A Reexamination of "Transferability of Skills"—Part I

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THE ASSUMPTIONS about "transferability of skills," so much a part of manpower thinking, are in need of reexamination in order to establish their basis in fact. This is necessary not only to define some of the practical limits of the idea, but to clarify its rationale. Moreover, the merit of transferability of skills as an instrument of manpower policy must be delineated through research. The first part of this article will examine some of the difficulties behind the assumptions about transferability. The second part (to appear in a subsequent issue) will draw upon recent work of the U. S. Employment Service (USES) in occupational classification research which provides criteria and guidelines not hitherto available for developing a systematic approach to the study of transferability of skills.

Need for Analysis of Concept

"Skills" refer to a worker's knowledge and abilities, acquired through training and experience, to do a particular job, such as machinist or carpenter, laboratory technician or nurse. "Transfer of skills," therefore, refers to the movement of workers with certain knowledges and abilities from one job to another. This special mobility is considered here to involve, or to make possible, continuous use of developed knowledges and abilities.

Potential continuity of use is usually established on the basis of so-called "similarity" between jobs. Similarity is determined by identifying those elements of a particular job that are considered relevant, designating them as criteria, and then comparing the elements of other jobs to them. The comparability of elements ranges from "identity" through varying degrees of similarity, to nonsimilarity. But the extent to which these job elements are identical or similar depends entirely upon their degree of specificity. If one of the criterion job elements is "knowledge of metals," two job elements are considered to be closely similar, if not identical, even though one involves knowledge of aluminum and the other knowledge of iron. If, on the other hand, the criterion job element is "knowledge of the machining properties of brass," then the job element "knowledge of machining properties of high carbon steel" is not related or only distantly related.

The ultimate similarity between jobs is also dependent on the scope of the elements. Technical performance abilities and knowledge elements have dominated the analyses made in the past, although aptitudes and physical capacity requirements have also been used. However, it may be that the scope of relevant criteria should include adjustment abilities to working conditions such as heat, cold, and noise, and to temperament requirements such as variety and change, repetitiveness, and fixed tolerance limits. They may be equal in importance to knowledge and technical abilities for effectively determining transferability.

Carefully determining the specificity and scope of job elements is, therefore, essential in establishing the similarity between jobs and the potential continuity of use of knowledges and abilities. It is also necessary to establish the relative importance of so-called identical or similar elements in arriving at judgments.

A careful reexamination of the idea of transferability of skills is particularly pertinent in the light of such current manpower problems as: Informing unemployment insurance applicants of jobs "suitable" to the skills they acquired on previous jobs; counseling workers who must change jobs because of handicap or age; redirecting workers displaced because of technological changes such as automation; making maximum use of military training and experience in civilian jobs and vice versa; earmarking certain civilian skills (e. g., watchmaking) as potential sources for critical and essential defense production determining which surplus skills can best be

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used for certain occupations in which "shortages" of workers exist; preparing for civilian defense, which would involve emergency need for very large numbers of workers in certain categories such as clearing debris, nursing, first aid, and protective services; and planning vocational training programs of the widest possible practical application in industry.

Skill is regarded as a national resource as valuable as our natural resources, and like them, something we do not want to waste. It appears wasted when a worker moves from one job to another which does not make continuous use of his developed skills. From this point of view, the problem then is to determine how the continuous use of skill can occur so that maximum utilization may be effected. However, we will examine later the idea that developed skills not in continuous use are indeed a waste.

