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A Statistical Analysis of Apprentice Program Dropouts and Completers in Utah: 1969-1974

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A STATISTICAL ANALYSIS OF APPRENTICE PROGRAM DROPOUTS AND COMPLETERS IN UTAH: 1969-1974

by

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by

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The purpose of this study is to examine a sample of former Utah apprentices who either completed or dropped out of a registered apprenticeship program during the five-year period from 1969 to 1974. Comparisons were made between the dropouts and completers in order to determine how the two groups differed and what factors influenced their decisions to complete or cancel their indentures.

Significant differences were found between the two groups with respect to their opinions of the training they received as apprentices. Especially significant differences were seen between the dropouts' and completers' responses to the questions related to their on-the-job training.

The study concludes with a discussion of the implications of the findings for the future course of action to be pursued by apprenticeship labor officials in the state.

(215 pages)

CHAPTER I

INTRODUCTION, REVIEW OF LITERATURE, AND STATEMENT OF OBJECTIVES

Introduction

The *Dictionary of Occupational Titles* gives the following definition for an apprentice:

> A worker who learns, according to a written or oral contractual agreement, a recognized skilled craft or trade requiring two or more years of on-the-job training through job experience supplemented by related instruction, prior to the time that he may be considered a skilled worker.[1]

Over the past thirty-four years the number of registered apprentices in training in the United States has grown from 26,137 to over 300,000 at the present.[2] Partly as a consequence of this growth and partly as a consequence of the revived interest in manpower training during the "manpower revolution" of the 1960's, apprenticeship is in the process of being examined more closely than ever before by researchers and practitioners alike. Although reform of apprenticeship does not take on the importance in the public's eye as do our current environmental, energy, social, and economic problems, one prominent researcher on the subject points out that apprenticeship is, or should be, a prominent topic on the public agenda for the following reasons:

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[1] *Dictionary of Occupational Titles*, 1965, Vol. I, p. 17.

[2] U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Trends in Apprentice Registration*, Bulletin 72-40 (Washington, D.C.: Manpower Administration, 1972).

1. Because of the widely-held notion that unions in the construction industry maintain wages above the competitive level through regulation of the number of apprentices in training.

2. Because of the fact that minorities have not been, in the past, properly represented in the skilled trades, and thus in apprenticeship, which is considered to be the main door to these trades.

3. Because of the need to better match the supply of skilled workers to the demand.

4. Because of the need to achieve greater productivity and output through more highly skilled workers.[3]

Whatever the reason for having interest in either expanding or reforming apprenticeship or both, it is clear that apprenticeship has withstood the test of time and established itself as a proven method of skill training, and there are indications that it will continue to play an important role in supplying the economy with skilled workers. Former Secretary of Labor Peter J. Brennan recently issued a challenge to government and private enterprise to expand apprenticeship into occupations which traditionally have not utilized apprenticeship to meet their needs for skilled workers.[4] Steps have also been taken to provide apprenticeship opportunities to a greater number of minority as well as white youths. A working Conference on New Initiatives in Apprenticeship was held in August, 1973, with representatives of labor, management, and academia on hand to discuss proposals and recommendations designed

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[3]Felician F. Foltman, ed., *Apprenticeship Training in the 1970's: Report of a Conference* (Washington, D.C.: U.S. Department of Labor, 1974), pp. 1-2.

[4]Peter J. Brennan, "Realizing Apprenticeship's Potential," *Manpower*, VI (September, 1974), 2.

to improve and expand the present apprenticeship system.[5] That same year a conference of academicians and practitioners was convened under the direction of the Office of Research and Development of the Department of Labor to discuss areas for potential research in apprenticeship and to discuss preliminary findings on apprenticeship research that was already underway.[6]

One of the problems which apprenticeship currently faces, and which is causing a great deal of concern on the part of apprenticeship administrators, is the serious dropout rate of apprenticeship programs (commonly estimated to be 50 percent nationwide). Interestingly, very little has been done to research this problem in an attempt to isolate the causes. It makes sense that, in order to expand apprenticeship, there will have to be incentives to employers to take on the training functions and incur the related costs. The high dropout rate of apprentice programs is prima facie evidence of a huge investment loss suffered by employers, government, and taxpayers. More important, however, is the fact that the high dropout rate is symptomatic of problems within the apprenticeship system itself. Clearly, there exists a need to thoroughly assess the system of apprenticeship before any expansion should take place. Indeed, the type of expansion former Labor Secretary Brennan hoped for cannot take place until the problems accounting for the high dropout rates among apprentices are isolated and solutions found to overcome them.

