

CHAPTER I

INTRODUCTION

The Problem and Its Setting

Much of current Vocational Education is redundant, obsolete, and superfluous when only the economic expectations of those who participate in and fund this activity are used as criteria. Many of the remaining activities are also rapidly becoming non- or counter- productive when evaluated using mainly economic or employment related criteria. This does not appear to be due to any sudden lack of commitment or abrupt failure on the part of the institution of Vocational Education or those who participate in and fund it, but rather due to continuing basic and fundamental structural shifts in the American society, culture, and economic organizations which both well served and were well served by Vocational Education for many years. Indeed, the cost in time and money to produce competent and qualified employees for jobs of ever-increasing complexity and responsibility has been continually reduced. The problem is that the traditional formulas no longer meet the learners' objectives of increased income and employment stability, the general public's expectations of economic growth and development, and the government's objectives of increasing revenues while lowering tax rates, improving social conditions and increasing citizen engagement/ participation. Given the technological basis of much of our society and culture, Vocational Education has an increasingly vital role in education, but not its traditional one.

Statement of the Problem

Given that enormous amounts of time, effort and money are being invested in Vocational Education and that rapid and massive structural changes have occurred and continue to occur in the economic and other structures of the United States, it is reasonable to perform a critical, effectively zero-based, evaluation or reassessment of the apparent effectiveness and efficiency of Vocational Education in meeting its major stated and implicit expectations, goals and objectives under recent, current, and projected conditions. This is particularly true in that a preliminary literature review did not discover such a critical evaluation or assessment which overtly considered the drastic economic, social and cultural changes in the United States from about the end of the war in Vietnam (1968) to the present (1998).

Significance of the Problem

The lack of such a critical assessment or evaluation has caused legislators, policy makers, (potential) practitioners, employers, learners, and other stakeholders in Vocational Education to base their decisions on what may be obsolete information and theoretical cognitive models or paradigms. While in many cases useful or expected outcomes are still obtained when obsolete / obsolescent models and information are used, in many more cases either no positive out-comes are produced or even worse, counter-productive

outcomes result. Two examples of non- or counter- productive outcomes, which the nation can ill afford, can easily be projected:

- There will be a continuing massive mis-allocation of scarce resources of time, money and attention in non- or counter- productive efforts; and
- The existing loss of faith in “The System” will be amplified and exacerbated, increasing the already excessive perceptions of distrust, alienation, separation and abuse by those who have “played by the rules,” but have still “lost.”

Although many other factors are important, there is a need to concentrate on the apparent economic impact of Vocational, Occupational and Technical Education [VOTE]. That concentration is based on two primary observations.

First, the quintessentially American attitudes and perceptions of many, probably most, Americans as succinctly expressed in the following phrases:

- “Show Me the Money!”
- “What’s the bottom line?”
- “Greed is good!”
- and the ever-popular and ubiquitous phrase “Cost / Benefit Analysis.”

Second, when students, voluntarily attending school (that is post-secondary), are surveyed¹ to determine their reasons for continuing their education, at least 75 per cent of the responses include some variation of:

- To get a better job. (To do a better job was never mentioned!)
- To make more money.

Indeed, because the aggregate data included schools such as the Yale School of Divinity and the Union Theological Seminary, the frequency of these rather crass but highly pragmatic objectives probably reaches 90 percent or more, when only students in the trades, occupations and professions (other than clergy) are considered.

Therefore, if a major factor in most current decisions and the primary stated reason for participation in voluntary (post-secondary) education / training is economic, it is entirely justified to perform a primarily economic (impact) analysis of a substantial component² of post-secondary education, that is VOTE.