Early Research

During World War II, the USES published its Job Family Series,[1] to facilitate decisions regarding the transferability of skills from surplus to shortage, nonessential to essential, and civilian to military. A "base job," such as airplane woodworker, was analyzed with respect to its requirements in type of work performed, machines, tools and equipment, materials, services, knowledge, or subject matter, and 48 estimated worker traits (e. g., dexterities, perceptions, coordinations). The criteria were quite general in each of these categories, some more so than others.[2] Several thousand jobs were similarly analyzed and then ranked in descending order as representing more to less similarity with the base job and, therefore, more to less favorable possibilities for transfer. Unfortunately, in the case of critical jobs, the skills that seemed the most likely possibilities for transfer were usually also critical and in short supply. By the time job categories not in short supply were reached, the relationship seemed to be farfetched or at least to offer no better possibility than starting with any available worker. There were many other difficulties, so many, in fact, that it was not feasible to conduct controlled studies. There is some evidence that the idea did lead employers to make hires they would not otherwise have made and workers to apply for jobs of which they might not otherwise have known. However, there is no way of knowing whether these hires, if successful, constituted maximum utilization of skill.

Prior to undertaking the Job Family Series, the USES explored the possibility that there might be "natural job families" in the normal mobility of workers from job to job. It studied 30,000 applicant registrations, in the late 1930's, to answer the question, From what occupational groups are the members of given occupational groups recruited?[3] For this purpose, primary occupational classifications were compared with supplementary classifications by means of the first digit of the USES classifications. From this study, the conclusion was reached that there were not enough cases available for a definite answer. This first direct attack on the problem did little more than indicate the difficulties involved in studying transferability of skills and the prime necessity of examining some of the basic assumptions associated with the concept.

Another attempt[4] was recently made to answer the same question of the USES study. The previous work experience by industry of 180 workers on an automobile assembly line was studied for possible relationship to the automobile industry. About half the workers came from 15 manufacturing industries (chiefly shoes and textiles) and the other half from 18 nonmanufacturing industries; the job categories included all the major groups from professional to unskilled; in addition, the workers overwhelmingly had come from nonassembly-line work situations in which they had individually determined the work pace. Thus, here again we have inconclusive evidence of transfer of specific skills.

In effect, both of these occupational background studies emphasize the prime necessity of asking and answering the question, "What are we looking for and what do we expect to find when we study transferability of skills?"

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[1] Job Family Series, Nos. 1–89, covering 77 occupations (1942–44). Out of print.

[2] Carroll L. Shartle, Occupational Information, New York, Prentice-Hall Inc., 1952 (ch. VI, pp. 161–187).

[3] Unpublished Occupational History Study, in files of USES.

[4] Charles R. Walker and Robert H. Guest, The Man on the Assembly Line, Cambridge, Mass., Harvard University Press, 1952.

Assumptions Underlying the Concept

Five assumptions about transferability of skills that need to be examined are considered in this discussion.

1. *Similar skills (knowledge and ability requirements) can be identified among jobs and transferability recommendations made on that basis.* A recent review of the psychological literature on transfer of training suggests the barrenness of the information available.

> The writer has recently had occasion to study a large number of articles and reports dealing with transfer of training. It was hoped that a body of experimental evidence would be found yielding conclusions of useful practical application but it may be stated at once that the search was disappointing. Exceedingly few of the experiments reported deal with the exercise of established skills in new or altered situations. On the contrary, the vast majority of experiments ring the changes on relatively simple stimulus-response situations where the activities involved are the learning of paired associates (nonsense syllables or other words) or simple motor responses to visual stimuli, etc.[5]

Some contribution has been made by the research in theories of learning. Munn [6] points out that where learning of one skill facilitates learning of another skill we have positive transfer of training. But earlier learning may have a negative effect upon the acquisition of a new skill and in this case we have habit interference. What determines whether the transfer will be positive or negative? Both can be attributed to either (a) similarity of content, (b) similarity of techniques, or (c) similarity of principles, or (d) a combination of these. Is there any way of predicting which might occur? "In general," Munn says, "when we are called to make old responses in new situations, transfer may be positive. When we are required to make new responses to old situations, transfer may be negative."

Thus, the identification of similar skills does not in itself help us with our fundamental problem. Sir Frederic Bartlett suggests another approach. He reports on research involving the learning on the part of operators of patterns of switch manipulation for lighting electric bulbs.

