ARE COLLEGE SENIORS PREPARED TO WORK?

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Few noticed the wisps of change blowing through the economy in the 1970's but the signs were evident to the careful observer. Experiments were being tried by various companies on team organized processes, quality circles, and restructuring. Some succeeded, such as TRW's oil well cable division plant (Boyett and Conn, 1991) and others failed, including People's Express Airline. Each success and failure contributed momentum to the changes that burst forth at gale force by the late 1980's.

Global competition has been identified as the major impetus for change. Globalism, however, has embraced many smaller forces that have converged at the end of this century. Consumer expectations have shifted to customized products, selected on the basis of quality and "just in time" delivery. Production systems are being restructured from linear, plodding assembly lines, based on large economies of scale to flexible, weblike arrangements that cater to smaller production, specialized systems. This new arrangement was unleashed when businesses realized that technology removed constraints of place and time: capital could be transferred in nanoseconds; workers could be assembled from around the world; and any location could be a potential worksite. A major force behind this new economy was the realization that economic activities were no longer merely driven by the production of products, but were engaged in the production, dissemination and use of knowledge. As the knowledge

based economy has emerged, employers are presented with a major problem: workers are unprepared to handle the new tasks associated with their work assignments and processes.

Criticism of new worker preparation was, at first, targeted toward high school graduates. After eliminating a vast number of production jobs suited to high school completers, during the early 1980's, high school graduates entered labor markets with access to only minimum wage employment opportunities. The "good jobs" now required competencies in mathematics, language, computers, and science at levels that exceeded these students' abilities. College students avoided the first barrage of criticism; but, by the end of the 1980's, college students began hearing similar criticisms of their skills and workplace competencies from employers.

Much of the criticism has passed through the media in the form of anecdotal comments. Few analytical studies have examined the issue closely. Thus the question remains largely unanswered as to whether students are prepared for the workplace. This chapter probes into this question from two viewpoints: the employer and the new college employee. Exploring evidence from several research efforts, this commentary identifies a consistent theme that transcends both groups: college students have strong competencies in their content or academic skill base but lack competencies to handle successfully the context issues of work, principally interpersonal communication, teamwork, applied problem solving, and self-management. Before reviewing this information, a brief overview of the new workplace environment describes the new array of skills workers are being asked to possess.

THE WORKPLACE: A NEW CONTRACT BETWEEN WORKER AND EMPLOYER

The restructuring of U.S. companies has been on-going for nearly a decade. Each day still seems to bring new announcements by highly identifiable, prominent corporations that to enhance their responsive capabilities, a reduction in their workforce and new principles of organization will be required. Whether characterized as shamrocks (Handy, 1989) or webs (Reich, 1991), new organizational arrangements link smaller units that can respond and adapt to changing consumer expectations and global economic conditions. The signals that stimulate the linkages depend on the acquisition, utilization and expansion of knowledge. As Alan Bird (1993) explains, organizations have become boundaryless: their shapes and structure extend beyond the confined limits of walls, expanding, contracting or rearranging as their environment changes.

< Figure 1 here >

These structural changes have direct implications on the human resources employed by organizations. The workplace has also become boundaryless with the elimination of hierarchial positions and the de-emphasis on job titles. This dynamic has profound affects on careers which are no longer shaped by organizational hierarchies and bounded by roles, positions, or job titles (Bird, 1993, Bridges, 1994). As Bird observes, "recent developments in information and telecommunications technology, organizational forms, labor markets, and changing personal values suggest that a view of careers as taking place solely within organizations may no longer be sufficient to encompass the ever increasing work experiences that many people currently encounter (1993, p. 18)." From another perspective, the implicit contract between employee and employer has been rewritten with emphasis now on a package of skills required to manage and enhance knowledge rather than the ability to perform simple, repetitive tasks over a long

tenure with the organization.

