Exploring Competencies for Manufacturing Education Partnership Centers

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The National Institute of Standards and Technology’s Hollings Manufacturing Extension Partnership works with U.S. manufacturers to help them create and retain jobs, increase profits, and save time and money. Members of the Manufacturing Extension Partnership recognized the need to expand capacity and capabilities of their network to address the mounting challenges facing manufacturers. To this end, the organization adopted a new strategic vision in which Manufacturing Extension Partnership field consultants develop long-term relationships with client manufacturers while providing performance solutions focused on five areas: continuous improvement, technology acceleration, supply chain, sustainability, and the workforce.

A project was funded to educate Manufacturing Extension Partnership field consultants to embrace a holistic and integrated approach in their work, and ultimately help implement the new vision. One step in facilitating this change was to identify the gap between existing and desired competencies for Manufacturing Extension Partnership field consultants. To meet this need, a research team was guided by the following questions:

1. What does the literature say are important skills and knowledge for the types of work done by Manufacturing Extension Partnership field consultants?

2. What are the skills and knowledge currently used by Manufacturing Extension Partnership field consultants?

3. What are the skills and knowledge that Manufacturing Extension Partnership field consultants and their center directors believe they need to possess?

An extensive review of educational and management literature was completed. Despite the critical nature of measuring performance in workforce development, there exists a dearth of empirical research on formulated competencies for performance improvement (Guerra, 2003). Inconsistencies emerge between perceived need and current practice, suggesting that barriers are preventing

In addition to the review of literature, informal interviews were conducted with three Manufacturing Extension Partnership center directors in an effort to determine the perceived skills and knowledge needed by center field consultants to implement the Next Generation Strategy. The literature review and director interviews resulted in 119 skill and knowledge items. Upon review, 16 items were found to be duplicated and were therefore removed. The final 103 skill and knowledge items were grouped under nine broad themes: knowledge of the client; knowledge of client industry segments; knowledge and skills in workforce performance consulting; knowledge and skills in performance-based training; knowledge and skills in assessment, data collection, and analysis; knowledge and skills in project management and planning; knowledge and skills in strategic partnering; knowledge and skills in communication; and knowledge and skills in personal mastery.

Planned next steps in this research include a Delphi study with Manufacturing Extension Partnership center directors to further refine the list. Once refined, the list of competencies will become a professional development instrument. The instrument will be sent to all Manufacturing Extension Partnership field consultants in the United States, who will be asked to rate the importance of a skill or knowledge item and their own competency in that item. The results of this competency study will guide the Manufacturing Extension Partnership in professional development activities and will act as a strategic tool to support organizational change.

References
About the Authors

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Exploring Competencies for Manufacturing Education Partnership (MEP) Centers

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Project Background

This project is part of a 3-year grant funded by the U.S. Department of Commerce, specifically, the National Institute of Standards and Technology’s (NIST) Hollings Manufacturing Extension Partnership (MEP) Program.

The National Institute of Standards and Technology and Hollings Manufacturing Extension Partnership (NIST-MEP) works with small and mid-sized U.S. manufacturers to help them create and retain jobs, increase profits, and save time and money. The nationwide network provides a variety of services, from innovation strategies to process improvement in green manufacturing. MEP also works with partners at all the state and federal levels on programs that put manufacturers in position to develop new customers, expand into new markets, and create new products.

The MEP field staff has over 1,400 technical experts – located in every state – serving as business advisors, focused on solving manufacturers’ challenges and identifying opportunities for growth. MEP serves an essential role in sustaining and growing America’s manufacturing base. The program assists manufacturers in achieving new sales, leading to higher tax receipts and new sustainable jobs in the high paying advanced manufacturing sector.

Problem Statement

In 2018, MEP leadership laid out a new vision called the Next Generation Strategy aimed to address activities at U.S. manufacturers continue to struggle with a changing landscape that includes consistent pressures to cut costs, improve quality, meet environmental and international standards, and get to market faster with new and improved products.

The MEP Next Generation strategy presents a framework for Centers to help manufacturers address five key critical areas in their work.

- Knowledge of competency models
- Knowledge of how to identify competencies
- Knowledge of competency mapping techniques
- Knowledge of the global factors that influence the Client industry
- Knowledge of the Client’s organizational values and cultural norms (both espoused and actual)

One foundation to facilitating this change is to understand the current and desired competencies of MEP center staff. The gap between these two sets of competencies is then considered the area of professional development focus.

Research Questions

In order to complete uncover the gap between existing and desired competencies for MEP field consultants, the research team is guided by the following questions:

1. What do the literature say are important skills and knowledge for the types of work done by MEP field consultants?
2. What are the skills and knowledge currently used by MEP field consultants?
3. What are the skills and knowledge that MEP field consultants believe they need to possess?
4. What are the skills and knowledge that NIST-MEP leadership (both national and local) believe that MEP field consultants need to possess?

Literature Review

Despite the critical nature of measuring performance in our field, there is a dearth of empirical research on formulated competencies for performance improvement (Dean, 1999; Guerra 2003). Inconsistencies emerge between perceived needs and current practice suggesting there are obstacles preventing the application of required competencies (Guerra-Lopez, 2003).

Development of performance models based on self-assessed competency models will bridge these practices, unique accomplishments, and performance accountability (Robins & Robinson, 2008).