

# Student-Centered Learning and The Knowledge Workforce

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## ABSTRACT

*Education is essential in building the economic strength of a country. In the knowledge-based economy of the 21<sup>st</sup> century, the need for good education is even more important. This paper focuses on the need for a paradigm shift in higher education to meet the needs of students in the 21<sup>st</sup> century. An increasing number of full time employees are returning to school to obtain further education to ensure their survival in the next century. Educational institutions are searching for an appropriate medium to fill the needs of the new nontraditional students returning to school.*

*This paper examines the changing needs of the business world and the increasing number of nontraditional students returning to school. There appears to be a strong sentiment that the popular textbook and lecture method currently in place in educational institution is no longer sufficient in preparing the new student population. This paper also examines the rationale and shift in paradigm from the textbook and lecture to the student-centered learning format. The new roles of instructor and students are explored in both the paradigms. Finally, this paper offers how student-centered learning can be successfully implemented in the classroom.*

## INTRODUCTION

Greenspan succinctly points out that “Workers today must be equipped not simply with technical know-how but also with the ability to create, analyze, transform information and interact with others effectively” (Greenspan, 2000.) In the knowledge-based society, education plays an essential role in the economic strength of a country. The constant changes in the business environment of the 21<sup>st</sup> century demand a new form of workforce. The 21<sup>st</sup> century workforce must be adept to make decisions rationally and promptly to meet the demands of their customers. In the knowledge-based economy, educators must revisit how to best prepare their students to respond to the persistently competitive globalized economy. The importance of human capital in the health of any economy is ever more evident in the 21<sup>st</sup> century than in any other period of time.

## HUMAN CAPITAL AND ECONOMIC-GROWTH

Bork contends that for intelligent decisions to be made in democratic societies we need an educated population (Bork, 1997.) Stewart elaborates that the development of human capital is not just about having enough people in the organization but rather having people with the right skills and knowledge to help the organization create competitive advantage, grow, and succeed (Stewart, 1999.) The Organization for Economic Co-operation and Development concurs that there is a direct relationship between the quality of a country’s higher education system and the health of its economy (Lenn, 2000.) In the early 1960s Schultz established education as a form of human capital and Becker built on Schultz’s work to develop a broad theory of human capital (Langelett, 2002.) Schultz studied the effects of education on economic growth in the United States and found that from 1929 to 1957 the additional schooling of the labor force accounted for about one-fifth of the rise in national income (Schultz, 1961.) Denison showed that the increase in schooling of the average worker between 1929 and 1982

explained about 25 percent growth in the per capita income of the United States during the same period (Denison, 1985.)

According to Miller, economists advocate that education helps nations with comparatively scarce resources develop complimentary resources and substitutes that result in efficient utilization of existing resources (Miller, 1967.) Miller contends that people with higher educational levels tend to migrate towards more productive sectors of the economy. As a result, both gross domestic product and individual incomes rise and the economy of the country improve (Miller, 1967.) Becker asserts that all countries that devote substantial amounts of resources to their nationwide education simultaneously experience growth in their gross domestic product (Becker, 1985.) Becker et al. point out that many growing Asian economies possess scarce natural resources and yet were able to sustain growth because of well-educated and dedicated labor forces (Becker, Murphy, & Tamura, 1990.) Barro offers his study of nearly 100 countries from 1960 which found investment in education during the 1960s was an important variable in explaining subsequent growth in per capita income (Barro, 1999.) Bishop points out the declining standardized test scores from 1967 to 1980 had adversely influenced the productivity of workers entering the work force between the 1970s and 1980s (Bishop, 1989.)

Majority of the jobs in the 21<sup>st</sup> century will require employees to have a broad range and depth of skills. To meet the challenges of the 21<sup>st</sup> century, U.S. workers must have the training, education, and skills necessary to navigate the next millennium. To be competitive in the global market, American firms need to create and foster an environment where there is continuous learning, training, and knowledge-sharing throughout the company.