A comparison between the characteristics for workplaces of the 1980's with those emerging today are shown in Figure 1. Our perception of the workplace, nurtured by seventy years of experience and observation of a linear, hierarchial system of work, is anchored in the belief that an employee enters a company out of high school or college and makes a long-term commitment with that employer. Advancement and status in the organization has been a function of longevity and the values centered around loyalty, endurance, and the personal relationships among employees. The actual work assignments centers have been narrowly focused, technical specialties or administrative procedures. Advancement may require a broader range of knowledge; but this expansion of specialties often occurred within a functional area. Specialties allowed workers to control selected pieces of information. Since access to information gains power for the holder, information was guarded and given forth frugally. Evaluative feedback was infrequent and was seldom tied to compensation which increased annually irrespective of performance. The system depended on managerial control which promoted competitiveness among employees at the expense of collaboration with co-workers.

Flexibility and creativity have pushed aside loyalty and endurance in the new workplace. Employers now desire workers who can quickly adapt their work schedules and tasks to accommodate new initiatives; similarly employers place increasing emphasis on workers who creatively apply products and services to new services, even if the endeavor involves risk. Workers now handle knowledge on a regular basis by analyzing, drawing conclusions, and presenting recommendations for the purpose of enhancing the flow of information to all organizational members. This requires workers to have a broad knowledge perspective (know about their competitors; what consumers are doing, how national, regional and global events may impact the organization) as well as specific knowledge for task performance. Compensation

will be largely based on performance incentives and enumeration for acquiring new knowledge. Recognition will be earned through performance. While certain tasks will be individually accomplished, much of the work will take place in a team setting. Teams remove the need for managerial control, replacing it with peer pressure and employee self-control. There will be few advancement opportunities; workers' will even encounter periods of unemployment as they navigate to new positions. For some companies longevity and loyalty will remain important assets; for others, the employment contract between employer and employee are being rewritten, no longer guaranteeing a job but promising challenging jobs that provide access to new skills.

These dynamics require employees to have a new mix of skills and competencies. The list is familiar to most readers but is worth repeating. Academic skills provide the cornerstone, including reading comprehension, writing ability (increasingly technical), numerative literacy (mathematics), science (especially applied physics), computer literacy, and domain skills specific to a students' academic major. Balancing these skills are reasoning competencies which focus on problem solving and critical thinking, and most importantly, learning to learn; interpersonal communication and teamwork skills; and personal skills, including time management, goal setting, commitment to quality, entrepreneurialism which encompasses creativity and risk-taking, flexible attitude, and openness to new ideas and processes.

If Bridges (1994) and other prognosticators are correct, jobs will be either general (75%) or specific (25%) in orientation. Even highly trained technical employees will have to possess a broad set of general knowledge and personal skills to complete successfully their job assignments. The bottom line finds workers in need of a different mix of, in addition to more, skills to remain engaged in the new economy.

EMPLOYERS: New College Graduates Are Not Ready to Work!

Corporate views on workplace competencies of college students have been captured in various ways. A rich, textual picture of employer perceptions on the new economy's impact on entering professionals has been drawn through detailed focus group discussions conducted by RAND for the College Placement Council Foundation (Bikson and Law, 1994). Corporate representatives from senior management, human resources (personnel), line management, and newly hired professionals reflected on the various skills and experiences that contribute to successful work performance. Ten clusters of skills or factors attributed to performance were rated and, without much surprise, the domain knowledge turned out to be only moderately important in comparison to more general cognitive and people related skills (Table 1).

An interesting dimension of this study was the elicitation of the views of a comparable group of academic representatives (senior institutional administrators, academic faculty, and career services staff). What was striking, as Bikson and Law pointed out, was the similarity and consensus in the ratings; though academic participants tended to rate clusters higher than corporate participants, particularly in areas closely associated with their institutional mission: domain knowledge, cross-cultural experiences (study abroad programs), and foreign language training.

< Table 1 here >

Domain knowledge, knowledge attributed to the academic major, stands as the doorkeeper. To get through the door requires strong domain skills (often correlated to grade point average); yet, job success was predicated upon a combination of social, personal, and applied cognitive skills (see Kelley and Caplan, 1993). Employers identified specific competencies which included teamwork, effective written and oral expression, interpersonal

communication, flexibility, an understanding of quality, and producing innovative (entrepreneurial) practices. Employers acknowledged that these competencies were a consequence of the changing demands in the workplace and realized that these competencies were more behavioral than knowledged based. Nevertheless, the concern expressed by many employers was that students arrived at their organizations' unprepared in these areas.

