SHRM™
SOCIETY FOR HUMAN RESOURCE MANAGEMENT

MacroEnterprises, Inc.— A case study in three parts

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Note to HR faculty and instructors: SHRM cases and modules are intended for use in HR classrooms at universities. Teaching notes are included with each. *While our current intent is to make the materials available without charge, we reserve the right to impose charges should we deem it necessary to support the program.* However, currently, these resources are available free of charge to all. Please duplicate *only* the number of copies needed, one for each student in the class.

Case Overview

The MacroEnterprises, Inc. case study takes students into the real world of human resource (HR) consulting. Students assume the role of an HR consultant in order to help a fictitious company improve its performance. The materials in this packet are designed for the instructor of a graduate-level human resource development (HRD), human resource management (HRM), or organizational development (OD) course. Students should have prior knowledge about HR's role in organizations before working on the case.

Three different HR consulting challenges comprise the MacroEnterprises case. We call the different challenges "lines of inquiry" because they offer students a diverse learning experience to solve three different HR issues. Each line of inquiry can be used as a stand-alone case study or be offered as a single assignment. Another option is to assign the case to three separate groups who each work on a different line of the case. The three lines of inquiry are:

1. ***Becoming a strategic HR partner*** (SHRM category: Internal HR Consulting).

2. ***Developing collaborations with external training providers*** (SHRM category: Workforce Development and Talent Management).

3. ***Integrating evaluation into standard operating procedures*** (SHRM category: Performance Appraisal and Feedback).

Each line of inquiry contains five learning components and follows a parallel structure outlined below.

Table 1: MacroEnterprises, Inc. Learning Components and Descriptions	
Learning Component	Description
Learning Objectives	The goals of the learning experience: What students should be able to do (say) upon completing the scenario.
Scenario Details	Additional MacroEnterprises, Inc. narrative information. This information can include company information, transcription of dialog or interviews, worksheets, lists of possible guiding questions or anything else that is used to solve the case.
Assignment Instructions:	Specific instructions for students.
Deliverables:	Detailed list of deliverables with suggested evaluation criteria for each.
Resource List	Specific list of resources required and/or supplemental to the case study.

The three lines of inquiry are designed to be internally consistent and illustrate the deeper connections between HR, performance and workforce development. Students are given an opportunity to develop skills in data analysis and evaluation, and in HR areas including recruiting and retention, organizational communication, and strategic planning.

MACROENTERPRISES, INC. BACKGROUND INFORMATION

MacroEnterprises, Inc. is the maker of carburetors for the outboard powerboat industry. Their annual gross revenue is approximately $10 million. They are a small, regional company located in Rockford, Illinois. MacroEnterprises's main clients are a local manufacturing division of a Fortune 500 outboard motor manufacturer and a privately-owned company in the next county that uses MacroEnterprises carburetors in their lawnmowers. The outboard motor plant comprises about 30 percent of their sales and the lawnmower company 20 percent. The majority of the other 50 percent are small lot orders for a variety of industries. In all, MacroEnterprises makes five different carburetor models. Last year, the outboard motor manufacturer moved two of its manufacturing facilities from Florida to the Rockford area. At that time, MacroEnterprises received word that orders for outboard motor carburetors would triple. In response to this news, MacroEnterprises added another 125 people to its existing 300-person manufacturing staff. In addition, the company created a new human resource (HR) director position which was recently filled. The company now employs 500 people. Approximately 425 employees work on the manufacturing floor and the remaining 75 in various support functions including marketing and sales; finance; inventory control and distribution; plant management; and HR.

Everything seemed to go smoothly for the first six months of the transition. Two months ago, though, MacroEnterprises started hearing about problems with the carburetors in several of the newer-model outboard motors. After a thorough quality control investigation, the problem was found in the manufacturing of the carburetors. Random checks of carburetors for the past six months found that the housing screws were tightened to only half the tightness described in the MacroEnterprises carburetor production specifications. Further studies revealed that the problems stemmed from several issues:

1. Performance:

    a. The hydraulic bolt drivers used to tighten the carburetor bolts were not accurately calibrated.

    b. Employees were not following the standard operating procedures (SOPs) of checking the bolt drivers' torque prior to using them.

    c. Employees did not know how to calibrate the bolt drivers.

    d. Employees were using bolt tightening specifications for carburetors manufactured in 2001; they were supposed to be using specifications updated for each client last year.

2. Culture and work environment:

    a. There were communication problems between shifts and between functions.

    b. There was inconsistent application of SOPs due to different interpretations of the SOPs.

    c. Continually integrating new employees into the organization presented challenges.

    d. The company needed to become a learning organization.

MacroEnterprises, Inc. Case #1

BECOMING A STRATEGIC HR PARTNER

This line of inquiry offers students an opportunity to develop a strategic vision for how HR can contribute toward organizational growth and performance improvement.

LEARNING OBJECTIVES

1. Understand the cultural and leadership issues involved with rapid organizational growth and change.

2. Understand the independent consultant's role in the strategic process.

3. Conduct a thorough and accurate data analysis.

4. Develop a compelling argument from the analysis.

5. Deliver a formal presentation to your client.

SCENARIO DETAILS

As described in the case study overview, MacroEnterprises experienced numerous changes in multiple levels (organization, individual, and market) in a short period of time. Before moving the Florida operations to Rockford, the CEO and his executive team relied on HR to execute typical HR duties; HR was considered a strong contributor to the organization's operations. However, during the transition to one location, the CEO and executive team recognized the need for an HR director to assume responsibility for strategic leadership to ensure long-term sustainability. The CEO realized that the integration of the Florida operations into the Rockford location was not working as anticipated. The CEO and executive team made several strategic decisions during the integration without HR at the table, and in retrospect, they realized that their human resources needed more attention. In addition, the CEO discovered that other manufacturing companies in the same industry had included a senior-level HR director on their executive teams. Consequently, the CEO decided to hire a senior-level HR director as soon as the integration was complete.

The new HR director, Pat, was indeed hired after the Florida operations were moved to the Rockford location and, unfortunately, after the additional employees were hired. Pat has an MBA and an EdD from the University of Illinois at Urbana-Champaign (UIUC). She oversees a staff of three: an HR coordinator; an HR assistant coordinator; and an HR administrative support person. During the

interview process, Pat noticed that her position reported to the finance director and not directly to the CEO, as do the other director positions. After lengthy discussions with the finance director and the CEO, Pat accepted the position as designed. Both the CEO and the finance director agreed that the position could be elevated to the same level as the other directors if a convincing case could be made.

Pat was faced with a number of important challenges when she began working for MacroEnterprises. For this case, the goal is to help Pat become an effective and respected internal consultant with the intent to demonstrate the need for Pat's position to be at the strategic leadership level along with the other directors. In other words, Pat wants to add (and be seen as adding) as much value to the organization as the other members of the executive team. However, she also needs to change some mindsets about HR's potential strategic value and whether HR should be involved in strategic decision making.

One of the first things Pat did was to hire you and your consulting company to help her sort through the various issues that affect HR. She has asked you to help her move her department from an operational partner to a strategic partner. Ultimately, Pat wants to successfully demonstrate that MacroEnterprises needs HR at the table when strategic decisions are made.

After an initial meeting with Pat where she presented an analysis of MacroEnterprises's changes over the past few months, you all agree that there are four issues that urgently need strategic HR services:

1. **Growth:** Significant growth in the number of employees over a short period of time, with projections for the growth to continue.

    a. Skilled labor supply is not anticipated to meet demand.

2. **Culture:** Consolidating three locations into one.

    a. Cultural issues have prevented development of a cohesive, positive environment.

3. **Technology:** Changing SOPs in response to technology developments.

    a. Customer complaints have illuminated a flaw in manufacturing. The flaw is more than a training issue.

4. **Leadership:** Leadership and management development needs.

    a. Executive team members from all locations need to be role models for successful integration; currently, they are not yet a team.

These issues are a result of both internal and external factors.

The first and third issues identified above are addressed in subsequent case materials contained in this study. The issue areas relevant to this section are **culture** and **leadership**. Focusing on these two issues, your consulting team is asked to collect and analyze data that will lead the organization toward substantial improvement. Pat intends to use the proposed solutions as evidence for how HR can add strategic value to the organization. Pat believes that these types of solutions will generate support for changing the HR department from an operations service provider to a strategic business partner.

For each issue, you work with Pat to develop a set of guiding questions to focus your research. You are given two weeks to put together a presentation for Pat that will show the evidence and compelling arguments to convince the CEO and the executive team that HR needs to become a strategic partner. You think that some or all of the following questions may need to be answered to give Pat what she is asking for; however, there might be other relevant questions that have not yet been identified. Your company has been given leeway to develop your own supporting questions and evidence as appropriate.

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note **Note to instructor**
Some or all of the following questions can be used to help solve Pat's problem. Alternatively, other questions can be generated to support the development of different skills. Instructors have leeway in this area as long as the questions are targeted toward one or more of the issues as identified above. Data to help answer the questions are found in the appendices. Instructors may want to focus on specific areas to develop student skills or may give students minimal instruction, depending on students' level and expertise.

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The list of **suggested** questions includes:

1. Culture

    A. How do employees perceive their (new) work environment?

    B. Do employees know the mission and core values of the organization?

        i. Does the organization have a clear mission and explicit core values?

    C. What tangible artifacts exist in the physical location of the Rockford plant that portrays the MacroEnterprises image?

    D. What steps toward integration have been taken to introduce and familiarize the Rockford and Florida employee groups with each other, as well as with newly hired employees?

