A Follow up: Developing Growing Need for Soft-Skills in IT Professionals

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Abstract

In this paper we follow up *Developing Growing Need for Soft-Skills in IT Professionals,* a paper from the 2003 ASCUE Conference. In that paper we examined the need for "soft-skills" by information technology professionals. In the current economic climate, IT outsourcing is becoming increasingly popular. Our Columbus, Indiana Purdue campus has a long history of partnerships with Cummins Inc. In the past two years we have worked with Cummins to develop the Business/Systems Analyst Training program to retool valued IT professionals at Cummins. The focus is on turning Cummins from a traditional IT organization into one that is increasingly based on dealing with offshore outsourcing. The skills required in-house will focus more on the "soft-skills" as Cummins transitions employees from programming to business/system analyst positions. Since presenting our paper last year we have delivered two sessions of the Business/Systems Analyst Training. In this paper we will provide an update with feedback from participants, management and faculty. How effective was the training? Is this a program that other universities can emulate? We will explore those and other issues in this paper.

Introduction

In our paper we submitted to last year's conference entitled *Developing Growing Need for Soft-Skills in IT Professional*", we took a look at a local Fortune 500 company, Cummins Inc. and their need for soft-skills in their IT staff. To give a little background, we will summarize the findings from our first paper. Cummins, like many companies in the United States in recent years has begun to utilize offshore outsourcing for IT positions. According to the Gartner Group offshore outsourcing continues to gain in popularity in the United States. According to Gartner Group the draw is lower costs, coming mainly from the use of less expensive labor (Perez, 2003). India is the largest provider of offshore outsourcing for the United States and a major supplier of Cummins' outsourcing needs. Some types of IT work can be done for 20% to 50% less using offshore outsourcing (Hoffman, 2003).

Cummins has found the cost savings of offshore outsourcing attractive and have pursued that with a firm in India. Cummins estimates that currently about seventy percent of their IT staff is

in applications development and support. To effectively compete, management determined that they would need to reduce that to about thirty percent of their IT staff. One of Cummins' goals was to take valued employees with outdated skills and retool them to be effective personnel in Cummins changing IT environment. They reasoned that it was better to retool these employees that were already in the community and familiar with the Cummins culture than to recruit all new workforce. The skills Cummins needs in the move to offshore outsourcing are Business/Systems Analyst skills. Specifically, to be successful with offshore outsourcing Cummins needed professionals that could create tight specification packages that could be passed to offshore programmers. They also needed these professionals to be able to effectively team with these contractors and users to develop and support applications.

Cummins approached Purdue with a proposal to develop a program to train Business/Systems Analysts. At the time of last years paper Cummins agreed to have Purdue offer two courses in their Systems Integration track (a track used to prepare students to become Systems Analyst). The first phase would be to offer CPT 280 - Systems Analysis and Design Methods, in condensed format (five days and a final exam) and students would then be given a Cummins' specific project that they would work on in teams similar to Cummins' Six Sigma training. Six Sigma utilizes short courses followed by work on a live project and then coming back for additional training. They would have three progress reports with the team of instructors teaching the course and a final presentation. The course would be delivered in a team approach using four instructors, three from the Computer Technology Department (CPT) and one from the Organizational Leadership and Supervision Department (OLS). The "soft skills" section communication and teaming would be delivered by the OLS professor. A second phase would have students selected from the two CPT 280 sessions to take the CPT 380 Object-Oriented Systems Analysis and Design course.

Since we presented the first paper, the format and content were changed. In September 2003 we delivered our first program with plans to deliver five in the 2004.

Business Analyst Program

Course Format

In September 2003 we delivered the first session of the Business/Systems Analyst Training. The format of the session was a five day class meeting from 8:00 to 5:00. The format was lecture along with individual and group exercises. At the end of class students were placed on teams and given a "live" Cummins' project to work on. They met with individual instructors via teleconference three times to give progress reports and get feedback. A final teleconference had all teams present their results to their peers and instructors at the end of October.

Although the basic format did not change, Cummins decided to offer the course as Continuing Education instead of a for credit format. For the students this meant there were no quizzes, exams, or final grades given for the class.

In January 2004 we delivered the second session of the Business/Systems Analyst Training. For this session the only change in the format was in the progress reports. In this session all instruc-

tors and students were involved in each teleconference. The intent was to have all instructors provide feedback for each group instead of one instructor. as in the first session. This allowed students to get additional feedback from all of the instructors and allowed them to see their progress comparative to the other teams.

Course Content

The following are the topics that were covered in the training.

