

Implications of Training Programs in Global Manufacturing

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Abstract

This study will examine the need for training programs in globally-based manufacturing companies as competition grows among different companies to be the best, the training of their employees also grows. The purpose of this study is to research the benefits of the current training programs being offered at specific international locations of a locally-owned, globally-based Manufacturing Company. A cluster sample will be chosen to test new curriculum where the participants will be all from the same manufacturing plant, aged 25 through 65. The testing will be using a mixed-method approach. A standardized exam will be given two weeks after to determine if the trainers taught the new curriculum well enough for the students to receive high test scores. Interviews will also be given not only to the training instructors but also to the employees, allowing the researchers to understand the instructors' obstacles and the employees' confidence levels. The standardized tests and the interviews will help in determining how valid the training modules helped the employees become more confident in their job-related tasks.

Introduction

As the global manufacturing market grows, there is a greater need for training programs. In a locally-owned, globally-based Manufacturing Company, international locations have been opened to help utilize and save costs by designing and building products regionally across the globe. An example of this is that products to be sold in China will be built in the China location of that company. Products being built in other countries are not quality reviewed as strictly as products made in the United States. Confirmations have not been put in place to determine that the products indeed meet the same standards. By understanding this, employee training plays a key role in production processes. Like other companies around the globe, this company is also working to leverage its international locations, allowing it to become more flexible and more profitable. To succeed in this task, the company also must take into account the individuals hired to design, develop, and produce marketable products. Education and training play a key role in this task. Researching how the current training program succeeds in this effort is of primary importance for this company.

The purpose of this study is to research the benefits of the current training programs being offered at specific international locations of a locally-owned, globally-based Manufacturing Company. The specific questions to be addressed are:

- a) What obstacles did the trainers feel they had to overcome/experience when implementing the new training program?
- b) Does the newly developed training program increase employee confidence to a greater level than the previous program?
- c) Does the newly developed training program increase knowledge to a greater extent than the previous program?

Literature Review

Adults are intrinsically known as learners. Every day an adult has to do some sort of learning whether the individual would call it learning or not. The self-directed learning theory explains how adults work every day to learn new concepts. They learn at home, when they are out socially, and within their working environments. For many, learning, often called professional development, is a means to gain more knowledge in employment-related topics that will help in promotions. At the same time, as an adult, individuals are not instructed by anyone to learn a specific topic by a specific date. This learning would be Pedagogy. On the opposite end of the spectrum to Pedagogy lies Andragogy and Self-Directed Learning. Both of these go hand-in-hand. Andragogy is the theory of how adults learn. Self-Direct Learning is “a process in which students take the initiative to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes. The role of the instructor shifts from being the 'sage on the stage' to the 'guide on the side' in a self-directed learning environment” (The Northeast Texas Network Consortium Coordinating Office, 2002).

There are three goals of Self-Directed Learning. They are: 1. Educators help adults to carry out education plans, whether the individual is in a formal learning program or learning on their own, to plan, carry out, and evaluate that learning; 2. Adults need to critically reflect and understand the reasons for their learning needs, wants, and interests; and 3. Enhance an individual’s ability to become more self-directed in learning more (Merriam, Caffarella, Baumgartner, 2007, p. 107-108). With these goals, individuals who take the initiative to become more knowledgeable in any topic tend to follow these goals.

With a global economic shift becomes the need to determine if the training that's being developed will be suitable for a global audience. Training that is instructor-led in one location may not be easily duplicated in other locations or countries like China or Romania. "...There is evidence technological upgrading might precipitate different training (or learning) requirements across the different occupational groups in a firm's workforce" (Mainga, Hirschsohn & Shakantu, 2009, p. 1880). Upgrading from no training curriculum can be a difficult task. On top of that, training that same curriculum globally becomes even more difficult.

Developing the training is one task. Understanding the levels of knowledge in the employees is another issue altogether. There can be implications when employees at different locations around the world are required to be at the same knowledge level. These skills come from experience and happen through practice (Thursfield, 2001, p. 505). A good example is that in all of these locations, the trainers are developing the curriculum to engineers. These engineers should all have the same level of knowledge and education; however, not all countries have the same requirements for college education. Workplace learning becomes even more important. Depending on the level of skills an employee has will determine if additional training is required, preparatory training so that they will reach the level of their peers.

When developing the instructor-led training curriculum, the training has also become important to be built for self-directed, online workforce training. At the same time, determining if the curriculum has had success is of importance. Developing a curriculum that doesn't have positive results is a waste of time on the part of the company for its employees. The curriculum helps to maintain the interests of the employees, allowing them to want to learn more (Macdonald, Bullen & Kozak, 2001, p. 8). In a global training environment, the ability to develop differing learning tasks becomes an issue. From the not knowing the skill sets of the

non-U.S. employees to the need to varying learning modules makes training development difficult in a global environment.