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[5]For a detailed report of the proceedings of this conference see U.S. Department of Labor, Manpower Administration, *Report of Task Force on New Initiatives in Apprenticeship* (Washington, D.C.: U.S. Government Printing Office, 1973).

[6]The results of this conference are summarized in Foltman, *Apprenticeship Training*.

The apprenticeship system in Utah has not been immune to the problems affecting the high apprenticeship dropout rate. They have, in fact, been a cause of considerable concern on the part of the Utah State Apprenticeship Council. In 1973, the State Director of Apprenticeship approached the Utah State University Manpower Development Service to solicit help in the investigation of the reasons behind the high number of dropouts from apprenticeship programs in Utah. This study is the end result of those investigations.

The specific purpose of this study will be to study apprentice dropouts and completers in Utah over a five-year period, in order to determine what variables influenced their decisions to complete or terminate a program, and to isolate existing problem areas which may be contributing factors thereto. Recommendations which may lead to the improvement of the apprenticeship system in Utah will also be presented.

Review of Literature

Literature on apprentice dropouts and follow-up studies of former apprentices are virtually nonexistent. In 1959, the Bureau of Apprenticeship and Training (BAT) of the U.S. Department of Labor (DOL) conducted a follow-up study of former apprentices throughout the U.S.[7] The study made no attempt to look specifically at apprentice dropouts or to differentiate the respondents by their completion status. It centered primarily on the general characteristics of the apprentices, opinions about their training, and their current employment status. The

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[7]U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Career Patterns of Former Apprentices*, Technical Bulletin T-197 (Washington, D.C.: U.S. Department of Labor, 1959).

findings of the study are interesting since it examined many of the same areas as those examined in this study.

The 1959 BAT study found that only 57 percent of the apprentices had finished high school, while 12 percent had not even advanced beyond grade school. This is probably directly attributable to the less rigid entrance requirements which the aspiring apprentice faced then. The study also looked at the respondent's sources of advice to enter apprenticeship. Table 1 summarizes the study's findings in this area.

Table 1. Sources of advice to enter apprenticeship taken from career patterns of former apprentices

Source	Percent
Parents or close relatives	48.5
Employer	24.5
Vocational counselors or teachers	17.1
Union official	10.8
Other	41.8

Source: U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Career Patterns of Former Apprentices*, Technical Bulletin T-197 (Washington, D.C.: U.S. Department of Labor, 1959).

As can be seen, almost half of the respondents to the DOL survey indicated that their parents or a close relative had advised them about apprenticeship. It was indicated by 17.1 percent that their school counselors had suggested apprenticeship to them.

The 1959 study found that of the respondents, 89.4 percent were currently employed in the same trade in which they were indentured. Of

those that left the skilled trades, the majority were employed in other skilled occupations and only a few were employed in unskilled or semi-skilled vocations.[8] The study also found that a large percentage of the former apprentices had advanced beyond the journeyman level to positions of supervisor, contractor, or foreman. In addition, the survey results indicated that of the former apprentices surveyed, only 1.6 percent were unemployed.[9]

Very little information on the quality of training the apprentices felt they had received was gleaned from the survey. The respondents were asked only to rate their training as very good, satisfactory, or unsatisfactory. They were *not* asked to rank specific phases of the apprenticeship process, and thus the results of this part of the survey are rather hard to interpret. However, about half of the respondents rated the training as very good. The remainder rated it as satisfactory, with a small proportion feeling that it was unsatisfactory.[10]

The survey concluded by asking the apprentices how the training could have been improved. Again, little detail as to what was meant by "improvement" was provided. Of the apprentices, 51.1 indicated "better instruction" was needed. The remainder indicated "broader training," improvements in journeyman-apprentice relationship, and employer-apprentice relationships.

In summary, the 1959 DOL study dealt only with former apprentices who had *completed* apprenticeship. No effort was made to look at those

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[8] *Ibid.*, p. 3.

[9] *Ibid.*

[10] *Ibid.*, p. 4.

who didn't. It is characterized by its lack of conclusion and detail from which conclusions could be drawn. Perhaps the greatest value of the study is the data on post-apprenticeship employment. However, looking only at completers it is difficult to determine what part apprenticeship played in the current employment status of the survey respondents, since no comparisons between dropouts and completers can be made in this area.

In 1954, the BAT conducted a follow-up study of former apprentices from all trades throughout the United States.[11] This study centered on apprentice dropouts and its chief objectives were to determine why the apprentices had terminated their indentures and what their employment status was at the time of the survey. The reasons the former apprentices gave for terminating their indentures are summarized in Table 2.

