



Building Confidence in the Classroom: The Role of the Master Teacher

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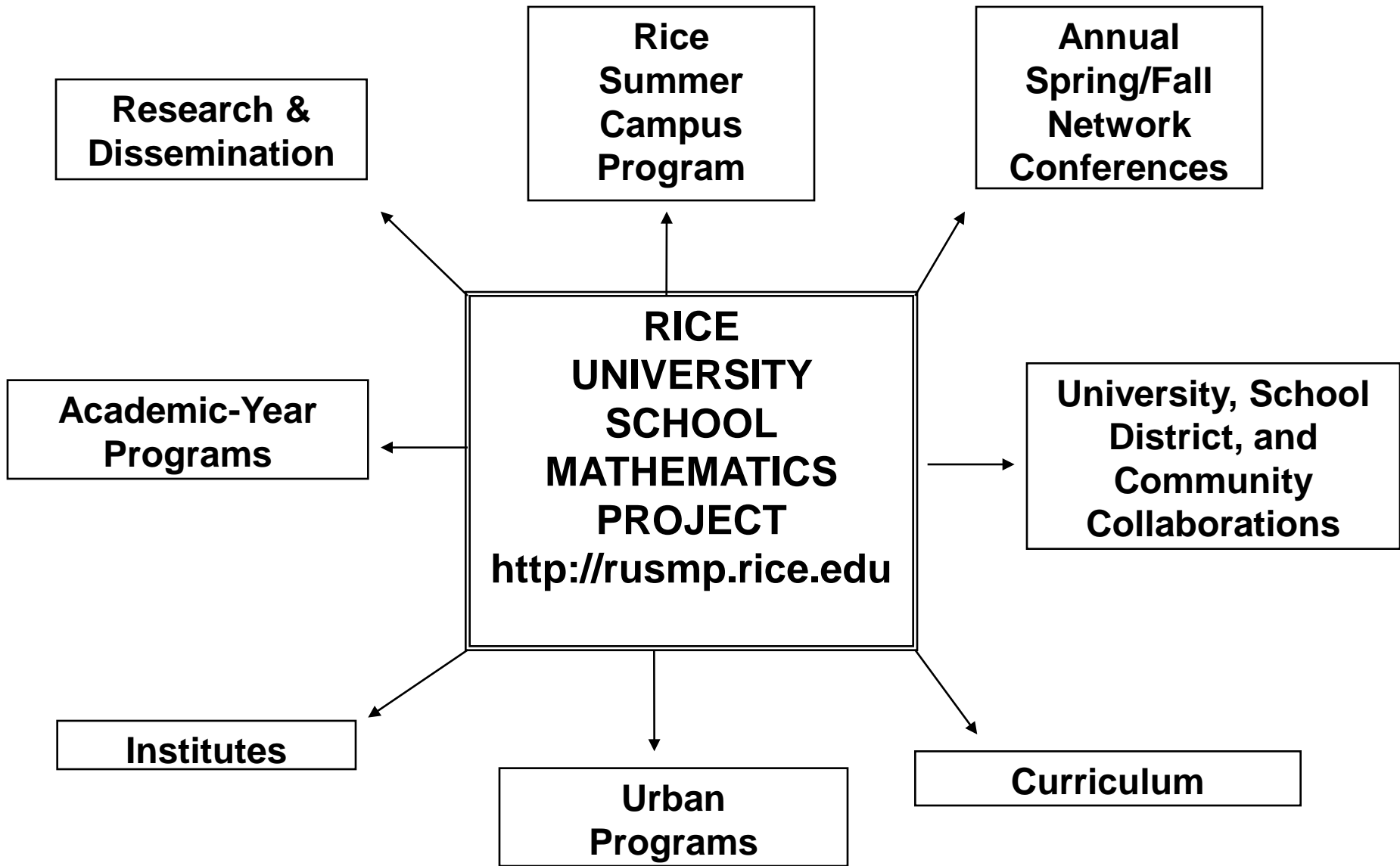
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Outline