“Global education analyses changes in economic, political, cultural, and historical factors that may be underlying communicational processes and sharpens adult students’ perceptions by offering additional ideas about reality” (Toepfer, 2004, p. 26). No matter what country an individual is for this company, they must be cognizant of the global environment and as such need to understand the company’s views as a global leader in manufacturing. By developing the training curriculum on a global scale, this will allow the company to have a viable chance in the global marketplace.

Rationale

This research helps fulfill the knowledge that workplace training is vital to the continuation of the company. Research has shown that training in a global economy needs to be stimulating and engaging to keep the company competitive, but the obstacles that instructors faced in developing the curriculum is what this study will address. Without skilled workers in manufacturing, the task of developing and producing new products for sale would cease to exist. Not only do the employees need the company to tell them when they need training, but the employees also need to take the initiative in understanding when their knowledge is lacking. The individuals who have been charged with the development of the training need to understand how to develop the curriculum for their students. They also need to understand enough to raise the confidence in their students and increase the knowledge of the student/employees. Developing the training correctly will enable the students to continue their learning in a self-directed manner, allowing them to continue their knowledge gathering after any instructor-led type classes taken.

Method

Research Design

The understanding of the self-directed learning theory is one where adults understand their needs for continuing education, either through their workplaces or on their own. Companies also see the need in keeping their employees educated through workplace training programs. It is the aim of this study to understand better the difficulties that training instructors have in developing and delivering accurate training in the workplace. Based on the research questions in this study, the testing will be using a mixed-method approach. For the qualitative section of the testing, interviews will be completed of the training instructors asking them about the obstacles and barriers that they found in developing and teaching the modules. For the quantitative portion, an experimental research will be completed by using the training itself and comparing the training to the employees confidence levels after the training is completed by using a standardized test, showing the researchers if the employees understood the training modules taught. Along with the standardized tests for the employees, they will also be interviewed regarding the accuracy of the tests in conjunction with their training.

Sample

A cluster sampling will be used to pick the participants of this study. Engineering departments are located in various locations around the world. The nature of this method will be to choose one of the three locations as the primary testing location. This location will receive the new curriculum developed in an instructor-led format, self-directed format after classroom training, and the testing of the topics covered. The other two locations will only receive the new training in the self-directed format, and will be tested at the same time to compare the effectiveness of the training methods.

All participants will be engineers from the manufacturing company in a specific location. They will most likely all be male between the ages of 25 and 65. For this study, the term engineer will be any individual, male or female, who is designing and producing new products for the company. Based on the cluster sampling being used, the ethnicity of the group will be determined by the location the cluster will be finally chosen from, either all Chinese from the Shanghai, China location, Romanian from the Cluj, Romania location, or Indian from the Pune, India location. All participants have at a minimum a Bachelor's Degree in Engineering from colleges in their respective countries.

Instruments

The instruments used will be standardized exams taken on the curriculum developed. No matter if the students received the fully developed new curriculum or only the self-directed learning versions, all students will receive the same exam. Upon completion and grading of the exam, the students will have an opportunity to reflect and be interviewed about their training and examination process. At the same time, the training instructors will be interviewed, allowing them to reflect on their obstacles in developing and teaching the modules.

The standardized test will be given to a different group of employees, separate from those involved in the study, two times within a period of two weeks in between to test the stability reliability of the exam before it is used in the study. The trainers will also review the exam prior to administering it to the participants to determine if the questions tested are appropriately testing the content taught.

Employee confidence will be measured using a self-reporting rating scale that is included in Appendix A – Self-Reporting Rating Scale.

Interviews will be used to determine the obstacles the trainers faced and the confidence levels of the employees after training. Sample questions are provided in Appendix B – Sample Interview Questions.

Procedures

Once the institutional review board has approved the study and the cluster location has been picked from one of the three locations, training will begin. The modules will be trained over the course of two weeks with the main location receiving both forms of training being the instructor-led training and self-directed modules, and the other locations will receive the self-directed learning modules only. Once the training has been completed, the exams will be taken and scored. Interviews with the participants will also occur, allowing the students to give feedback into the exams. Also the confidence measure will be administered. This will take approximately a week to complete. Interviews with five participants from each location will also occur within three days of the exam, allowing the students to give feedback into the exams.

Limitations

The results of this study will most likely be the basis for other studies. Cultural differences in the cluster locations will have a factor in determining if the training is adequate enough for all locations. Manufacturing has expanded to a global scale. With that, the need for training in the workplace increases. All employees in each location have a varying level of skills. Not all students will understand the content presented, nor will all students be able to train in the same fashion whether it be through instructor-led/self-directed learning or through self-directed learning only. The purpose of this study is to determine if the trainers can overcome obstacles in training adults globally in a manufacturing company.

