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# Pathways to STEM Careers:

Preparing the STEM Workforce of the 21<sup>st</sup> Century

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## **Lessons Learned From Prior/Existing Programs**

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- n Leadership**
- n Mentoring**
- n Institutional support**
- n Funding**
- n Measures of success**
- n Focus on transition points**
- n Focus on communities**
- n Dangers of isolation**

## Contributions of Research to Large-Scale Change: Lessons From Research

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- n **Identify healthy components**
- n **Robust assessment process**
- n **Social sciences must be integral**
- n **Disaggregate Data**

# Strategic Research Areas and Integrated Funding Priorities

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A more integrated and comprehensive approach

- n Attitudes and behaviors of gatekeepers**
- n Culture of science**
- n Individual choice**
- n Different levels of development**
- n Career patterns and experiences**
- n Leadership**
- n Databases**
- n Evaluation Methodologies and metrics**

# Action Plan for Comprehensive, Integrated Change

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- n Need for a unified approach to achieve STEM workforce diversity

# Seven Principles

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1. **diversity** in STEM leadership and faculty development
2. **integrative** initiatives across multiple programs and to include multiple organizations (i.e., professional societies and private industry)
3. identifying and strengthening **transition points** along the STEM pathways

## Seven Principles Cont'd

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4. **centers of excellence** that address multiple aspects of STEM pathways
5. development of **assessment methodologies and metrics** to measure success
6. long-term **sustainability** of successful programs
7. **national dissemination** of results from exemplary programs (those that have been rigorously evaluated).

# Conclusions

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- n Stakeholders must view the development of human resources as inseparable from the goal of expanding the research frontier.
- n Developing intellectual potential and a vibrant STEM enterprise should be seen as a synergistic, with each aspect being of equal importance and dependent upon the other for success.