

RURAL PARENTS' VIEWS ON THEIR INVOLVEMENT IN THEIR CHILDREN'S MATHEMATICS EDUCATION

Daniel L. Clark
Western Kentucky University
daniel.clark@wku.edu

As rural parents can face barriers that are different from those encountered by suburban and urban parents, this study sought to assess the level of rural parents' satisfaction with their level of involvement in their children's mathematics education in a rural location in the Midwestern United States. Semi-structured interviews were conducted with seven parents from one rural school district. Parents' satisfaction with their level of involvement in their children's mathematics education correlated highly with their children's success in school mathematics. Another result found that often at least one of the rural parents in each household commuted a great distance each day from where their children attended school, but that the commuting parent was the parent most likely to help children with mathematics homework. Implications of this finding are discussed.

Keywords: Rural Education, Marginalized Communities, Communication

Purpose

Parental involvement has been shown to positively influence children's education (Sheldon & Epstein, 2005; Liu, Wu, & Zumbo, 2006). Rural parents can face barriers to involvement in their children's mathematics education that other parents do not. Therefore, the purpose of this study was to research the involvement of rural parents in their children's mathematics education. In particular, this study sought answers to the following research questions:

1. How satisfied are rural parents with their involvement in their children's mathematics education?
2. What level of involvement do they desire to have in it?
3. If they want more involvement, what hinders their involvement? On the other hand, if they want less involvement, in what ways would they like to be less involved?

Perspectives

This study was grounded in the previous work of Lareau, Civil, and Remillard and Jackson. First, Lareau (2000) discussed the idea of social capital. Essentially, some parents are able to interact more fluidly with mathematics teachers and the entire school setting than other parents are based on their previous experiences, perceptions of school mathematics and its purpose, and other related cultural values and norms. Indeed, some parents place themselves in perceived positions of authority over math teachers while others would never think of questioning a math teacher.

Next, Civil worked to help parents view themselves as funds of mathematical knowledge (Civil, Bratton, & Quintos, 2005; Civil & Bernier, 2006). Many parents have the knowledge to assist their children with school mathematics but simply are not confident in doing so. Regardless of their current mathematical knowledge, Civil et al. helped their participants see that they could both learn mathematics and facilitate mathematical learning at the same time.

Finally, Remillard and Jackson considered parents' involvement in their children's learning and schooling, both in terms of what the school could and could not see (2006). They considered a parent-centric view of parental involvement that consisted of three things: involvement in the

children's learning, involvement in the children's schooling, and involvement in the children's school. While all three are important, only the last of the three is directly observable by the school.

Methods

Context

Rural places and people are not homogeneous. There is variety among rural people both in different localities and within the same locality. This study focused on rural people who live within a 45-minute drive of an urban center in the Midwestern United States. Originally, families were sought for this study that both a) lived outside the city limits of the town or towns in which the children attended school and b) lived at least five miles from all schools attended by the children at the time of the study. Selecting parents to interview in this manner would have eliminated both those who live in towns and near schools. It was hoped that what remained would constitute a population from which a characteristically rural sample may have been drawn.

Participants

Parents were recruited with the assistance of principals and mathematics supervisors. The principals and mathematics supervisors were sent a letter detailing the project and asking for help to identify potential participants.

Two principals recommended thirteen people who agreed to give their contact information to me. After being contacted, seven parents eventually participated in the interview process. After the interviews began, it became clear that the principals recommended some people who did not satisfy the original participant criteria of living outside of town and at least five miles away from the schools. Upon analysis, the comments of the parents who lived closer to the schools than originally desired were quite similar to those of the parents who did satisfy the original criteria. Therefore, the inclusion criteria were relaxed.

One *severe* limitation of this study, though, is that many of the people recommended by the principals were employed somehow either with the school district in which their children lived or another school district in the area (see the table below). When studying parental involvement in children's mathematics education, this clearly produces an unwanted bias in the participant sample; however, on one hand, because of this it could be argued that we should expect to see the best parental involvement results possible with this sample. In a more unbiased sample, we would expect to see less involvement and more frustration among parents than in this sample of school-affiliated parents. Therefore, the results below may well indicate a best-case scenario for rural parental involvement, while the reality is likely worse. On the other hand, it could be argued that a more representative sample of rural parents may well be nothing like this sample of mostly school-affiliated parents. Problems like this are typical of parental involvement studies. For example, Civil and Bernier's (2006) study of 15 mothers contained several who were teacher's aids, some who were members of the local parent teacher organization, and some who were already regularly volunteering in the schools. Similarly, nearly half of Jackson and Remillard's (2005) sample of mothers were highly involved in their children's schools before the study. While this study's sample is somewhat flawed and non-representative, the results below could still inform our ideas of rural parental involvement in mathematics education. Below is a table profiling the participants.

