

THE NEW WORKPLACE

It has become commonplace to argue that the workplace has changed dramatically in response to a new competitive business environment that is marked by flexibility, fast response time, and managerial and technological innovations. Work organization is now, the argument goes, increasingly characterized by the integration of traditionally separate functional roles (e.g., design, engineering, manufacturing) and flatter organizational hierarchies with decentralization of responsibility and greater employee involvement. Innovation and speed are accomplished through teams of workers who monitor quality and take charge of reconfiguring the production process, thereby performing some of the supervisory, planning, repair, maintenance, and support functions previously the responsibility of managers or specialists. Compared to the traditional model of work, based largely on mass production, this new “flexible” model is thought to require less supervision but workers with higher and more varied skills.¹

It is also commonly asserted that students are ill-prepared for the future workplace and that they need new kinds of skills to perform

¹There is a large, growing literature on flexible production systems and new processes embedded in such systems, such as total quality management, just-in-time supply, quality circles, and the like (see Levine and Luck, 1994). In addition, comparative analyses examine broader institutional and cultural contexts to determine the economic and social forces that support the flexible model, including education and training systems (see Finegold, 1992; Finegold and Soskice, 1988; Soskice, 1991).

well. The dominant source of evidence that workers need new job skills comes from employer surveys and interviews. Natriello (1989) reviewed 14 studies of employer needs that focused on entry-level workers. He found that employers most often cited the importance of employee attitudes, followed by an emphasis on “generic” skills such as problem solving and communications over job-specific skills. And in a recent national survey, employers ranked applicants’ attitude and communication skills as the most important factors in hiring decisions (National Center on the Educational Quality of the Workforce, 1995). The conclusion that employers seem relatively satisfied with workers’ technical skills, but see a need for increasing generic skills and/or improving workers attitudes or dispositions, has been corroborated in a number of studies (e.g., Bikson and Law, 1994; Hudis et al., 1992; Cappelli, 1992).

One response to the perceived “skills gap”—the mismatch between the existing workforce skills supply and the skill demands in the new workplace—has been to redefine skill needs to reflect employer concerns. This redefinition shifts the focus from job-specific skills to general skills and adds other factors, such as attitudes or prosocial behaviors, that are not typically defined as “skills.” While several conceptions of new skills have been put forward, two will serve as illustrative examples. One conception, offered in a recent book by Marshall and Tucker, sums up “the emerging consensus on the skills needed to power a modern economy” (1992, p. 80) as follows: a high capacity for abstract, conceptual thinking; the ability to apply that capacity effectively to complex, real-world problems that may change as jobs evolve; the ability to communicate effectively, particularly when communicating within work groups, on highly technical topics, and with computer-based media; and the ability to work well with others as well as independently, with relatively little supervision.

Another conception is presented in several influential reports issued by the former Secretary of Labor’s Commission on Achieving Necessary Skills (SCANS, 1991, 1992a; 1992b). SCANS defines three “foundation skills” (basic skills, thinking skills, and personal qualities) and five work “competencies” that effective workers can productively use (resources, interpersonal skills, information, systems, and technology) (SCANS, 1991). In the SCANS framework, competencies and foundations are generic, in the sense that “most of them

are required for most jobs” (SCANS, 1992b) and are distinct from technical knowledge (SCANS, 1991).

A second response to the perceived skills gap is seen in school reform proposals. These proposals redefine what skills students should learn and how they should be taught.² Reforms advocate significant changes to the curriculum such as integrating academic and vocational education, teaching “all aspects” of the industry, and teaching general skills (e.g., problem solving, communication) in addition to purely academic or vocational subjects. Following new models of learning advanced by research in cognitive science (e.g., Stasz et al., 1993; Collins, Brown, and Newman, 1989; Raizen, 1989), reformers also advocate different approaches to classroom instruction, including more student-centered instruction, small-group and cooperative instruction, and project-based learning. Some argue that school-based learning should be integrated with work-based experience because some skills can best be learned on the job (Bailey, 1993a; Kazis, 1993). The School-to-Work Opportunities Act of 1994 (STWOA) emphasizes the integration of school-based and work-based learning as a program requirement.