1. The Context of Systems Analysis and Design Method
2. Information Systems Building Blocks
3. Communicating with the Systems Team
4. Team Building with the Systems Team
5. Information Systems Development
6. Project Management
7. Systems Analysis
8. Fact-Finding Techniques for Requirements Gathering
9. Modeling Systems Requirements
10. Data Modeling and Requirements
11. Process Modeling
12. Feasibility Analysis and the System Proposal
13. Object-Oriented Analysis and the Modeling using the UML
14. Database Design

The "Communicating with the Systems Teams" and "Team Building with the Systems Teams" consisted of 4 hours out of the 40 hours of training. These are the so called "soft-skills" of the training. These two topics were covered on the first day. Even though this seems like such a minimal amount of time to devote to the "soft-skills" portion of the training, these skills were taught throughout the course in all of the topics. Each professor made it a priority to teach the technical skills, besides reinforcing the importance of communication and working in teams to the success of getting the technical skills "right". Example – fact finding is a tool/technique of collecting pertinent information from the stakeholders of a project. Learning the tool/technique of fact finding is the technical part of the training. Learning how to communicate with the stakeholders in order to use this tool to its fullest, are communication skills and team building skills, hence "soft-skills".

Feedback from Program

In this section we will discuss the feedback of the program specifically in terms of the soft skills based on comments of Cummins IT training coordinator, the instructors who handled the training of the soft skills and the students' feedback.

The Cummins representative who was involved in setting up the program was the Cummins IT training coordinator. After the second session we asked him several questions concerning the soft skills portion of the class. The following are some of his comments on the program.

How important are the "soft-skills" (communication and teamwork) to a Business/Systems Analyst at Cummins?

> "In response to this, I am thinking of the results of the half day we held that prioritized the skills needed by an analyst at Cummins. The group prioritized soft skills very high. This was identified by that team as perhaps the area most lacking for analysts and were considered very important" (Nehring, 2004).

> How receptive do you think the Business/Systems Analysts were to the "soft-skills" part of the class? Helpful? Unnecessary? Why pay for this? We already know this? Etc.

> "I think again the results of the course assessment indicate how the attendees viewed this. Comments included "very important", "learned a lot", "valuable", "excellent instructor", etc. Hallway conversation also validated this. People really enjoyed and benefited from this part of the training" (Nehring, 2004).

> How receptive do you think the managers of the Business/Systems Analysts are to the "soft-skills" part of the class?

> "Managers are less receptive. The erroneous thinking is that if we have to cut something, cut this. I believe that management feels that anyone can learn soft skills in the day to day work they perform. Also, comments such as "Why pay for this? There must be some other less expensive way," or "We already know this stuff". It is interesting to note that managers think that soft skills training can be provided by eLearning tools. The reality is that the soft skills training available through eLearning is less effective than other training using this medium. Frankly, most people don't like the soft skills training available through eLearning" (Nehring, 2004).

Based on the above comments from the IT Training Coordinator, it can be assessed that the students' reaction to the training was positive. They felt it was beneficial and they learned a lot. Ironically, the managers still see that paying for "soft-skills" isn't beneficial. I am not sure if they fail to see the correlation between learning the tools/techniques and the importance of strong communication skills in order to use these tools effectively. Or is it more a function of limited training budgets, and when "push comes to shove" training money is spent only on technical skills and not "soft-skills". I would argue it is the latter. However, communication skills are vitally important for IT professionals, especially in the outsourcing environment. According to an article in *Computerworld*, "Job Skills: Preparing Generation Z", CIO's say college graduates aren't ready for corporate IT jobs. "We have to get away from strict programming and systems development" says Voutes. "Those are skills to get into the field, but we have to train our technology people to think more like business people and arm them with strong communication skills" (Hoffman, 2003). Research and field experience indicate an important, if not critical need for soft skills training.

Implications

The Information Technology Association of America (ITAA), in a recent study states that outsourcing has eliminated nearly 104,000 jobs so far. This is nearly 3 percent of the positions in the United States technical industry with software engineers being the hardest hit. They also predicted that the demand for U. S. software engineers will shrink through 2008. (Heikens and AP). This is already having an effect in computer programs at universities in the United States. A study to be published in May 2004 shows the number of declared majors plunged by 23 percent in the 2002-2003 school year. This is alarming considering the enrollments continued to increase after the dot-com bubble burst earlier in the decade (Schoenberger, 2004).

