

# Changes in Occupations? A Commentary and Implications for Practice

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**Fundamental changes occurring in the nature of work have led some authors to contest that established approaches to delivering career services may no longer be efficacious. This article challenges such notions and examines the idea of changing occupations and how these changes may influence the delivery of career services. While important changes have occurred, occupations remain a viable unit of analysis for the assessment and information resources used in delivering career services. The article concludes with clinical implications for career counselors and service providers.**

**Keywords:** career services, occupations, assessment, career theory, technological innovations, clinical implications

While the efficacy of various educational and vocational guidance interventions has always been a matter of debate, concerns have been raised about the continued use of interventions developed in the past and based on possibly outdated concepts (e.g., occupation). An example of such a concern was raised most recently by Savickas et al. (2009).

We reviewed the literature on this topic and constructed a generalized assertion compiled from various sources:

*The transition from the industrial age to the information age has been accompanied by unprecedented change. Virtually every aspect of modern life has been impacted by technology. Occupations have changed in fundamental ways as technology and globalization have reshaped the workplace. Occupations have become fluid and organizations are evolving rapidly, adapting their workforce to respond to a rapidly evolving marketplace.*

Although the wording of this concern changes from one talk or publication to another, the essential elements are often repeated in the media and mentioned in presentations at professional meetings. This assertion has been repeated so often that it has attained the status of fact. The only problem is that it is not true. An analysis of current labor market information indicates that the extent of change in occupations, while real and important, is not as pervasive as common knowledge would have us believe.

A second assertion follows from the one above:

*Much of the current practice in educational and vocational guidance is the product of the industrial age. Old models of practice, based on ideas about occupations and work that have changed dramatically, need to change to reflect the demands of the information age.*

These assertions, although popular, are flawed for two reasons. First, the extent of change in occupations is not as great as commonly assumed. Second, even if substantive changes have occurred, we have no data showing that well designed and implemented career interventions created in the past are no longer effective (Brown et al., 2003).

This paper examines the idea of changing occupations and how these changes may have affected the delivery of career services. For the purposes of this paper, occupations are defined as “a group of similar positions found in different industries or professions” (Reardon, Lenz, Sampson, & Peterson, 2009, p. 7).

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## Misperceptions of the Extent of Change in Occupations

The perception that unprecedented change has occurred in occupations is the result of a variety of factors, including: (a) the idea that the magnitude of change between the agricultural and the industrial age was less than the change between the industrial age to the information age, (b) inaccurate information in the public media about change in occupations, and (c) the failure to use career theory in analyzing occupational change.

## Change Across the Agricultural, Industrial, and Information Ages

Technology changes over time have profoundly influenced the lives of individuals, organizations and governments. For example, the steam engine and electricity changed the nature of work from the agricultural age to the industrial age, and the computer has led to the current information age. Some consider the extent of change between the agricultural age and the industrial age as less than or equivalent to the extent of change between the industrial age and the *information age*. In a discussion of the information age, Watts (1999, p.1) noted, “Robert Reich has called it the ‘second great crossing,’ comparable to the move from the land to the factory.”

While this assertion may be true in some respects, the magnitude of these changes is not equivalent in our opinion. First, there was a massive geographic displacement from rural to urban areas in the transition from the agricultural to the industrial age. While relocation of workers still occurs at the present time, it is not on the scale that it was a century ago. Individuals moving from manufacturing to service occupations are often able to obtain employment without physically relocating. Moreover, in many instances it is factories that are moving to locations where labor is cheap. Second, 100 years ago success as a farmer was dependent on having a wide variety of skills. For example, the farmer did the work because it was too expensive to hire someone else to repair machinery. When farmers moved to urban areas and began working in factories, the range of job skills needed declined substantially. Work was simplified and made routine in order to improve efficiency in the factory. While this was not true for all workers, it did create a clear demarcation in the nature of working between the agricultural age and the industrial age.

More recently, Friedman (2005) suggested that technology innovations and the global economy now make it possible for individuals to work more independently in a *flattened world*. The work is accomplished in real time without regard to distance or worker location. While new forms of business organizations and ways of working will lead to occupational changes in the information age, the most important difference today from the past may be simply the rate of change.

