An integrated approach towards Creating Student-Awareness and Pedagogy concerning efficient Management of Multi-Cultural Teams in Engineering Projects

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Abstract

Teamwork is an essential aspect of most engineering projects. Often the teams consist of members coming from diverse backgrounds, and such diverse backgrounds may lead to internal conflicts within the teams. Engineering students, many of whom are bound to become managers in their future careers, need to be educated about how to deal with the diversity in their work teams.

Teams whose members come from different nations and backgrounds place special demands on managers. These demands become especially severe when a feuding team looks to the boss for help with a conflict.

In this paper we analyze this situation and the challenges involved, and we make suggestions regarding the possible ways of conflict resolution. The discussion will draw the literature of several professional fields including management, anthropology, and engineering education. Such a multi-disciplinary discussion of this problem is expected to educate our students and prepare them to manage diversity in their future careers.

There are three key components of this discussion. The first is making students aware that the "world is flat." This will create in our students the ability to recognize the patterns behind the most complex global developments, and familiarize them with sources for information about the wider world we live in.

The second component is familiarizing our students regarding the variety and types and kinds of diversity they can expect to find in their professional work.

The third component will bring in some of the key ideas from the Wisdom of the Eastern Cultures, notably, the BhagavadGiitaa.

Finally, we integrate these three components with some basic principles of management, to create a form of a pedagogy that could be an important part of engineering education.

Introduction:

A variety of new trends have recently entered and have been present in the recent past in the world of business. Since the business world is intimately related to the practice of engineering and technology in general—that is where the money for engineering projects comes from—these recent trends have to be taken cognizance of by engineers in their practical work.

Some of these trends are globalization of business, the increased use of teams in engineering projects, change in the workforce dynamics in the engineering industry, and so on and so forth. These trends have made the management of workforce diversity a critical competency in the repertoire of core competencies of an engineering manager.

Developing this competency requires knowledge of what diversity is and how one needs to deal with it. This requires a transformation of the mindset of students of engineering from the idea and the viewpoint based on a monolithic culture into the culture of multi-culturality.

Need for Diversity Management:

An engineering manager who surveys today's workforce is likely to see a labor force that is significantly more diverse than that encountered by engineering managers in the recent past. Current trends in demographics indicate this diversity will continue to grow. This is as true in the engineering industry, as it is in all other kinds of industries as well. In the coming decade, the new entrants to the labor force will reflect steady increase in the percentage of women, Black Americans, Hispanic Americans, Asian Americans, and immigrants moving into the workplace. In this environment, the companies that are most successful in managing workplace diversity will have a distinct advantage over those that try to ignore the demographic changes. In addition to the implications for employment policies, these changes present the challenge of a more diverse population of customers as well. Thus the terms "managing diversity" and "valuing diversity" are heard with increasing frequency as businesses seek to develop strategies for dealing with these changes.

"The world is a collection of unlimited wealth and resources. Often, we limit our potential by moving in our own small circles because of our fears. If we change the way we view the world, there is nothing we cannot accomplish." So says Stedman Graham (2006), one of the best selling authors of books in the field of management.

The sentiment expressed by Graham above is certainly important in the practical world today. Multi-culturalism and diversity have become the buzz-words of the practical world in which engineers and engineering managers operate today.

The Quality Issues related to Diversity:

According to Lorence Kessler (1990), today's manager is challenged by competitive pressures to maintain and achieve the highest levels of quality in the production of goods and services. This challenge, in turn, demands greater effectiveness in managing the company's workforce, which consists of its critical human resources. Increasingly, as the shortcomings of our educational system become evident and as the demand for job skills escalates, managers cannot take for granted their ability to attract and retain the skilled workers they need.

As employers reach out to attract skilled individuals from all segments of our society, managers are finding themselves with the challenge of bringing together into an effective team a workforce of people from different backgrounds. America being a melting pot, our history demonstrates the positive results that can be achieved y successfully bringing together people from different backgrounds. On the other hand, a number of recent incidents remind us that in a multi-cultural society, racial and ethnic tensions and discrimination can bring very real problems.

Demographic trends indicate that, in the years ahead, our society generally will be faced with the challenge of realizing the positive potential represented by a diverse population while avoiding or overcoming the potential for tension and discrimination.

Diversity in the Workplaces in Engineering Industry:

Above problem is even more aggravated because the nature of the workplaces in the engineering industry, which demands technical knowledge and skills as a fundamentally basic requirement. People having such abilities demanded by the engineering industry are always less in number in any cross-section of the society. As a result, is becomes necessary to pick people who possess the necessary skill-set, in spite of, or overlooking the fact that they are coming from different cultural and ethnic backgrounds. Inevitably, the problems mentioned in the above paragraph are bound to be present within the engineering industry.