More familiar to the public, because of their media appeal, are snap-shot surveys of employers which direct respondents down a checklist of possible skills, rating each item. Scales could be anchored by terms such as level of importance or adequacy of training. Recruiting Trends, an annual survey of employers by Michigan State University's Career Services and Placement office (Scheetz, 1994), serves as an example. In the 1993-94 edition, employers were asked to rate the importance of 65 different characteristics to job performance; a departure from similar studies that focus on a more limited list. From this example, personality traits emerged at the top of the list, intermingled with content/knowledge skills. These questions are often followed with queries as to whether seniors are adequately prepared (Scheetz, 1995). The results generate a list of concerns, typically seen in the media, including attitude, work ethic, communication skills, and unrealistic expectations.

The problem with this latter approach is that the categories are often very general. For example, what does communication encompass? Three forms of reading and writing exist: personal response, report or research, and technical. Employers could apply a meaning differently than is assumed by educators. Thus, it is important to identify clearly the dimensions of a skill. Jones (1995) discovered that employers and educators differed over components of critical thinking as it applies to college graduates, but were able to reach consensus on what the important dimensions were. The value of the process was understanding that critical thinking takes place in context. The academic environment differs contextually from the environment of

work; how one adjusts these skills to accommodate to a new environment becomes a key attribute of a newly hired college educated worker.

Very few studies, however, track new graduates into the workplace measuring the performance standards required for a competency against the workers' educational preparation. A thorough study of high school graduates by Daggett (1992) illustrates how important context can be. Breaking each of the skill areas into its basic components, Daggett observed new hires working in various positions and was able to identify the skills actually being used and how prepared the individuals were. Through this method, his research team identified, for example, that technical reading and writing were the communication skills lacking among new workers. At the same time, educators were responding to the demand for better performance by increasing personal response and research/report reading and writing. Modifying Daggett's approach, we developed a performance/preparedness inventory of key competency areas. In a similar fashion, the major competencies were broken out into specific sub-skills. The performance scale marked six levels from basic performance (awareness of skill) to evaluation which designated the highest level of competency required to carry out the tasks assigned to typical new college hires. It was expected that the performance level encountered by most college students would be the middle of the scale: between application and analysis.

A five point Likert scale was utilized to capture the employers perceptions on the educational preparedness of college students: (1) "not at all prepared" to (5) "superbly prepared." Employers were further asked to distinguish between technical employees (for example, engineers, computer scientists, and accountants) and non-technical employees (generally students from the liberal arts disciplines and general business).

A pre-test of the instrument with 94 employers revealed that a reasonably high level of performance was expected, approximately 4, in each skill area. Differences existed between

technical and non-technical positions on skill levels in some areas. Technical positions placed more emphasis on domain skills, primarily mathematics, technical reading, managing data systems (information systems), and thinking skills (problem solving, reasoning, for example). Receiving more emphasis on the non-technical side were organizational skills (interpersonal, handling conflict, working cooperatively), thinking skills, job skills (coping with deadlines, setting priorities, following directions) and speaking and listening skills.

< Table 2 here >

Ratings on preparedness clustered around the midpoint of 3 or "adequately prepared." Technical graduates were likely to be "highly prepared" in mathematics and information systems; their lowest preparation was found in the area of writing. Non-technical graduate scores were fairly consistent, being better prepared in reading, speaking and listening, and information systems than mathematics and writing.

By adjusting the scales, comparisons between performance and preparedness can be made where a significant difference indicates that where graduates are under-prepared (over-prepared was possible, but not found) for the performance level required. While students seemed to be well-prepared in the domain skills, they fell short in areas related to the context of work and applying their knowledge in work environments. An exception found technical graduates in several key domain areas of reading and writing. This list contains the competencies that graduates were perceived to be deficient.