Definitions

DISPUTATIONS

This study operationally defines “disputation” as a disagreement or argument that has continued for an excessive amount of time with no apparent progress toward a broad convergence of opinion or even any agreement of the terms and definitions used. This indicates an inordinately high content of “articles of faith” in the ideological or theological sense, which by definition are not subject to empirical proof or disproof,

¹ Sources for this statement are included in later sections, or see the Cooperative Institutional Research Program [CIRP] studies, for example <http://www.uvc.ohio-state.edu/chouse/trnman.txt>

therefore “disputations” by definition are not capable of “resolution” in the usual positivist / realist sense of the word. As such, items identified as disputations are included for informational purposes only.

VOTE

VOTE is an acronym which stands for “Vocational, Occupational and Technical Education.” There seems to be currently general agreement about VOTE on the following points³:

- It is education / training which is not intended to lead to a baccalaureate degree.
- It is practical education / training overtly intended to enable the student / learner to engage in and to improve or at least maintain their economic situation in specific fields, occupations or trades.

There is substantial, although less universal agreement on the following:

- It is post-secondary, that is post-high-school, education / training.
- Its primary objectives are not to produce or result in personal growth, self-discovery, personal satisfaction or general knowledge, although this frequently results. Such objectives are more properly those of adult education⁴. Under this definition it is entirely possible to have both VOTE and Adult Education occur for students seated side by side in the same class at the same time.

² Indeed, if the number of current students / learners and graduates / alumni is used as a criteria, VOTE is the major component of post-secondary education.

³ Wirth, A. G. (1980) Education in the technological society: The vocational-liberal studies controversy in the early twentieth century Lanham, MD: University Press of America

- It should be specifically noted that the accepted definition and expectations of VOTE has continually changed across time from before its Federal implementation under the Smith-Hughes Act of 1918 to the present.
- As unsatisfactory as it may be, the most comprehensive method of defining VOTE may be to use the Buddhist technique of negation⁵, that is VOTE is education that is not Special Education, not Remedial Education, not Academic Education, not Primary Education, not Secondary Education, not ...

SKILL(S) PREMIUM⁶

“Skill(s) Premium” is a term discovered to be in common use in some branches of Economics. It specifically refers to the additional amount of wages a person will earn, over and above the commonly accepted floor or minimum wage, because of their possession of a specific skill or ability. This concept has proven to be the key for resolving a large number of problematics involving the words “labor shortage.” “Skill Premium” is discussed in greater length in the section in appendix D labeled “Skills Premium.” In Economics, and by extension much of higher level organizational management, a “shortage” is defined to exist if the “skill premium” is greater than zero. That is if the wages and benefits required to completely fill all desired positions are above the commonly accepted (or legal) minimum wage. Thus it can be seen that the use of the word “shortage” by economists and higher level management has nothing whatsoever to

⁴ Elias J. L. And Merriam, S. B. (1995) Philosophical foundations of Adult Education 2nd ed. Malabar, FL: Krieger Publishing Company

⁵ This seems to be in common use in Buddhist scriptures. An example is Warren, Henry Clarke (1968) Buddhism in translations. New York: Athenaeum. p128-133.

⁶ Card D. & Krueger, A. B. (1995 May) Time-Series Minimum-Wage Studies: A Meta-analysis American Economic Review 85.2 238-243.

do with the common usage of the word. Indeed, by the economists' definition, a "labor shortage" continues to exist in the United States even for high -school dropouts in that their average wage is still above the legal minimum wage. (See table and chart edwages 4 in chapter 4 and "Skills Premium" in the appendix)

LINEAR (STAGE) AND ACCRETION MODELS OF ECONOMIC EVOLUTION

Models of development (for example social, personal, economic / political) have long been the intellectuals' stock in trade. Regardless of the correctness or validity, the power of models should never be underestimated. For example, the socio-political / economic models developed or popularized by Rousseau⁷, Marx⁸ and Hitler⁹, utterly destroyed long established governments and created others, caused wars to be waged between continents and resulted in the deaths of hundreds of millions of people. The model developed to organize and contextualize this study is not expected to have such dramatic effects. The "accretion" model developed in this study is an extension and elaboration of Rostow's¹⁰ economic stage theory. An in-depth discussion of this model is included in the appendix. The important points of the accretion model for VOTE are:

- New economic, social, political and cultural developments or layers do not abruptly replace existing structures in most cases, but rather co -exist with them, generally for very long periods of time.