- Rice University School Math Project (RUSMP)
- Role Modeling
- Master Teachers as Role Models
- Teacher Efficacy
- Findings
- Conclusion
- Directions of Future Research





The Summer Campus Program

- Principle: Teachers learn best from their fellow teachers
- Master Teachers teach classes



RUSMP master teachers



Mathematics content
and pedagogy



Curriculum development



Job Analysis

- Describes tasks performed on a job
- Determines personal characteristics needed to complete the tasks
- Information is obtained from various sources
- Data are most often obtained from interviews and questionnaires



Job Analysis: Master Teacher

Three broad task categories:

- Preparing lessons and materials for the course
- Determining individual characteristics and abilities of participating teachers
- Presenting lessons incorporating both mathematical content and recommended pedagogical practices



Master Teachers...

- Demonstrate effective classroom performance.
- Illustrates novel teaching techniques.
- Collaborate in planning and implementation of lessons.
- Model instruction in both group and individual sessions.



Role Modeling

Positive effects of role modeling:

- Increases self-efficacy
- Develops better understanding of tasks
- Sets goals
- Leads to higher performance
- Relates positively with student performance



Research Questions

- Does the Summer Campus Program increase the self-efficacy of program participants?
- Does the Summer Campus Program lead to increased content knowledge?



Method

- Participants: 214 PreK-12 teachers, with an average of 8.9 years of teaching experience
- Procedure: Questionnaires were administered to participants immediately before and at the conclusion of the Summer Campus Program
- Measures: Self-efficacy (Quinones, 1995), Preparedness, Mathematics Content and Pedagogy



Results

The self-efficacy of the participants increased over the course of the program.

Upon completion of the program, participants reported that they felt better prepared to:

- Take into account students prior conceptions about math
- Use cooperative learning groups
- Use hands-on activities
- Manage a class using manipulatives
- Use technology

Participants' knowledge of content and pedagogy increased from the beginning to the end of the program



Conclusion

RUSMP Summer Campus Program benefits teachers

- Builds self-efficacy through role-modeling
- Increases mathematical content and pedagogical knowledge

Job analysis of the master teachers has implications for professional development

- Teaching adults is not the same as teaching children



Limitations

- Correlational research
- Timing for the assessment of self-efficacy



Future Directions

Examine SE longitudinally

Examine the performance outcomes of students

Does increased teacher efficacy and content knowledge of mathematics translate into improved performance for students?

Increases in teachers' sense of preparedness for the 2002 program.

	Pre Mean (SD)	Post Mean (SD)	df	<i>t</i>
Present the applications of mathematical concepts.	3.00 (.66)	3.62 (.57)	109	7.57
Use cooperative learning groups.	2.80 (.89)	3.69 (.50)	108	10.75
Take into account students' prior conceptions about math.	2.81 (.71)	3.54 (.60)	109	8.80
Use hands-on activities.	2.84 (.87)	3.77 (.44)	109	11.02
Manage a class of students who are using manipulatives.	2.94 (.82)	3.65 (.53)	108	8.67
Use technology as part of math instruction.	2.24 (.91)	3.42 (.68)	109	13.47
Use a variety of assessment methods.	2.72 (.81)	3.53 (.59)	109	9.50

Increases in teachers' sense of preparedness for the 2003 program.

	Pre Mean (SD)	Post Mean (SD)	df	<i>t</i>
Present the applications of mathematical concepts.	2.73 (.74)	3.63 (.51)	102	10.16
Use cooperative learning groups.	2.86 (.91)	3.64 (.54)	103	7.53
Take into account students' prior conceptions about math.	2.75 (.80)	3.54 (.59)	103	8.03
Use hands-on activities.	2.87 (.79)	3.81 (.44)	103	10.42
Manage a class of students who are using manipulatives.	2.89 (.86)	3.61 (.60)	103	6.58
Use technology as part of math instruction.	2.27 (.96)	3.37 (.71)	103	8.58
Use a variety of assessment methods.	2.49 (.81)	3.60 (.57)	103	10.73