The respondents to this survey were also asked to indicate their current employment situation. Of those that dropped out of apprenticeship during their first year of indenture, only approximately 30 percent were employed in a field related to their training. Another study done in 1959[12] indicated that 93 percent of former apprentices from the construction industry were currently employed in a field related to their training, with 20 percent employed as foremen and 10 percent as contractors.

There have been a few other studies related to apprenticeship which have made a cursory examination of the dropout problem. Time and space

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[11]U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Follow-up Study of Former Apprentices*, Technical Bulletin T-143 (Washington, D.C.: U.S. Government Printing Office, 1956).

[12]Joseph H. Schuster, "Career Patterns of Former Apprentices in the Construction Trades," *Construction Review*, May, 1959.

Table 2. Reasons for cancelling indenture

Reason	Percent
Needed more money	22.4
Opportunity to receive journeyman wage	11.6
Unsuited to the trade	11.6
Did not like the trade	6.7
Opportunity to go into business	6.0
Wanted steady work	5.7
Family difficulties	3.3
Laid off	13.3
Training program discontinued	2.9

Source: U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Follow-up Study of Former Apprentices*, Technical Bulletin T-143 (Washington, D.C.: U.S. Government Printing Office, 1954).

will not be taken to discuss them here, since the results are not closely related to this study. Suffice it to say, again, that literature specifically dealing with apprentice dropouts is extremely scarce. One scholar after an intensive search was only able to locate eight studies which dealt in one way or another with the dropout problem.[13] As mentioned before, none of these studies have made in-depth statistical comparisons between dropouts and completers. However, they have been valuable in that they have helped in forming many of the hypotheses discussed in later chapters of this study. In addition, they have

[13]Of these, only those which were obtainable for examination are discussed in this chapter.

raised important questions and uncovered pertinent problems which will be looked at in more detail herein.

The first in-depth look at the dropout problem up until now was done by Dr. Thomas A. Barocci in Wisconsin in 1972.[14] The salient characteristic of Dr. Barocci's study is its thoroughness. Using chi-square and other significance tests, along with 2 by 2 contingency tables, Barocci made detailed investigations between completers and dropouts in areas such as personal characteristics and background, post-apprenticeship income and employment, opinions of on-the-job and related instruction, etc. In addition, completion and post-apprenticeship income models were developed using econometric models.

Barocci's study was the first to use statistical techniques in comparing dropouts and completers and, particularly, in attempting to determine in what ways they differ. Barocci developed many hypotheses about how dropouts and completers differ based on former studies and his own observations and, subsequently, tested these hypotheses using statistical techniques. His study can be considered pathbreaking since it answered many questions which apprenticeship practitioners and theorists had speculated on for many years.

The study by Barocci has laid the foundation and set an example for researchers of the dropout problem. Many of Barocci's findings in Wisconsin are pertinent and should be tested in other areas of the United States. It is believed, and is the basis of this study, that

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[14]Thomas A. Barocci, "The Drop-out and the Wisconsin Apprenticeship Program: A Descriptive and Econometric Analysis" (unpublished Ph.D. dissertation, University of Wisconsin, 1972).

such empirical tests will be valuable in shaping the future of apprenticeship in the United States.

The Wisconsin study will be alluded to in greater detail throughout the remainder of this study. Many of Barocci's conclusions, hypotheses, and findings will be examined in light of the Utah data and appropriate comparisons will be made. However, it is appropriate at this time to examine some of the more important findings of his study. They may be summarized as follows:

1. Those most likely to complete apprenticeship are white males, married with dependents, and union members.

2. Half of those who dropped out of apprenticeship are working in the same field in which they received some training.

3. Rotation on-the-job so as to learn all facets of the trade was felt to be the most important aspect of an apprentice's on-the-job training.

4. Those with formal education beyond high school are less likely to complete apprenticeship training than those with an eleventh or twelfth grade education.

5. On the whole, completers tend to earn more than dropouts; however, how much more depends to a great extent on the trade area in which the apprenticeship was served.

6. Union membership affects earnings positively. Union members earn approximately $1,600 more per year than those who are unorganized.

7. The occupational area in which training is received is an important factor in completion. The best chance for completion is in the industrial trades, with construction second, the service trades third, and the graphic arts last.

8. Some apprentices drop out after exposure to training because they find that the field is not to their liking.

9. A high percentage of all respondents indicated that related instruction was not sufficiently related to tasks that had to be performed on the job.

