



Project MAST

January 25, 2010



I. Project

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Components of MAST

- + *Pre-service initiative* to establish undergraduate physics and physical science programs leading to teacher licensure
- + *In-service professional development* for science teachers designed to improve content knowledge in physical science, earth and space science and to improve skills related to inquiry-based teaching

In-service Component

- + Inquiry-based content aligned with Mississippi Science Framework and National Science Education Standards
- + 20 days of professional development (a two-week summer session and 10 Saturday sessions during the school year)
- + Exposure to experts and supporting partners from all over the U.S. (e.g., Cornell University, University of California)
- + Access to the resources at JSU such as SMART (Science and Math Advance Resources for Teaching) Center and JSU Observatories and Observatories in Arizona, Hawaii and Australia

In-service Component

- + Three school visits from MAST faculty and staff
 - + Visits to participating teachers' classrooms to observe MAST professional development activities in practice
 - + Visits to demonstrate the potential use of iPod technology for teaching and learning science
 - + Visits to provide students and teachers with an interactive space show given in a portable planetarium

Pre-service Component

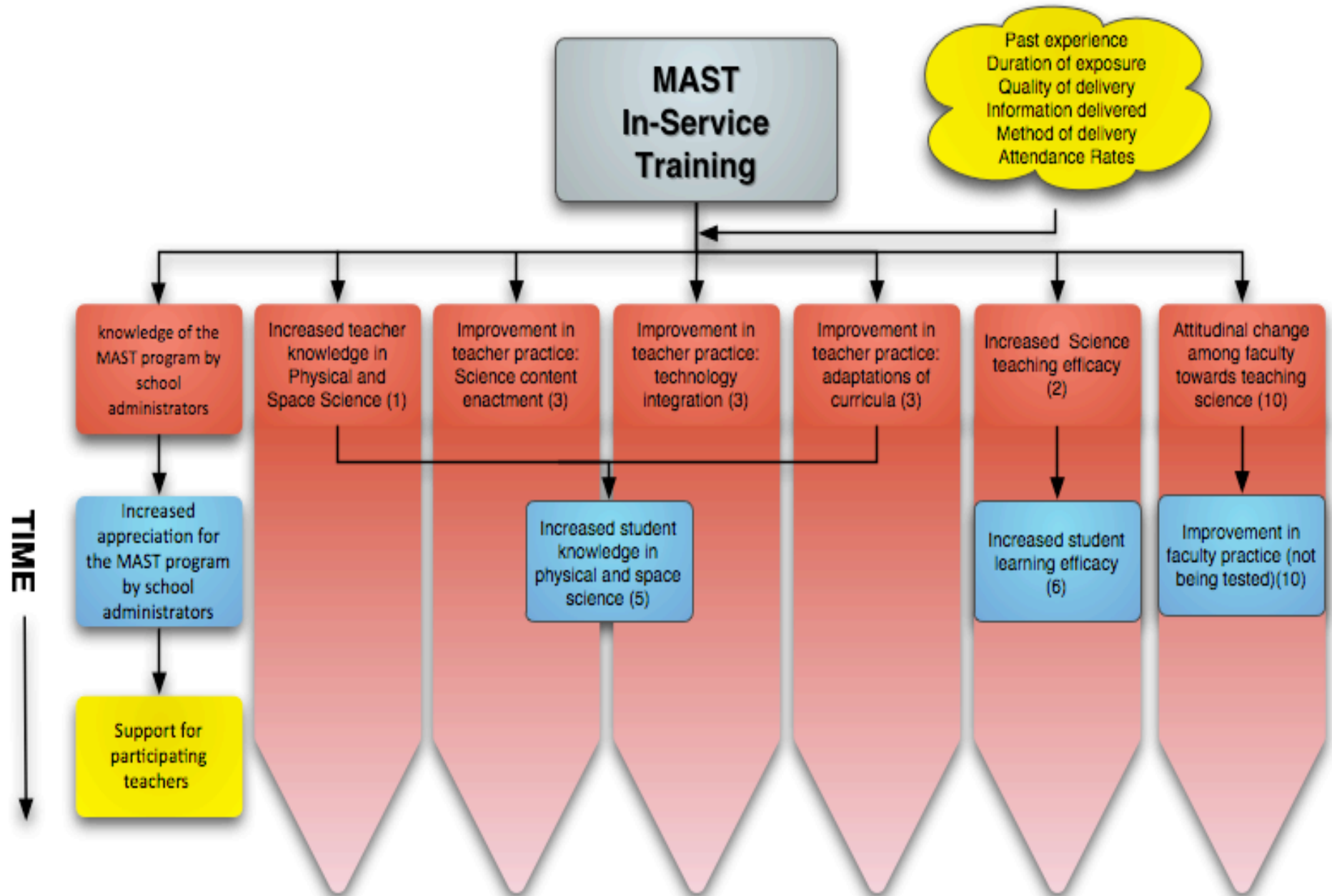
- + Scholarships for undergraduates who are interested in becoming physics or physical science teachers
- + Two types of coursework in physical science or physics education:
 - + All of the Jackson State courses required for a BS degree in physical science or physics education
 - + MAST professional development (see in-service component)
- + Physics and physical science education licensures



II. Impact and Indicators

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MAST Program Impact Model



Selected Impacts and Indicators

Increased *teacher* knowledge in physical, earth and space science

- + Greater gains from pre to post in teacher content knowledge compared to a control group
- + Change in perceptions of knowledge

Increased *student* content knowledge in physical, earth and space science

- + Greater gains from pre to post in student content knowledge (compared to a control group)

Selected Impacts and Indicators

Improvement in teacher practice: Science content enactment

- + Teachers demonstrate enactment, defined as:
 - + Use of MAST-like materials
 - + Use of MAST pedagogical strategies (e.g., inquiry)
 - + Use of MAST learning goals

Selected Impacts and Indicators

Improvement in practice: Adaptations of curricula

- + Use of MAST adaptation strategies in teaching the same content in which the strategy was modeled.
- + Use of MAST adaptation strategies in teaching different content in which the strategy was modeled.

Improvement in practice: Science technology integration

- + Use of MAST technology materials as opposed to technology used previously

Contact Information

Project Director

Mehri Fadavi, PHD
Jackson State University
P.O. Box 17660, Jackson, MS 39217
601 979 3622
mfadavi@jsums.edu

External Evaluation Team

Rockman Et al
Kristin Bass, PHD, Principal Investigator
Sarah Mushlin, MA, Evaluation Manager
49 Geary Street, Suite 530
415 544 0788
kristin@rockman.com
sarah@rockman.com