⁷ Rousseau, J. J. (1995 ed.) The Social Contract and Other Writings New York: Barnes and Nobel.

⁸ Marx, Karl, 1818-1883 (1977) Capital : a critique of political economy New York : Vintage Books, 1977

⁹ Hitler, Adolf, 1889-1945 (1977) Mein Kampf Boston : Houghton Mifflin

¹⁰ Rostow, W. W. (1971b) The Stages of Economic Growth: A Non-Communist Manifesto New York: Cambridge University Press.

Rostow, W. W. (1978) The World Economy: History & Prospect Austin, TX: University of Texas Press.

- The relationship between these layers are benign, symbiotic, parasitic or antagonistic, either alone or in some combination. For example, the layer termed “cannibalistic” or ‘value-extraction” capitalism, is parasitic in that it depends on the existence of susceptible and accessible organizations which have sufficient net worth to justify the time and expense of the liquidation process, and it generates little or nothing of value for society in general. An example of a symbiotic relationship is that between “value-extraction” capitalism and the current latest layer, that of trans- or multi- national corporations. By acting as scavengers on momentarily weakened and vulnerable economic sectors that may have been neglected, had a policy of dis investment or suffered egregious mismanagement, “value-extraction” capitalism provides an opening for the trans-nationals by providing an immediate demand and market for goods and services which temporarily are no longer domestically produced in sufficient volumes or of sufficient quality to meet indigenous requirements.
- It is entirely possible for individuals, groups and organizations, even nation-states, to repeatedly shift between layers which is specifically excluded under a linear stage theory.
- The beliefs, attitudes, perceptions, and social / cultural practices which are utile, perhaps vital to survival in one layer, may be useless or even counter-productive in another layer. This explicitly includes VOTE and “education.”
- VOTE was specifically developed for and is ideally suited to the “heavy industry - mass production” stage, however this has been overlaid by at least

two later stages in the United States and as a result both this stage and VOTE are rapidly diminishing in both absolute and relative economic significance.

GINI INDEX (OR COEFFICIENT)

As explained by Todaro [695] the Gini coefficient is an aggregate numerical measure of income inequality ranging from 0 (perfect equality) to 1 (perfect inequality). It is measured graphically by dividing the area between the perfect equality line and the Lorenz curve by the total area lying to the right of the equality line in a Lorenz diagram. The higher the value of the coefficient, the higher the inequality of income distribution; the lower it is the more equitable the distribution of income. The GINI coefficient is explained in more depth when it is used in later sections and has found to be significantly correlated with many commonly accepted “quality-of-life” factors such as life expectancy, death rates and individual tax burdens.

Limitations

There are several important qualifications or limitations on this study which the reviewer should be overtly aware:

1. While the data presented are numerically correct, the significance or meaning of the data is always subject to interpretation. The distribution of full-time employees by income level is a fact (assuming accurate data collection) but the significance of this “fact” is highly subjective and a large degree of judgment is involved. For example, it can be shown that the fraction of full-

time employees below a federally defined poverty income level is increasing, but the poverty income level is subject to much debate. Why was an individual annual income of \$7,763¹¹ or less in 1995 the “official” poverty cutoff point? Why not \$7,531 or even \$8,765? Other data such as the Consumer Price Index [CPI] used extensively in this study to convert economic time series to constant value dollars are also the subject of considerable on-going legitimate debate.

