© *Journal of Higher Education Outreach and Engagement*, Volume 16, Number 3, p. 91, (2012)
 ISSN 1534-6104

Exploring Competencies for Manufacturing Education Partnership Centers

Diane D. Chapman and Kate G. Guerdat

To view the poster: http://www.engagementscholarship.org/Upload/PosterAwards/2011/ChapmanGuerdat.pdf

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

application of required competencies *(Robertson, 2004)*. Development of performance models based on self-assessed competency models will bridge best practices, unique accomplishments, and performance accountability *(Robinson & Robinson, 2008)*.

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

Guerra, I. (2003). Key competencies required of performance improvement professionals. *Performance Improvement Quarterly, 16*(1), 55-72.

Robertson, R. F. (2004). Core competencies of human performance professionals. *Performance Improvement, 43*(6), 24-29. doi:10.1002/pfi.4140430609

Robinson, D. G., & Robinson, J. C. (2008). *Performance consulting: A practical guide for HR and learning professionals*. San Francisco, CA: Berrett-Koehler.

About the Authors

Diane D. Chapman is a teaching associate professor at North Carolina State University. Her research interests include program evaluation, competency assessment, and teaching and learning with technology. Chapman earned her BBA from Western Michigan University, her MBA from Western Carolina University, and her Ed.D. from North Carolina State University.

Kate G. Guerdat is a teaching assistant professor at North Carolina State University. Her research interests include organizational ethics, learning in organizations, and organizational development. Guerdat earned her bachelor's degree from Fordham University, her master's degree from the University of North Carolina, and her Ed.D. from North Carolina State University.

To view the poster: http://www.engagementscholarship.org/Upload/PosterAwards/2011/ChapmanGuerdat.pdf

Exploring Competencies for Manufacturing Education Partnership (MEP) Centers

Diane D. Chapman and Kate G. Guerdat

North Carolina State University

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.)

The National Institute of Standards and Technology's Hollings Manufacturing Extension Partnership (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 improvements to green manufacturing. MEP also works with partners at the state and federal levels on programs that put manufacturers in position to develop new customers, expand into new markets and create new products.

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 sustaining and growing America's manufacturing base. The program assists manufacturers to achieving new sales, leading to higher tax receipts and new sustainable jobs in the high paying advanced manufacturing sector.

Problem Statement

In 2008, MEP leadership laid out a new vision called the Next Generation Strategy aimed to direct 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 concert. These areas are continuous improvement, technology acceleration, supplier development, sustainability, and workforce. This presentation is based on research in process to help MEP center staff move toward a more holistic and integrated approach in their work.

MEP • MANUFACTURING EXTENSION PARTNERSHIP
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

The Next Generation Strategy (NGS)

Over its 20-year history, MEP helped thousands of companies reinvest in themselves through process improvement and business growth initiatives leading to more sales, new markets, and the adoption of technology to deliver new products and services.

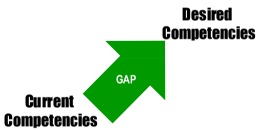
But, manufacturers in the United States are facing significant challenges. There is a constant pressure to cut costs, improve quality, meet environmental and international standards, and get to market faster with new and improved products, all in a larger, more competitive, global playing field.

NIST/MEP realizes the need expand the capacity and capabilities of the MEP nationwide network to address the challenges facing manufacturers. As a result, it has adopted a new strategic vision for its Centers.

The new vision requires that MEP Consultants work with partners throughout the network to provide the tools, services and connections focused on the five key areas of the framework: continuous improvement, technology acceleration, supply chain, sustainability, and workforce.

MEP Consultant Competencies

One foundation to facilitation of 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 compile uncover the gap between existing and desired competencies for MEP field consultants, the research team is guided by the following questions:

1. What does 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 in industry, dearth of empirical research on formulated competencies for performance improvement (Dean, 1999; Guerra 2003)

Inconsistencies emerge between perceived need and current practice- suggesting there are obstacles preventing application of required competencies (Guerra-Lopez, 2003)

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

MEP Center Director Interviews

MEP Field Consultant Competency Survey

Meta Analysis of Performance Improvement Competencies
Skills /Knowledge for Performance Consultant Instrument
IES Competencies

Skills and Knowledges for Successful Performance Consulting

On the following pages are lists of skill and knowledge items identified as important to being a successful performance consultant.
You are going to be asked to rate two aspects for each item, (1) the importance of the item to your current work as an MEP professional, and (2) your current proficiency in the skill or knowledge.
Your participation in this survey serves two main purposes. First, it will be used to help the MEP establish skills and knowledge needed to successfully perform the role of an MEP professional. Second, it will be used to identify areas where further professional development opportunities are needed.
Your participation in this survey is voluntary and you may stop at any time without any adverse consequences. In addition, your responses are completely confidential. Upon completion of data collection, any identifying information will be removed from the data and all reporting of this data will be done in aggregate.
Thank you for your participation

Performance Consulting Knowledge

1. Following is a list of knowledge items identified as important to being a successful performance consultant. For each item assess two things:

The IMPORTANCE of this knowledge to YOUR WORK
1 = Not required for your work at this time.
2 = Nice to have, meaning it is helpful, but not required.
3 = Required, meaning the knowledge is something you are expected to know as a part of your work.

Your CURRENT KNOWLEDGE LEVEL in this item
1 = No knowledge Level. You have no knowledge of this item.
2 = Basic Knowledge Level. You have knowledge about this item and can apply it in routine situations, but need assistance at times to do so.
3 = Adequate Knowledge Level. You have knowledge about this item and can apply it in routine situations without assistance; you need assistance in non-routine situations.
4 = Proficient Knowledge Level. You have knowledge about this item and can apply it in routine and non routine
situations without assistance.

Knowledge of the Client's strategic plan and initiatives implemented to support it (includes knowledge of the strategic planning process)
Knowledge of the Client's core processes used to fulfill the organization's mission and desired results (i.e., sales and marketing process, manufacturing process, order fulfillment process)
Knowledge of the Client's organizational values and cultural norms (both espoused and actual
Knowledge of the marketplace within which the Client organization
Knowledge of the other organizations that are "key players" in the Client's market
Knowledge of how the Client organization differentiates itself from others in the same industry
Knowledge of the primary market segments that are sources for the Client's current and future customers
Knowledge of the financial and nonfinancial benchmarks for organizations in the same industry as the Client (for comparison)
Knowledge of the global factors that influence the Client industry
Knowledge of competency models
Knowledge of how to identify competencies
Knowledge of competency mapping techniques
Knowledge of the relationship between performance management, training and development systems
Knowledge of training and development theories and techniques
Knowledge of how audience characteristics impact the training design
Knowledge of varying learning styles

Sample section of MEP Survey

Contact information

Diane D. Chapman, Teaching Associate Professor
Department of Leadership, Policy and Adult & Higher Education
NC State University
Campus Box 7801
Raleigh, NC 27695
diane_chapman@ncsu.edu

Kate G. Guerdat, Extension Assistant Professor
Department of Family Life & Youth Development
NC State University
Campus Box 7606
Raleigh, NC 27695
kate_guerdat@ncsu.edu