E. Is there an orientation process that initiates new employees to the MacroEnterprises culture?

F. Are their recognized processes to identify and address employee concerns? For performance reviews?

G. Do employees trust management? Do employees know how decisions are made that affect them and their work environment?

2. **Leadership**

A. Who on the leadership team is from Rockford? From Florida?

B. Were there any redundancies or layoffs in the leadership team as a result of the move?

C. Is there a succession plan?

D. How do leadership team members describe the work environment? The culture?

E. How do leadership team members feel about mistakes? Are mistakes acknowledged?

F. Do leadership team members learn from each other?

ASSIGNMENT

Instructors may ask students to complete one or both of the following assignments.

In your role as HR consultants:

- Deliver a 15-minute PowerPoint presentation that makes a compelling argument for why HR should be a strategic partner at MacroEnterprises, Inc. This presentation is intended to be delivered to Pat.

- Prepare a one-page executive summary that Pat will deliver to MacroEnterprises, Inc. executives.

To complete this assignment, your group has to gather and analyze data. All the data needed to complete this assignment is found in the appendices in this document, in required readings, or on public-access websites.

In your role as HR students:

- Prepare a three-part comprehensive report on your data collection and analysis for MacroEnterprises. This report should include one table and two different written sections and should be written for your instructor.

Instructions: Follow the detailed instructions in the Deliverables section below to craft your report.

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Note to instructor

You can select specific items from the Deliverables to tailor the assignment for your course and/or to meet student learning needs.

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1. In your role as a student, this report is written for your instructor:

Write and submit a detailed and comprehensive report on your actual or proposed data collection, analysis and findings. There should be three sections to the report.

Section 1: **Data Analysis Table.** Prepare a table with the following headings:
> **What:** Data source (e.g., balance sheet, personnel files, survey, focus group).
> **Why:** Justification for selecting the data.
> **How:** Analysis methods (quantitative or qualitative, then specific methods: statistical methods, document review, counts, narrative analysis, etc.).

Note to instructor

The purpose of this table is to enable students to develop logical connections between data, problem and analysis methods. You may ask students to select one of the required readings as a basis for doing the work.

Section 2: Prepare a two- to four-page narrative description (double spaced) of the process used to identify, justify and analyze the data. Be sure to fully describe the selection criteria and the process used to reach consensus (or the degree of consensus) in the group.

Note to instructor

The purpose of this narrative description is twofold. First, it is an exercise in preparing a group report. Second, it is an opportunity for the group to reflect on how they went about doing the work. Often in the consulting world and in group assignments, we do not get an opportunity to reflect on the process; reflection is a key learning technique and is offered here to reinforce learning. This part of the assignment may expose conflict, which is fine. Discuss with the students the benefits of vetting or debriefing after a project.

Section 3: Provide a coherent and logical Conclusions and Implications report from the analysis. Write a three- to five-page report (more formal than Section 2—this report should be APA formatted) that describes the analysis findings. Rely on case study reading materials as well as the data sources identified and analyzed above. The audience for this paper is your instructor; jargon should be avoided and logic should be easily understood. The paper should have the following headings:

- Overview/Introduction

- Finding #1

- Finding #2

- Finding #3 (etc.);

- Conclusions and Implications

Note to instructor

This section could require students to cite the required readings. Also, the headings listed above are suggestions only. The headings may be changed to meet class learning needs.

2. In your role as consultant, these deliverables are for your client:

A. Prepare and submit a focused and compelling one-page executive summary (i.e., argument) that supports the need for HR to become a strategic partner. All of the information in the executive summary and presentation comes from the work done for the report described above. This summary will be presented to the CEO and board of directors of MacroEnterprises.

Note to instructor

The purpose of this part of the assignment is to provide students with experience crafting a focused and well-written executive summary that distills a large amount of information.

B. Prepare and deliver a professional 10- to 15-minute PowerPoint presentation that describes the process and persuades the audience of the need for HR to become a strategic partner. This presentation will be delivered to the HR director of MacroEnterprises. The presentation should include all relevant handouts, including PowerPoint slides; relevant data analyses (charts, graphs); lists; decision criteria; etc. Remember that the purpose of the presentation is to help turn Pat's HR department into a strategic partner.

Note to instructor

The purpose of this presentation is to provide students with experience in delivering a formal presentation based on extensive data collection and analysis.

RESOURCES:

- Case materials (appendices).

- Other helpful materials as identified by the instructor and students, such as government workforce development reports; local (Rockford, IL) area workforce information; SHRM white papers; industry information; etc.

REQUIRED BACKGROUND READING

- Yorks, L. (2005). Strategic human resource development. Mason, Ohio: South-Western. 27-44; 67-81; 85-99.

- Swanson, R.A. (2007). Analysis for improving performance: Tools for diagnosing organizations and documenting workplace expertise. 2nd ed. San Francisco: Berrett-Koehler. 11-35; 57-77; 107-118.

- Harrison, R., and Kessels, J. (2004). Human resource development in a knowledge economy: An organizational view. New York: Palgrave-Macmillan. 20-38; 83-103; 233-236.

- Robinson, D.G., and Robinson, J.C. (1996). Performance consulting: Moving beyond training. San Francisco: Berrett-Koehler. 49-118.

POSSIBLE DISCUSSION QUESTIONS FOR INSTRUCTORS

1. General case question: What is a strategic HR partner and what contributions can a strategic HR partner make?

    a. Discuss alternative answers from the assigned readings.

2. What data could be collected to identify the cultural and environmental challenges that can occur when two distinct organizations merge into one location?

Answers:

    a. Conduct a literature search on organizational mergers and cultural issues in the practitioner literature—Harvard Business Review, Academy of Management Perspectives, etc.—to identify the key cultural issues that mergers can generate. (The instructor can distribute one or two select articles that address this topic. Schein's work is always a classic.)

    b. Observe the work environment (data is provided in Appendix A).

        i. Peer-to-peer interactions (manager-to-manager or employee-to-employee).

        ii. Surroundings, decorations, break rooms.

        iii. People versus machine interactions.

c. Interview employees (data is provided in Appendix B).

    i. One-on-one.

    ii. Focus groups.

    iii. List of questions should probe for ideas and opinions, but should not lead respondents toward any specific answer (do not ask, "How dysfunctional is this work environment?").

d. Survey employees. (Not to be completed for the case study, but to be a recommendation for Pat—the goal is to find and select the most appropriate one.)

    i. Dimensions of the Learning Organization questionnaire (suggested).

    ii. Identify other cultural questionnaires that have been validated and justify why they are appropriate for MacroEnterprises, Inc.

e. Other data.

    i. Personnel records.

    ii. Strategic planning documents.

    iii. Operational documents.

3. What data could you collect to analyze the leadership issues at MacroEnterprises, Inc.?

    a. Interviews.

    b. Personnel records.

    c. HRD/HRM trade and scholarly publications.

    d. Observations.

    e. Survey results.

MacroEnterprises, Inc. Case #2

INSTRUCTOR MATERIALS

This line of inquiry allows students to explore a variety of partnerships and external collaborations that have been used in other organizations in the community. Students have the opportunity to formulate collaborations for the needs of the organization, its employees, and its stakeholders.

LEARNING OBJECTIVES

After completing this case study, students will be able to:

1. Identify basic employee skills training opportunities available in a rural area that will meet employee needs in alternative settings, and how training can be used to create a strategic advantage.

2. Identify retention and recruitment techniques that can be used in partnership with community colleges.

3. Identify long-term partnership outcomes.

4. Create presentations to motivate employers and employees to participate in employee training and development.

SCENARIO DETAILS

note

Note to instructor
Students are presented with details relevant to this scenario which include much of the needed information. To complete the case, some online research should be conducted. Many of the resources provide examples of successful programs. While there are others, these resources will save time in the students' exploration processes.

A list of student deliverables is presented in the next section. Instructors can have students complete all or part of the deliverables to fit within the time frame of the course or module. Students should be given approximately 4 weeks to complete the case. Most work will be done outside the classroom, with discussions and group reporting scheduled at the instructor's discretion.

Overview and Framework of MacroEnterprises, Inc.

MacroEnterprises, Inc. is the maker of carburetors for the outboard powerboat industry. Their annual gross revenue is approximately $10 million. They are a small, regional company located in Rockford, Illinois. MacroEnterprises's main clients are a local manufacturing division of a Fortune 500 outboard motor manufacturer and a privately-owned company in the next county that uses MacroEnterprises carburetors in their lawnmowers. The outboard motor plant comprises about 30 percent of their sales and the lawnmower company 20 percent. The majority of the other 50 percent are small lot orders for a variety of industries. In all, MacroEnterprises makes five different carburetor models. Last year, the outboard motor manufacturer moved two of its manufacturing facilities from Florida to the Rockford area. At that time, MacroEnterprises received word that orders for outboard motor carburetors would triple. In response to this news, MacroEnterprises added another 125 people to its existing 300-person manufacturing staff. In addition, the company created a new human resource (HR) director position, which was recently filled. The company now employs 500 people. Approximately 425 employees work on the manufacturing floor, and the remaining 75 in various support functions including marketing and sales; finance; inventory control and distribution; plant management; and HR.

Everything seemed to go smoothly for the first six months of the transition. Two months ago, though, MacroEnterprises started hearing about problems with the carburetors in several of the newer-model outboard motors. After a thorough quality control investigation, the problem was found in the manufacturing of the carburetors. Random checks of carburetors for the past six months found that the housing screws were tightened to only half the tightness described in the MacroEnterprises carburetor production specifications. Further studies revealed that the problems stemmed from several issues:

1. **Performance:**

    a. The hydraulic bolt drivers used to tighten the carburetor bolts were not accurately calibrated.

    b. Employees were not following the standard operating procedures (SOPs) of checking the bolt drivers' torque prior to using them.

    c. Employees did not know how to calibrate the bolt drivers.

    d. Employees were using bolt tightening specifications for carburetors manufactured in 2001; they were supposed to be using specifications updated for each client last year.