In addition to the above findings, Barocci presented data on income, current employment status, opinions of on-the-job training, etc. These will be looked at in later chapters.

Significant among Barocci's conclusions is that apprenticeship, as it stands today, may not be adequate in meeting the demands of its consumers; i.e., employers and potential apprentices. Greater flexibility, adjustment of the length of training, and financial assistance for employers were all discussed by Barocci.

Hopefully, this brief literature review has served to lay a foundation for what follows, as well as help the reader become acquainted with the scanty research which has been done on the apprentice dropout problem.

Objectives of the Study

The overall objective of this study will be to look at apprentice dropouts and completers in Utah over a five-year period and determine which variables influenced the apprentices' decisions to complete or terminate a program, as well as which variables are crucial to program quality. In addition, dropouts and completers will be compared in their opinions and attitudes toward their training, in their personal backgrounds, and in their current employment status. Specifically, the objectives of the study can be summarized as follows:

1. To determine the ways in which dropouts differ from those who completed their training.

2. To determine what factors influenced the apprentices' decisions to complete or terminate their indentures.

3. To determine whether or not cancellation of an indenture necessarily thwarts the occupational goals of the dropout apprentices.

4. To determine how dropouts differ from completers in terms of post-apprenticeship income and job status.

5. To determine whether or not the amount of pre-apprenticeship information about the trade and apprentice program possessed by each apprentice affects his likelihood of completion.

6. To determine if the apprentices' opinions about the in-school related training and on-the-job training are significant as determinants of completion.

7. To determine the primary reasons for the apprentices' decisions to terminate their indentures before full-term.

8. To determine if the apprentices received a wage commensurate with their status in the program as prescribed by law.

9. To investigate alternatives to the present system of training apprentices.

10. To determine, overall, how successful the current apprenticeship system is in meeting its stated objectives.

Each of these objectives will be treated in the following chapters. In Chapter III, the methodology employed in meeting the objectives will be discussed. Chapter IV will take a close look at the personal characteristics and background of the apprentices. In Chapter V, the pre-apprenticeship experiences of the apprentices will be reviewed, and a

determination made of if and how they differed between dropouts and completers. In Chapter VI, a close look at the on-the-job phase of the apprentices' training will be taken, together with a look at how the dropouts and completers differed in their experiences in this area. In Chapter VII, related instruction, lay-off experience, and apprentice wage rates will be discussed; and in Chapter VIII, a look at post-apprenticeship income, employment, and reasons for cancellation is taken. Finally, in Chapter IX, a summary of findings and an examination of their implications for future policy will be made.

CHAPTER II

UTAH APPRENTICESHIP

The institution of apprenticeship possesses many characteristics which are common to it no matter where it is found, yet there do exist important differences especially between states, in the ways and methods of accomplishing its objectives. In this chapter, an attempt will be made to closely examine the development and present administration of apprenticeship within the State of Utah. The discussion herein will, hopefully, provide the necessary background for better understanding the following chapters.

Apprenticeship in Utah

The State Apprenticeship Council and legal foundation

Passage of the Fitzgerald Act by Congress in 1937 marked the beginning of formally registered apprenticeship for most states (at least one state, Wisconsin, had state apprenticeship laws prior to the passage of the Fitzgerald Act).[1] Briefly, the Fitzgerald Act gave the Secretary of Labor the responsibility of promoting and authorizing labor standards designed to safeguard the welfare of apprentices. In addition, the Act charged the Secretary with the further responsibility of formulation and promulgation of minimum standards of apprenticeship for formally recognized apprenticeship programs. As a result of the passage of the Fitzgerald Act, the Federal Committee on Apprenticeship was formed

[1] See Appendix A for the text of this act.

in 1937. The Secretary of Labor gave the Committee the responsibility of establishing apprenticeship standards which were to be adhered to in order for a program to be formally registered with the Department of Labor. To carry out this registration process, as well as to act in an advisory and monitoring capacity, the Bureau of Apprenticeship and Training (BAT) was established. Offices of the BAT were opened in every state to carry out the registration process and to encourage and assist industry in the development of quality apprenticeship programs. It should be noted that there was and currently is no legal requirement that an apprentice program be registered. The purpose of registering an apprentice program is somewhat analogous to accreditation of schools of higher education. It simply gives the program the formal recognition and credibility of having met the minimum standards for registration as established by the Federal Committee on Apprenticeship.

Formal registration and monitoring of apprenticeship programs began in Utah in the early 1940's under the provisions of the Fitzgerald Act. Offices of the BAT were opened in Ogden, Salt Lake, and Provo, and formal registration of apprentice programs complying with the federal standards began. At this time, apprenticeship in Utah (and no doubt the rest of the nation) was confined almost exclusively to the construction trades.