As aforementioned, we do not see the changes in occupations and work occurring between the industrial age and the information age as having been as dramatic as the changes between the agricultural age and the industrial age. While information technology has increased the speed of change and the increasing complexity of work tasks has required more collaboration among workers, we believe the amount of change in occupations in our contemporary world has been oversold.

In all three eras, there were and have been changes in gender roles and relationships, family life, lifestyles, financial income, the kinds of jobs available, ways of working, job training and the diverse characteristics of workers (e.g., ethnicity, disability, and the nature of occupational choices). But, there are still jobs in construction, business and social services, food production, manufacturing, transportation, education, and a host of other industries, and these jobs comprise the occupations that persist in the new age.

## Public Media Information about Change in Occupations

The perception that occupations are undergoing substantive change has been exacerbated by inaccurate information about occupations presented in mass media. The fact that the demand for home health aids, accountants, receptionists and food service workers is growing at 5% is not particularly newsworthy. However, the fact that the demand for robotic technicians is increasing at 50% per year is newsworthy, especially when the story is accompanied by video of a robot performing simple household tasks while the homeowner watches from a corner of the room and comments on how nice it is to have a robot. A brief interview with the robotic technician, stating how exciting and rewarding their job is, reinforces the notion that robotics work is a good option for the future. However, reality presents a different picture.

The concept of big growth and fast growth occupations (Reardon et al., 2009) is relevant here. For example, projected employment growth for environmental engineers and accountants/auditors from 2002 to 2012 shows 18,000 for the former and 205,000 for the latter. But, when the percent of employment growth is examined for these two occupations, the rate for environmental engineers is 38% (fast growth) and accountants/auditors are 19% (big growth with 205,000 jobs projected). The distinction between big growth occupations and fast growth occupations is rarely mentioned in the media. The public, as well as educational and vocational guidance practitioners who have limited knowledge of labor market information, easily conclude that substantive changes in occupations are occurring when only percent change is examined. Indeed, occupations with the most openings are not new, different, or unique but familiar and common (Reardon et al., 2009).

Pikulinski (2004), an economist with the U.S. Department of Labor, reported that most new and emerging occupations are in firms with fewer than 100 employees. Even many of the fast growth occupations in the U.S. are in familiar areas of work. For example, 11 of the 20 fastest-growing occupations are in the fields of health services or the provision of social, personal, or mental health services (Reardon et al., 2009).

## Using Career Theory to Understand Occupational Change

Occupational change can be examined from the standpoint of Holland's (1997) career theory and provides a familiar schema for counselors in examining occupational change. U.S. census data from 1960 to 2000 provides evidence about the extent of change in occupations relative to Holland codes. First, occupational titles included in the census have remained quite constant over time, which is an indication of stability in occupational schema. Second, the pattern of employment for men and women by Holland code (realistic, investigative, artistic, social, enterprising and conventional) has been relatively stable (Reardon, Bullock, & Meyer, 2007). Third, realistic jobs have held constant from 1960 to 2000 and employed the most people; however, the percentage of people working in the realistic area has been declining. Very few people work in the Artistic area (about 1–2%) and this has remained constant over five decades, but occupational employment in the enterprising area has been increasing slightly over the same period.

The application of a career theory developed over the past 40-plus years adds to our understanding of occupations and occupational change, and it should be a basic tool for career counselors. However, this is not often noted in much contemporary career literature forecasting the demise of work as we have known and understood it. We believe that Holland's (1997) matching model is supported by data and experience related to occupational employment and can inform career services.

## Actual Changes in Occupations

It is obvious that some change has occurred in occupations. For example, we would suggest that most occupations have been impacted by information technology ranging from bar codes, cell phones, computers, the Internet, social media and more. However, other aspects of work have not changed. Essential work behaviors such as problem-solving, written and oral communication, interpersonal relationship skills, manual dexterity, and creativity have remained constant despite rapid changes in technology. Moreover, job vacancy notices are still posted announcing the availability of work, and job titles are used as a quick way to communicate information about the nature of the work. Internet job boards such as *CareerBuilder* and *Monster* list millions of positions daily, and these positions have job titles for specific employing organizations that can be generalized to occupational titles across fields of work.