2. **Culture and work environment:**

    a. There were communication problems between shifts and between functions.

    b. There was inconsistent application of SOPs due to different interpretations of the SOPs.

c. Continually integrating new employees into the organization presented challenges.

d. The company needed to become a learning organization.

BACKGROUND OF SITUATION

The new HR director, Pat, has determined through analysis and evaluation that employee training and development is needed to create a workforce to meet the organization's goals. It is evident to Pat that the skilled labor supply is not going to meet the organization's growth. Currently, many employees lack the basic reading, writing and mathematic skills needed to complete their jobs effectively. Furthermore, the organization has had a difficult time hiring and retaining line managers, and many workers within the organization lack the knowledge and skills needed to be effective managers.

COMMUNITY CONNECTIONS

Pat shared these concerns during a lunch meeting of local HR professionals. A fellow HR professional advised Pat that the local community college had, in the past, created excellent partnerships with local employers to develop basic, manager, and technical level skills for their employees.

After much thought, research and discussion, Pat decided that it would be useful to explore a partnership. The local community college, The Peoples Resource Community College (TPRCC), had developed a program to partner with community employers to provide educational opportunities to develop high performance skills, such as communication (oral, written, and interpersonal); teamwork; problem solving; creative thinking; and computation.

The program links two related courses offered in sequence one night per week, allowing students to earn an Associate's degree in less than four years while attending school only one evening per week. The courses are integrated and connected to the rest of the curriculum, ensuring that students engage in a coherent and progressively rigorous learning experience. Students gain a sense of mutual support by moving through the curriculum together. The program was designed for adults who are employed full-time in the local community college district. Participants' educational background vary widely; many had never finished high school. The average age of the program's participants is 40. TPRCC has used alternative delivery methods, such as distance education and off-site cohorts.

SITUATION

TPRCC currently offers a manufacturing management program to prepare students for the workplace of the future. The program seeks to create a foundation for those aspiring to become managers within the manufacturing industry. The organization is challenged to hire, retain and promote employees who are motivated, prepared and productive, as well as skilled in manufacturing. This TPRCC program may

meet the needs of the organization in terms of the skills needed, employees' family demands, and community needs.

ASSIGNMENT TO STUDENTS

The student workbook contains the follow information.

1. After the meeting, you decide to explore the idea of partnerships and whether such a partnership would be advantageous for your organization. To guide you, here are some questions that must be answered:

- How could this type of program help the organization strategically and help HR to be regarded as a strategic partner?

- What types of skills do you feel a community college partnership could help address for the employer to gain a competitive advantage?

- What are the advantages of creating a partnership with a community college versus conducting training internally or even outsourcing to another private training provider?

2. You decide to find out how other organizations are leveraging community college partnerships. You plan to explore literature and the Internet to gain more knowledge in the following areas:

- Identify and provide an overview of relevant programs at community colleges that have partnered with employers and that could serve as a role model for this company.

3. Once other programs are identified, it is important to see if they fit with your organization:

- Describe how you would conduct an evaluation to identify the goals of a community college partnership program and the needs of your organization.

- Explain how you could conduct a gap analysis to accurately examine if the program's goals align with the needs of your organization.

- Explore the components needed to form a partnership with a local community college.

4. Communicating the need for this type of program is essential to gain the support of all involved.

- Develop a compelling argument to form a community college partnership with your organization and present it in a short memo report.

- Create an electronic presentation to employers and employees to market the program.

DELIVERABLES

1. Create a chart that aligns organizational mission and goals and illustrates how the program will help the organization strategically meet these goals.

   Have students identify which continuing education or community college programs have goals that align with their organization. For example, a high-performance manufacturing program at a local community college may align with a manufacturing business.

2. Develop a list of possible programs, partnerships, and outcomes. Describe other programs that could be used as a model. Use the human performance technology (HPT) model to show the gap in desired versus actual work performance. Create a list of the skills that will be improved and how they are addressed in a partnership.

   In this area, students will create a gap analysis. It would be possible to examine programs that provide a list of skills they try to meet. Looking at national standards for many of the business and industry career and technical education areas might be a way to approach this. Also, it would be appropriate to look at job descriptions or other documentation.

3. Describe an analysis process used to align goals, needs and programs.

   Students should describe how they completed the analysis process. This will allow students to reflect on the process. It is critical for the HR professional to be a reflective practitioner.

4. In memo format, create a focused and compelling executive summary (the argument from above) of why the organization should form a program or partnership.

   This is a persuasive memo to convince executives of the benefits of a partnership. This memo must be brief but also include the information needed to make the case.

5. Design and present a professional presentation that describes the reasons to create a partnership.

   This presentation will be to the executives and should support the creation of the partnership. Much of the materials used to answer other questions in this case could be used as supporting materials in this presentation. Other examples might be pulled from online examples or materials found in the literature.

6. Design and present a professional presentation that recruits employees to participate in a partnership.

   This is a recruitment presentation aimed to get employees involved in the partnership. This should focus on the benefits to employees. This presentation could also include how participation would improve the organizational culture and working environment.

RESOURCES

Computer with Internet access, PowerPoint presentation capability, and, if charts or graphs are used, Excel capability.

Drury, R. (2001). The Entrepreneurial Community College: Bringing Workforce, Economic and Community Development to Virginia Communities. *Inquiry,* Volume 6, Number 1, Spring 2001.

Maurrasse, D. (2001). *Beyond the campus: How colleges and universities form partnerships with their communities.* New York: Routledge.

Bzdak, M. (2007). The Johnson & Johnson bridge to employment initiative: building sustainable community education partnerships. *Corporate Governance, 7*(4), 486 – 492.

Perkins, T., Doyle, Wisnieski, J., Kaiser, S., Vosler, L. and Amoo, J. (2007). Great business training is just enough, just in time, and just for me. *Community College Journal of Research and Practice,* 31(6), 537 – 539.

Gardner, J. (2007). Innovative technology in automotive technology. *Community College Journal of Research and Practice,* 31(6), 525 – 527.

Zinser, R., and Lawrenz, F. (2004). New roles to meet industry needs: a look at the advanced technological education program. *Journal of Vocational Education Research,* 29(2). Available at http://scholar.lib.vt.edu/ejournals/JVER/v29n2/zinser.html

Brooks, B., Joss, K., and Newsome, B. (1997). North Carolina's community colleges: the connection to the workforce. *Community College Journal of Research and Practice,* 21(4), 387 – 396.

ISPI (2004). Human performance technology (hpt) model. Available at http://www.ispi.org/services/whatshptmodel.pdf.

Illinois Community College Trustees Association. (2006). ICCTA Business/Industry Partnership Award 2006 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

Illinois Community College Trustees Association. (2005). ICCTA Business/Industry Partnership Award 2005 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

Illinois Community College Trustees Association. (2004). ICCTA Business/Industry Partnership Award 2004 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

Illinois Community College Trustees Association. (2003). ICCTA Business/Industry Partnership Award 2003 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

note

Note to instructor

These resources are not provided to students. A list of these resources is included in the Student Workbook, and you should make certain all are accessible or made available to students according to the resources at your university.

Illinois Community College Trustees Association. (2002). ICCTA Business/Industry Partnership Award 2002 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

Illinois Community College Trustees Association. (2001). ICCTA Business/Industry Partnership Award 2001 Nominees. Available at http://www.communitycolleges.org/biz2001.html.

DISCUSSION QUESTIONS

Growth and the Human Capital to Support Growth

What are the industry trends? What are MacroEnterprises's projections for future growth?

note **Note to Instructor**
These questions may be asked to students. Students should have already reviewed all scenario materials and readings outlined on the resources list.

MacroEnterprises, Inc. Case #3

Integrating Evaluation into Standard Operating Procedures

INSTRUCTOR MATERIALS

This line of inquiry offers students an opportunity to explore a variety of evaluation strategies for both summative and formative assessment. Students formulate a comprehensive evaluation strategy that considers the needs of the organization, its employees and its stakeholders.

LEARNING OBJECTIVES

After completing this case study, students will be able to:

1. Apply evaluation methodologies that address evaluation at the levels of reaction, learning, behavior and results (individual, process and organizational levels).

2. Develop an evaluation plan to support organizational initiatives and goals.

3. Develop communication strategies to maximize evaluation effectiveness.

A list of student deliverables is presented in the next section. Instructors can have students complete all three deliverables or select one or two deliverables from the list. Students should be given approximately four weeks to complete the case.

SCENARIO DETAILS

As a part of the solution to the production problems discovered by the quality control investigation, MacroEnterprises developed a partnership with the local community college to develop some basic and new technical skills, including care, maintenance, and calibration of torque guns; how to read manufacturing specifications; and proper use of the bolt driver. In addition, the consultant group hired by the new HR director, Pat, recommended that evaluation processes and policies be integrated into the company's standard operating procedures (SOPs).

After reviewing all of the documentation, the HR director and CEO agree that evaluation is sorely lacking in the way MacroEnterprises conducts their business. They want to embrace evaluation as a part of their daily business operations. Both feel that this will result in more consistent quality, and better paper trails should future problems arise.

The HR department makes arrangements for the training to be designed and delivered to employees through the local community college. The training will begin next month. Each employee will be enrolled in the following courses: (1) Equipment Calibration, (2) Reading Technical Drawings, (3) Care and Maintenance of Hand

note

Note to instructor

Students are presented with the following details relevant to this scenario. These details include background about the issue and a transcript of a meeting between the consulting team and organizational stakeholders. In addition, students are made aware of additional resources, including a list of questions that the stakeholders want answered; several job descriptions for manufacturing positions; a sample training record; samples of observation checklists from the shadow training program; results of new employee math and reading tests (TABE tests); and a description of the current training protocol for manufacturing employees. All items are included in the student instructions (with the exception of the TABE results, which are included in an Excel file).