> Very consistently the move from a relatively easy to a relatively difficult setting [of the switches] gave rise to no positive transfer of an acquired skill, but the move from the relatively difficult to the relatively easy did give rise to positive transfer. More than this, it became clear that the order of difficulty that was most effective was precisely at that point at which the operator was being forced to consider ahead what he would do next, to plan a method rather than merely to acquire facility of movement. It would seem that just learning what to do in a given set of circumstances is never naturally, or normally, transferred to another set of circumstances; but learning how to do it may be. . . . from the point of view of their transfer functions, learning procedures cannot ever be reduced to overlap between items, or even to connections between any two items picked out from the sequence of the operation and considered by themselves.[7]

The foregoing suggests that the matter of similarity must be sought in the overall attack upon a problem. However, Chambers points out that although experiments of the type performed by Bartlett have research value, they tell us very little in connection with practical work situations. "Learning to do a test 'to criterion' in a few sessions is by no means the same as acquiring a skill over years of practice. In point of fact few, if any, operatives in industry or in the armed services need to learn words in paired association or to press 1 of 6 buttons when a green light appears at the apex of a triangle. What no one seems to know is how far proficiency in such artificial situations can be carried over to the real jobs done by workers in different occupations." [8]

Thus, at the moment, the findings of psychological research suggest that, while it is possible to identify similarities, it is still a problem to determine their true nature and how they function in transfer. The practical significance of this problem is evident from some of the inconclusive experience in dealing with it. For example, it can be shown that some elements in the work performed by some machinists (setup and operation of lathes, milling machines, and shapers, or use of files, micrometers, blueprints, etc.) are

[5] E. G. Chambers, Transfer of Training: A Practical Problem. (*In* Occupational Psychology, London, July 1956, pp. 165–168.)
[6] Norman L. Munn, Psychology, Boston, Houghton Mifflin Co., 1951 (pp. 223-228).
[7] Sir Frederic Bartlett, The Transfer of Training. (*In* Cambridge Institute of Education Bulletin, Cambridge, England, June 1954.)
[8] Chambers, op. cit. (p. 165).

identical with those performed by some tool and die makers, armament mechanics, or instrument assemblers. Also, some of the elements can be considered *similar* (metals with related characteristics; similar parts, but of different sizes; machines of same principle, but different size and make; different tolerances, although all involve fine accuracy). Yet when transfers occur among jobs such as these, some employers report success and others failure. It is at present extremely difficult to tell whether employers are referring to elements quite different from content, technique, or principle. In some instances, they may consider quick learning of certain new and unrelated duties as a sign of successful transfer; in others, they may be referring to failure due to inability to adjust to temperament requirements or physical demands.

We must conclude, therefore, with regard to the first question, that although similarity may be identified, it is not at all clear whether the right elements for transferability are being focused upon, or whether similarity has positive or negative effect in transfer.

2. *When transfer based on similarities of skills is explained to workers, they will choose among the opportunities presented.* Here recent labor mobility studies are most illuminating. They report on the movement of workers in the labor market, given various conditions, circumstances, and skill levels.

In 1936, in Philadelphia, the hosiery and textile industries were contracting, the radio manufacturing industry expanding.[9] The jobs in these industries, although quite different in knowledge requirements, place heavy demands on well-developed manual and finger dexterity, eye-hand coordination, and adjustment to repetitive short-cycle tasks performed under specific instruction. In other words, in general, the production jobs appear to require similar worker traits. Yet the radio industry did not mainly draw from the pool of unemployed and its reservoir of skills, but rather from new entrants into the labor market such as youths and housewives. The workers in the textile and hosiery industries preferred to try to weather the storm and stay with the industry to which they were accustomed rather than try new jobs in the radio industry. The textile and hosiery workers appeared well informed of conditions within their industry, and there was considerable mobility among workers but to identical jobs within those industries to secure "a better machine," "a better job," or "higher wages." Gladys L. Palmer suggests that family, friends, individual experiences, and immediate proximity to textile and hosiery plants occasioned this behavior.