TECHNICAL GRADUATES

Reading:	Differentiating fact from inference Summarizing main and subsidiary ideas Understanding technical and abstract material Locating specific facts and details
Writing:	Composing letters, reports, and memoranda

Speaking/ Listening:	Presenting oral information and directions Participating in discussions
Thinking Skills:	Problem solving Decision making Reasoning Creative and critical thinking
Organizational Skills:	Interpersonal skills Handling conflict and criticism Leadership skills Working as a member of a team
Job Skills:	Setting priorities Coping with deadlines
Personal Skills:	Workplace values and ethics Ability to negotiate the system Adaptability

NON-TECHNICAL GRADUATES

Speaking/ Listening:	Observing verbal and non-verbal cues
Thinking Skills:	Problem solving Decision making Reasoning Creative and critical thinking
Organizational Skills:	Handling conflict and criticism Interpersonal skills Working as a member of a team Leadership skills
Job Skills:	Goal setting Setting priorities Coping with deadlines
Personal Skills:	Workplace values and ethics Initiative Adaptability Personal work habits Ability to negotiate the system Self-esteem

Through these employer voices, a fairly consistent perception emerged on the preparedness of college student for work. Students were perceived as well-prepared in their academic or content areas. The exception appeared among technical graduates whose reading and selected writing skills needed improvement in relation to the performance level required. The majority of competencies that students had not adequately prepared involved skills needed to handle the context of work. These skills are particularly relevant to liberal arts graduates, as these are the very skills employers expect them to bring to the workplace.

Graduates: We Are Eager to Work But Find The Workplace Challenging

To balance the picture, student experiences during transition from college have been captured in various studies that have focused on their socialization into the workplace. Recent graduates were asked to identify the skills/competencies that college best prepared them for, followed by those areas they were poorly prepared. From a population of technical graduates, composed of engineers and computer science students, educational strengths centered around the specific technical skills that pertain to their academic major and the problem solving processes emphasized by faculty. Because engineering is a demanding field, the students believed that the education instilled in them discipline and enhance their work ethic. On the negative side, these graduates identified deficiencies in their oral and written communication skills; their struggle to work in teams which included poor interpersonal skills; and undeveloped leadership/management skills. Many engineers were troubled by their inability to apply theoretical engineering knowledge to real work situations.

< Table 3 here >

In a similar population of liberal arts graduates who have been participating in a longitudinal study of their transition experiences, graduates remarked that most employers

attributed their success to being able to think independently which contributed creative insights in a problem solving context. They viewed themselves as possessing strong communication (verbal and written) and interpersonal skills. They also commented that their general knowledge allowed them to participate in a variety of workplace activities. Their most appreciated strength was expressed as their attitude toward learning; being willing to learn continuously new skills and applications.

Weaknesses for liberal arts graduates dealt more with the context of work: not knowing enough about the workplace so it took time to adjust and learning how to deal with the subtle, implied aspects of the work, such as office politics and ethics. They also realized they needed to be more flexible as job assignments changed frequently in comparison to the structured academic environment. Like their technical counterparts, they had trouble applying their theoretical knowledge to work situations, wishing they had more hands-on experience before entering the workplace. They also found that they did not have the depth of content knowledge in some areas that is gained through a more diverse curriculum available at large institutions. One skill that non-technical students identified themselves particularly deficient was computer technology.

An exploratory study into the workplace readiness of college students, currently underway at Michigan State University, explores student preparation in the non-content areas that both employers and graduates have identified as problems. Because it was deemed important to place students in context, a simulation that engaged the student in real workplace situations was preferred. Wilson Learning's Success Skills 2000 (Wilson Learning, Inc., 1992) met both conditions: a visual assessment that covered the competencies involving applied problem solving, interpersonal effectiveness, and accountability. Approximately 2000 students have been tested in this exercise. These preliminary findings point to some specific weaknesses,

as well as strengths, that lay the ground work for working with students in their preparation to transition.

The Wilson Assessment is a criterion referenced tool whereby the national norm of 50 has been established using a group of 350 recent graduates who have been identified as highly successful by the companies used to benchmark this assessment. In addition, the competencies are weighted, reflecting the emphasis employers place on them. For example, among the eight interpersonal effectiveness competencies, the three teamwork skills have greater weight than communicating to others. Thus, the assessment can be termed "high stakes" in that the expected level of competencies have been set to a high standard. Even though the scores may appear low, students effectively demonstrate the use of important competencies.