Tools, and (4) Math for Machinists. Employees will attend courses for two hours twice a week for 12 weeks. Each course will last 3 weeks.

The HR director has hired your consulting team to identify the evaluation processes to embed in daily business operations and how to embed them. Using the supplied information, your team will present the HR director and CEO with a plan to embed evaluation processes within the company's SOPs.

MEETING WITH HR DIRECTOR AND CEO

To get a better idea of the expectations and outcomes desired, your team meets with the HR director and CEO of MacroEnterprises. The following discussion occurs during the meeting.

HR director: We appreciate your consulting firm taking on this task. From your previous work and client references, we feel that you can come up with a plan that will help us achieve our goals.

CEO: I agree! Not only that, your firm seems to have a broad view of evaluation, one that looks at more than the satisfaction of those who attend a training class or program. We need to have measurements that really mean something in the attainment of our goals.

Member of your team: Speaking of goals, we know you want to see evaluation embedded into your daily business activities. What goals are you hoping to achieve by doing this?

CEO: There are several things that I want. First, I want to make sure that we are continuously improving. I want us to learn from our mistakes and build upon that knowledge. I want to know that our employees are adequately trained to do the jobs we require of them. If they cannot do the job, I want to know why. I also want to look at data on an ongoing basis about our training and learning. From there, I want to be able to anticipate problem areas and approach them strategically rather than running around putting out fires.

  I want numbers. Data that I can point to that show we are keeping track of what we do and how we do it. For example, when I am asked how HR contributes to MacroEnterprises's bottom line, I want to have an answer. I know that it cannot always be put into monetary figures, but I want to at least have idea of the perceived benefits.

Member of your team: So, you are saying that you not only want to know if your training is working, but also how it benefits your organization?

CEO: Yes! But I don't want to focus all our time on collecting new data. We have a company to run, and we don't have time to add a lot of extra work to our jobs without any immediate payback.

HR director: I have only three employees in the HR department. They can barely manage to keep up with the benefits, payroll and safety issues. That's why it's

important that these evaluation and measurement procedures be a regular part of the way we do business.

CEO: Remember Pat, we do already collect a wealth of data. Some is utilized better than others, though.

HR director: Yes. I can get your team a list of the data we currently collect. We also have orientation and safety training programs. I'll get you some information about those programs too.

Member of your team: Thank you. That information will be useful. Also, do you have any job descriptions? They may be helpful to see what tasks employees already do.

HR director: Yes, we can get you a sampling of job descriptions and the checklist that the employee must go through when completing their shadow training program.

CEO: I have a meeting in about 10 minutes. Is there any other information that I can provide before I leave?

Member of your team: Yes. Who do you consider the stakeholders of this evaluation integration project?

CEO: Well, ultimately it's our customers. They are the ones I really want to keep happy. These end-user problems cost us money and reputation. If we could catch the problems earlier and rectify them before they leave this building, it could save us millions. A carburetor that gets scrapped in this building may cost us $20, but a carburetor that fails in the field costs us well over $100. That's not including the bad press and customer service issues.

Thanks and good luck. I'm off to my meeting now. Just let Pat know if you need any other information.

<CEO leaves>

HR director: I want to add to your stakeholder question. I think this project also has to be mindful of my needs and that of our CEO. In addition, our employees will be affected by this project, especially if they are going to have to do things differently. They need to see some benefit to themselves or the organization or both.

Member of your team: I see. How much are your employees involved in the decisions and problem solving in the manufacturing process?

HR director: We try to involve them when we can, especially if we think that it will affect them in some way. Most of the decisions about the way we implement changes, though, come from our engineering department. So, there is not much input there. As far as problem solving goes… when there is a problem, we try to get information about the problem from at least one employee (where the problem is located) and the supervisor. We usually do not have a lot of time. I have found that they like to have input, but many times when we ask it ends up being a complaint session about their supervisor or their pay… information that does not really help us to resolve the issue.

Member of your team: When issues or mistakes occur, what happens? How are they reported and how do people learn from them?

HR director: Great questions. Well, problems can be caught in several areas. They can be caught by the machine operator when something won't fit like it is supposed to. Many of our worksites use gauges to measure critical dimensions. Problems are also caught through random quality control inspections. A carburetor is pulled from every manufactured lot and thoroughly measured and tested. We have many lines of operation, though. The latest problem was not caught by the random inspection.

Member of your team: How is new technology introduced into the manufacturing environment? For example, who decides when the technology is implemented? Who conducts the training? Who is trained?

HR director: Decisions about what and when to implement new technologies are made by our management team. This includes me; the CEO; the plant manager; and managers from engineering, quality control, materials and production.

My department is responsible for all training. If the technology is something we do not have experience in, we usually contract with an outside training vendor or the technology vendor to train the employees. Because of the cost, only employees who have direct use of the technology get trained. We figure that once they know the technology, they can train anyone else who needs to know through our shadow training program.

Member of your team: One final question. Can you describe your shadow training program?

HR director: Yes. Once hired and after a full-day orientation, each employee gets assigned to a production line. The supervisor then assigns that employee to a workstation. The new employee shadows a more experienced operator on that workstation until the supervisor feels the employee can do the job on their own. It's our own form of apprenticeship training, although it seldom lasts more than a week. Our new employees tend to catch on quickly. Plus, they know that their pay goes up a dollar an hour once they are working on their own.

Member of your team: Do you have any way to document that the employee has learned the job?

HR director: Yes, we currently have an observation checklist for each workstation. When the supervisor and the more experienced employee feel the new employee has learned the job, the supervisor watches the employee perform the job and then signs off on the observation checklist, which is filed in the employee's personnel folder.

I need to attend to some pressing issues, too. We'll have to wrap this up. Stop by my office on the way out and I'll get you some materials. I also have a list of questions that we want to guide your work.

<End of meeting>

When your team stops by the HR director's office, you meet the three other department members: an HR coordinator, an HR assistant and an HR administrative support person. Pat gives you the following documents:

- Several job descriptions for manufacturing positions.

- A sample training record.

- Samples of observation checklists from the shadow program.

- Results of new employee math and reading tests (TABE tests).

- A description of the current training protocol for manufacturing employees.

Pat also gives you a document with the following questions that she referred to in your meeting:

QUESTIONS ABOUT EMBEDDING EVALUATION INTO SOPS

1. Where should we embed the evaluation procedures?

2. How should we embed the evaluation procedures?

3. Is this something that we should put in our job descriptions? If so, how should we do that?

4. What measurements should we take that we are not already taking?

5. What can we do with the measurements we currently collect to better support our goals?

6. Is there a formula we can use to show how our training affects the success of our organization (something more quantitative)?

ASSIGNMENT

Focusing on the questions given to you by the HR director, your consulting team is asked to find ways that MacroEnterprises can embed evaluation principles and methodologies into their SOPs.

You are given two weeks to put together a presentation to the CEO and HR director about your recommendations for evaluation. You think that some or all of the following questions may need to be answered to give Pat what she is asking for; however, there might be other relevant questions that have not yet been identified.

Upon returning to your offices, your team makes a list of your own questions to guide you through this process:

1. Who has a vested interest in the success or failure of any training program?

2. What are the threats to the success of the new training program?

3. How can existing data sources be used to measure the success of the training program?

4. What new data sources can be developed to measure the success of the training program?

5. What organizational goals will the training program and its intended results likely address?

DELIVERABLES

1. Develop a detailed evaluation plan for MacroEnterprises that includes the four sections listed below. Use the questions listed in each section to guide you in the information that should be included in each section of the paper.

   Section 1: How can existing measurements be used to assess the effectiveness of training and organizational learning?

   - What are the existing measurements?

   - How should they be used by the organization?

   - Are there any changes needed in the way the current measurements are collected or recorded?

   Section 2: What new measurements must be developed to more accurately measure the effectiveness of training and organizational learning?

   - What measurements are needed?

   - Why are the measurements needed? Justify each.

   - How should these new measurements be used by the organization?

   - Who will collect the measurements?

   - When will the measurements be collected?

   Section 3: Develop a data collection plan (if required) for collecting the new measurements.

   - In this section, list:

     i. Each measurement (data source) you intend to use.

     ii. Who will collect the data or administer the data collection.

     iii. How the measurement will be evaluated or analyzed.

     iv. When the measurement will be taken and how often.

     v. Who will be involved in the measurement For example, if you suggest giving a test of skills training, who will administer the test? How will the test score be used to evaluate the training? When will the test be given and how often? Who takes the test?

Section 4: Your team concludes that current MacroEnterprises training is not adequately evaluated. Using Kirkpatrick's four-level evaluation framework and Phillips' ROI suggestions, suggest one way that future training might be evaluated at each level (reaction, learning, behavior, results, and ROI).

Section 5: Suggest ways (other than training) that evaluation might be embedded in the MacroEnterprises SOPs.

1. Prepare and submit a focused and compelling executive summary of the above paper. Include information about how all of the measurements you are recommending work together to help MacroEnterprises achieve their goals. You should also focus on how your plan ensures that the evaluation strategies are embedded into SOPs rather than added as a separate data job for the HR department. The audience for your executive summary is the HR director and CEO.

2. Prepare and deliver a professional 10- to 15-minute PowerPoint presentation that describes the process and persuades the CEO and HR director of the need for the recommended plan. Your presentation is to be delivered to the HR director and CEO of MacroEnterprises. The presentation should include all relevant handouts; PowerPoint slides; relevant data analyses (charts, graphs); lists; decision criteria; etc. The purpose of the presentation is to get hired by MacroEnterprises to implement your evaluation plan.