The industrial attachment of the knitters is highlighted by their behavior in 1940, according to Palmer:

> Special defense retraining programs were developed for unemployed knitters with the active cooperation of the [International Ladies' Garment Workers'] Union in several cities, including Philadelphia. It was the hope of the union that knitters by reason of their knowledge of machine adjustments might be placed in the munitions industries, either on machine-operating or repair and adjustment jobs. But at the end of this program, as one union official ruefully remarked, the knitters applied for work as "knitters" rather than as "machine operators" or "machine adjusters." Nevertheless, many knitters and workers from other hosiery occupations did secure jobs in munitions industries during the war and have not returned to the hosiery industry.[10]

These latter moves may have been successful because of similar worker trait requirements, but no study was made to determine this.

Three studies[11] by the Bureau of Labor Statistics concerning the mobility of workers showed that (a) skilled tool and die makers overwhelmingly stayed within or very close to the specialized content area for which they were trained; (b) electronic technicians (a new trade) were only minimally (9 percent) drawn from such related fields as electrician, radio-parts salesman, electrical-appliance repairman; and (c) Ph. D.'s in chemistry, physics, and biology moved a great deal but between scientific areas in only the early job period. Later, the movement was between functions (teaching, research, administration) in their own scientific area.

These studies, as well as her summary findings of labor mobility in six cities, suggest to Palmer that:

> . . . career framework considerations outweigh accidental circumstances if one looks at the record of job

[9] Gladys L. Palmer, Interpreting Patterns of Labor Mobility. (*In* Labor Mobility and Economic Opportunity, by E. Wight Bakke and others. New York, John Wiley & Sons, 1954, pp. 47–67.)

[10] Ibid. (p. 55).

[11] The Mobility of Tool and Die Makers, 1940–51, BLS Bull. 1120 (1953); The Mobility of Electronic Technicians, 1940–52, BLS Bull. 1150 (1954); and Occupational Mobility of Scientists, BLS Bull. 1121 (1953).

career time, as distinct from a cross-section view of a number of single job transactions in a local market at any given time. For a variety of reasons, accidental factors play a significant role in the choice of first jobs, and such jobs may be a high proportion of the total number of job transactions at any given time. For some workers who have no major financial responsibilities or who would find it difficult to make satisfactory work adjustments under any conditions, accidental factors may play an important role throughout their work history, but they are in a minority. For most workers in selected manufacturing industries of a metropolitan community like Philadelphia for the years preceding 1936, the experience records appear to have a rationale, and what may be called "career framework" considerations explain many, if not most, job changes. Economic considerations loom large in this context. Workers quit jobs to get "steadier work," "more money," "better working conditions," "more experience," or what they consider to be a "promotion." If they are forced to change jobs by layoffs, they may have to accept any job that they can get, but their subsequent history will show an attempt to return to the company or work that they prefer or, occasionally, a permanent shift to a new type of work. For the latter type of change, which represents a modification of their career plans, they give explanations that are reasonable to them in terms of their qualifications and the character of job opportunities at the time.[12]

Thus, workers will not readily move to new occupations outside of their career framework even where there is the relationship that would suggest the possibility of positive transfer. From the standpoint of workers, transfers would have to be within an area of work where most of the elements are *identical*, not just similar.

3. *When transfer based on similarities of skills is explained to employers, they will accept workers with skills different from those initially sought.* Numerous studies such as those by Edelman [13] and Malm,[14] bring out the fact that only a minority of firms today, and those usually the larger ones, engage in job analysis to the point of having an analysis of requirements and qualifications. Obviously, if there is no clear statement or recognition of what is wanted, it is unrealistic to talk about similarities of skills. Furthermore, these same studies indicate that frequently, where employee screening and selection is effected by a personnel office even in firms that have job specifications, the final say as to hiring may be in the hands of a supervisor or foreman, who may reject the candidate. These rejections may be for any one of many reasons. The easiest one that avoids controversy—and, so far, defies analysis—is: "No the right kind of experience," but the true reason in some cases, may not be related to the job specifications.