Table 4 presents the overall scores and scores by class level. Students appeared to have the ability to adapt their critical thinking and problem solving skills from the classroom to the workplace. Students demonstrated that they know how pieces of information were interrelated but did not do as well in accessing the accuracy of the information sources and evaluating the usefulness of information. They apparently can choose a strategy that achieves the organization's goals but they often failed to consider all the available options, limiting the possible solutions available to them. An interesting observation across class levels found little change in scores over the years. Students who demonstrated effectiveness in using these competencies have probably been actively using these skills for a long time.

< Table 4 here >

Students showed less proficiency in their communications skills, particularly teamwork based competencies. Students were frustrated in identifying options that reduced conflict among team members and failed to work in a manner that contributed to the unity and success of the team. Their strongest skills centered on influencing others by communicating in ways that

gained acceptance and being able to justify their position. The one downside was their inability to persuade or convince others to support their position. When building rapport with others, students were sensitive to other people's feelings, but did not always act positively with others to ensure that their organization was represented well. Over their college tenure, these skills improved as seen by the nearly 10 point difference between seniors and first year students.

The area that students showed themselves least prepared was in accountability; most noticeably in their ability to take initiative in the workplace and the management of work efforts. "Taking the initiative" was an area that needed improvement though students demonstrated they could work with little or no guidance and would voluntarily assist their co-workers without being ordered by their supervisors. It was in the area of self-management that serious deficiencies appeared. Their biggest shortcoming appeared to be able to manage their time in ways that allowed them to handle multiple tasks and other work in a way that avoided burnout. Also a problem was being flexible in modifying their work parameters to complete tasks. Finally, their understanding of the concept of quality and how systems operate to ensure quality and completion of their work on time needed much more development. Accountability scores only improved by a small extent over the four classes.

ARE STUDENTS READY TO WORK?

The responses to this question have been casted in the voices of employers and new college entrants to the workplace. Their answers resonate around similar cords: new college workers are best prepared and are most comfortable with content or academic competencies while showing deficiencies in competencies that augment their formal education. In the hierarchical or old economy, where academic skills were the critical employment dimension, young workers had the luxury of time to develop interpersonal, applied reasoning, and self-

management skills. Within a decade, however, the average tenure in one's first position has decreased by two-thirds, from approximately 42 months in 1980 to 14 months in 1990 (e.g. Gardner and Motschenbacher, 1993). The complex demands of the new economy require college students to have a better balance between their academic skills and people-related, applied competencies. This balance eludes many college graduates today.

As companies strive to maintain a critical advantage through solving problems creatively, introducing new products and restructuring processes, their success depends on a commitment to learning (Garvin, 1993). With a plethora of confusing definitions, of a learning organization circulating, Garvin's synthesis focuses on contextual experiences: "A learning organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights (p. 80)." Five key skills have been recognized as necessary: systematic problem solving, experimentation/creativity, learn from own experiences and history, examination of best practices of others, and ability to transfer knowledge for understanding throughout the organization (Garvin, 1993).

Students demonstrated modest success in applying their learning processes in contextual situations. The failure to engage in continual learning stems from two possible and related sources. Schroeder (1993) has argued in the first case that the majority of students possess a learning style that varies from the faculty's preferred style at most colleges and universities. His research revealed that learning styles influenced students' attitudes toward learning, achievement, and career interests. He contends that learning style mismatches contribute to student's inability to master critical thinking skills and frustrates faculty members. Efforts to bridge the gap include variations in instructional plans as well as engaging in learning activities that capitalize on their learning styles.

Baxter Magolda (1992) has posited that students move through four phases of learning:

absolute, transitional, independent, and contextual. Absolute learners view their instructors as the sole surveyor of factual information, often dismissing divergent opinions as individuals who are misinformed. Instructors provide information that is assumed to be accurate with accuracy being confirmed through feedback on tests. In the transitional phase, learners realize that uncertainty exists -- not all information can be acquired or remembered -- which requires understanding and application of knowledge. Independent learners accept the learning has multiple sources, including peers and themselves. This stage marks a shift from waiting for information to be given by faculty to exploring for knowledge with their faculty serving as mentors and coaches. The final phase, contextual learning, introduces judgement which recognizes that knowledge interpretation can change with context. The task becomes one of applying knowledge to different situations and reflecting on the consequences of possible solutions.