RESOURCES

- Case materials (provided above and in the Excel file).

- Russ-Eft, D., and Preskill, H. (2001). *Evaluation in organizations: A systematic approach to enhancing learning, performance, and change*. New York: Perseus Publishing Group. Pages 63-98 and 347-380.

- Kirkpatrick, D.L., and Kirpatrick, J.D. (2006). *Evaluating training programs: The four levels. 3rd Ed*. San Francisco: Berrett-Koehler Publishers. Chapter 3 – pages 21-26.

- Phillips, J.J. (2003). *Return on investment in Training and Performance Improvement Programs, 2nd Ed*. Newark, NJ: Butterworth-Heinemann. Chapter 2 – pages 32-57.

- PowerPoint presentation capability.

- Excel capability.

DISCUSSION QUESTIONS (WITH INSTRUCTOR NOTES):

How can existing measurements be used to assess the effect of training and organizational learning?

■ What are the existing measurements?

TABE tests, training records, observation checklists. Students may come up with other measures normally found in manufacturing companies such as safety and inspection records.

■ How should they be used by the organization?

Students are expected to generate a variety of ways these records are and can be used. Ideas may include looking at differences between manufacturing and staff reading levels; observing differences between training records and observation checklists; or observing the differences between position descriptions and training records. This is meant as a brainstorming question to get all possible uses mentioned.

■ Are there any changes needed in the ways that the current measurements are collected or recorded?

Students are expected to look for inconsistencies in the currently collected data and suggest resolutions. Again, this is a brainstorming question. Some possible responses could be that TABE tests need to be associated to individual employees or work units, or that training records need to include a measure of how well an employee mastered the training.

Should new measurements be developed to more accurately measure the effect of training and organizational learning?

■ What measurements are needed?

These are a series of brainstorming questions, since there is currently little evidence of training evaluation (with the exception of the observation checklists). Some possible additional measurements may include end-of-training knowledge tests; monitoring of changes in scrap rate from before training to after training; and calculations of the financial impact of training to the company's bottom line. Students will likely come up with a variety of measures depending on their background and experiences. It is hoped that students will use the readings pertaining to Kirkpatrick and Phillips and suggest different measures to evaluate training at five levels (reaction, learning, behavior, results, and ROI.)

■ Why are measurements needed (justify each)?

The measures should be justified based on the needs of the stakeholders of the organization. For example, some measures will be justified because they directly address the questions given to the teams by the HR director. Other

measures will be justified because of the need to evaluate at different levels of learning and at different levels of the organization.

■ How should these new measurements be used by the company?

The answers to this question will vary according the measure selected. Uses should be tempered by ethical and legal considerations. In addition, the uses should serve the needs of the stakeholders (staff, management and employees).

■ Who will collect the measurements?

Responses to this question will also depend on the measure selected. Responses should reflect consideration of time, cost, ease of collection, use of data, and employee confidentiality.

■ When will the measurements be collected?

Responses to this question will also depend on the measure selected. Responses should reflect consideration of when the information becomes available and when it is considered obsolete. In addition, measurement times should reflect data collection at different time periods in relation to when the training occurs (before training, immediately after training, during training, post training, a month post training, etc.).

■ How will the selected measures be evaluated or analyzed?

Responses to this question will be directly related to the questions that the evaluations are trying to answer. Direct connections should be made from the answers to this question and the stated needs of the organizational stakeholders.

■ What ways, other than training, can evaluation become embedded in the MacroEnterprises SOPs?

This is once again a brainstorming question to get students thinking about how evaluation can be made a part of people's jobs as opposed to something outside the realm of their everyday work.

■ How is new technology introduced into the manufacturing process? Who conducts training? Who is trained? Who decides when the new technology is incorporated?

These questions are designed to get students to look at the organizational structure and current procedures to see if they are aligned with the organization's needs. Responses should include reflection on who are the best people to train workers and their preparation. The political aspects of who gets trained and who decides when training is implemented should be discussed to highlight the effect of organizational politics upon training evaluation.

■ Given technology changes, how does MacroEnterprises know that the processes are being followed? If mistakes happen, do people learn from them? And, are they reported?

The questions are intended to have students reflect on the incentives and disincentives to performing jobs correctly. Especially important is the concept that organizations may have processes and procedures in place that are actually barriers to accomplishing their goals.

- How much ownership over the manufacturing process do the employees feel they have? Are they involved in implementation decisions? Are they involved in training decisions? Are they involved in developing solutions to problems?

  These questions are intended to get students to reflect on the barriers to change within an organization, especially in terms of employee buy-in. Emphasis should be placed on the idea that changes go more smoothly when those involved feel part of the decision-making process.

Appendix A: Culture Data Collection Materials, Scenario #1

Detailed Data Collected by Consultants at MacroEnterprises, Inc.

Note: Consultants conducted observations, interviews and focus groups at MacroEnterprises over a two-week period in Fall 2007. Consultants were given access to all operations and meetings scheduled during their observational period. Employees were briefed about the purpose of the consultants' visits and were asked to answer any of the consultants' questions. Employees were assured that their answers would be confidential and that individuals would not be identified in any materials presented to Pat or the other leaders at MacroEnterprises. These materials are a compilation of all observational field notes made by the consultants. In addition, each consultant has written a report focusing on his or her particular task. The three components of culture for this project were physical environment; people/machine interactions; and employee climate perceptions.

CONSULTANT DATA COLLECTION SHEET: PHYSICAL ENVIRONMENT DATA

My objective in observing was to gather ethnographic data to identify the physical or environmental context of work at MacroEnterprises, Inc. This report is a compilation of several hours of observing daily operations at the client site.

One day I arrived at the plant 30 minutes before the beginning of the day shift. The lobby was open but dark. The reception desk was tidy, but there were stacks of some kind of files under the desk. The files looked like they contained different colored paper and they had labels on them. I did not reach under the desk to examine the files; in case they were confidential. ***Note: ask about what type of files they were.*** The lobby itself was tidy; there were company awards for the Rockford plant hung on the walls. I did not see any reference to the Florida plant awards here. There were two portraits of men in the lobby. I assumed these were of the owner and founder, but I do not know. The furniture was old but in good condition. The reading materials were company marketing materials and trade publications and magazines for power boating enthusiasts.

I went outside to observe people coming to work. The employee parking lot is not close to the visitor parking lot, which is at the front of the plant. The employee parking lot is in back, and employees must pass through a gate with a key card. ***Note: do employees ever visit the lobby?*** I noticed that there were reserved parking spaces in front for the management team. ***Note: why do they park in front and not with the employees?***

Employees drove through the gate and walked to the back entrance. The back door opened to a large room with scattered chairs and tables. Immediately upon

entering, I saw a desk staffed by a security guard. There was another desk to the far left that was not staffed. That desk was filled with family pictures, small collectibles, a computer, a telephone and a Rolodex. Next to this desk was a large container of papers and materials.

There were no windows in this room. The furniture was old and worn, as are the two desks. The room temperature was cool, but not uncomfortable. There was some nonspecific music playing at a low volume. I also saw a case full of trophies in the room. The trophies were for plant sport teams—softball, soccer, field hockey and bowling. There were pictures of winning teams comprised of mostly white men. There were a couple of coed team pictures. There were a couple of safety awards on the wall. There were also pictures of power boats, and there were many magazines scattered around on the tables. These magazines were of all types—boating, outdoor sports and entertainment. There were vending machines in the far right corner of the room, along with a microwave and sink. There were handwritten notes tacked up asking people to pick up after themselves, to clean dishes and to throw away trash in the correct bin. There were two bins: one for trash and one for recycling.

There were two doors out of this room. I observed most people, casually dressed, exiting the room through a door that goes to the shop floor. This door is to the far right next to the vending machines. I saw only one or two people dressed in business attire leave the room through the other door that goes to the management offices. This door is to the far left and is next to the desk with personal items on it.

I went to the shop floor. It was very noisy and I wore a headset provided by a foreman. The shop was tidy looking. Machines looked well cared for. There were no windows in this room. There were two small offices carved out of the plant floor space. These two offices were very messy, containing multiple stacks of paper on the desks and floor. There were two desks in each office, setting face to face. Each desk had a computer, phone, and various other work items. I did not see many personal items on these desks. There were HR policies posted on the walls along with OSHA and other required postings. I saw a door marked 'bathroom' and entered. It was a bit messy—paper towels on the floor—but generally OK. There were two urinals. Evidently, the bathroom was for men only. *Note: where do women go?* I saw some first-aid materials and a fire extinguisher on a table, with various instructions and phone numbers for emergencies.

Out on the shop floor next to each machine, I saw multiple forms. Some forms had space for people to write notes, signatures or initials. These forms were secured to the machine with a pen hanging next to the form. Other forms seemed to have sequential instructions for operating the machines. These forms were laminated and were hung from a hook next to each machine. Where the machine operators stood, I saw a cushioned pad on the floor.

On the far wall were lockers, and next to the lockers were large electrical components with big warning signs signaling high voltage. There was not a lot of space between the lockers, the machines and the electrical components. The room was well-lit and the temperature was cool but comfortable. The lockers had many personal items

pasted on the fronts. I saw pictures of family, bumper stickers, etc. The lockers were locked. I counted 16 lockers (eight on top and eight on bottom). There was an old table with some old chairs in the far corner, strewn with old newspapers, coats and what looked like lunch bags or containers.

I left the shop floor and proceeded through the entry room to the management side. I entered a long corridor with offices on each side. The hall had framed prints of power boats along each wall. Some of the office doors were closed; some were open. The hall reached a T and I turned a corner to the right and saw a larger space with a glass wall partitioning off a desk. The desk was executive-looking; dark wood with a large gold-colored lamp on one side. There were two comfortable chairs along a wall with another door leading to the executive office. I did not go in to the executive office. I turned and went back in the other direction, from which a door opened to the front lobby. By this time, the lobby desk was staffed and there was a steaming cup of coffee and a bagel on the desk. I left the premises at 8:30 a.m.