Hence for the manager in the engineering industry, the challenges presented by cultural and ethnic differences are obviously more prominent. Managers increasingly will be called upon to work effectively with individuals who are substantially different form themselves. To attract and retain individuals with the skills necessary to do the required work, managers will need to create a workplace environment that comfortably accepts and respects peoples' differences.

In order to fashion this diverse workforce into productive teams, the manager will have to create an environment that appreciates and builds up on individual strengths. At the same time, it will be incumbent for such a managers of diverse technical and engineering workforce, to foster a spirit of inclusiveness that seeks to emphasize the common ground and common interests that flow from existing individual similarities, and playing down the differences.

World is Flat:

Similar view have also been expressed by another prominent thinker, Thomas Friedman in his book entitled the "World is Flat." Friedman explains how the flattening of the world happened at the dawn of the century, what it means to countries, companies, communities, and individuals; and

how governments and societies can, and must, adapt. At the foundation of his arguments lie some of the basic issues of globalization, its successes and discontents. It is well known that the convergence of technology all over the world has enabled many countries other than the U.S. possess the level of high technology as good as the U.S. This has allowed many Asian countries to become part of the global supply chain for services and manufacturing. This has given these Asian countries an explosion of wealth, thereby giving them a huge new stake in the success of globalization. This has made the world get too small and too fast for human beings and their political systems to adjust in a stable manner. In addition, this flattening of the globe requires the U.S. to run faster in order to stay in place.

As a result, this new situation is bound to impact on the all aspects of all varieties of organizations within the U.S. A host of diversity issues will arise out of this situation, some of which are on our own doorsteps. Needless to say, the field of education also needs to take a deeper cognizance of the situation, and make the engineering students aware of what are they going to face during their careers in the future.

The Expected Role of Pedagogy in Engineering Education:

The need for education is well established as a staple of organization change—and no less so for change related to diversity. But as argued by Paul O'Neill (2001), unfortunately, much of the work that has taken place to date under the label of "diversity training" has failed to produce any lasting impact. The critical content for education on diversity is really a multidimensional question. In addition to developing a proper understanding of diversity as a phenomenon, there is need to incorporate into any educational strategy, such issues as understanding the effects of diversity, and how to respond to diversity.

In general, different organizations themselves have a myriad of different organizational structures as well as a variety of aspects. Hence, canned training programs could be of little use for the training purpose. On the other hand, customized programs, which could fit to a particular kind of organizations, need to be developed, their format and logistics need to be formulated, as well as methods of instruction also need to be decided. All of these are still open issues, and they need our immediate attention.

Another approach is to use research data to enhance education efforts. This may involve using the results of work form one organization to demonstrate the value of the change process to

other organizations. One of the items which are a prelude to this is the proper diagnosis of the professional climate that lies at the foundation of diversity.

Some Anthropological Issues:

Diversity is literally changing the face of our professional arena. Workers of all backgrounds are merging into a global marketplace. At the same time, businesses are challenged by a shortage of talent and the need to integrate a wide range of cultures. In this global environment, diversity has become a permanent business characteristic. However, in the view of the anthropologists, opportunities will be plentiful for both people coming from different places, and brining with them different cultures. These, in turn are expected to enrich not only the society in general, but the workings in businesses as well. We do not have to become a member of anyone else's culture to play a role. We could maintain and assert our own identities while respecting others' uniqueness in our workforces and communities.

Exploring different cultures and their histories can help us understand that everyone has had challenges and that the transformational process is the same for all of us.

A Strategy for meeting the Challenge:

Stedman Graham (2006) shows how we can break out of the box that keeps us from growing to our full potential, and reveals that success is truly based on results, performance, and excellence. In his view, what is really needed is the development of leaders rather than accepting labels. This could ultimately prove to be the best way to preserve culture and create a legacy. By showcasing individuals who have successfully transcended labels to become leaders, Graham helps us begin to move from history to the present, carving our own individual pathways to success, based on authenticity, talent, and skill that different and diverse cultures bring to our workforce.

Meeting the challenge of diversity will inevitably require managers to develop and exercise a broad range of the so-called "people skills."

Incorporating the Eastern Wisdom to deal with the problem of Diversity:

Perhaps it might be more appropriate to look at the philosophies brought by diversity, rather than looking at the skill-set that is brought by people coming from different cultures. Some of these newly incoming philosophies themselves could show the way to successfully deal with diversity.

A glaring example of this the philosophy of the BhagavadGiitaa, a well know ancient Hindu scripture. It provides us a clear categorization of the main characteristics of people as well as their cultures. These categories obviously percolate into the typical behavior of people belonging to such

categories. It then provides advice regarding what could be the best way to deal with the issues brought by diversity and the conflicts arising out of diversity.

It is important for us to realize that everyone brings uniqueness, talents, and skills, that add value to our experiences, work environments, businesses, and communities. When we operate form this perspective, we are sure to emerge in the new millennium as true leaders of ourselves, of others, and of the society in general.

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