Consider the following examples: In dentistry, technology has led to improved instruments, electronic databases are used to store patient records, and X-rays are now viewed and stored digitally. However, other aspects of work have not changed. Essential work behaviors such as assessment, diagnosis, treatment planning, communication with patients, manual dexterity, and selecting and managing staff remain essential to the success of a dentist. The essential work behaviors of a dentist have not changed in 100 years.

Carpenters are another example. Despite advances in materials and methods of home construction, carpenters are still employed in large numbers. Although the use of prefabricated building materials has reduced the need for some specialized craft skills, such as making crown molding, the essential work behaviors of problem-solving, eye-hand coordination, teamwork and planning have remained constant.

The number of individuals employed in various occupations increases and decreases with changes in the economy. This dynamic was as much a feature of the industrial age as it is in the information age. The loss of positions for the coopers who shaped wooden staves and assembled barrels occurred in the industrial age long before computers became commonplace. Web designers are often given as an example of the substantive change currently occurring in occupations. Forklift drivers were unknown in 1870, but were commonplace by 1950 during the industrial age. The pace of change in the information age is undoubtedly faster, but it is a mistake to confuse the rate of change in occupations with the extent of change. A relatively small number of occupations appear and disappear in the labor market each decade, but the characteristics of most occupations change only incrementally and these changes are often peripheral (as is the case with dentists).

Occupational credentialing provides additional evidence of the relative stability of occupations. Despite changes in work tasks, numerous occupations still require a license or certification to work independently. There is no evidence that the number of occupations requiring a credential has decreased. Certainly the knowledge and skills required for credentialed workers evolves over time. These changes are reflected in content modifications in licensure and certification exams, as well as changes in experience requirements required for credentialing. However, the core elements of credentialed occupations are stable enough to warrant continued certification.

The process of identifying and describing an occupation is the work of occupational analysts who use a variety of specialized tools and classification systems in their work. For example, analysts working with census data examine hundreds of thousands of jobs and employment situations reported by citizens in each census period. Researchers then categorize the detailed job information into occupational groups using the census occupational codes and more recently the *Standard Occupation Code* (SOC; U.S. Dept. of Labor, 2000) to classify occupations. SOC is the system now used with *O\*NET*, the online, comprehensive listing of the most common occupations in the U.S. that employ the most persons.

## Implications for Practice in Career Services

We believe the magnitude of change in occupations has been oversold in professional counseling literature and in the popular media. The transition to the information age has not had the substantive impact on occupations that is generally believed. Thomas Gutteridge and Raymond Palmer, a researcher and career counselor, respectively, suggested that it is jobs that are changing, not occupations (as cited in Patterson & Allen, 1996). They noted that it is a mistake to consider the occupational world as unstable or unpredictable because the vast majority of occupations change very little. The findings of Reardon, Bullock, and Meyer (2007) support their assertion. The career assessments and career information used in the provision of educational and vocational guidance services are based on occupations and not jobs, and practitioners should have confidence that this is a useful schema for career services.

While a few occupations will change more, most will change less. Labor market analysts have the expertise to maintain the validity of occupational data. We also have the technology required to maintain and quickly disseminate these data. However, without a public policy to provide adequate and stable funding for analysis and dissemination of occupational information, the opportunity to provide individuals with potentially helpful career information will be negatively impacted.

While important changes in work have occurred, occupations remain a viable unit of analysis for the assessment and information resources used in delivering career services. It is inappropriate to assume that current changes occurring in the nature of work are a sufficient justification for substantive change in the delivery of career services. Career interventions that are old are not out of date unless there is evidence that some other intervention is more effective. Changes in the delivery of career services should be based on evidence that changes are warranted and that other interventions are likely to be more effective. New ideas are not necessarily better and old ones are not necessarily worse. As Savickas et al. (2009, p. 240) stated, "...we must not lose sight of those valuable contributions of 20th century theories and techniques that remain relevant in this new era. As we go forward, we should manage the great inheritance of the last decades of the 20th century, while increasing its richness."

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