

# Occupational Analysis and Work Education

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In recent years, politicians, business leaders, and the public at large have increasingly expressed concern about the nature and quality of work education in Canada. Among the broad conclusions drawn from public submissions to the 1981 Secondary Education Review Project in Ontario was the finding that:

. . . too little (emphasis is being placed) on equipping students with the basic skills, personal attributes, and technical training required for obtaining jobs and performing them satisfactorily. Job training and career preparation emerged in a recent Ontario public opinion survey as the highest priority for secondary schools. (Ontario Ministry of Education, 1981:1)

Compounding the problem of providing education for work are the dramatic and lasting changes which are taking place in the work world itself. Technological and organizational changes which are being implemented to improve productivity and competitiveness are at the same time having profound effects on the social relations and material conditions of the workplace. These developments have significant implications for education in general, and for work education in particular.

This paper will explore the question of whether developments in the field of occupational analysis can be used to help redefine the aims and purposes of work education in such a way as to provide students with the kinds of "really useful knowledge" (Waugh, 1982; Johnson, 1981) that will enable them to participate more fully in the social and economic changes which characterize the contemporary work world.

## *Social Efficiency or Social Growth*

The question of how best to prepare students to meet perceived labor market demands and the issue of whether or not such preparation constitutes an appropriate form of work education have divided proponents of what used to be known as vocational education since the beginning of this century (Drost, 1977; Wirth, 1974, 1983b). In the United States, for example, vocational education was a hotly debated public issue at the turn of the century. There were those, on the one hand, who wanted to maintain the traditional common school elementary curriculum (based on reading, writing, arithmetic, and citizenship) and liberal studies in the secondary schools. On the other hand were those who favored the introduction of

some form of vocational education. The advocates of vocational education, however, were divided in their thinking as well. This division has been characterized as conflict between two views about the relationship between education and work, embedded in a larger framework of assumptions about the role of schools in serving society. One represents an instrumental view that education is a device for increasing social efficiency; the other represents a pedagogic view that education is a mechanism for personal and social growth (Levin, 1978, p. 3).

The social efficiency view is closely associated with David Snedden, Commissioner of Education for Massachusetts and a leading advocate of segregated vocational schools. He argued in favor of programs to train students in specific vocational skills. He wrote:

The controlling purpose of vocational education is to produce fairly definite forms of skill and power which shall enable the learner to become a successful producer of a valuable service (Snedden, 1977, p.51).

From the instrumental view, schools must provide students with specific skills, behaviors, values, and attitudes in order to create a properly skilled and socialized adult workforce.

John Dewey, a contemporary of David Snedden and Professor at the University of Chicago, was one of the most outspoken critics of segregated vocational schools, arguing instead for an integrated program of vocational education and advocating the pedagogic view:

The kind of education in which I am interested is not one which will adapt workers to the existing industrial regime; I am not sufficiently in love with the regime for that. It seems to me that the business of all those who would not be educational time savers is to resist every move in this direction, and to strive for a kind of vocational education which will first alter the existing industrial regime, and ultimately transform it (Dewey, 1977, p. 38).

For Dewey, work in the schools provided education with broad social meaning aimed at transforming society and the organization of work within it to reflect participative, democratic values.

While the social growth view of education may have had considerable support in the early 1900's, in the intervening half century social efficiency has clearly become the dominant view in vocational education. Today, most secondary school vocational programs, whether in trades and technology, family studies, business and office, marketing, or agriculture, are aimed at developing entry level skills for specialized jobs (Bottoms, 1982; Hall & Carlton, 1981). Traditionally, these programs have been seen primarily as providing direct training for work. Recently, however, the terms of reference have shifted from specific job training to an emphasis on "basic," "life," and "employability" skills. It would be wrong to interpret this shift as a move away from an instrumental commitment to social efficiency. Rather it should be recognized as an adjustment to changes in labor market conditions.