2. Although the quality is frequently challenged, the adult population United States, when compared to the rest of the world, has a very high fraction of high school completers (c. 60% to 90%) and college graduates (c. 20% to 30%) in the time periods of primary interest. If a wider range of population educational attainment were available, under similar economic conditions, different results may have been obtained. That is a plateau effect may exist and U. S. areas with the lowest attainment may be above the plateau point.
3. For a variety of reasons, much of the economic data for United States and other major industrial countries is not directly comparable because of “revised” definitions and standards. For example, only the United States includes individuals in the military and employed prisoners in the total of employed persons

¹¹ Bureau of Census data available: <http://www.census.gov/hhes/income/defs/poverty.html> and

used to calculate unemployment statistics¹², which decreases the reported U. S. unemployment rate in comparison to other countries. Additionally, much United States internal economic data is not consistent across time because of “revisions” in the content, methods and standards used to calculate their calculation. The justification for the use of this known inconsistent data is that the “revisions” uniformly reduced the reported rates of inflation, level of poverty, rate of unemployment or other item of interest, and even with this known attenuation the same conclusions are reached although the time required to reach a certain level may be extended by a few years.

4. The methods of mathematical extrapolation used are necessarily arbitrary. These were selected from those available¹³ in the MicroSoft Excel spreadsheet program on the following basis: (1) least complicated formula; (2) which provided a reasonable r^2 value; (3) which visually provided a “good” fit to the data points; and (4) some rationale could be found for its use. For example using an exponential equation for what could reasonably be expected to be compound growth process.

<http://www.census.gov:80/hhes/income/incmeas/papers/weinberg.html>

¹² Bureau of Census available: <http://www.census.gov:80/cao/www/fedreg/noticefr.html>

¹³ User's Guide MicroSoft Excel 5 for Windows Redmond, WA: MicroSoft Press p352-353

5. Extrapolation is always risky in that it assumes minimal (or off-setting) changes in inputs over time. However the relatively high r^2 values of most trend-lines provide a high level of confidence for projections up to 5 years. Considerable caution should be used for projections much beyond this. It should also be noted that projection techniques can also result in physically or economically impossible forecasts such as negative volumes or prices. This does not necessarily indicate an incorrect forecast but rather an inflection point such as the condensation of a gas to a liquid such that the previous “equation of state” no longer applies. For example, in the discussion of Agricultural Education in a later section, the per bushel price of corn is projected to reach zero in 2008 and to be negative thereafter. (See table and chart corn01 in Chapter 4) This is an obvious impossibility, but this does provide valuable information in that this indicates drastic changes in the current process of growing corn in the United States will occur in the near future as the current average price is at or below the average cash cost of production and thus the current trend cannot continue nor can it even be sustained.
6. While the basic findings and the “Accretion” model of economic development or evolution developed in this study should remain valid even if considerable structural economic change should occur, such as the abrupt imposition of mercantalistic trade policies or

non-tariff trade barriers, economic data extrapolations will most likely not remain valid.

Research Questions

Preliminary investigation, primarily based on governmental non-agricultural income data, generated two specific research questions:

1. Given that median wage rates are either stable or decreasing for all educational attainment levels below advanced degrees, how can a general “labor shortage” be declared to exist, if the “law of supply-and-demand” is still considered to be valid? (See table and graph edwages in chapter 4)
2. While selected individuals within identifiable target groups can be documented to have attained improvements in their economic status and stability, why has it been so difficult to improve the economic status of their entire group or cohort? Indeed, official governmental data indicates that the fraction of all U. S. full-time employees with incomes below the poverty level has not fallen but has increased at an almost constant rate of about 0.25% per year from about 24% in 1973 to 31% in 1995. (See table and graph povwages in chapter 4 for details and source)

Although this study concentrates mainly on the non-agricultural aspects of vocational education, Agricultural Education formed one of the legs of the triad which supported the introduction of vocational education

and it continues to be a major component of vocational education in many rural areas, especially at the secondary level. Therefore this study also asked, at least in an introductory way:

1. Does governmental or other credible data exist which indicates any clear trends for Agricultural Education similar to the data for Vocational Education, and if so what do these trends generally indicate?