From the time of its inception, the BAT encouraged individual states to adopt formal apprenticeship legislation which would provide minimum standards which would meet or exceed the national standards. In 1950, formal apprenticeship legislation was passed in Utah. In addition to giving formal recognition to apprenticeship as a means of skill training and post-secondary education, the legislation provided funding for the

establishment of a State Apprenticeship Council (SAC)[2] and a director of apprenticeship to work within the organizational framework of the State Industrial Commission. The legislation further stated the objectives of the State Apprenticeship Council to be as follows:

> To open to young people the opportunity to obtain training that will equip them for profitable employment and citizenship; to set up, as a means to this end, a program of voluntary apprenticeship under approved apprenticeship agreements providing facilities for their training and guidance in the arts and crafts of industry and trade with parallel instruction in related and supplementary education; to promote employment opportunities for young people under conditions providing adequate training and reasonable earnings; and to relate the supply of skilled workers to employer demands.[3]

The legislation further charged the SAC with the responsibility to

> ... formulate policies for the effective administration of this act ... [to] establish standards for apprenticeship agreements which shall in no case be lower than those prescribed in this act ... to issue such rules and regulations as may be necessary to carry out the intents and purposes of this act ... .[4]

From 1950 onward the SAC established official apprenticeship standards for the State of Utah. These standards were then formally recognized by the U.S. Secretary of Labor as conforming to federal standards in conformance with the policy of the U.S. Department of Labor to grant recognition to state apprenticeship agencies as the apprentice registration authority within the state when state apprenticeship standards meet or exceed federal standards. Thus, since 1950, the SAC has been the sole authority to register and supervise formal apprentice programs in

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[2]See Appendix B for the text of the 1950 legislation and the make-up of the SAC.

[3]Utah, *Utah Code*, Title 35, Chapter 8 (also see Appendix B).

[4]*Ibid.*

Utah. In addition, it has the responsibility of promoting formal registered apprenticeship programs where there have previously been only informal nonregistered programs or no formal training at all.

In summary, the major responsibilities now assumed by the Utah SAC are:

1. Servicing of all registered apprenticeship programs in the state.

2. Promotion of new apprenticeship programs and establishment of formal training standards.

3. Coordination of related-instruction programs with the State Department of Vocational Education.

4. Approval of veterans' programs for apprentices and on-the-job training in cooperation with the Veterans' Administration.

5. Outreach activity to promote training opportunities for minorities.

Program servicing (number 1 above) is one of the most important responsibilities of the SAC in maintaining the quality of on-the-job training and assuring adherence to the established standards of the apprenticeship agreement. Under Utah standards, each registered apprentice is required to maintain a record of the work processes he has performed on the job. This record is to be kept current and signed by his foreman or supervisor. At specified intervals (discussed later in this chapter), a SAC field representative must visit each program, examine these records, and assure that both the apprentice and employer are adhering to the apprenticeship agreement. In addition, the SAC representative is authorized to help settle apprentice-employer disagreements if they should arise. Keeping

employers abreast of training developments and aiding the employer in the provision of quality on-the-job training are also duties of the SAC. Hereafter, these functions will be referred to generally as "field work" or "servicing." However, as will be discussed later in this chapter, not all servicing is performed by SAC representatives, as the servicing of many programs is assumed by the BAT staff and also by privately employed training coordinators.

During the decade of the fifties the SAC operated within the organizational framework of the State Industrial Commission, and funds for its operation were appropriated from the Industrial Commission budget. The 1950 Act only authorized up to $20,000 annually to be appropriated from the Industrial Commission budget for the operation of the SAC. This modest appropriation created serious financial problems for the nascent council. First, although the Act provided for the services of a full-time Director of Apprenticeship, lack of funds militated against it. As a result, no director was ever employed during this period of time. In fact, the only full-time staff member of the SAC was a secretary who assumed, besides her secretarial functions, the functions of a director. Consequently, there was little apprenticeship activity at the state level in the 1950's other than program registration. Almost 100 percent of program servicing and monitoring was assumed by the BAT under the auspices of the SAC. Because of this dependence on the BAT to carry out most of the servicing, this was a period of close cooperation between the BAT and SAC.