I returned that same day at about 3:30 p.m. to see the shift change. A couple of people were waiting in the front lobby. They were professionally dressed and had large wheeled bags. The receptionist was professional in appearance. She seemed to be working on multiple files; many files were opened on her desk and I could see various colors and forms. She greeted me and remembered I was one of the consultants. She buzzed me through the door to the management offices. I walked straight down the hall to the executive office area, where I saw three men talking. The front desk was not staffed but there was a lot of paperwork on it. The door to the executive office was closed. The three men stopped talking as I approached, and I introduced myself. They seemed uncertain what to say to me. I excused myself and walked down the hall toward the manufacturing side. I counted three closed doors and four open doors. In my visit earlier today, I did not notice the bathrooms and door marked "lounge." There was a men's and women's restroom with a drinking fountain in between the doors. I entered the lounge, which was a small room (possibly converted office?) with a sink, a small refrigerator, cupboards and large wood table with 8 to 10 chairs. This room was very neat and homey-looking. A nice rug covering the tiled floor and there were plants hanging in the windows. There was a coffee machine with cups and teas visible.

I left the lounge and entered the large multi-purpose room in the back. This morning, I couldn't quite figure out what this room was. It seemed to be a combination of break room, work room, and entry room. Entering this room from the management office side was a jolt. The feeling of this room, in comparison to the rooms I just visited, was much more industrial, and noise from the factory was audible. The lighting was fluorescent and stark when compared with the lighting in the management side. When I entered the room, I saw a mature woman talking to two men standing next to her desk. They were all laughing. There were a few men sitting in the tables near the vending machines eating. There were three or four men sitting in chairs near the woman's desk. From their uncomfortable demeanor, I thought they were job applicants. I could be all wrong but that is what it looked like to me. The guard's desk was empty. There were discarded cups and napkins on tables

along with magazines. The music this afternoon was different than this morning. Now the music was contemporary soft rock at what seemed like a slightly higher volume than this morning.

As I approached the factory door, I saw two tables of men next to the vending machines. At one table sat three white men; at the other table sat two black and one Hispanic-looking men. I noticed this because of the contrast. Each table seemed to be involved in low-decibel discussions and I could not hear anything they were saying. The men weren't looking around; they were kind of huddled and talking earnestly. They did not pay attention to me as I went into the factory.

The factory was louder than this morning, perhaps because more machines run during the day shift. *Note: ask about this.* I obtained a headset from the same foreman as this morning and began to walk around. There were many people in the two offices. In one office, I saw men gesturing to each other in ways that suggested disagreement or conflict. I couldn't hear what they were saying, but their faces did not look calm. In the other office, people were working with documents—either entering something into a computer or reviewing spreadsheets and forms. The people in this room were not talking.

I walked around the factory floor for about an hour. Men were working the machines. I did not observe anyone writing on the forms next to the machines. I did not observe any men using the laminated instruction sheets. I observed one machine break down; the lead operator used some tools to adjust something and the machine came online again. I didn't see that the operator notified the foreman about the breakdown. *Note: ask about SOPs to see what is supposed to be done when a machine breaks down.*

I observed a couple men sitting in the back next to the lockers. They mostly just sat and looked tired or bored. A third man sat down after a few minutes and the first two left shortly after. The third man opened a bag and ate a sandwich. The lighting in this back area was poor. *Note: ask about this. Is a light out?*

During my time on the floor, I did not notice a lot of interaction between employees or between employees and the foreman. My role here was to focus on physical environment rather than interaction patterns, but it was noteworthy to me that there was minimal interaction during my observation period. In other factories I have observed, I noticed more informal interactions than at MacroEnterprises. The exception to this was two men on a certain machine. It looked like one person was showing the other how to operate the machine. There was a lot of pointing and demonstrating. The person doing the teaching appeared rushed or frustrated or something. It did not appear that he was enjoying this task. *Note: ask about how new hires are introduced to procedures. Who selects mentors? What are the selection criteria for manufacturing floor teachers?*

I left the shop as the next shift of employees were beginning to enter. I did not observe any interaction between the first and second shift. The incoming shift seemed to be more diverse than the day shift; again, the contrast was noteworthy to

me. *Note: ask about diversity demographics.* I saw two women enter for this shift. The second shift placed lunch boxes and coats around the table in the back; no one used the lockers. I went outside to the employee parking lot and observed a couple groups of men standing around smoking and talking. The guard was outside with one of the groups. I left the plant at about 5:30 p.m.

CONSULTANT DATA COLLECTION SHEET: PEOPLE/MACHINE INTERACTIONS

My objective in observing was to gather information about how people and machines interacted to accomplish work at MacroEnterprises, Inc. This report is a compilation of my observations and analyses.

I began my people/machine interaction data collection by spending one week at the plant. I observed each shift at least one time. I spent one day observing the managerial group (including support staff). I present my findings organized by shift; this seems the most appropriate way to present the different interaction patterns observed during different shifts.

First (day) shift: It seemed that there was a "one man, one machine" interaction pattern during this shift. Workers rarely touched machines they were not assigned to. Workers rarely informed the foreman of any problems in machine operation, opting instead to fix the machine himself. The foreman did not regularly move about the floor but instead focused on paperwork, database management, and various other office-type tasks. The computers that the foreman used did not seem new; in fact, I observed several problems that caused significant worry when computers went down or databases weren't updated as appropriate. These issues took the bulk of the foreman's time; the remaining time seemed to be taken up by meetings with management staff. For these meetings, managers would enter the factory floor, ask for the foreman and have a closed-door meeting in one of the two offices. The foreman would ask the clerks to take a short break for these meetings. The clerks would leave their desks (where they had been entering information into a computer) and go to the break room.

I did observe some employees enter information on the charts and forms next to the machines, but this was not observed on all machines. The employees seemed to know how to operate their machines in a competent manner, meaning I did not observe worry, concern or rush when working. I observed three breakdowns, and each seemed to follow a similar pattern. A machine would malfunction and the worker would notice. The worker would identify the location of the malfunction, obtain the necessary spare part(s) and tools and fix the machine. This was done with a minimum of fuss, and usually the machine was up and running in a few minutes. I did not see the operators notify the foreman or write in the logs next to the machines.

Second shift: This shift exhibited more shared interaction patterns between men and machine. Workers often worked with more than one machine during a shift, whether it was running, maintaining, fixing or training on a new machine. Consequently, there was more person-to-person interaction in this shift; however, the focus of this

report is the person/machine interaction. Like the day shift, workers did not contact the foreman if a problem arose. Instead, an operator would let others know that something was wrong and inevitably, one or two (or more) colleagues would come over to assist. The problem would get resolved by identifying the location of the problem and making the necessary repairs. The foreman often would not know that a breakdown occurred. The foreman was usually at the computer terminal in one of the offices, working on forecasting, product management and various other tasks.

Third shift: This late shift was smaller, and one person had a combination role of foreman/worker. Consequently, this employee spent most of the time on the factory floor rotating through the machines to provide breaks for machine operators, collaborate on repairs or train new employees. Machine operators seemed to welcome the interaction with the foreman/worker; I observed casual conversations, laughter, and collaborative problem-solving during machine malfunctions. There seemed to be new employees at almost every machine during this shift, and experienced operators were often tasked with training and operating at the same time.

Management/office staff: I spent one day observing the management staff and machine interactions. All employees routinely used a computer to accomplish work tasks. The day I observed, an IT person was busy fixing hardware and software problems for multiple people. For some employees, calling the IT specialist seemed to be a stressful experience; for others, not so much. The front lobby receptionist entered important client information into a new database management system; the human resource clerk (sitting in the back multi-purpose room) entered important employee information into a new HRIS system; and marketing, finance and operations managers each used different management software databases for their daily work.

CONSULTANT DATA COLLECTION SHEET: EMPLOYEE CLIMATE PERCEPTIONS

We were tasked with collecting multiple perspectives about the person-to-person interactions at MacroEnterprises, Inc. The first part of this report presents focus group data. We conducted three focus groups: 1) factory workers from the first shift; 2) factory workers from the second shift; and 3) management and staff employees working in the front office. Focus group members were all volunteers and were guaranteed anonymity.

After describing the reason for the focus groups, we opened each session with a general statement, then asked the following question:

"We understand that you have experienced many changes to your work environment over the past few months because of the merger and organizational growth. Your CEO knows that a lot has been asked of you, and he is asking for your help to uncover any issues and identify possible solutions. What would you like to see happen at MacroEnterprises to make it better?"

First shift workers:

We don't like the new foreman, Bill. Why did they move our foreman (Sam) to the second shift, and give us Bill from the Florida plant? We were doing fine with Sam. Bill is always so busy with the suits up front that he never has time for us anyway. We also don't like being asked to move to different shifts. We have seniority and deserve to have our first choice. With the Florida people moving up here, we're being asked to give some of the first shift positions to them. And when we do, they come in and don't have the same work ethic that we do. We call them the 'Fs' and we are the 'Rs'. We liked it the way it was, and all of these changes are just screwing things up.

Second shift workers:

We'd prefer to have Bill as our foreman rather than Sam. It seems that we can't do anything right from Sam's perspective. If something breaks down, we get together to fix it. He's not used to people working together, we guess. That seems a bit backward to us. In Florida, most of us had seniority and were on the day shift. The move here, combined with the shift change, has been pretty difficult. The job market wasn't strong, so we didn't feel like we had any choice BUT to move up here. Then when we get here, we lose our seniority and are demoted to second shift. That sucks. And there's more. We don't get any locker space. It's all taken up by the O.Rs. (Old Rockfords, we call them.) No new lockers were made for us, and we have to put our stuff on a table where anyone could walk away with it. Finally, what's with the whiteness here? In Florida we felt comfortable, but here in this factory, not so much. Every time one of us gets a day shift rotation or placement, we always request to come back to the second shift because of the racist attitudes of the O.Rs.