Thus, "employer acceptance" is obscured to begin with, because of the relatively limited area in which it can be studied and the difficulty of getting at the true facts. The writer has been unable to study this very difficult problem under controlled conditions, but like other workers in the field, he has been confronted with skeptical and sometimes bitter attitudes on the part of employers regarding so-called related experience. Attempts to track down the basis for these attitudes suggest that they have little to do with the transferability of training, but much to do with poor communication between employer and placement worker. Frequently, the placement worker had a very insubstantial basis for suggesting a relationship and no knowledge of how such placements had worked out in other instances. In other situations, the employer had such a vivid image of the kind of person he wanted in the job (usually the image of the person who had vacated it) that he was impatient with the worker whom he ultimately and reluctantly accepted.

In any case, many employers have built up special mental barriers against accepting workers with so-called related experience. Employers in aircraft plants during the war, in some instances, refused to hire machinists and machine hands from the automobile and heavy transportation industries for jobs with the same title in their industry because of their expressed belief, presumably based on experience, that workers from those industries could not adjust to the closer tolerances required in the aircraft industry. Further, one automobile employer in Detroit told the writer that he would rather not hire assemblers with experience in a plant of a competitor for the jobs in his plant because "we do things differently on our line and if he comes from *X* he gets mixed up and the line breaks down." Department store personnel workers are wary of former salespeople from certain other stores in the same city because "they are not our type." Garment manufacturers and often workers themselves insist that exactly

[12] Palmer, op. cit. (p. 66). See also Gladys L. Palmer, Labor Mobility in Six Cities, New York, Social Science Research Council, 1954.

[13] Murray Edelman, and others, Channels of Employment, Urbana, Ill., University of Illinois, 1952.

[14] Theodore Malm, Hiring Procedures and Selection Standards in the San Francisco Bay Area, Reprint 54, Berkeley, University of California, 1955.

the same operation is not transferable to a different price or style garment, apparently meaning that the readjustment would be too great.

All of these examples suggest that close similarity among jobs is a drawback in many employers' minds. However, their attitude toward related experience is basically conditioned by more fundamental attitudes, as pointed out in a recent survey of hiring practices in the Trenton area:

> In hiring, the plant managers usually selected employees whom they expected to be able to hold and train, and consequently they preferred married workers in their middle or late twenties. Selection may be determined, not by the applicant's physical characteristics or experience, but by the plant interviewer's judgment of "the applicant's character traits, his worklife potentialities for jobs up the line, and his social fitness for the sort of work force the company has or seeks. Judgment is really on a multijob basis. For a variety of reasons, a company in hiring may discriminate against some races, some nationality groups, and some age classes, or against persons with too much or too little education, intelligence, or ambition." Thus, management's specifications are often highly subjective; moreover, they may change with the times.[15]

We must thus conclude that, under present conditions, there is not much assurance that the concept of transferability is either acceptable to employers or easily subject to practical test by them.

4. *Workers and employers are free to make the choices presented by transfer possibilities and will make them because of need.* It appears that to an ever greater extent the jobs to which workers move are determined by certain "lines of force" or structural conditions within the labor market.[16] As Clark Kerr points out:

> Barriers to movement are set up by the skill gaps between occupations and the distance gaps between locations. Beyond the specificity of skills and the money costs of physical transfer, lie such various but no less important impediments to competition as lack of knowledge, the job tastes of workers, their inertia and their desire for security, and the personal predilections of employers.
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> Moreover, workers and employers form attachments for each other which neither like to break lightly . . . and separation is for cause only. Thus most jobs, even without institutional rules, belong to single workers or to small groups of workers.[17]

But, in addition, there are institutional factors which further limit the freedom of choice, and Kerr points out that these institutional factors are significantly shaped by type of union membership.[18] Thus, the craft union limits the mobility of workers within a carefully defined occupational and geographical area. The worker's security is based on skill but the use of this skill is nevertheless carefully defined and restricted. In the industrial enterprise, workers' mobility is also limited by seniority. Two exceptions to the rigidity of seniority, both of which apparently attempt to recognize similarity among skills, are found in personnel practices and collective bargaining agreements which (1) provide for consideration of the ability of workers or (2) allow for movements within such organizational job categories as production, maintenance, or sales, among which there is no competition.[19] These conditions existed in the main before the unions obtained any control over the employment conditions of their jurisdictions. "The institutional rules, however, do match men and jobs more precisely in the craft case and the man and the job in the industrial case, than was done informally before their introduction." [20]