## EDUCATION IN THE KNOWLEDGE-BASED ECONOMY

In a knowledge-based economy, a great product alone is insufficient to gain sustainable growth for any organization. Adam et al. contend that knowledge acquisition and new skills in training the

workforce are necessary to prepare them in meeting challenges of the knowledge-based society (Adam, Awerbuch, Slonim, Wegner & Yesha, 1997.) American businesses increasingly need more skilled workers. According to the U.S. Department of Labor, 75% of today's workers are employed in occupations that require education and training below the associate's degree level (US Department of Labor, 1998.) In 2001, Wirt et al. report that 69 percent of employed adults were required by their employers to continue their education where 75 percent of them received financial support from their employers (Wirt et al., 2003.) In 2002, Choy reports that 30 to 37 percent of the nontraditional undergraduates indicated that obtaining additional education was an important factor required for their jobs (Choy, 2002.)

The increasing need for an educated workforce is a reflection of the changes in the workplace. There are new forms of workplace organization and management that are replacing the traditional workplace to enhance flexibility and improve customer satisfaction. Due to the shift in organization and management, jobs are changing to better fit the new organizational system. According to Phillips & Phillips, capital equipment and technology alone no longer differentiates organizations, it is the workforce and the processes by which that workforce is established, leveraged, and maintained that gives them the competitive advantage (Phillips and Phillips, 2002.) The knowledge economy anchors on two critical commodities as its driving force: people and knowledge. Phillips and Phillips posit "Our economy has moved from focusing on exporting natural resources and the use of machines to mining our own minds" (Phillips and Phillips, 2002.)

Michaels et al. found changing relationships between the workforce and organizations in the 21<sup>st</sup> century. In the past, organizations offer fewer jobs, put more emphasis on machines, capital, and location, and people are basically indebted to organizations for a place of employment. People were general loyal to their place of employment and their jobs are deemed secured. Furthermore, people accept the standard package offered by their employers. In the knowledge-based economy, firms are searching for talented people to give them the competitive advantage. The standard employment package is no longer sufficient to attract the best employees. The findings of Michaels et al. are shown in Table 1 below.

The Old Reality	The New Reality
People need organizations.	Organizations need people
Machines, capital, and geography are the competitive advantage.	Talented people are the competitive advantages.
Jobs are scarce.	Talented people are in demand.
Employees are loyal and jobs are secure.	People are mobile and their commitment is short term.
People accept the standard package they are offered.	People demand much more.

Michaels et al. *The War for Talent*, Harvard Business School Press, Boston, MA 2001.

According to Industry Week in 1997, in a world-class manufacturing plant, work teams may handle decision-making and other responsibilities such as daily job assignments, material management, and production scheduling. (Industry Week, 1997.) Table 2 shows the shifts in organization and management.

Element	Old System	New System
Workplace Organization	Hierarchical Rigid Function/Specialized	Flat and Flexible Networks of multi/ cross-functional teams
Job Design	Narrow Do one job Repetitive/simplified/ standardized	Broad Do many jobs Multiple responsibilities
Employee Skills	Specialized	Multi/cross-skilled
Workforce Management	Command/control systems	Self-management
Communications	Top down Need to know	Widely diffused Big picture
Decision-making responsibility	Chain of command	Decentralized
Direction	Standardized/fixed operating procedures	Procedures under constant change
Worker Autonomy	Low	High
Employee knowledge of organization	Narrow	Broad

U.S. Department of Commerce, Office of Technology Policy, Briefing for Secretary Ronald H. Brown for the Conference on the American Workplace, 1993.

### SHIFT IN HIGHER EDUCATION PARADIGM

The changes in the compositions of student population in the United States and around the world dictate a change in teaching and learning models to help develop a pool of suitable employment candidates. Researchers found that there is a projected increase in the number of non-traditional students who are different from their traditional counterparts in age, educational background, foundation skills, ethnicity, and gender (Wirt et al., 2003.) Major factors that contribute to the changing student demographics include globalization, advancement in technology, increase competition, workplace requirement, and societal changes. The efficacy of the traditional lecture and textbook method had come into close scrutiny specifically for its applicability in preparing the workforce of the 21<sup>st</sup> century. In a rapidly changing global workplace, the traditional lecture and textbook may be inept to prepare students to meet the challenges facing them. Furthermore, the sovereignty and boundaries of countries no longer protect domestic jobs as the world increasingly employs geocentric hiring policy where the best candidate is chosen.