Table 1: Participants

Name	Children's Age, Grade, Gender	Education	Occupation	Spouse Education	Spouse Occupation
Amanda	23 21, F 15, 9 th , F 12, 7 th , M	Bachelor's degree	Nurse		

Brad	15, 10 th , F 12, 7 th , M 9, 4 th , M 8, 2 nd , M 3, F	Bachelor's degree	Youth minister in town of children's school	Bachelor's degree	Stay at home mother
Chad	15, 10 th , F 12, 7 th , F 8, 3 rd , M	Master's degree	Middle school teacher 31 miles away	Associates degree	Childcare professional at children's school
Denise	12, 7 th , F	One year of college	Lunch lady at school in child's district	High school diploma	Retail manager 25 miles away
Elizabeth	19, M 17, 11 th , M 14, 9 th , M	Master's degree	Elementary resource room teacher in children's district	Bachelor's degree	Administrator 17 miles away
Fallyn	17, 11 th , F 13, 8 th , M	High school graduate	Secretary in children's school	Two years of college	Construction foreman 24 miles away
Gabby	19, F 17, 11 th , F 14, 8 th , F	Master's degree	Kindergarten teacher 8 miles away	Bachelor's degree	Computer specialist 58 miles away

Data Collection and Analysis

Semi-structured interviews were conducted with the seven parents. With permission, the interviews were audio recorded and transcribed. Direct and indirect questions were asked to assess the participants' thoughts with respect to the research questions. Responses were probed to make sure respondents were being understood as fully and correctly as possible. The researcher also attempted to ask follow up questions that enhanced the narratives being given by the interviewees. As the interviews were semi-structured, a few standard questions were asked, but the flow of the interview and the information gathered were largely left to the interviewees.

In conducting these interviews, I was thinking of parental involvement in the terms of Lareau, Civil, and Remillard and Jackson. From Lareau (2000), I considered whether parents were as involved as they would like to be and maintaining communication about mathematics education with the schools in a way with which they felt comfortable. From Civil, I wanted to assess whether parents viewed themselves as funds of knowledge (Civil & Bernier, 2006). Furthermore, from an ethnomathematics perspective, I wanted to know how well they felt their knowledge and use of mathematics aligned with their experiences of helping their children with schoolwork. Finally, from Remillard and Jackson (2006), I wanted to ask about the parents' involvement in their children's learning and schooling, both in terms of what the school could and could not see.

After the interviews were collected and transcribed, an open coding process began. The interviews were listened to in their entirety as notes were affixed to the transcripts summarizing what points were being made. Then, the transcripts and notes were inspected for common themes. When a theme was found, all instances of that theme were highlighted in all transcripts.

Results

The first two research questions were: How satisfied are rural parents with their involvement in their children's mathematics education, and what level of involvement do they desire to have in it? During data analysis, it became apparent that these two research questions could not be answered separately. When asked the first question, five of the seven parents interviewed said that they were satisfied with their level of involvement. For many of them, though, it appeared that they were satisfied with their level of involvement because between them and their spouses they were doing what needed to be done for their children to succeed. So, the apparent answer to the second research

question seemed to be that they desired whatever level of involvement was necessary for the success of the children at school mathematics.

One parent who stated at the beginning of the interview that she was “absolutely not” as involved as she would like to be was Gabby. She said she wished she could be more directly involved, but was happy that her husband and a hired tutor were helping her daughters get what they needed:

Gabby: My husband does a little more, but if we really get in trouble, we hire a tutor.

Interviewer: How has the experience been so far with hiring the tutor? Was that pretty easy to do, to find somebody?

Gabby: It was wonderful. Because I'm a teacher, it was pretty easy. I think it's probably more difficult for other people. I think it was wonderful if you can afford to do it. Especially being a teacher, I'm kind of done with that when I get home, and I don't really want to deal with it any more. So, it's really nice. I happily would pay somebody to do that for me.

The other parent who wanted more direct involvement was Elizabeth, a kindergarten teacher in the district where her children attend school. She said all of her children have struggled with math and that she probably should have been more involved. She cited concerns of both her perceived lack of mathematical ability beyond the elementary level and the time commitment it would take to be on top of communicating with mathematics teachers in a meaningful way as keeping her from being more involved.

Even among the five parents who said they were satisfied with their level of involvement in their children's mathematics education when directly asked, sometimes the interviews indicated that they would be happy to be less involved if they thought their children could succeed in class with less involvement on their part. Denise was one such parent:

Interviewer: When you say you're really involved in your daughter's math education and working with her on the advanced math stuff, what does that mean? What does that take the form of?