In 1960, the SAC was moved from the offices of the Industrial Commission and began operating as an autonomous state agency within

the organizational jurisdiction of the Industrial Commission. Sufficient appropriations were secured to employ a full-time director for the first time since the establishment of the council. However, enough funds were not secured to allow for the adequate staffing of the council, and as a result the bulk of the field work continued to be performed by the BAT, in cooperation with and under the aegis of the SAC. Minor increases in appropriations were received by the SAC during the decade of the sixties for operating expenses, but no increase in the size of the field staff was possible throughout this period.

The decade of the sixties was a period of rapid growth for Utah apprenticeship, notwithstanding the lack of financial support to the SAC. The number of active registered apprentices increased from 1,111 in 1964 to 2,013 in 1970,[5] an increase of 81 percent. This rapid growth resulted in substantial servicing workloads on the limited number of BAT and SAC officials and militated against adequate program servicing by the SAC field staff which, at this time, still consisted of only the director of apprenticeship. By the late 1960's the problem of inadequate staffing of the SAC had become very serious.[6] In FY 1969-70 the SAC requested an increase in appropriations sufficient to hire another full-time staff member to carry some of the servicing load and aid in the registration and promotion of new programs.[7] However, despite a budget request of $32,900, the SAC was appropriated

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[5]According to data obtained from SAC records (see Appendix F).

[6]According to David Turner, State Director of the BAT, the situation was a matter of survival. Rapid growth was making it impossible to meet the servicing and program registration demands.

[7]Utah, *Annual Budget of the State of Utah, 1969-70,* pp. 158-159.

only $21,000 for the year, apparently with the intention of keeping the apprenticeship program at its current operating level.[8]

The following year (FY 1970-71), the SAC again requested that enough funds be provided to add an additional field representative. The SAC was only partially successful in securing the funds in this year,[9] but with the help of an additional grant from the Veterans' Administration[10] it became possible to hire an additional field representative. The duty of the additional staff member, along with the servicing function, was to review and approve apprenticeship programs for veterans as a Veterans Certification Officer. While the additional field representative relieved some of the servicing burden of the SAC, the shortage of adequate staff was still felt by the SAC officials to be acute.

In FY 1972-73 a request was made to the legislature for the funding of two additional field representatives with the purpose of alleviating the servicing problem. A strong effort was made by the director of apprenticeship in that year to impress the legislature with the urgency of the problem of inadequate staffing and its adverse

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[8]Utah, *State of Utah, Appropriations Report, 1969-70*, p. 36.

[9]The SAC had requested $38,800 for FY 1970-71, but was only appropriated $23,200. See Utah, *Annual Budget of the State of Utah*, 1970-71, p. 216; and Utah, *State of Utah Appropriations Report, 1970-71*, p. 36.

[10]A Veterans' Administration grant for $10,800 was received to help fund the services of a veterans' apprenticeship program certification officer. The SAC assumed the function of reviewing and certifying apprenticeship programs for veterans in 1970.

consequences upon program quality and growth.[11] The effort was successful, and the two men were hired beginning in 1972. One of them was assigned to work solely as a field representative and the other one to work as a field representative and veterans certification officer. As a result of the increase in the SAC field staff size, much of the servicing work was assumed by the SAC, whereas before it was done almost exclusively by the BAT. This has resulted in significant changes in the relationship between the BAT and the SAC, especially with respect to the redefinition of their relationships and the spirit of cooperation between the two offices.

Funding for apprenticeship supervision in Utah, notwithstanding the substantial increases in financial support granted by the state legislature in recent years, is still considered by SAC officials to be a serious problem. By their own admission, the staff of the SAC finds it very difficult to follow up on servicing and monitoring activities once a new program has been established due primarily to the staff size, which they feel is inadequate. Currently, the SAC is responsible for servicing approximately 693 or 90 percent of the registered programs in the state. These programs, since they tend to be smaller than those serviced by the BAT, account for only 50 percent of the registered apprentices in the state. SAC officials admit that

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[11] In effect, an ultimatum was issued by the SAC in which the legislature was given the choice of either providing sufficient funds for additional field representatives or "closing the doors of the Apprenticeship Council." The legislators responded, evidently convinced this time of the seriousness of the problem. The SAC request for FY 1972-73 was for $69,200. It was appropriated $60,500, with $13,000 coming from the VA to continue subsidization of the veterans' apprenticeship certification work done by the SAC. See Utah, *Annual Budget of the State of Utah, 1972-73,* p. 264; Utah, *State of Utah Appropriation Report, 1972-73,* p. 38.

much of their time is spent in the registration and review of new programs, a fact which militates against adequate servicing of the existing programs. It is the official policy of the SAC to visit programs at least four times annually for servicing and monitoring. As mentioned, however, the limited staff size of the SAC militates against these visits being made. This lack of servicing and follow-up of registered programs results in many problems with the quality of training and apprentice-employer relationships. The extent and severity of these problems will be discussed in more detail in Chapter IX.

