EXECUTIVE SUMMARY

Preservice Teachers: Teaching Adolescents Strategies for Reading and Writing with Science and Mathematics Texts

Our Mission
Michigan State University provides teacher candidates with opportunities to gain the critical knowledge and skills needed to teach all children. Goals of the program consist of preparing teacher candidates who: (1) know subject matters and how to teach them, (2) care for and respect all students, (3) build upon students’ interests, strengths and cultural backgrounds, (4) create and maintain a classroom learning community, and (5) promote connections between home, community and school. The Michigan State University teacher preparation program is staffed by nationally renowned university faculty and includes practical classroom experiences with outstanding middle and high school teachers. Technology is used pervasively both as support for and topic of teaching and learning. This is a five-year program; the final year is a full year internship accompanied by mentoring from MSU faculty.

Project Goals
We will develop and evaluate a theoretical framework and teaching materials to be used with prospective science and mathematics teachers in a sequence of three required education courses: an adolescent literacy course usually taken by students in their junior year and four subject-specific seminars taken by seniors and interns. Each course has associated field experiences. Teacher candidates in the adolescent literacy course tutor students in urban middle schools; candidates in the senior and intern year courses work in classrooms in their subject areas.

This project will focus on students’ interactions with text – defined broadly as oral, written and digital text - and how teachers co-construct, guide and evaluate students’ performances with text within tutoring and classroom subject-matter (science and mathematics) contexts. This project will (1) build cases and materials about research-based instructional and assessment practices for improving the reading and writing skills of middle and high school students, and (2) design materials and activities necessary for prospective teachers to learn to implement these research-based practices.

Strategic objectives
To accomplish these goals, we will: (1) design and explicate a theoretical framework that connects evidence-based research on middle and high school literacy on texts, strategic learning and motivation with comparable research in science and mathematics, (2) identify and select evidence-based instructional practices that facilitate students’ meaningful interactions with text, (3) review the teacher preparation literature with respect to research based techniques for building connections between the university teacher preparation curriculum and preservice teachers’ lived experiences while learning to teach, and (4) develop an instructional model (modules including text and digital materials) for use within teacher preparation programs for preparing prospective teachers for improving their students reading and writing in response to texts.
Proposed Activities

- Review research in middle and high school literacy, science and mathematics with respect to comprehension, diverse texts, strategic learning, tutoring and motivation (theoretical framework)
- Gather readings and develop assignments and tasks for preservice coursework based on the current knowledge base for adolescent literacy
- Collaborate with K12 school professionals with regard to case development and designing appropriate field experiences.
- Develop a set of cases around teaching, learning, and assessment with regard to reading and writing from text
- Implement and evaluate new course and field based experiences around reading and writing strategies with texts.

Products

Research conferences and written publications; digital and video cases; readings, assignments and tasks for use in teacher preparation coursework; and a project website for the dissemination of reports on research and teacher preparation practice.

Expected outcomes

This project will demonstrate preservice teachers’ increased knowledge and ability to (1) improve students’ reading and writing from text, (2) while considering the knowledge, strategic skills and motivation of their students, and (3) in the contexts of tutoring in struggling readers in middle schools and classroom teaching in science and mathematics. Measures will be identified and/or developed and validated with regard to increases in preservice teachers’ knowledge of the content (working with diverse texts, pupil strategies for reading and writing from text, comprehension, teaching strategies for building pupil strategies, tutoring and motivation). We will also employ our theoretical framework to develop and implement evaluation instruments for assessing how our preservice students apply their knowledge in the classroom. Finally, a protocol will be developed for our preservice teachers to research and evaluate the impact of their practice on pupils’ reading improvement. Preservice teachers will employ this protocol within their teacher preparation courses to design, execute and report mini-studies and cases with respect to struggling readers in tutoring and classroom subject matter contexts.

Key staff

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