In contrast to the industrial growth which characterized the economy at the time of Dewey and Snedden, a slow decline in manufacturing employment together with expansion in the service industries is what characterizes and shapes the occupational requirements in the current economic period. A popular interpretation of these labor market shifts emphasizes the expanding employment opportunities in professional and technical jobs. While it is true that jobs requiring high levels of education and training are increasing, so too are poorly paid and unstable occupations in the service sector. What are decreasing however are the employment opportunities in that sector of the economy that combined specific skill requirements with decent pay and job security, such as blue-collar production jobs in large scale manufacturing (see Freeman 1982). Specific skills training, therefore is less suited to the needs of employers today than when it was first put forward. The new emphasis on basic skills and attitudes corresponds to contemporary labor market demands which have been strongest at the top and at the bottom of the skill hierarchy. Increasing technocratization of the means of production and the concomitant polarization of skill level requirements in the labor market have tended to obfuscate the role of the secondary school in the production of a skilled work force. While the circumstances have changed, the social efficiency view of work education continues to hold sway. Technical skills training has given way to basic skills and attitude development because, as the Ontario Ministry of Education points out, "... employers make it clear that they value communication skills and attitudes such as reliability, acceptance of responsibility, and ability to work well with others, more highly than specific job related skills" (Ontario Ministry of Education 1981, p. 9). The important point here is not the shift from technical skills training to basic or life or employability skills training but the continuity of an instrumental approach which allows employers and labor markets to prescribe the most appropriate kind of education for work. The dominant mode both then and now is devised in terms of helping students meet the demands of employers. This is as true of traditional technical and business programs as it is of contemporary courses in career exploration and development.

### *Occupational Analysis and Technical Knowledge*

What helps account for this continuity is the long-standing reliance of vocational educators and more recently those in guidance and counselling on methods of occupational analysis to generate the job requirements profiles and occupational projections used in curriculum design and counselling practice. The field of occupational analysis itself grew out of the post World War I need for an allocation mechanism, that is, an efficient method for matching people (in this first instance, demobilized soldiers) with jobs (Dippo, 1985b, 1984; Smith, 1978). By profiling the characteristics of job incumbents, analysts were able to generate "requirements for satisfactory performance" on the assumption that what would be needed was what those on the job already had. Once a client had been assessed relative to these characteristics, s/he could be matched to an occupation with a similar profile of requirements. Occupational analysis, then,

provided the kind of technical knowledge needed for job placement. Since the 1930's, its areas of concern have expanded to include job transfer, training, and re-training; work design and re-design; evaluation and competency testing; occupational projection, and compensation. Proponents of occupational analysis suggest that while the mode of analysis may have been developed to serve other than educational purposes, it still provides a useful tool for producing the kind of information upon which to base work education curricula. This information continues to be formulated in terms of job requirements but, for education and training purposes, now emphasizes the development of high levels of proficiency in the "most fundamental" — the most durable and widely applicable — skills and knowledges believed to be needed to function effectively in a wide range of work settings. Thus, proponents of occupational analysis continue to argue that their methods can be a useful means of ascertaining what is "most functional" in work education.

Most modes of occupational analysis focus on functions, tasks, or traits to generate performance criteria and job requirements profiles. What is "most fundamental" is that which is most frequently used and/or required in a wide range of jobs. Sometimes referred to as "core skills," these fundamentals would include manual dexterity, use of whole numbers, receiving written information, using codes, and responsibility not to damage tools and equipment. Among the most widely used modes of analysis are Job Components Inventory (Banks, 1985); Functional Job Analysis (Fine, 1985, 1984), Position Analysis Questionnaire (Mecham & McCormick, 1985), Quantitative Job Analysis (Page & Prince, 1985); Job Elements Technique (Primoff, 1985), Threshold Traits Analysis (Lopez, 1985). Most vocational counselling and career development materials used in Canada today are derived from the Canadian Classification and Dictionary of Occupations (CCDO) which is based on functional job analysis (FJA). These materials and the programs which they support have been designed first to help students become more employable, by making them aware of the skills and attitudes most valued by employers and then, by helping them to develop those skills and attitudes in order to meet perceived and projected labor market needs.

### *Challenges to Conventional Wisdom*

Questions, however, are being raised about both the efficacy of such programs and the adequacy of the social efficiency framework which is their curricular justification. Pratzner (1985), for example, has called for a rethinking of the appropriate role and function of public vocational education, assuming that the dominant view is in crisis because:

1. Evidence suggests that vocational education does *not* provide lasting labor market benefits for most graduates (Anisef, Pasche, & Turritan, 1980, Daymont & Rumberger, 1982, Grasso & Shea, 1979, Lewis, 1983, Meyer, 1982).
2. In spite of efforts to match labor market needs, significant discrepancies are

reported in the supply and demand for skilled workers in a number of occupations (Dodge, 1981, Rosenthal, 1982).

3. Employers continue to complain about the lack of basic skills and appropriate work habits and attitudes among young workers (Ontario Ministry of Education, 1981; Useem, 1982; Nunez & Russell, 1982).