Role of the Bureau of Apprenticeship and Training

The major roles of the BAT have already been mentioned briefly in the preceding section. In states with legally established SAC's and apprenticeship standards the SAC assumes sole responsibility and is granted sole authority for registration, monitoring, and servicing of registered apprentice programs. The U.S. Department of Labor's policy is that BAT personnel stationed in SAC states must observe the state's administrative and regulatory requirements.

In Utah, the BAT functions as required under the aegis of the SAC. Since the BAT was the first apprenticeship agency to be active in the state, however, it continues to service many of the programs which it registered before the passage of the 1950 Act. It does this under the supervision of and in cooperation with the SAC. At the present time, the BAT is servicing approximately 10 percent of the registered programs in the state. However, these are the larger Joint Apprenticeship and Training Committee (JATC) Programs[12] and the

[12]See Chapter II, pp. 24-28.

Kennecott Copper Program (the largest employer of apprentices in the state). As a result, although it services approximately only 77, or 10 percent, of the registered programs in Utah, it services approximately 50 percent of the registered apprentices in the state. The BAT is currently operating with only one field representative, the state director of the BAT. Due to cutbacks in funds appropriated to the BAT by Congress, the size of the BAT staff in Utah was reduced in 1974 from three to just the state director.

The substantial changes in the size of the SAC and BAT staffs since 1970 suggest the possibility of changes in their ability to service apprenticeship programs. It was already implied that "service calls" on existing programs play an important role in program quality. Theoretically, SAC or BAT field staff should actively monitor registered apprentice programs to assure that the standards set forth in the apprenticeship agreements are being complied with, and to help solve any disagreements between apprentice and employer which might arise. There are currently no rigid standards, at least as far as having formally established staff-apprentice ratios, which govern the servicing function of the SAC and BAT. Since the number of apprentices fluctuates quite widely from period to period, it is difficult to try and establish formal staff-to-apprentice ratios. Therefore, the policy of the SAC is to simply establish standards governing the number of visits to each program annually. These standards were mentioned in the previous section. The BAT, on the other hand, does not have the servicing demands on it that the SAC does. This is primarily due to the fact that since the BAT deals primarily with JATC programs,

the servicing work is done by the JATC coordinator, union business agent, or personnel director (in the case of in-plant programs).[13] The BAT works primarily with these people in the dissemination of information of federal programs, equal employment opportunity, changes in legislation affecting apprenticeship, etc. This kind of servicing does not require as much time as does the actual reviewing of programs for registration and individual follow-up and servicing that the SAC must perform for individual, independent programs.[14]

Whereas the SAC staff is responsible to a great degree for the quality of the individual, independent programs it services, the BAT does not bear this responsibility to as great a degree since this is the primary responsibility of the JATC coordinators, union business agents, etc. The majority of the time now spent by BAT staff in servicing is in the enforcement of equal-opportunity compliance activities.

The JATC

There are at the present time eight active state or area craft Joint Apprenticeship and Training Committees *with full-time coordinators* in Utah (see Table 3). In addition, Eimco, Kennecott Copper,

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[13]See Chapter II, pp. 24-28.

[14]There are, basically, three distinct types of apprenticeship programs:

1. *Individual employer-administered programs* where, through preference of the employer or employee, the employer conducts formal training in a program registered with the SAC. Neither the employer nor the employee are union members.
2. *Craft Joint Apprenticeship and Training Committee (JATC) Programs*, as discussed in Chapter II, pp. 24-28.
3. *Unilateral programs*, which are programs established between the apprentices and a management organization acting for the employer, or between a labor organization acting for the apprentice and an employer.

Utah Power and Light, and Geneva Steel have established in-plant apprenticeship programs which are administered by in-plant JATC's for the specific trades involved, which have sole jurisdiction over the apprentices working in the plant. Moreover, many industrial, construction, and graphic arts locals have established JATC's on a somewhat smaller scale without full-time coordinators. The present discussion will focus on those JATC's with full-time coordinators. However, the same principles apply to in-plant JATC's and JATC's without full-time coordinators.

