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Craig T. Evers currently I am an assistant professor at Minnesota State University Mankato teaching undergraduate and graduate courses in the Automotive and Manufacturing Engineering department. I have over 25 years experience in the manufacturing industry, mostly in automotive related positions. Some of my past employers include John Deere, Robert Bosch Corporation, Intel and IBM. Previous positions include tooling manager for a Fortune 500 electronics company, production engineer for fuel components line with $125 million annual sales, manufacturing engineering manager, and supplier development engineer working with companies in North America, Europe and Asia. I am a registered Professional Engineer (Indiana) and a Certified Six Sigma Black Belt. I have also taught at Purdue University in their Mechanical Engineering Technology program and Auburn University in their Industrial and Civil Engineering departments. BSME (Manufacturing Engineering) Utah State University, MIE (Occupational Safety & Ergonomics) Auburn University and PhD (Ergonomics) Auburn University.
Abstract

University programs have a growing number of students from all around the world, making it important to consider the perspectives of these students to maximize their learning experiences. As manufacturing and business activities and operations become increasingly global, the opportunity for interaction with these students gives all of our students, including traditional North American students, the opportunity to learn about other cultures and their impact on business and business ethics.

It is far too easy to assume mistakenly that all students view class topics from the traditional Canadian and United States perspective, or even that all North American students share a common viewpoint. As manufacturing and distribution becomes increasingly global, incorporation of international perspectives will benefit all students, including those with the attitudes of the dominant North American culture. Because our Masters in Manufacturing Engineering Technology program includes students from around the world, and most students in the program feel comfortable with each other and the faculty, this gives us an excellent opportunity to use our courses to study and share some of the different attitudes and perspectives.

Our results presented here (based on limited and anecdotal data) highlight how the business, cultural, and ethical perspectives of these students differ, and the impact on how these topics should be taught in order adequately to prepare our students for global business. Although the sample size was too small for statistical analysis, the exercise provided valuable insights and learning opportunities. We will continue to address these cultural issues in future classes.

Introduction

Business and manufacturing education and operations are becoming increasingly global in scope. As with most university programs, our Manufacturing Engineering Technology program serves a fairly large number and a growing proportion of international students. As this contingent grows, it is important to make sure that we teach our classes in a manner that serves their needs so that they can comfortably relate to and maximize their learning experience. As faculty, our job is to teach and serve all of our students.

The presence of students from many cultures provides a great learning opportunity. We have the ability for all of our students (and instructors) to learn to work effectively with different demographic populations through mutual interaction. The presence of this diverse student body gives all of our students, including traditional North American students, the opportunity to learn about other cultures and their impact on business and, in particular, business ethics.

It is far too easy to assume that all of our students view these topics the same way as “we” do, that is, from the traditional North American business and government perspective. This viewpoint assumption is often not correct, though. Because of the global nature of manufacturing and distribution, incorporating these various differing international perspectives...
and cultures will prove beneficial to all students. Our “traditional” North American attitudes toward business dealings and contracts, cultural expectations, and ethical issues such as safety rules and regulations need to be informed by this experience.

Our current Masters in Manufacturing Engineering Technology program includes classes in Project Management and Engineering Ethics. Each of these classes includes a significant number of international students (in many cases over 50%) from all areas of the globe. Because these classes involve considerable student discussion and participation, and most of the students feel very comfortable with the professors, we had, and continue to have, an excellent opportunity to learn, discuss, and teach some of these differing attitudes and perspectives. The subject matter of these two classes lends itself very well to studies of this type.

Methodology

Rather than simply observing cultural differences and trying to avoid offence, the authors decided to structure our graduate classes in Project Management and Engineering Ethics to increase the learning opportunities for our students (and us, too). To formalize this process, we designed relevant class discussions, written and oral assignments, and questionnaires to investigate different business, cultural, and ethical perspectives. Through discussions, observations, student presentations, and student papers, cultural and ethical perspectives were covered in much more depth than in most classes. The methodology differed a bit between the two classes.