Management and office workers:

Office clerk: All the new databases and software are making my life crazy. I used to be able to keep up on clients and orders, but now it is all I can do to try to keep afloat. My manager doesn't understand that it takes time to get up to speed with new databases, and he doesn't seem to care; there is so much more work, I'm sure he also has problems.

Manager #1: Moving up here from Florida was hard, but trying to fit into this new factory is even harder. I'm the only African American manager on the team, and I have to constantly defend my decisions in meetings despite having more experience and success than the people who are questioning me. Since this wasn't the norm in Florida, I have to assume that there is some lingering racism among some leaders in this company. My colleagues on the shop floor have talked to me about their issues, too, and I say I relate to them.

Receptionist: This Florida move was a bad idea, but then adding a new client database on top of that was insane! I used to be happy in my job; now I've been asked to take on more work (for no more money!) and am actually like the junior member of the sales team, since I have to enter all of their sales into the computer. I get so busy inputting the data that when someone comes into the lobby I

sometimes don't see them right away, and then they get mad and complain about an unresponsive receptionist. Look, if you want me to be a receptionist, fine. If you want me to do data entry, fine. But don't ask me to do both.

Manager #2: I know that I was lucky to keep my job in this merger. I feel bad that a decision was made to let Sam go (who had the same management job in Florida) but I'm happy that I'm getting a paycheck. I want this merger to work and there are a lot of exciting opportunities here, but it seems that we just can't figure out what direction to take. No one trusts each other anymore and the performance pressures are really high. It is a pretty bad situation now, and I'm glad that someone is trying to help us figure out how to solve our problems.

Appendix B: Leadership Data Collection Materials, Scenario #1

INTERVIEW DATA

Interviews were conducted with the CEO, one foreman, one junior-level manager and one senior-level manager. To mask individual identities, this report does not provide explicit quotes. We used a data analysis technique to uncover common themes and ideas contained within the interviews. This thematic analysis is the key focus of this part of our report.

We asked several general questions to let them decide what to tell us. We did not want to overly direct their thinking by asking questions that were too narrow or too leading (like, "How dysfunctional do you believe this workplace is?"). Instead, we asked about leadership in general and how they viewed the leadership at MacroEnterprises. Using this broad, open-ended approach lets interviewees talk about what is important to them.

After transcribing the interview recordings, we individually read and re-read the interview texts to identify the key issues each person raised during the conversation. We (the consultants) then discussed the themes and came to agreement on the most pressing issues facing MacroEnterprises. Four key issues were repeated over and over in the interviews:

1. Lack of consensus on vision.

2. Lack of trust between 'Fs' and 'Rs'.

3. Lack of communication between functions.

4. Lack of diversity and understanding of diversity.

Each of the themes were described differently depending on the position of the person being interviewed. Here are the key characteristics of the issues:

■ The executive team does not share the same understanding of the future direction and goals of the company.

■ The executive team members from Rockford question the ability of the Florida executives.

■ The Florida executives feel they have to prove themselves all over again, and resent this.

■ The CEO doesn't know what to do to bring the executive team together.

■ The new information system does not require different functions to 'talk' to each other, so they don't.

- Non-management office workers feel that they do not get important information.

- The CEO would rather sell products and market his company at trade shows than deal with operational issues.

- The HR Coordinator appreciates the hiring of a new HR director, but she feels that the new HR director doesn't understand her value to the organization.

- The factory foremen are extremely unhappy that they were reassigned to different shifts. Evidently, it was thought that having a Rockford foreman manage the Florida second shift would be a way to develop a cohesive and shared culture; likewise for the Florida foreman to manage the Rockford workers. This change has not produced the intended results. In fact, it seems to have exacerbated the division between the two groups of factory workers.

- There are accusations of racism on the factory floor and management offices.

- Since the merger, people don't know how their performance is evaluated or how to move up the ladder and get promoted.

- There was no planning for integrating the Florida team into the Rockford operations.

- There was no planning for how the organization could grow effectively; there was no planning for the increased HR responsibilities such as orientation, management, and training.

Appendix C: Training Protocol, Scenario #3

TRAINING PROTOCOL DESCRIPTION

Name: _____

Work Location: _____

Supervisor: _____

Hire Date: _____

Item	Date Completed	Verified By
Employee Hired		
Orientation Training: ½ day		
Safety Training		
Shadow Training		
Assigned to Job		

TRAINING PROTOCOL:

Once a manufacturing person is hired, they will attend a half-day training session about the company (the agenda for the session is attached). Upon completion of the orientation, employees are assigned to a work area and meet their supervisor. The supervisor will assign the employee to a work station and have them train (shadow) on a job with a more experienced employee until the supervisor feels the new hire can perform the job independently.

At some point during the first three months of employment, each employee must attend a half-day safety training program (agenda attached). A test is given at the end of the safety training. Employees must get at least an 80 percent on the test or attend the safety training again until they pass the test.

Appendix D: Agenda and Protocol for Orientation, Scenario #3

AGENDA FOR ORIENTATION SESSION

Time	Topic	Method	Presenter
8:00 – 8:45 a.m.	**Introductions** Icebreaker activity Session objectives		HR Coordinator
8:45 – 9:30 a.m.	**The Company** History Mission and goals Locations and management Organizational chart		HR Administrator
9:30 – 10:30 a.m.	**Working at MacroEnterprises** Work hours, shifts and overtime Time clocks Paychecks		HR Administrator
10:30 – 10:45 a.m.	**Break**		
10:45 – 11:45 a.m.	**Policies and Rules** Drug-free workplace Sexual harassment ADA Accident reporting		HR Coordinator
11:45 a.m. – 1:00 p.m.	**Lunch**		
1:00 – 2:30 p.m.	**Benefits** Vacation and sick days Health and dental care Vision Leave (family, medical, personal) Employee assistance program Stock purchase		HR Assistant Coordinator
2:30 – 2:45 p.m.	**Break**		

2:45 – 3:45 p.m.	**Retirement** Service awards Retirement options 401K		HR Administrator
3:45 – 4:00 p.m.	**Conclusion** Resources and contacts Questions		All

Appendix E: Agenda and Protocol for Safety Program, Scenario #3

AGENDA FOR SAFETY TRAINING PROGRAM

Time	Topic	Presenter
8:00 – 8:45 a.m.	Introductions Session objectives	HR Coordinator
8:45 – 9:15 a.m.	Forklift safety movie	HR Administrator
9:30 – 10:00 a.m.	Discussion of forklift safety	HR Coordinator
10:00 – 10:30 a.m.	Machine safety and lockout/tagout procedures movie	HR Administrator
10:30 – 11:00 a.m.	Discussion of machine safety and MacroEnterprises's lockout/tagout procedures	HR Coordinator
11:00 – 11:30 a.m.	Review and conclusion	HR Coordinator
11:30 a.m. –Noon	Safety training completion test	HR Administrator

Appendix F: TABE Test Information, Scenario 3

TABE TEST RESULTS

Last year, the company started giving all new employees the "Test of Basic Adult Education" (TABE) (http://www.ctb.com/products/product_summary.jsp) before their first day of work. The TABE test is an academic test that measures a person's grade level in reading, mathematics and language, although the language section of the test was not used for MacroEnterprises employees.

In the TABE test, a score of 6.9 in reading indicates that the test-taker can read at a 6.9 grade level. A score of 12.9 is the highest score that can be reached on either scale. For example, a 12.9 math score indicates that the test-taker can perform mathematical calculations at a 12th grade level or above. It was thought that the test might identify people in need of remedial math and reading courses, but the test results have not yet been used. The Excel file named *tabe_manufacturing.xls* shows the TABE reading and mathematics scores for 125 of the company's 300-person manufacturing staff. Ten members of the office and management staff were also given the TABE test to use as a comparison group. The results of the manager and staff TABE tests for reading and math are displayed the Excel file named *tabe_staff.xls*.

Appropriate use of the TABE 9&10 Locator Test; http://www.ctb.com/media/articles/pdfs/AdultEducation/TABE9-10LocatorTestWhitePaperAug07.pdf

Appendix G: Sampling of MacroEnterprises Manufacturing Job Descriptions, Scenario #3

JOB DESCRIPTION

PAY GRADE:
TITLE: EAGLE MASCO TURRETS   **DATE PREPARED: 8-12-2004**
LOCATION: **DEPARTMENT: EAGLE**
MACHINING

JOB OBJECTIVES:

To continuously improve the machining of the eagle masco turret operations. To set up and operate all work cell machinery. To gage and inspect operations as required.

ESSENTIAL FUNCTIONS:

1. Clean block mating face and lift block with hoist into turret.

2. Clamp part, close doors and cycle machine.

3. After cycle, remove part from turret and blow off fixture.

4. Using hoist, place part in other turret.

5. Clamp part, close doors and cycle machine.

6. After cycle, remove part to deburr bench.

7. Drain fluid from part and deburr.

8. Wipe down faces and visually inspect part.

9. Gage 100% with reed box gage.

10. Gage part with all remaining functional gages per the process sheet.

11. Move part to conveyor.

NON-ESSENTIAL FUNCTIONS:

JOB SKILLS AND REQUIREMENTS:

1. Set-up and operation of turrets.

2. Ability to read and count.

3. Housekeeping of work area.

4. Ability to pick up and manipulate parts.

5. Ability to read and understand process sheets.

6. Ability to read and understand meters and gages.

7. Ability to assess proper timing of tool changes.

8. Ability to train new operators.

EQUIPMENT USED AND WORKING ENVIRONMENT:

1. Located in well-lit machining area.

2. Exposure to coolant.

3. Exposure to flying and blown metal chips.

4. Turret machines.

5. Various metal-cutting tools.

6. Honing stone.

7. Various gages and fixtures.

8. Deburr grinder.

9. Safety glasses and ear plugs required.

JOB DESCRIPTION

PAY GRADE:
TITLE: EAGLE K&T OPS. 50 & 60   **DATE PREPARED: 8-12-2004**
LOCATION: **DEPARTMENT: EAGLE MACHINING**

JOB OBJECTIVES:

To continuously improve the machining of the eagle carb block and plates. To set up and operate all work cell machinery. To gage and inspect operations as required.

