

Research in Disabilities Education Synthesis Project Technical Report Executive Summary

The *Research in Disabilities Education Synthesis Project* (RDE-SP) at Kansas State University was designed to investigate and synthesize the contributions and accomplishments of the National Science Foundation's (NSF) Research in Disabilities Education (RDE) program. Over the course of the synthesis project, the research team developed an overview of the 2001-2011 decade of RDE projects, highlighting the lessons learned through 10 years of awards aimed at broadening the participation of students with disabilities (SWD) in science, technology, engineering and mathematics (STEM) fields. In addition to reviewing documents from the projects, the synthesis team also conducted a survey with Principal Investigators to gather additional lessons learned.

A total of 117 awards were funded during the decade studied, for a total funding amount of \$58,695,385. By track, there were 10 Demonstration and Intervention (DI) awards, 3 Capacity Building (CB) awards, 2 Information Dissemination (ID) awards, 20 Alliance (formerly RAD) awards, 41 Demonstration, Enrichment, and Information Dissemination (DEI) awards, 40 Research (including FRI) awards, and 1 Innovation through Institutional Integration (I3) award.

During the decade studied, these 117 projects produced 673 publications (journal articles and books) authored by 71 PIs. In the two years following the decade, RDI PIs produced 422 publications, 292 of which were journal articles and books. A topical analysis of the articles showed a shift in primary topics addressed between the decade and the plus two publications. PIs reported the development of 6,622 products, most of which were teaching aids, equipment, software, and training materials. Because the account of products developed was based on PI report, with not all PIs reporting, we believe this total is underestimated.

In terms of influencing the field, beyond the publications, presentations and products reported, the researchers asked PIs in the RDE-SP PI Survey to describe the greatest achievement or most significant accomplishments of their projects. More than one-third of the projects reported increased support for students with disabilities (SWDs) as a greatest achievement and identifying effective teaching strategies for SWDs (81%) as a key contribution to the field. Projects reported that target audiences gained skills for working with SWDs (59%).

Projects, especially the Alliances, believed they benefitted their institutions by contributing to the growing awareness of the needs and potential of students with disabilities in STEM. Alliances increased STEM faculty understanding and use of UDL principles, provided opportunities and supports for STEM faculty to engage with students with disabilities in STEM activities, and supported positive interactions between them. They believed that faculty in their institutions were developing greater awareness, understanding, and responsibility for students with disabilities in their courses. Other faculty and staff impacts reported by PIs were: more open-mindedness about the potential of students with disabilities in STEM; more engagement in advising and mentoring students with disabilities; and regular reflection about effective teaching and learning strategies that they could employ in their classes. PIs of

Alliances speculated that project collaboration across campus and among partners strengthened and augmented services and resources for SWD, providing accommodations and supports for students in STEM promoted success. In many cases, PIs felt that the interventions provided by the Alliances substantially expanded the capabilities of the Disability Services Office to develop and nurture STEM talent in students with disabilities. PIs reported that they were able to influence the education of SWD in STEM education by their collaborative efforts with elementary schools (17% reported this collaborative partner), secondary schools (55%), 2-year colleges of technical schools (40%, and 4-year colleges and universities (57%). In addition to publications and collaborations, the products developed by RDE projects provide resources to the STEM education community. These resources have been placed on project and university websites and many are found on the RDE dissemination website at the University of Washington.

A decade of RDE funding, from 2001 to 2011, has produced a significant number of products, publications, and findings that inform the STEM education field. In addition, a decade of funding of RDE alliances has built capacity at the post-secondary level of STEM education and increased the number of students with disabilities in STEM postsecondary education and the number who have completed degrees in STEM. Despite the limitations of this synthesis project, which include limited access to project reports and project data, this study has been able to describe the history of the program, the solicitations, and the funded proposals during the past decade. We have also documented publications of PIs funded in this decade, publications from 2001 to 2015 (April). These publications were analyzed by topical areas and by type, and they show a significant contribution to the field. The citation analysis demonstrates that these publications are being read and cited. It also demonstrates that a community of scholars has been developed among and across the RDE PIs of the decade.

In summary, when considering the goals of the RDE program when it was established (1. increasing the knowledge base of research related to the success of SWD in STEM postsecondary education; 2. increasing the number and quality of SWD successfully completing associate, undergraduate, and graduate degrees in STEM; 3. increasing the number of SWD entering the professional STEM workforce; and 4. disseminating information about research and evaluation findings related to postsecondary educational success of SWD in STEM and the STEM workforce), this project can attest, with documentation provided in the complete report (available at <http://oeie.ksu.edu/rde-sp/report/>), that the first and fourth goals have definitely been met. There are indications from the information available to the researchers that the other two goals have been met or approached. Those goals are increasing the number and quality of students with disabilities successfully completing associate, undergraduate, and graduate degrees in STEM and increasing the number of students with disabilities entering the professional STEM workforce. From the work of the researchers on this synthesis project, it appears that the investment of NSF in the RDE program has been a productive use of NSF funding for the purpose of increasing the diversity of the STEM education population as well as the STEM workforce and for the purpose of providing access, opportunity and success for students with disabilities in STEM education and careers.