The structuring of the labor market pertains to the "outs" as well as the "ins." There are only limited points of contact between the two. The competition is mainly among the ins and among the outs. Among the many reasons that workers do not find jobs is that they do not meet the specifications set by employers and unions. ". . . as the specifications become more formal and cover more jobs, determination of the specifications becomes of increasing concern to persons in the external market who are universally unrepresented in the councils which set the specifications." [21]

In view of these observations, based on extensive study and substantiated from many directions, one must conclude that the freedom of workers and employers in the labor market is considerably restricted. Particularly restricted are workers who have acquired skills or experience and thereby become attached to a craft or an in-

[15] See Employment Practices in Trenton, N. J., Manufacturing Plants (summary of Hiring Practices and Labor Competition, by Richard A. Lester, Princeton, N. J., Princeton University, Research Report Series No. 88, 1954) Monthly Labor Review, February 1955 (p. 192).

[16] E. Wight Bakke and others, Labor Mobility and Economic Opportunity, New York, John Wiley & Sons, 1954.

[17] Clark Kerr, The Balkanization of Labor Markets. (*In* Bakke and others, op. cit., pp. 94–95 and 95–96.)

[18] Ibid.

[19] Somewhat analogous considerations exist in the Federal Government reduction-in-force system and its areas of competition.

[20] Kerr, op. cit.

[21] Ibid. (p. 103).

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industry. Their next move is to secure themselves. In doing so, they drastically limit their freedom of movement. Kerr concludes: "For society to remain free and open, many ports of entry should exist and the immigration barriers should not hold outside the able and the willing." [22]

5. ***Transferability is desirable from an educational standpoint since it shortens training and reduces cost.*** This assumption appears to be much too broad since there are known to be problems of transferring training for a specific job to the job itself. Ghiselli and Brown call attention to Gilbreth's experience with bricklayers:

> He found that trainees instructed under slowed-down conditions learned a set of movements that handicapped them in performing under normal working speed. It was necessary for them to learn a different set of reactions under the faster rate used in actual bricklaying. It also was found that these earlier reactions retarded the speed of learning of the correct responses.
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> It must not be thought that these transfer effects are found only between training and job performance of novices; they apply equally forcibly to the training of older workers for new jobs. The problem with older workers is of even greater difficulty because of the potential transfer value from their old skills and abilities to their new type of work. Even when no formal training is given to the old worker before he is transferred to a new job, there must be a transition or breaking-in period during which any interference from his old skills can be overcome and adequate adjustment made." [23]

What do workers themselves say about the applicability of prior training to their ultimate jobs? A Bureau of Apprenticeship study [24] is somewhat informative, although it does not define "related" occupations and we must assume that related means a very substantial overlap in items such as materials, machines, type of instructions, and basic knowledges. This study followed up former apprentices, inquiring which training received while apprenticed helped in various types of employment. Ninety-six percent of those who were employed in the same trades in which they had been apprenticed, and 74 percent of those in closely related trades, considered that their training was a great deal of help or of moderate help. Fifty percent of those working in other and unrelated skilled trades, and about 20 percent of those in some semiskilled or other occupation also considered their training of great or moderate help. This study appears to support the view that training in one kind of work is helpful in other kinds of work. We must nevertheless note that very significant percentages did not feel that their training was of any help in related or unrelated trades.