There is an increasing acknowledgement of a shift in instructional philosophy where the instructor is no longer the sole source of

knowledge but, instead, should serve as a facilitator supporting students' learning (Macdonald, 2001.) According to Baloian et al. the traditional classroom environment where the instructor controls the class content appears to be inadequate in preparing the workforce for lifelong learning (Baloian, Pino & Hoppe, 2000.) Hammond et al. assert that traditional classroom environment offers learners little control over the learning content and process to meet their individual needs (Hammond, McKendree, Reader, Trapp & Scott, 1995.) Beaudoin maintains that historically placid classroom environment requires new rules of engagement in order to meet the challenges of the convergence of competition, cost, technology and new consumer demands (Beaudoin, 2003.) Beaudoin reiterates that the lecture and textbook method is primarily a source of information, rather than an actual learning media (Beaudoin, 2003.) Sullivan asserts that current visions of preparing students for the 21<sup>st</sup> century advocate enabling and empowering students in the present and for the future (Sullivan, 2002.)

Numerous researchers provided evidence in how new educational models and technologies are changing the learning environment from a classroom-based, teacher-centered model to a student-focused, technology-based model (Burke, 1994; Phelps, 1994; & Sanchez, 1994.) Zhang and Zhou concur that there is an increase in the use of networked computers and advancements in telecommunication technology, learning methods and infrastructures are becoming more portable and flexible in order to enable anywhere, just-in-time and self-centered learning (Zhang & Zhou, 2003.) Ingram et al. propose that in the real world what fits wells is the action learning approach which starts from the question or challenge at work (Ingram, Sandelands, & Teare, 2002.) A well-known authority on artificial intelligence, Schank, proposes that what should be done to enhance the learning process in the knowledge-based society is to teach questions rather than answers. According to Schank, a major goal of educators is to teach students to think critically about new problems and not to memorize answers because in most real world situations, there are no right answers. Schank further emphasizes that educators need to remove the stigma of failure and to encourage students to learn from experience and mistakes (Schank, 1994.) Ingram et al. posit that in the real world, managers are confronted with disorganized, conflicting messages with no obvious "right" answers (Ingram et al., 2002.)

### STUDENT-CENTERED LEARNING

Thornburg defined student-centered learning as a discipline that involves the interaction of a team of students who experience creative learning to be used in the real world (Thornburg, 1995.) Thornburg pointed out that students are the focal point of student-centered learning while the role of teachers changes to that of one who can assist and guide students in their search for knowledge. Cass & Csete described a different term "learner controlled instruction" where the learner has some control in the type of instruction that is given. According to Cass and Csete, in the learner controlled instruction format, the learner can decide how and what they want to learn and function in the real world (Cass & Csete, 1995.) The teacher's role to control the instruction includes the procedures, time restraints, and evaluation. Furthermore, Harmon and Hirumi assert that in student-centered learning, students become active knowledge workers rather than passive knowledge recipients (Harmon, and Hirumi, 1996.) In the student-centered learning

environment, the teachers serve as facilitators and guides to help their students construct their own learning.

The new emerging technology serves as the backbone for student-centered learning. Researchers claim that availability of technologies such as networking and rapid accessibility to information allows students to become actively involve in their search for knowledge instead of passively receiving information from the teacher (Harmon and Hirumi, 1996.) Cook and Cook reported teachers acknowledging the importance of technology in a student-centered learning environment. They pointed out that technology enables teachers and students to jointly construct knowledge with their students (Cook & Cook, 1998.)

### STUDENT-CENTERED LEARNING APPLIED

Student-centered learning appears to be a viable alternative to the textbook and lecture method that can more appropriately help students prepared for their future in the 21<sup>st</sup> century. Literature of student-centered learning covers one school of thoughts that emphasizes on the active role of students in their education. This part of the paper focuses on how student-centered learning was applied in an MBA course at Northwest Missouri State University. Materials in textbooks change frequently and are easily outdated. The focal point of the selected course, Problems in Business, was to cover relevant current issues in the business world. Using the student-centered learning format, the students become active participants to their own search for knowledge.