What are the implications? The feeling is that jobs will be going offshore at least for the foreseeable future. Employees that remain will need to adjust. The skills that are important at least in the eyes of one Fortune 500 company include what Cummins calls Business/Systems Analyst skills. The software engineers that remain will need to be retooled, with strong technical skills, and stronger business and communication skills. Even though managers seem unwilling to pay for strictly "soft skills", students, instructors and Cummins' training coordinator comments indicate it was a vital part of the course and those same managers see the need for communication skills. In many respects this is similar to what happened in the auto industry several decades ago. As with the auto industry, employees lost jobs in efforts by car makers to save costs. Many of those workers that remained found the need to retool their skills to stay employed.

As for academia, what does this imply for the information technology programs? Students and potential students are aware of what is happening in business and industry. I have had students and potential students ask if they will be able to get a job after they graduate. Our numbers in Computer Technology at our Columbus site reflect some of the national numbers mentioned. Like the computer programmer working at Cummins, we are faced with the hard reality that we will have to make changes to survive. Nancy Wilson Head is the Director for Purdue programs at Columbus Indiana site. She is also an Associate Professor in member in Purdue's Computer Technology Department teaching classes in the System Integration track that prepares students for careers as System Analyst. Ms.Wilson Head offered a few comments in her role as professor and site director concerning importance of "soft skills" and implications to outsourcing on our program. Following are her comments:

How important are "soft-skills" (communication and teambuilding) for the IT professional?

> "Soft-skills are extremely important. A successful IT professional must be able to speak/read/write/listen effectively. Taking off my academic hat and speaking as an Information Technology (IT) professional, I know that the people who get promoted are those who communicate well with all levels of employees, inside of IT and outside of IT. Putting my academic hat back on, I know that the students whom recruiters hire excel in technology skills but can also speak/write/listen to users and all levels of management. Recruiters have sometimes criticized our graduates because their soft-skills aren't strong enough. I think teambuilding is a skill crucial for promotion within IT. But you have to learn to be a good team MEMBER before you will be skilled at team building" (Wilson Head, 2004).

How do you reinforce the "soft skills" in your computer courses?

> "In my courses I use personal examples of how I learned the hard way that soft-skills were important. I give examples of past co-workers who failed miserably in a project or didn't get the promotion they wanted. Not because they weren't technically knowledgeable but because they were poor communicators or poor team players or their interpersonal skills were deficient. I also ask students who are working in the IT industry to give us examples of someone they know where they work who has poor soft skills. We often find these examples as humorous, but the students are learning by the example" (Wilson Head, 2004).

In industry, why do you feel that managers are reluctant to spend money on "soft-skills"?

> Because they don't often see the return on their dollars. The payback is much slower. A manager can send someone to learn a new programming language or a new technical skill, and that person can come back to the work place and immediately put that skill in place. Also, because soft skills are harder to measure. I can measure the number of lines of programming code someone writes, but how do I measure if someone is an effective team member or an effective team leader? How do I measure if someone listens well when the user is speaking about technical specifications needed for a new system" (Wilson Head, 2004).

Do you think the outsourcing will force us to revise our CPT curriculum and focus more on these skills?

> "I think outsourcing has already caused us to revisit the skills our graduates need. We can no longer churn out programmers or "techno-geeks" as we traditionally have. Those kinds of graduates are not hirable any longer. As you know, we've already seen an impact nation-wide. If we don't revise our CPT curriculum to meet the market's demand, our program will die" (Wilson Head, 2004).

As a Director what do you think the best way to approach this need is, in our curriculum or by offering the short courses?

> "I definitely think we need to address this within our curriculum. Short courses are sometimes effective, but those are one-time hits that students may or may not attend. By addressing it in the curriculum we have a captive audience and can build the message and enhance the skills as the students progress through all four years (more in the case of non-traditional students) of coursework. You can't teach the importance of soft-skills or the techniques of soft-skills in one course or one semester" (Wilson Head, 2004).

Conclusion

By all accounts it is apparent that offshore outsourcing is not going away. It has and will continue to have a dramatic effect on the IT workforce in the United States and in turn the college programs that provide workers in the industry.

At the writing of this paper we have successfully delivered two sessions of our Business/Systems Analyst Training program. By all accounts the program has been a success. An important part of the program has been a focus on the "soft skills". Comments by faculty, administrators and students point out the need for these skills in today's changing IT work environment. At the present time we are scheduled to deliver four more sessions before September of this year including a session in Darlington, United Kingdom. If all of these sessions are delivered we will have trained over approaching twenty percent of Cummins worldwide IT staff. We are also in negotiations with Cummins for a Phase 2 of the program that would explore some of the topics covered in the Business/Systems Analyst in more depth. We are also exploring the possibility of partnering with other universities in delivering this program to some of Cummins more distant sites.

In conclusion this has been a positive experience that has a win-win situation for Cummins, Purdue University and the Columbus Indiana community.

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