The Project Management class was presented in the traditional lecture, textbook, directed discussion, and student presentation format. While the traditional Project Management textbook includes a chapter on International Project Management, this text was supplemented by web assignments and inclusion of cultures in most other topics and discussions. Each student was assigned a report and Power Point class presentation covering project management in a non-North American country. International students were assigned their home country. The resulting discussions and question-answer sessions gave many cultural insights, some of which are presented below.

The Engineering Ethics class was based on a less-structured directed reading and seminar format. Although loosely organized around the Challenger space shuttle disaster based on the book by McDonald, many engineering ethics case studies around the world were studied, using news reports, videos, web searches, and other references. The cases were presented by the students using directed discussions. Directed questions incorporated cultural ethics differences into the discussions; international students were very comfortable discussing their own country’s ethical differences. Each case study also included a written analysis. In addition, each student was assigned a research paper covering the cultural aspects of ethics and professional responsibilities.

The same group of students composed both classes. Six of the students were from Minnesota, one from Florida, and one each from Bangladesh, Colombia, India, Nepal and Nigeria.

In the Ethics course, we discussed topics ranging from reckless neglect of worker safety (North Carolina poultry plant fire and the Imperial Sugar plant explosion) to unsafe design of the
workplace (SL-1 nuclear reactor explosion in Idaho and Three Mile Island) to inadequate worker training (Chernobyl). The wide-ranging discussions covered a great many additional and tangentially-related topics and incidents and the way in which organizations learn from or forget the experiences of the past (Tylenol cyanide poisoning response compared to the recent product quality recall). Government involvement in both positive and negative instances was also covered.

Among the Ethics assignments were analyses of various case studies, independent research on topics relating to the course title, and reports of the relationships and sometimes conflicts between interested parties and priorities. Class presentations and discussions were a large part of the students’ class work. Some of the topics the students came up with included the government involvement in the Nigerian oil industry and the environment, highway construction in Colombia, lithium mining in Bolivia, coal mining and power generation in China, employee training and corporate policy in a number of American industries, the relationship of Maslow’s Hierarchy of Needs to the development of ethics in a cultural context, and others.

Time was scheduled at the end of both classes to summarize and review business, cultural, and ethical impacts and perspectives. The most successful learning experiences related to the extensive case studies taken from a wide variety of industries from around the globe. These opened the eyes of many of our students, especially the American students with minimal industrial experience. Seeing the elements of human nature that are consistent across cultural, ethnic, national and industrial viewpoints was of great value in better understanding the global community. In the same manner, students noted how different perspectives and expectations altered communications and priorities, resulting often in non-optimal results and occasionally, catastrophe.

Results

Using class discussions, written and oral assignments, and questionnaires, we investigated and compiled reports documenting how some of the business, cultural, and ethical perspectives of these students align and differ, and how they impact (and should impact) teaching of these and similar topics to meet our goal of preparing all of our students for global.

While the data collected was not extensive enough to constitute a full scientific study, this paper identifies anecdotal results and implications for teaching increasingly diverse groups of students.

First, this study demonstrated that education about cultural differences can be done without conflict, as long as care is taken to remain polite while learning. All students seemed comfortable discussing the cultural differences as they apply to business and ethics. There were neither conflicts nor heated discussions, and these discussions seemed to bring students together through greater appreciation of cultural and national differences. End of class anonymous assessments recorded positive statements of students gaining new insights, but no complaints were received.
Second, these discussions taught students that there are many other valid perspectives than their own, a lesson which will prove valuable when engaging in global manufacturing and business, as well as interpersonal, dealings.

Finally, students (and the professors!) were exposed to some very important differences between cultures and countries in the following areas (and others):

- Personal interactions, speech, & personal space
- Social etiquette & gifts
- Doing business: contracts, agreements, friendship
- Developing countries have a different view of safety vs economic development
- Government regulations
- Labor & work ethics

Conclusion

Overall, the exercise of emphasizing cultural differences in two Masters Manufacturing classes provided insights and learning opportunities for students and professors. The outcomes proved positive enough that we will continue to address cultural issues in future classes. Not only did the students learn how some cultural differences impact the various class subjects such as business, project management, and ethics, but we are hopeful that they learned to appreciate these differences. We believe that this process has helped our students to become better equipped to work successfully with others around the globe.

Bibliography

2. O-Rings, McDonald
3. etc: References from student papers, etc