4. Obsolete equipment, lack of funds to up-date, and turnover of highly skilled and experienced faculty militate against highly specialized skill training at the high school level.

5. The more specialized skills are, the less transferable they are to other occupations and to other uses (King, Rees, & Hughes, 1986; Mohrman & Lawler, 1981).

What Pratzner (1986, p. 6) puts forward as an emerging, alternative paradigm for vocational education is one which is primarily concerned not with the needs and interests of employers and labor markets but rather with the developmental needs of learners and the interests of a democratic society.

What Pratzner is suggesting, reminiscent of Dewey's recommendations, is that it is important to move beyond a determination of what is necessary for satisfactory job performance to include what is necessary for effective participation in technological and organizational change. The problem for educators, however, is to determine *what are* the enabling knowledges, skills, and abilities which are consistent with this broader vision of work education. If conventional modes of occupational analysis are inadequate, in the sense that the knowledge they provide is always grounded in a concern with efficient placement and satisfactory performance, are there other ways of looking at and thinking about work which are more suited to the vision of work education Pratzner describes?

### *The 'Generic Skills' Option*

For years Arthur Smith has claimed that the job requirements profiles generated through conventional analyses are overly abstract and of little use to those involved in technical training or work education (Smith, 1985). His work in "Generic Skills" claims to be a more relevant, effective, and efficient way of thinking about what is "most fundamental" to work. Rather than accept the characteristics of incumbents as requirements, Smith focuses on "those job behaviors which are actively used in work performance, which are transferable from one job or occupation to another and which are needed for promotion to the supervisory status" (Smith, 1973, p. 1). The "Generic Skills" program provides an alternative to the worker functions/worker trains method of producing job profiles and determining transferability among and between occupations. The approach is based on an elaborate hierarchy of skills organized into what are called Trade Families. Not only does such an approach provide improved methods for determining transferability of skills from occupations in little demand to those in most need, but it advances a program of vocational training based on occupational clustering

and providing generic skills which would make students more occupationally flexible, hence more marketable.

Although the concept has been around since the early 70's, interest in Generic Skills, especially on the part of those concerned with education and/or employment policy, has been relatively recent. The concept has become more appealing, however, because it addresses a wide range of problems. Those concerned with developing mechanisms for providing equal pay for work of equal value view the generic skills structure as one possible means of evaluating skill levels and job performance across occupational groupings (Swail, 1984). Proponents claim that the generic skills structure will provide increased efficiency in the labor market mechanism and increased productivity in the economy as a whole by emphasizing the transferability of occupational skills and reducing "artificial" credentialing restraints and traditional occupational boundaries (CEIC, 1979). Those involved in training and education put forward the argument that as the rate of skill depreciation increases due to technological change and international competition, flexibility and adaptability become increasingly important to the future Canadian labor force. "Only through a new emphasis upon basic and generic skills can Canadians achieve the adaptability to acquire job specific skills at intervals throughout their working lives" (CEIC, 1984, p. 7).

There is, however, an implicit contradiction or at the very least an underlying inconsistency among the advocates of generic skills. On the one hand, those who seek to *provide flexibility* through reorganized programs of training and education define generic skills from within a re-skilling context or, in human capital terms, from within a commitment to upgrading the labor force. This approach to work education emphasizes broad-based training for a wide family of jobs rather than a narrow focus on preparation for one occupation as is the case in most secondary school vocational programs. On the other hand, those interested in *determining transferability*: are committed to developing an allocation procedure which will provide alternative occupations for people based on the identification of common technical skills and competencies. Generic skills in this instance are defined from within a de-skilling context allowing only for horizontal or downward mobility by emphasizing "the communality of skills rather than the uniqueness of occupations" (CEIC, 1978, p. 1).

#### *Limitations of Technical Knowledge:*

Any conceptualization of work skills which fails to recognize the socially constructed as well as the technical aspects of the term "skill" will be inadequate to the task of providing students with what they need, not just to find jobs and keep them but to participate effectively in the social relations of production. What is required is a conceptualization which recognizes the complex interrelationship among technological factors such as the complexity of job content (Braverman, 1974), organizational factors such as control over the processes of production (Edwards, 1979), and political factors such as the restrictiveness of entry into certain occupations which reflects historically structured sets of relations of

power and interest (Livingstone, 1983; Littler, 1982). Rather than being defined as decontextualized competencies, skills must be conceptualized with reference to the social relations and material conditions within which they are embedded.

