likert scale questionnaires and a case study (Easterday & Smith, 1992; Prusaczyk & Baker, 2011; Ross, McDougall, Hogaboam-Gray, & LeSage, 2003).

In the needs assessment conducted by Easterday and Smith (1992), it was essential to collect information from mathematics teachers regarding the areas they felt or desired assistance. This was accomplished through the use of a survey instrument created based upon a survey that had been used previously for assessing the needs of science teachers in the area of professional development. The participants in this study consisted of secondary mathematics teachers in the state of Alabama. The response rate was just under 37% for over 2,500 surveys distributed to teachers in the state. Although the response rate was low, Easterday and Smith (1992) stated the results could be representative of the population as a total number of mathematics teachers was
unavailable for comparison. The results from this needs assessment indicated a need for professional development opportunities for teachers who have been teaching for a longer period of time in the area of discrete mathematics. Additionally, teacher’ responses showed a need for training in computer hardware and software selection and usage to teach mathematic concepts.

The second study reviewed focused on the use of a self-report survey to determine teacher if elementary teachers implemented “standards-based mathematics” instruction. Ross, McDougall, Hogaboam-Gray and LeSage (2003) reported ease of use and cost efficiency as reasons for selecting a self-report survey instrument to conduct the needs assessment evaluation. They also discussed observation as a more effective, but time excessive measure for assessment. Recommendations for further study included looking at ways to gather data similar to what is gathered during observations to provide an accurate picture of the math standards taught in the elementary classrooms. Performing observations in all of the participants’ classrooms was not feasible for this study as it included a large number of participants across a province in Canada.

A 2011 needs assessment conducted by Prusaczyk and Baker utilized a case study approach. The case study reviewed a partnership between several rural schools in Illinois with the School of Education at Southern Illinois University-Carbondale (SIU-C). An open invitation was extended to teachers in the targeted rural community to participate in a professional development opportunity. Once teachers accepted the invitation teacher anxiety levels in regards to math were assessed and support provided through counseling sessions (Prusaczyk & Baker, 2011). In addition, teachers completed an assessment to indicate areas of mathematical strengths and weaknesses. Weaknesses in mathematics were targeted with specific training in the weak content areas through Cognitively Guided Instruction provided by mentors from SIU-C.
Prusaczyk and Baker (2011) discussed teachers collected data about student performance in their classrooms and learned to analyze the outcomes.

Methodologies

Kaufman, Watkins, and Leigh (2001) discussed a range of data collection methods to obtain soft and hard data. Soft data refers to information gathered that is subjective in nature and may be interpreted differently by individuals completing the analysis. Hard data refers to the information gathered that is objective in nature and when analyzed by multiple individuals yield the same results. For the purpose of this needs assessment a combination of both soft and hard data will be collected.

Soft data will be collected through the Elementary Math Teacher Survey (see Appendix), a Likert-scale questionnaire, and classroom observations. There are two distinct advantages of the Likert-scale questionnaire. They include the minimal amount of time that is necessary to administer the survey and the statistical data provided after analysis (Kaufman, Watkins, & Leigh, 2001). The advantage of conducting classroom observations in this study will provide additional information about materials and types of activities teachers use during mathematics instruction. A disadvantage of using this type of data collection method is that it will only provide a snapshot of each teacher’s performance during math instruction. Multiple observations during an entire school year would provide a clearer picture of math instruction delivered by elementary teachers at The Elementary School. However, resources are unavailable to conduct that type of in-depth investigation.

Hard data will be analyzed by reviewing standardized math assessments, known as the Florida Comprehensive Assessment Test, taken by third, fourth and fifth-grade students. Students in kindergarten through second grade do not take a standardized assessment for mathematics. Therefore, the district topic assessments will be analyzed for those grade levels.
Particular attention will focus on the content or topic areas where students perform below standards at each grade level.

**Instruments**

For this needs assessment, one instrument will be used to collect data for analysis. A 25 question Likert survey, titled the Elementary Mathematics Teacher Survey (see Appendix), will be administered to teachers at The Elementary School. The first section of the questionnaire focuses on demographics of the participants in the data collection. The second section consists of a Likert scale for teachers to indicate the amount of usage (Daily, 3-4 days/wk, 1-2 days/wk, or Never) for each type of instructional material or tool in the area of mathematics instruction.

**Procedures**

This needs assessment will be conducted at The Elementary School during the 2012-2013 school year. During a December faculty meeting, teachers will receive the Elementary Mathematics Teacher Survey to complete. Teachers will receive instructions on how to complete the questionnaire and assured confidentiality of their responses. Once questionnaires are completed by teachers they will submit them into a collection box located in the meeting room. The needs assessment team will collect the questionnaires for analysis. The results from the Elementary Mathematics Teacher Survey will be entered and processed using SPSS software to perform descriptive statistics reports for the data.

In addition to analyzing the descriptive data provided from the survey analysis, classroom observations will be conducted in each of the 36 classrooms by the needs assessment team. Observers will record materials used, topics being taught, and instructional methods used during the period of observation. These observations will be coded and analyzed by the needs assessment team.
Finally, student performance data will be retrieved from the previous school year. This data will be analyzed to identify the topic areas in math where students performed below grade level expectations.
References