Proposals that redefine curriculum and instruction need to be sensitive to the fact that perceived skill requirements in a changing economy present several challenges for educators. First, the content of academic curricula is generally organized by subject area and vocational instruction is often job-specific.³ Such organization focuses on instruction within a domain and emphasizes the development of knowledge and skills particular to that domain. Second, the reforms add work-related attitudes or dispositions to the list of competencies that students should acquire. Attitudes and dispositions are inevitably tied to beliefs and values, which schools often avoid teaching explicitly for a host of reasons. Third, most proposals fail to sufficiently specify how to turn recommendations for new curriculum

²For example, see the School-to-Work Opportunities Act of 1994; National Center for Research in Vocational Education, 1995; National Assessment of Vocational Education, 1994.

³Although the 1990 Amendments to the Perkins Act sought to broaden vocational education beyond job-specific training, the pace of changes is slow, and most school systems are trying to fit reforms into existing curricula rather than making broader curriculum changes (National Assessment of Vocational Education (NAVE), 1994).

content and pedagogical practices into instructional design strategies. This is particularly problematic for reforms that emphasize project-based or applied-learning approaches in which students learn and practice skills in “real-world” or “authentic” contexts. Teachers are typically trained and certified to teach along disciplinary lines. They have little opportunity to observe work contexts outside of school or otherwise gain the knowledge they need to contextualize teaching in ways that reformers envision (Stasz et al., 1993).⁴

The skill standards movement represents another response wherein reformers hope to effect changes in education that will extend to the workplace. According to its proponents, skill standards and certification should improve the fit between what is learned in school and what is needed on the job, thereby facilitating the school-to-work transition and strengthening the country’s economic position (Commission on Skills of the American Workforce, 1990). Another rationale behind the skill standards movement is to create a better certification system for the participating industries. A certification system can indicate to students what they must learn, provide motivation for acquiring particular skills needed in the workforce, and provide better access to a national labor market (if certifications are portable and recognized nationally). At the national level, the skill standards movement is cemented by federally sponsored pilot projects to develop skill standards in 22 industries and by the recently appointed National Skills Standards Board, established in the *Goals 2000: Educate America Act* (Bailey and Merritt, unpublished). These arguments for establishing a skill standards system are logical, although there are no studies on whether standards and certification will have the desired effects.

⁴The authors of the SCANS report, whose recommendations have been adopted by program designers and school-change advocates, caution that “the SCANS workplace competencies will not be widely taught unless teachers have access to instructional materials that *put them in context*” (SCANS, *Learning a Living: A Blueprint for High Performance*, 1992a, p. 45; italics added).

THE DEBATE OVER WORKPLACE SKILLS

As we have indicated, the current debate over the perceived “skills gap” lacks a clear and common conceptual framework (Berryman and Bailey, 1992). This creates several problems for defining skill needs and for devising education, training, or other policies to adequately respond to the concerns at hand. A basic problem centers on the concept of skill requirements and related definitions of work and skills. The concept of skill requirements is generally used to analyze both the characteristics of jobs (e.g., tasks, roles) and of the individuals who perform them (e.g., aptitudes, abilities, characteristics) (Attewell, 1990; Darrah, 1994; Spenner, 1990). Jobs are analyzed to establish what individuals will need to know and do in order to perform them.⁵ These job requirements, in turn, become prescriptions for education or training designed to prepare individuals for the job. Filling the “skills gap” is an exercise in matching people to jobs. Reforms to education or skill standardization and certification, mentioned above, are meant to assist in this process.

This concept of skill requirements, however, largely ignores the work context by viewing the workplace as a backdrop to individual actions. Absent is the idea—borne out in many studies of actual work—that workplaces are shaped by human choice and by the actions taken by those who work in them (Darrah, 1992, 1994; Scribner and Sachs, 1990; Billett, 1993; Lave and Wenger, 1991; Orr, 1991; Barley, 1995). Characteristics of the workplace can also structure action—work processes, technology in use, and incentives and disincentives for workers to learn and use skills. Learning work is not just a process of internalizing knowledge and skills “required” on the job, but a social activity.