Normal progression through these stages would be expected or at least assumed by many faculty. Surprisingly, Baxter Magolda found in her longitudinal study most students failed to reach the independent stage by their senior year (only 18%). Most students jumped into this phase after graduation. Students appeared to struggle after graduation to become contextual learners. By definition, however, a learning organization's success is predicated upon having contextual learners.

Encouraging faculty to adopt new teaching methods to accommodate the divergent learning styles and to incorporate exercises that propel students toward the latter stages of the learning process would certainly help. Yet, the most effective method may be to create opportunities to practice their learning in appropriate contexts outside the institution. A more tactful approach would be to discuss the need for expert practice; an opportunity nearly every faculty member experienced during their advanced degree programs. Young doctoral students

are given progressively more difficult research assignments until they can demonstrate to the satisfaction of their faculty that they are prepared to undertake their dissertation. Throughout the process, mentors and peers offer assistance and insight where failures are viewed as necessary steps to success. Undergraduates need the same opportunities to practice their craft; for the 85% who do not immediately pursue graduate school, practice takes place in the workplace. Faculty serve as sounding boards after these excursions to enlighten students in adjusting their learning styles to new situations. Waiting until after graduation to craft one's skills, the new graduate faces a different set of consequences; failures or slow adaptation can lead to termination. Thus, experiential learning opportunities add a critical dimension to an undergraduate education.

Interpersonal communication and teamwork development take practice and are supported by environments that stimulate interactions, typically the small class. Many students in their four years may actually lose communication competencies because they self-select their group of friends/associations which, over time, reduces the acuteness of their skills and limits much of their communication to one-on-one dialogue. Students liked to be teamed on projects with people they know and are comfortable with. Nothing arouses the anger of students than for a faculty member to assign team members. Workplace communication patterns continually involve dialogues with people one does not know; teams are formed and reformed with different, often new, members. To be inserted into unknown groups challenges even the best communicators. It is in these types of situations that new hires feel the most intimidation. The educational experience needs to incorporate more opportunities to have these types of communication exchanges, in addition to reading and writing.

Self-management starts with the basics, such as attending class and turning in assignments on time. Faculty believe they are dealing with adults and the decision to attend class is up to

the adult. Taking attendance for some faculty means taking on parental roles. At the same time, faculty can be "softies" on extending deadlines and accepting excuses for missed assignments. Students take these behaviors into the workplace with severe consequences. A recent study of employers by Johnson and Wales University found the leading reasons new college employees are fired included: poor attendance, failure to follow instructions, and lack of initiative (anonymous, 1995). Today's fast-paced changing economy requires higher standards of self-management; student expectations with regard to their behaviors must be raised. Being held accountable for class attendance and all deadlines is a small start toward better self-management.

These latter two competency areas would benefit from transition management exploration which relates student activities and behaviors to their eventual move into the world of work. Three student access points would accommodate these types of activities. During the freshman year experience or similar course, a learning style inventory could be introduced that provides insights on individual learning styles and approaches for dealing with other learning styles. Also integrated into this experience would be the introduction of a portfolio covering major skill/competency areas.

The second module would occur during the second half of the sophomore year or first term of the junior year, essentially bridging the freshman and senior year. This module would be organized around an assessment, similar to Wilson Learning's workplace assessment. Students will become aware of their ability to adjust their skills to context and have the time to practice and develop skills through a variety of experiences prior to graduation.

In the senior year, the senior year experience can focus on making specific steps to transition. This is different than an academic capstone course which integrates the content domain. In this module, attention can be paid to life skills, particularly time management, stress

and budgeting. Time is also needed to prepare mentally to leave their college community. For many students this mental release can be very difficult, causing them to contrive ways to delay their leaving. Students also need to begin to realize that there will not always be someone available to handle their concerns. Answers will come through their own efforts -- being able to utilize a phone book's yellow pages or develop a network of friendship and professional support.