ESSENTIAL FUNCTIONS:

1.   Move block to operation 50 K&T with hoist and locate in fixture.

2.   Attach hydraulic hose and clamp.

3.   Release hose and cycle machine.

4.   Remove part from K&T and move to idle relief drill.

5.   Locate in fixture and cycle machine.

6.   Remove from idle relief drill and move part to operation 60 K&T.

7.   Attach hydraulic hose and clamp.

8.   Release hose and cycle machine.

9.   Remove part from K&T and move to deburr bench.

10.   Deburr all machined surfaces per the process sheets.

11.   Gage part with all remaining functional gages per the process sheet.

NON-ESSENTIAL FUNCTIONS:

JOB SKILLS AND REQUIREMENTS:

1.   Set-up and operation of both K&T machines.

2.   Set-up and operation of idle relief drill.

3.   Ability to read and count.

4.   Housekeeping of work area.

5.   Ability to pick up and manipulate parts.

6.   Ability to read and understand process sheets.

7.   Ability to read and understand meters and gages.

8.   Ability to assess proper timing of tool changes.

9.   Ability to train new operators.

EQUIPMENT USED AND WORKING ENVIRONMENT:

1.   Located in well-lit machining area.

2.   Exposure to coolant.

3.   Exposure to flying and blown metal chips.

4.   K&T machines.

5.   Various metal-cutting tools.

6.   Idle relief drill.

7.   Various gages and fixtures.

8.   Deburr tools.

9.   Safety glasses and ear plugs required.

JOB DESCRIPTION

PAY GRADE:
TITLE: EAGLE BORES AND SEALS   **DATE PREPARED: 8-12-2004**
LOCATION: **DEPARTMENT: EAGLE MACHINING**

JOB OBJECTIVES:
To continuously improve the machining of the eagle journal and seal boring operations. To set-up and operate all work cell machinery. To gage and inspect operations as required.

ESSENTIAL FUNCTIONS:

1.   Locate block in journal boring machine.

2.   Cycle machine and close covers.

3.   Remove part from journal bore machine and move to seal bore machine.

4.   Locate in fixture and cycle machine.

5.   Remove from seal bore machine and move to deburr bench.

6.   Blow off and deburr all machined surfaces.

7.   Use hoist to locate block in washer and cycle washer.

8.   Gage upper three journal bores.

9.   Gage bottom three journal bores.

10.   Gage retainer groove width and depth.

11.   Gage seal bore diameters.

12.   Use dog legs to gage seal bore steps.

13.   Send part to next operation.

NON-ESSENTIAL FUNCTIONS:

JOB SKILLS AND REQUIREMENTS:

1.   Set-up and operation of journal and seal bore machines.

2.   Ability to read and count.

3.   Housekeeping of work area.

4.   Ability to pick up and manipulate parts with hoist.

5.   Ability to read and understand process sheets.

6.   Ability to read and understand meters and gages.

7.   Ability to assess proper timing of tool changes.

8.   Ability to train new operators.

EQUIPMENT USED AND WORKING ENVIRONMENT:

1.   Located in well-lit machining area.

2.   Exposure to coolant.

3.   Exposure to flying and blown metal chips.

4.   Journal and seal bore machines.

5.   Various metal-cutting tools.

6.   Deburr grinder.

7.   Various gages and fixtures.

8.   Washer.

9.   Safety glasses and ear plugs required.

JOB DESCRIPTION

PAY GRADE:
TITLE: EAGLE HONE   DATE PREPARED: 8-12-2004
LOCATION: DEPARTMENT: EAGLE MACHINING

JOB OBJECTIVES:

To continuously improve the honing operations of the eagle carb assembly. To set up and operate all work cell machinery. To gage and inspect operations as required.

ESSENTIAL FUNCTIONS:

1.   Move empty rack to workstation.

2.   Remove carb block from conveyor and count part.

3.   Move block to hone and cycle machine.

4.   After honing is complete, drain honing fluid.

5.   Gage all bores with functional gages; 2 directions (top and bottom of bore).

6.   Move block assembly to rack with hoist.

7.   Keep all blocks with their matched covers.

8.   Gage dimensions as required per process sheets.

9.   Put assembly into rack; move full racks to assembly area.

10.   Build up carburetors by honing faces and installing bolts.

NON-ESSENTIAL FUNCTIONS:

JOB SKILLS AND REQUIREMENTS:

1.   Set-up and operation of hone.

2.   Ability to read and count.

3.   Housekeeping of work area.

4.   Ability to pick up and manipulate parts with hoist.

5.   Ability to read and understand process sheets.

6.   Ability to read and understand meters and gages.

7.   Ability to assess proper timing of tool changes and adjustments.

8.   Ability to train new operators.

EQUIPMENT USED AND WORKING ENVIRONMENT:

1.   Located in well-lit machining area.

2.   Exposure to honing fluid.

3.   Exposure to flying and blown metal chips.

4.   Simplex and Mitsui machines.

5.   Honing tools.

6.   Idle relief drill.

7.   Various gages and fixtures.

8.   Safety glasses and ear plugs required.

Appendix H: Samples of Observation Checklists from the Shadow Program, Scenario #3

PRACTICAL TEST – EAGLE MACHINING TEAM

Masco Turrets

Name:_____   Date: _____

1. _____   Power up machine.

2. _____   Home out the machine.

3. _____   Call up appropriate program and cycle machine.

4. _____   Remove part and deburr as required.

5. _____   Gage with hole position gages.

6. _____   Gage with all remaining functional gages.

7. _____   Manually index turret and fixture.

8. _____   Change a drill and preset height.

9. _____   Change a tap and preset height.

10. _____   Demonstrate ability to single step through machine cycle.

11. _____   Cycle count machine parameters.

12. _____   Call up individual block of a part program and demonstrate a mid-cycle start.

We agree that the above named person has successfully completed the above tasks and has demonstrated competency in the MASCO TURRETS work cell in the Eagle Machining area.

_____   _____
Eagle Machining Supervisor   Quality Assurance
Representative

_____
Manufacturing Engineer

PRACTICAL TEST – EAGLE MACHINING TEAM

K&T Operations 50 & 60

Name:_____   Date: _____

1. _____   Power up machine.

2. _____   Home out the machine.

3. _____   Call up appropriate program and cycle machine.

4. _____   Single step through machine program.

5. _____   Deburr as required.

6. _____   Gage with all functional gages.

7. _____   Change a mill cutter and preset.

8. _____   Change a drill and preset length.

9. _____   Demonstrate ability to enter offset and preset lengths on controller.

10. _____   Recut (rework) a part dimension.

**** Idle Relief Operation ****

11. _____   Change a drill.

12. _____   Change a bushing.

13. _____   Load part into Idle Relief machine and cycle machine.

14. _____   Gage hole diameter.

15. _____   Deburr as required.

We agree that the above named person has successfully completed the above tasks and has demonstrated competency in the K&T OPS. 50 & 60 work cell in the Eagle Machining area.

_____   _____
Eagle Machining Supervisor   Quality Assurance Representative

_____
Manufacturing Engineer

PRACTICAL TEST – EAGLE MACHINING TEAM

Journal and Seal Bores

Name:_____   Date: _____

1. _____ Power up journal bore machine.

2. _____ Home out the machine.

3. _____ Call up appropriate program and cycle machine.

4. _____ Locate part in seal bore fixture and clamp.

5. _____ Demonstrate starting and stopping machine.

6. _____ Single step through machine program.

7. _____ Change insert and reset cartridge in rougher to proper
depth and diameter.

8. _____ Change insert and reset cartridge in finisher to proper
depth and diameter.

9. _____ Recut a part dimension.

10. _____ Gage with all functional gages.

11. _____ Move to deburr bench, remove part and deburr.

12. _____ Load part into washer and cycle washer.

We agree that the above named person has successfully completed the above tasks and has demonstrated competency in the JOURNAL AND SEAL BORE work cell in the Eagle Machining area.

_____   _____
Eagle Machining Supervisor   Quality Assurance Representative

_____
Manufacturing Engineer

PRACTICAL TEST – EAGLE MACHINING TEAM

Hone

Name:_____   Date: _____

1. _____ Visually inspect part for burrs and remove as required.

2. _____ Load part in part transfer system.

3. _____ Demonstrate ability to manually operate brush machine.

4. _____ Change a brush.

5. _____ Operate hone in automatic cycle.

6. _____ Manually shuttle fixture in and out of cutting position.

7. _____ Change tool, adjust retract position and adjust cone angle.

8. _____ Demonstrate ability to set counts and strokes.

9. _____ Demonstrate ability to call up program parameters.

10. _____ Gage with all functional gages.

11. _____ Mate part with its matching cover.

We agree that the above named person has successfully completed the above tasks and has demonstrated competency in the HONE work cell in the Eagle Machining area.

_____   _____

Eagle Machining Supervisor   Quality Assurance
Representative

_____

Manufacturing Engineer