To create an appropriate atmosphere to implement the student-centered learning format, the instructor created a flexible course syllabus that included the standard guideline of the course purpose, objective, and assessment policy. The instructor selected a list of major topics that students were required to focus on. The major topics were deemed relevant and applicable to all industries and they include: globalization, technological innovation, increase competition, employee retention, and corporate responsibility and ethics. The instructional methods used in the course were open discussions, critical thinking, extensive research, and a final comprehensive exam. The parameters for assessment in this course included: five research-based article critiques, a 30-page research project, a presentation of their research, and a comprehensive final exam that covers each student's selected industry and three randomly selected industries from the class. The students were empowered to choose an industry that they were either interested in pursuing or were involved in during the time of the course offering. The instructor facilitated open discussions and encouraged active student participations to help students gain useful knowledge of their industries. The students were made aware that they are interdependent on each other to successfully complete the course. The students had to take a comprehensive final exam on all the industries selected by the students in the course. The final exam was designed to reflect the workplace environment where employees in teams are interdependent on each other for the success of their teams.

The course was taught in two semesters with 14 and 12 students in fall of 2001 and summer of 2002 respectively. There were a total of 11 and nine industries selected by the students in fall 2001 and summer 2002 respectively. In both semesters, students appeared to be receptive to the student-centered learning format. Based on the end of semester evaluation, majority of the students felt positively about the course. The evaluation consisted of eleven questions and uses a four-point scale: "SA = Strongly Agree," "A = Agree," "D = Disagree," and "SD = Strongly Disagree." Tables 3 and 4 show

the distributions of fall 2001 and summer 2002 end of semester evaluations.

**Table 3**  
Fall 2001 End of Semester Evaluation

	Item Analysis	SA	A	D	SD
1	Objectives have been made clear	53.85%	38.46%	7.69%	0.00%
2	Informed on how they would be evaluated	69.23%	30.77%	0.00%	0.00%
3	Was prepared for class	76.92%	23.08%	0.00%	0.00%
4	Was available for consultation	84.62%	15.38%	0.00%	0.00%
5	Used examples to clarify	69.23%	23.08%	7.69%	0.00%
6	Return exams, assignments on time	84.62%	15.38%	0.00%	0.00%
7	Made helpful comments	76.92%	23.08%	0.00%	0.00%
8	Open to questions during class	84.62%	7.69%	7.69%	0.00%
9	Provided feedback	61.54%	38.46%	0.00%	0.00%
10	Communicated a high degree of knowledge	69.23%	23.08%	7.69%	0.00%
11	Satisfied with instruction	61.54%	30.77%	0.00%	7.69%

**Table 4**  
Summer 2002 End of Semester Evaluation

	Item Analysis	SA	A	D	SD
1	Objectives have been made clear	80.00%	20.00%	0.00%	0.00%
2	Informed on how they would be evaluated	80.00%	0.00%	20.00%	0.00%
3	Was prepared for class	80.00%	20.00%	0.00%	0.00%
4	Was available for consultation	100.00%	0.00%	0.00%	0.00%
5	Used examples to clarify	60.00%	40.00%	0.00%	0.00%
6	Return exams, assignments on time	100.00%	0.00%	0.00%	0.00%
7	Made helpful comments	80.00%	0.00%	20.00%	0.00%
8	Open to questions during class	100.00%	0.00%	0.00%	0.00%
9	Provided feedback	80.00%	0.00%	20.00%	0.00%
10	Communicated a high degree of knowledge	80.00%	20.00%	0.00%	0.00%
11	Satisfied with instruction	60.00%	40.00%	0.00%	0.00%

Tables 3 and 4 indicate that majority of the students was satisfied with the student-centered learning format. As shown in the first two questions of the survey, majority of the students agreed with the objective of the course and felt informed on how they will be assessed. Furthermore, majority of the students were satisfied with the instruction of this course as indicated by the last question in the survey. To better understand what factors might have contributed to student satisfaction and what factors might be improved to increase student satisfaction, the end of the semester student comments were review for more insights. Table 5 shows the feedback from students in both semesters to the question, "What are the major strengths of this person as an instructor?" Their responses are provided verbatim in the following table.

**Table 5**  
What are the major strengths of this person as an instructor?

Knowledge of subject matter
Caring of the students, is open to suggestions.
Experience, knowledge
Well prepared. Drew everyone into the discussion.
Very open and receptive to discussion and ideas.
Very receptive to different views. She gets conversation going – thinking – world knowledge (first hand experience.)
Incorporating outside ideas and sources into the class. Framework – provides a different view in cultural and societal ideas.
Knows a lot of information on many subjects.
Extremely intelligent and well-versed on cultural, issues in the business world.
Her experiences and the manner in which she relates them to the class.
Her energy she brings to the classroom. Ability to keep a threaded discussion going in class. The relaxed atmosphere.
Diverse knowledge. Having an international background. Great personality and true concern for students.