Denise: It means I have an A in math right now. *<laughs>* Just kidding. It means that, basically, she'll come home with her math book and a sheet of questions, and she'll say, “I don't know how to do any of these. *<laughs>* And I'll have to read over the book and the first few pages of the chapter, and do the examples, and then teach her the math...I feel like I'm in class every time she has homework, and I have to relearn seventh grade algebra piece by piece, and then teach it to her, and then do the problems together.

So, in this case, Denise expressed before the above excerpt that she was as involved as she wanted to be, but it might be more accurate to say that she was as involved as she thought she needed to be for her daughter to succeed. At several points in her interview, she expressed frustration that her daughter seemingly always came home not knowing how to do the problems on the homework, which often made her question what went on during her daughter's math class. Denise's willingness to be involved in the process of doing the homework at this high of a level could also have contributed negatively to her daughter's education by allowing her daughter to pay less attention in class. Still, she was doing what she thought she needed to do in order for her daughter to be successful.

This brings us to the third research question regarding what causes unwanted parental involvement and what hinders desired parental involvement from happening. While Denise's comments best illustrate the only type of desire for less involvement found during the interviews, several common themes emerged from the majority of the interviewees' comments about what hindered their involvement. First, most of the parents that were interviewed said either they or their spouse had already reached a point where they did not feel confident helping with or doing the mathematics that their children were doing in school, or that they anticipated reaching that point in the future.

Whether the parents had already felt like they could no longer help their children with mathematics homework depended chiefly on the age of their oldest child. Those parents with at least one child in or beyond high school spoke of it as something that had happened already, as Amanda, Fallyn, and Gabby did. Those parents whose oldest child was only in middle school anticipated it, though. Denise, whose only daughter is in seventh grade, said:

There seemed to be two potential causes for this split. First, the parent most likely to be interacting with the school either worked in the school or at least in the town where the school was located. The other parent generally did not work in the same town where the school was located, and often worked in another town some considerable distance away. This sort of long distance commuting is common in rural areas; however, given these commuting distances, it makes sense why the one parent would be communicating with the school more regularly than the other because of proximity. Elizabeth, who works in the local school but whose husband works nearly twenty miles away, was one example of this phenomenon:

Second, however, where this parent split existed, it fell directly on gender lines. The mothers were more likely to be working at the school or in the town of the school, and the fathers tended to work in another town. Also, among the parents interviewed, the two men were helping their children with mathematics homework. One of them noted that his wife wasn't comfortable doing so, or would often ask him questions afterward on the occasion that she did assist her children with math. The majority of the five women interviewed said that their husband was the primary mathematics homework helper in the home, particularly once the children were beyond elementary school. Chad, who is a certified mathematics teacher in another district over thirty miles away, but whose wife works in the local schools, was in this situation:

Conclusions

This study also attempted to determine what hinders and what facilitates rural parental involvement in mathematics education. One main finding was that while the geographically closer mothers were often the parents engaging in the most communication with the children's teachers, the fathers who were more confident in their mathematics ability but worked farther away were most often the parents assisting the children with their mathematics homework. Clearly this disconnect is not ideal. Having teacher communication with the parent most likely to help the children with the mathematics would be more helpful.

It would appear that there are two potential ways to close this disconnect. First, as Civil et al. (2002) and Jackson and Remillard (2005) have done, the mothers can be engaged in a way that results in them feeling more confident with their mathematics ability. In turn, they might be more likely to help their children with their mathematics homework. Recall Gabby, who helped her children with homework in other areas, but said she "must" stay away from helping her children in mathematics because of her lack of confidence at doing mathematics.

Second, perhaps more could be done to facilitate more communication between the fathers and the schools. Granted, the fathers tended to work farther away. This largely caused the lower level of communication with the schools and lower attendance at parent conferences. One tool that could potentially help this situation is the Internet. While work locations may well interfere with a rural father's ability to attend parent-teacher conferences held during the school day or shortly thereafter, the Internet is available at any time. Perhaps mathematics curricula authors and mathematics teachers could work together with rural fathers to find ways to engage with each other meaningfully using the Internet. This could be as simple as sending out a daily email as some of the interviewed parents said some teachers did. It could also be more broad-based in scope, with curricula authors developing

modules for teachers to display on their websites for parents not familiar with the type of mathematics being taught or the way it is being taught. Also, while it is closing, the digital divide is still a matter to contend with for many rural families. While this is still the case, perhaps more low bandwidth Internet solutions should be studied.

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