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Appendix A – Self-Reporting Rating Scale

The following is a listing and sampling of a self-reporting rating scale on the training modules taught:

Please rate the following:

1 = Strongly Disagree
 5 = Strongly Agree
 NA – Not Applicable

- | | | | | | | |
|---|---|---|---|---|---|----|
| 1. The session kept my interest. | 1 | 2 | 3 | 4 | 5 | NA |
| 2. The instructor encouraged participation. | 1 | 2 | 3 | 4 | 5 | NA |
| 3. The instructor was knowledgeable about the topics. | 1 | 2 | 3 | 4 | 5 | NA |
| 4. The use of real-time examples was useful. | 1 | 2 | 3 | 4 | 5 | NA |
| 5. The information from the session was useful and practical. | 1 | 2 | 3 | 4 | 5 | NA |
| 6. The instructor answered all questions. | 1 | 2 | 3 | 4 | 5 | NA |
| 7. The handouts and additional materials were useful. | 1 | 2 | 3 | 4 | 5 | NA |
| 8. The instructor treated the participants with respect. | 1 | 2 | 3 | 4 | 5 | NA |
| 9. The instructor stimulated interest in the topics. | 1 | 2 | 3 | 4 | 5 | NA |
| 10. The instructor used practical examples. | 1 | 2 | 3 | 4 | 5 | NA |

Additional Comments: _____

Appendix B – Sample Interview Questions

The following is a list of sample questions used when interviewing the Instructors about their obstacles in developing the training:

1. How long did the process take when determining what topics to build in the training modules for class?
2. What obstacles did you face when writing the modules?
3. Did you have the modules reviewed prior to training them?
4. For the instructor-led modules versus the self-directed training modules, did you develop the modules using the same approach or different processes? And what process did you use?
5. Are you comfortable with the resulting modules completed? Why or Why not?

The following is a list of sample questions used when interviewing the Participants about their confidence levels after being taught the training:

1. Did you engage in the instructor-led training or the self-directed learning modules?
2. How confident did you feel about the instructors during the training modules? If you used the self-directed training modules, how thorough were they?
3. Are you confident that you can complete your tasks now that you've had training? Why or why not?
4. Would you engage in additional training modules from these instructors in the future? Why or why not?
5. Did the examination process test your skills in the modules taught? Why or why not?

Response to Instructor Feedback - Final

4/17/13 Notes: You agreed with me on this comment about the Methods section: I think adding the Method section as a stand-alone project would have been very helpful. I think if we started this whole project a week earlier, we might have had an opportunity to complete each of the sections as stand-alone projects. I can't imagine having this class during a 6-week accelerated summer class. I'm glad I had the opportunity to complete this class during a full 16-weeks.

As I stated in my draft notes, I am seeing the big picture for the proposal as a whole and how the piece parts fit together. I think for me, given the opportunity, I would have liked having this class as a web-blended class. Still hold a 2 hour a week lecture to go over the week's information, then completing everything else like we are doing online. I'm a people-person and a group in-face discussion would have been good for me.

The Instruments section is also a sticking point for me. Not understanding the Methods section enough and not being able to turn this in as a separate assignment makes this a rough section. Even with a draft write up of it, if you think about it, the other pieces have been reviewed twice before the final. This section has only been reviewed once.

Response to Instructor Feedback - Draft

4/7/2013 Notes: I am still not happy with the way this writing is turning out to be honest. Because it is a whole new type of writing for me. Each of the pieces, minus the Method section, were done as smaller sub-projects for the overall proposal. I think adding the Method section as a stand-alone project would have been very helpful.

Aside from that, I have been working on the feedback suggestions from you. As you can tell, I was able to find an APA report template. The only difference in this is that the headings needed to be bolded. I have made that change. In the Introduction section, I have changed the question area to more a factual based text.

I am still not happy with the Literature Review. I am re-reviewing the peer-reviewed documents and think some of them do not match what I am trying to accomplish for this proposal. I will be working on it Monday during the day to find new studies that will help me accomplish what I am working toward. So, my apology for not completely updating this section. The summary of Self-Directed Learning Theory doesn't match right now with the rest of the section. I am working on this.

The Rationale and the Method sections are both brand new to this full proposal and DEFINITELY areas in need of improvement. However, now that I have this as a complete document, the overall look and feel is coming together better for me. I will be able to take your updates to this full proposal and work, even after I have been working on the updates starting 4/8/13.

Oh, and I am STILL working on the “no more than 2 quotes in the entire paper” comment. I am still working on this issue.