Based on the feedback provided by students on Table 5, it appeared that student satisfaction was due in part to their perceptions of the diverse knowledge, classroom openness, flexibility, and outside material incorporated into the course. The factors mentioned by students can all be credited to the student-centered learning where the students were active participants in researching material pertaining to the major issues in the course. The fact that students chose their own industry created a vast and diverse pool of knowledge for the course. Furthermore, the final assessment provided students with an incentive to gain insights to all the industries selected help them learn from each other and thus allows for more discussion, critical thinking, and exchanging of information.

Table 6 shows the feedback from students to the question, "How could this instructor improve and become a better instructor?" Their responses are provided verbatim in the following table.

**Table 6**  
How could this instructor improve and become a better instructor?

More structure
I wouldn't suggest anything at this time.
No suggestions.
I don't think she was given time before she knew she has this class to give more structure.
No complaints.
More of a structure.

Based on the feedback provided by students in Table 6, more structure in the classroom setting could improve the delivery of this course. The implementation of the student-centered learning format is not as popular as the textbook and lecture format, it is expected that some students felt more structure might be useful. Although the feedback from the students might be biased towards the textbook and lecture format, it is nevertheless useful to the instructor for future offering using the student-centered learning format.

Table 7 shows the feedback from students to the question, "What did you particularly like about this course?" Their responses are provided verbatim in the following table.

**Table 7**  
What did you particularly like about this course?

Open discussions
I liked the openness and the freedom. It made me feel comfortable.
Open conversation.
Enjoyable class, very informative.
Open discussions and opinions.
Very communicative – discussion based covered different topics/ industries.
Open forum
Like the open discussion.
Format – laid back/class atmosphere was great. Subject material we covered was interesting.
The discussions we had and the small class size.
No textbook! The option to truly discuss the issues and the ability to help direct the class into areas of discussion. My opinion counted.

Based on the feedback provided by students in Table 7, it appears that the factor students find most attractive in the delivery of the course is the open discussions they experienced in the course. Based on the feedback from the students, it appears that the students enjoyed the flexibility to research and share information with each other. The number of industries selected by the students also helped in generating different areas of interest. The interdependence that students have on each other is also instrumental in creating an open discussion environment where the students take the initiative to ask questions and provide insights about the different industries in each class.

Table 8 shows the feedback from students to the question, "What weaknesses do you find in the course as it is set up and what do you propose for eliminating these weaknesses?" Their responses are provided verbatim in the following table.

**Table 8**  
What weaknesses do you find in this course as it is set up?

Research paper was too long
The only thing I can see is if the final doesn't go well to provide a book to go from.
More structure
None
No complaints
More material, not only class discussion, real case study.
Not much structure – seemed to go off on tangents and discuss different issues. It's nice to keep interesting not made difficult to study or review what I learned. I think providing more structure and guidelines could be helpful.
None.

Based on the feedback provided by students in Table 8, it appears that more structure for the course was reiterated as the major weakness of the course.

**CONCLUSION**

The 21<sup>st</sup> century marketplace is highly competitive and changes frequently. In order to better prepare our students to meet the challenges of the knowledge-based society, we need to afford them the tools of finding information that would help them grow and construct knowledge. The lecture and textbook method does not appear to be the most effective way to prepare the students of the 21<sup>st</sup> century as textbook material are quickly outdated by the rapid changes in the business world. Using student-centered learning, instructors can transform the classroom setting into an environment that better reflect the "real" world. Students take on an active role for their education and can customize their own education to their needs in the student-centered learning environment. Instructors, on the other hand, serve as facilitators to guide and assist students in their search for relevant information to construct their knowledge. Student-centered learning empowers students to take charge of their education and be actively responsible in preparing their own future. In an increasingly globalized knowledge economy where consumers are demanding and have more choices than ever before, there is no room for delay. Efficient employees who are diligently productive will be revered and those who are not as productive will be left behind.

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