The Family Angle: Building Connections Between Home and School Through Math
A Design Project
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The Family Angle

Impressions:

In an effort to bridge two organizations, the home and the school, and strengthen math connections the Primes Project created a series of everyday math resources for parents and educators. The Primes Project, a collaboration of Stanford, WestEd, and SM Productions, presented the television show, The Family Angle, on January 20, 2002. Following the viewing of the show, a panel of educators and researchers engaged in a discussion with the audience.

The primary goal of the show is to bridge the home and the school by encouraging families to build connections between everyday math opportunities and formal math concepts. The show not only focuses on math but also emphasizes the importance of family values and communication. In fact, in the introduction the narrator addresses a common problem associated with math and the home. The narrator explains that often math homework creates stressful, frustrating situations for both children and their parents. The Family Angle provides real-life scenarios and ideas in an attempt to transform the attitudes and activities surrounding math within the home. The underlying message of the show is that families can use math as a meeting point, a common ground upon which discovery and quality communication can occur.

The ‘slice of life’ design of the show personalized the experience and made it easy for viewers to relate to the scenarios. Much of the success of the show relied on the dynamic families and their ‘stories’. As viewers, we became invested in their stories, wanting to see the end result – the finished ballet costume, the most efficient bus route. The narrator’s verbal explanation coordinated with the visual formulas and math facts provided a final, more concrete connection between the everyday math lessons and formal math skills.

While the family math scenarios were entertaining, we questioned their realism. Some conversations seemed ‘planned’ and unnatural. For instance, would two brothers really discuss the advantages and disadvantages of renting or buying video games while playing a game? Would a family really perform long division while at a baseball game? How could the design of the show be more realistic?

The families featured were very confident in their math skills. Was this a product of participating in the show? Or, was this confidence the rationale behind the choice of families? It would have been interesting to hear how the families were chosen and the effects they experience after contributing to the show. Will the show continue to follow these families? Will viewers be able to watch their everyday math skills progress over time?

While the show did an excellent job highlighting everyday math situations, the strategies provided at the end of the show lacked substance and creativity. We felt that more ideas
should be given to families, concrete ideas on how to make math more visible. Suggestions should be stated that offer parents a starting point, how to discuss math, how to involve their children in actual calculations. We observed that while the parents in the show modeled the use of practical math skills, rarely were the children asked to perform the calculations. Parents should be taught how to engage their children. After all, parents are not trained educators. It is even difficult for trained educators to balance modeling learning and guiding learning. How can we expect parents to naturally possess this skill? It is a challenging task to make the implicit explicit. Parents need to be scaffolded in the beginning (lists of strategies, situations that include math) with the hopes that over time they will naturally capitalize on everyday math opportunities. Perhaps the design of the show can convey this notion of fading scaffolding.

We found that the show primarily focused on the home and the role of math within family situations. In order to ensure the success of the project’s goals, we feel stronger connections need to be made between the home and the school. Where does the school fit in? How can the project increase the visibility of everyday math within the home, but at the same time challenge the child to connect those situations with formal concepts learned at school? A point mentioned in the discussion that we will capitalize in our design solution is the role of the child as the cultural broker. The child, a participant of both organizations, must be encouraged to facilitate communication between the two environments. Our design solution relies on the increased responsibility and accountability of the child.

**Theoretical Framework:**

According to the situative approach, students’ learning is greatly affected by not only the individual characteristics of the learner, but also by the community and its members that surround the learner. Considering one of the main goals of the Family Angle is to build connections between school and family, it is logical that a design solution would incorporate the situative approach to learning. To fully embrace the situative approach, designs must allow students to construct their own knowledge through collaborative, practical, situated activities. In turn, this type of design will enable learners to transfer their new knowledge to other problem-solving issues.

Building on the present design, our solution incorporates a more school-focused companion design to strengthen the tie between school and family learning. The weekly development of home math problems allows each child to situate their learning in their own experience. Utilizing their parents and other community resources, the children construct their everyday math knowledge through a collaborative effort. Families’ understanding and knowledge of their students’ school learning is facilitated through this opportunity to create situated math problems. Additionally, the activity makes everyday math explicit.

The use of journals to record students’ impressions and ideas enables them to reflect on their learning and the progress they make over the year. Children can also record collaborative learning that takes place in the classroom. In addition, the journals provide
both students and families with a resource that will further aid their ability to make math visible in everyday life. Teachers’ comments on home-created math problems make visible and explicit to families the formal aspects of everyday math. The journal serves a dual purpose of bringing everyday math to school and formal math home.

Lastly, the sharing of home math problems and the building of board games help build opportunities for motivation and feedback. Children are able to share their ideas in a non-threatening environment as well as develop a sense of pride in their own work. The game environment is individualized by the creator and provides additional motivation to practice everyday math skills. Lastly, the game builds a greater sense of the family and school bond by providing an artifact of school learning to be utilized in the home environment.