In spite of the enthusiasm for generic skills, it is difficult to see how such a concept could provide the basis for a program of work education in the service of social growth. While different in their analytical concepts and methods, all modes of occupational analysis, including the generic skills approach, rely upon a decontextualized concept of skill necessary to produce the objectified version of "market needs" which the social efficiency view requires. The primary objective of curricula based on such analyses is to facilitate the efficient functioning of the labor market by producing flexibility and elasticity of substitution in the work force. The legitimacy of these kinds of curricula rests on the assumption that schools should serve the "needs" of the economy, an assumption which clearly locates occupational analysis within the social efficiency tradition.

The difficulty in appropriating occupational analysis as a way of thinking about work and using skill requirements as a way of thinking about curriculum is the absence of a larger social and educational vision. Occupational analysis emphasizes work tasks and satisfactory performance at the expense of ignoring work context and effective participation. As important as the introduction of new technologies are developments in the areas of work organization and design. What is needed, therefore, in addition to basic and occupationally transferable skills, is knowledge and understanding of the work world in general, and the organization and design of work processes in particular (Mohrman & Lawler, 1981; Pratzner & Russell, 1984; Wirth, 1983a, 1983b).

#### *Work Education and Social Growth:*

Effective participation in the social relations of production requires analytical skills as well as technical competencies. As John Dewey pointed out in 1916:

. . . education which acknowledges the full intellectual and social meaning of a vocation would include instructions in the historical background of present conditions; training in science to give intelligence and initiative in dealing with materials and agencies of production, and study of economics, civics, and politics, to bring the future worker into touch with the problems of the day and the various methods proposed for its improvement. (Dewey, 1966, p. 318-319).

Dewey's sentiments are echoed in the writings of several contemporary social theorists who charge that the power to participate in the conception and planning of production processes is systemically denied to those whose work education is restricted to training for a limited range of specific occupations. It is this recognition which prompts Harry Braverman to conclude that workers can regain mastery over the labor process only through a "comprehensive polytechnical education" which reunites knowledge of conception and execution (Braverman, 1974: 446). Ken Browne reiterates this theme when he writes,

an education which is linked with everyday experience, a high level of scientific, political, economic, and general education for all, and the integration of labor with learning, would

seriously undermine the exclusion and separation of the working class from the means of production" (Browne, 1981, p. 453).

Andre Gorz extends this argument to include a critique of all forms of education which produce stunted, utilitarian, technocratic-minded specialists. In his view such an education amounts to mutilation and results in individuals "competent but blinkered; zestful but docile; intelligent as far as immediate functions are concerned but stupid about everything else" (Gorz 1972:487-488). He scoffs at the suggestion that technological advance requires fragmented and specialized education. Rather, he suggests that what is needed is a basic "polyvalent" education aimed at developing the learning capacity of individuals. Such an education is essential if the worker in today's technological age is to be able to maintain his/her skills and avoid depreciation of his/her knowledge.

In a recent attempt to translate such pronouncements into suggestions for actual teaching practice, Linda Valli concludes her ethnographic study *Becoming Clerical Workers* with several recommendations for office education. Contrasting the goals of education with those of training she writes:

Rather than reifying and legitimating the social world, education helps students perceive the changeable nature of their surroundings, analyze the forces and relations that create and perpetuate particular social arrangements, and understand possibilities and strategies for change (Valli 1986:201-202).

Toward this end, she proposes a number of changes to conventional office education programs. Among them are: the inclusion of work experience as a starting place for discussion and critical reflection on students' identities as women and office workers, a more rigorous program of skill development aimed at giving students the competence and confidence needed to express their legitimate concerns and defend their legitimate interests at work, training in job analysis focused specifically on health and safety, automation, wages and benefits, and job rights and incorporating work-related social issues, such as employment equity and sexual harassment, into the office education curriculum.

### *Conclusion:*

If, like Dewey, we are interested in providing work education which takes as its primary objective, ". . . the development of such intelligence, initiative, ingenuity, and executive capacity as shall make workers the masters of their own industrial fate . . ." (Dewey, 1977, p. 38), then we must cease to rely on the purely technical knowledge provided by occupational analysis for direction in determining the curriculum. Instead, we must address the question of how to provide programs that enable students to develop the analytical skills, critical judgement, and social competencies to give them some measure of control over their lives as they enter into and participate in the social relations of the economic order. As Valli's proposals make clear, this requires using pedagogical as opposed to instrumental criteria to determine the kinds of knowledge, skills and abilities

which would enable students to develop alternative conceptions of what is possible, desirable, and legitimate.

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