In the materials prepared by Wilson Learning that accompany their assessment, they present the image of a bike as an analogy for a vehicle to take the student into the workplace and a career. The back wheel represents the student's academic or content skills; being attached to the chain, these skills are critical to getting a career started. The front wheel represents the applied, people skills which are necessary to navigate the bike around potential roadblocks and even change direction to a new position (Wilson Learning, Inc., 1993). Most students graduate with a well-developed front wheel; their back wheels, however, are not well-structured, causing problems during their early career.

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Figure 1. Comparison of Characteristics for the Traditional Workplace and the New Workplace

TRADITIONAL	NEW
Tenure-long, steady	Tenure -- short, not guaranteed
Advancement function of loyalty, relationships	Advancement -- few opportunities
Technical specialty	Breadth of knowledge with specialty
Control information for power	Enhance flow of information; analyze; conclude; recommend
Feedback -- limited	Feedback -- constant
Status based on longevity and relationships	Recognition -- based on performance
Compensation -- increase annually	Compensation -- small base with incentives and pay for knowledge
Managerial control	Peer pressure and employee self-control
	Team membership with individual assignments
	Unemployment -- part of process
	Emphasis on flexibility and creativity

Adapted from Reich (1991) and Boyett and Conn (1991).

TABLE 1. Skills and Factor Clusters Contributing to Successful Work Performance: RAND Study

Skill/Factor	Corporate Respondents (mean)	Academic Respondents (mean)
General Cognitive Skills	4.7	4.8
Social Skills	4.7	4.7
Personal Traits	4.3	4.3
On-Job Training	4.1	4.2
Knowledge in Academic Major	3.9	4.1
Prior Work Experience	3.6	4.0
Firm's Recruiting Practices	3.7	3.6
Cross-Cultural Experience	3.2	3.8
Foreign Language Competency	3.0	3.9
Attributes of Educational Inst	3.2	3.7

Source: Bikson, T.K. and Law, S.A. *Global Preparedness and Human Resources: College and Corporate Perspectives*. Santa Monica: RAND. Institute on Education and Training, 1994, p.10.

TABLE 2. Level of Skills/Competencies Required for Entry-Level College Educated Positions and Level of Educational Preparedness (mean score)

Major Competency Areas	Technical		Non-Technical	
	Performance	Preparedness	Performance	Preparedness
Reading	4.13	3.26	3.70	3.29
Writing	3.50	2.88	3.43	3.04
Speaking/Listening	3.91	2.98	4.01	3.29
Mathematics	4.16	3.72	3.44	3.02
Thinking Skills	4.34	3.11	4.25	3.15
Organizational Skills	3.95	2.95	4.26	3.23
Information Systems	4.33	3.59	3.76	3.28
Job Skills	4.06	3.16	4.21	3.12
Personal Skills	3.99	3.16	4.08	3.16

TABLE 3. Self-Evaluation of Their College Education: Strengths and Weaknesses

TECHNICAL GRADUATES STRENGTHS	WEAKNESSES
Problem solving skills	Oral communication skills
Technical (theoretical) skills	Written communication skills
Computer knowledge	Applying learning to real work situations
Report writing	Interpersonal/teamwork skills
Discipline/work ethic	Leadership/management skills
NON-TECHNICAL GRADUATES STRENGTHS	WEAKNESSES
Think independently/problem solving	Understanding world of work
Communicate: verbal & written	Application of theory to practice and hands-on experiences
Learning to learn	Specific content knowledge
General knowledge	Understanding of office politics, ethics, and business viewpoint
Interpersonal skills	Computer skills
	Flexibility

TABLE 4. Scores on Workplace Readiness Assessment for Undergraduates (mean)

	All Participants	First Year	Sophomore	Junior	Senior
Total Score	25.89	24.30	25.30	28.72	30.92
Applied Problem Solving	43.24	41.08	42.60	44.42	43.30
Interpersonal Effectiveness	32.39	28.56	28.33	31.24	36.18
Accountability	31.50	28.17	29.47	31.54	33.54

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