An analysis of skill requirements that ignores work context draws attention away from workplace characteristics and possible shortcomings in firm behavior that affect skill utilization and performance, including poor management, fear of empowering workers, pursuit of low-wage options such as offshore production, and the depression of

⁵Traditional methods for defining job and task requirements produce narrowly defined task lists that ignore organizational and work context factors. While these methods are still in use, they may be inadequate for assessing skill needs in the flexible workplace (Bailey and Merritt, unpublished; Hanser, 1995).

wages, benefits, and working conditions (Ray and Mickelson, 1993; Teixeira and Mishel, 1993). Despite employers' concern that front-line workers will need new skills to be productive in the workplace, research consistently shows that they invest less in skills of production-level workers than in employees with higher educational background: the bulk of firm-based training goes to managerial, sales, and professional workers (Lillard and Tan, 1986; Vaughn and Berryman, 1989). When employers do provide training to production-level workers, they tend to invest sporadically in "customized" training geared toward specific skills (e.g., when new technology is implemented), rather than in broad training in generic skills (Rogers and Streeck, 1991). Furthermore, typical workplace training programs have been designed with the traditional model of work organization in mind, and are likely inappropriate for teaching the kinds of worker knowledge, skills, and attitudes desired under the flexible model emerging now (Bailey, 1993a).⁶ A review of worker training conducted by Congress' Office of Technology Assessment (OTA, 1990) concluded that classroom instruction is still the most common formal training method in the United States. Finally, studies emphasize formal training and its associated costs and benefits. They do not explore how individuals learn on the job through self-study, informal instruction by a co-worker, or the social organization that supports learning in the workplace.

In sum, an analysis of the skills gap that ignores the workplace itself has helped shape a somewhat one-sided public discourse that blames the gap on individuals who lack skills and on educational institutions that fail to adequately teach them. It focuses policy on reforming schools or creating standards for individuals to achieve and pays less attention to workplace reforms that might improve skills and productivity.

RESEARCH OBJECTIVES AND APPROACH

The goal of the research reported here was to expand our understanding of skills and work-related dispositions as they are consti-

⁶A similar conclusion has been reached with respect to publicly funded literacy or remedial skills programs linked to vocational education and job training programs (Grubb, Kalman, et al., 1991; Schultz, 1992).

tuted in technical work. Following sociocultural perspectives (e.g., Vygotsky, 1978), we view skills as a feature of the workplace as a social system, and not just features of individuals or jobs. Specifically, we went beyond the general skills or competencies, as described by SCANS and others, to illuminate the variations and similarities in “generic” competencies that occur in work practice. This shift is important for several reasons discussed earlier: most recent research suggests that general skills must configure to the work context, and an appreciation of this context can help educators and employers clarify what should be taught and develop more effective educational and training activities.

Second, we wanted to develop our understanding of the influence of dispositions on work behavior. Research has typically separated cognition from affective behaviors, while recognizing that both play a role in competent performance. Our previous studies of teaching generic skills for the workplace show that effective teachers emphasize noncognitive behaviors, like taking responsibility for one’s actions or applying effort to a task. Similarly, many employers appear to value attitude over experience or technical skill in their hiring decisions, and voice concerns that new applicants lack an appropriate “work ethic”. Schools fall short in developing appropriate dispositions toward work.

Third, we wanted to expand our understanding of the institutional context in which working activities—particularly learning on-the-job—take place. Just as school can affect teaching and learning activities through policies related to teacher professionalism or press for achievement (e.g., Stasz et al., 1990, 1993), human resource policies in firms can determine how work is organized, who gets trained, or how performance is rewarded. By examining aspects of the social organization of work at the level of the firm or enterprise, we can observe the relationship between work activities in a particular community of practice and the larger organization that helps shape work practice.

Our research approach employed multiple methods to examine skills and work-related attitudes in seven service and manufacturing jobs in the subbaccalaureate labor market. These jobs were selected from local sites in Los Angeles that were experiencing changes that affected skill demands of their technical workers, such as technology

implementation or workplace restructuring. Specifically, we set out to determine the following:

- What generic skills and work-related dispositions are evident in performing these jobs? How do workers conceive of them? How do the skills and dispositions vary across jobs and work contexts?
- How do firms view skill requirements, and how do these views affect human resource policies such as recruitment, hiring, and training?
- What formal and informal relationships do firms have with education providers, including secondary and postsecondary training institutions, to acquire and develop skilled workers?

ORGANIZATION OF THIS REPORT

Following this Introduction, the report is divided into five chapters. Chapter Two discusses the study's conceptual approach and research methods. Chapter Three describes the firms and jobs we studied. Chapter Four characterizes the skills and work-related dispositions in those jobs. Chapter Five describes firms' responses to skill needs. The final chapter presents our conclusions and discusses implications of the study for the current debate about skills, for school and skill standards reforms, and for future research.