Not nearly enough is known about the transferability of training, but some recent conjectures may actually change our thinking on this matter completely. The way to reduce training costs and maximize skill potential may, in effect, be to assign workers trained up to a relatively high degree in some craft offering a wide variety of challenges in possible method and approach, to simpler, less demanding tasks of the same or some other craft, nevertheless requiring similar methods and approaches. For example, Bartlett,[25] commenting on the research noted earlier, suggests that it might be wise to first "introduce the learner at a stage that is already a little difficult for him, and to be a little less concerned than people usually have been with complete and specific efficiency in whatever it may be that is being learned. . . . Then, by practice and precept to set the learner from a very early stage on the way to realize that the number of the ways of doing things is very far short of the number of the things that have to be done, and that methods, procedures, plans of attack remain much the same in circumstances and for problems which at first sight appear very different from one another." In short, effective economy regarding transfer of training may have little or nothing to do with apparent similarity among jobs based on identity of material, machine, subject matter, or even certain traits such as dexterities. The problem of transfer may be one of training individual judgment to determine whether very different jobs may not actually be approached by identical methods.

Rationale of Transferability

The appeal of the idea of transferability of skills seems to be based on the ideal of economy and efficiency—the avoidance of waste. Such an appeal stems mainly, it would seem, from the view of the worker as an adjunct to a machine

[22] Ibid.
[23] Edwin C. Ghiselli and Clarence W. Brown, Personnel and Industrial Psychology, New York, McGraw-Hill Book Co., 1948 (pp. 329–330).
[24] Follow-up Study of Former Apprentices, U. S. Department of Labor, Bureau of Apprenticeship, Technical Bull. T-143, December 1954.
[25] Bartlett, op. cit.

or work process. He is regarded much as the all-purpose machine which, depending on the setup and attachments, can produce various items and thus be used to the maximum. Also, if the machine can be set up for multiple complex operations, but instead is used only for one or two simple operations, this is inefficient.

A number of considerations suggest that workers are not realistically viewed in this light. (a) Skilled workers and professionals, even when in the jobs to which best adapted, are not always working at their maximum skills and using their total training. Their jobs involve a range of activity and changes of pace perhaps needed for them to meet peak performance demands. (b) Workers have many skills which they are not using directly on the job. These skills may have been acquired in schools, at home, or in a social situation connected with leisure-time activities. The worker may associate these skills either with enjoyment of life or with personal ambitions anticipating self-realization of potential abilities. Their value to him is not necessarily associated with economic utility. (c) The continuous use of developed knowledge and training is most obvious in moving among specialized areas. On the other hand, as Bartlett suggests, the most significant transfer may not be evident in specifics, but rather may be due to broad experience in many work areas and resulting sophistication as regards methods. (This may be behind the demand for persons with generalized rather than specialized training, in certain planning and executive jobs.)

Summary

Thus, there is good reason to question the premium placed on transferability of specific skills as a means of achieving efficiency and economy in manpower utilization. Maybe it represents such a means, but first there must be a clearer idea of what transferability is, beyond the situation summarized below.

Identification of skills and knowledge: Although similar skills and knowledges can be identified among jobs, (a) the accuracy or utility of this identification depends on the degree to which the skills and knowledges are specifically defined, and (b) determination by controlled study whether such similarities will aid or hinder transfer. Such studies have not yet been made.

Knowledge of transferability as a basis for choice: Knowledge of so-called transfer possibilities—based on occupational comparisons—is not by itself a crucial factor in placement activity. Much more fundamental limitations exist. With workers, for example, career framework considerations appear to be equally important. With employers, such factors as the momentary condition of the labor market and the character of the job specifications by which they hire are crucial.

Freedom of choice: Quite apart from the decisions of individual workers or employers, institutional factors exist, such as union controls, which place restrictions on transfer.

Relation to training costs: Transferability of skills is not at this time a very valid basis for economizing in training. As yet, there is no adequate basis for an understanding of this problem.

Nevertheless, transferability of skills probably has merit as an instrument of manpower policy when it is clearly disassociated from mobility of workers in general and when account is taken of the broad range of variables influencing transferability, beyond obvious similiarities in machines, materials, and type of work. A systematic approach toward understanding the feasibility of the concept for particular problems, and at the same time demonstrating the wide range of variables that need to be used to apply it in those problems, will be outlined in the second half of this article.