Table 3. Craft Joint Apprenticeship and Training Committees operating in Utah with full-time coordinators

Union	Statewide JATC	Local JATC's	No. coordinators	No. apprentices[a]
Ironworkers	Yes	No	1	137
IBEW	Yes	Yes	1	73
Operating engineers	Yes (subcommittee)	No	2	120
Pipe trades	Yes	Yes	1	180
Carpenters	Yes	Yes	1	200
Outside linemen	Yes (subcommittee)	No	1	46
Bricklayers	Yes	Yes	1	91
Sheet metal	Yes	No	1	110

[a]As of August, 1974.

The JATC and its responsibilities are established within the legal framework of the collective bargaining agreement between the union and the employer. As a general rule, each local union within a trade will have provided for a JATC under the provisions of the collective bargaining agreement, to administer the apprenticeship program within its jurisdiction. Whether or not this JATC has statewide or area jurisdiction depends on the jurisdiction of the local union. For example, in Utah the Carpenters, Pipe Trades, Bricklayers, and Electricians Unions all have more than one local within the state. Each of these locals has its own JATC. Each of the local JATC's is presided over by a statewide Joint Apprenticeship and Training Committee which oversees the activities of the local JATC. Each of these statewide JATC's employs a full-time coordinator of training, whose responsibilities and functions will be explained below. The Bricklayers, Ironworkers, and Sheet Metal Workers Unions have only one local within the state, and each has an established JATC with a full-time statewide coordinator. The Operating Engineers local covers four states with one area JATC which has jurisdiction over the four states and four local subcommittees who, with their respective coordinators, have jurisdiction over the training within each state. The Outside Linemen local covers a five-state area, with one JATC subcommittee in each state and one coordinator for the entire area.

Generally, JATC's are comprised of equal numbers of representatives from management and labor, with the labor representatives being appointed by the local union and the management representatives being selected by the employer's association. Briefly, JATC's are responsible

for the screening, reviewing, final selection, and placement of apprentices as well as the establishment of training standards. In addition, it is the responsibility of the JATC to monitor the apprentices' progress, assure program quality, and help settle apprentice-employer differences. The aforementioned JATC's have retained the services of a full-time training coordinator who carries out many of the responsibilities of the JATC, and is directly responsible to the JATC for the administration of its standards, programs, policies, etc.[15] In addition, the coordinator is responsible for seeing that the apprentices in his programs are receiving adequate related classroom instruction either in public institutions or private union facilities. The coordinators are responsible for seeing each apprentice on the job once a month and for keeping up-to-date records of the training of each apprentice with respect to the work processes which the apprentice has had experience in, his progress and grades in related classroom instruction, attitudes, employer relationships, etc. In those unions with the smaller JATC programs with no full-time coordinator, these functions are assumed by the union business agent, or by the personnel director in the case of in-plant JATC programs.

In addition to the visits and monitoring by the JATC coordinator or union business agent, each apprentice is supposed to appear before the JATC once every six months to review his progress up to that point, and have an opportunity to air any complaints he may have.

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[15] As mentioned before, the smaller locals of the pipe trades, electricians, bricklayers, and carpenters have JATC's but employ no coordinator. The coordinator of the statewide JATC services the apprentices in these programs.

Disciplinary action in the form of suspension or official reprimand can be taken against the apprentice at any time by the JATC.

Another unique feature of the JATC apprenticeship concept is the training trust fund. Federal law permits the establishment of training trust funds designed to defray the costs of apprentice training as part of the collective bargaining agreement. Generally, the fund comes from assessments on union employers based on the number of hours worked by journeymen and apprentices. The fund pays for the costs of administering the programs, coordinators' salaries, related instruction materials, etc. JATC's in Utah in the construction trades spend between $10,000 and $92,000 annually[16] on apprenticeship training. Estimates indicate that the amount spent administratively per apprentice in these programs is anywhere from two to five times as much as the corresponding figures for apprentices registered in independent or unilateral programs administered by the SAC.[17]

The trust fund concept appears to be a sound one and, in the opinion of the general apprenticeship community, has brought about major improvements in the quality of training in JATC programs. Prior to 1967, only two local unions in Utah had established training trust funds and JATC's. Since 1967, the remaining major craft unions have established training trust funds, set up JATC's, and hired full-time training coordinators.

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[16]Based on estimates of the state director of the BAT.

[17]The estimate of SAC administrative costs per apprentice is $13.

Employers and state

The employer plays an integral part in the apprenticeship training process. At least one author has claimed that the employer is the single most important component in the apprenticeship system.[18] Indeed, this is logical since without the cooperation of the employer, no training could be given in the first place. And it is ultimately upon the individual employer which rests the responsibility of providing quality training.

The role of the state is confined to the provision of facilities and, under certain circumstances curriculum for the related instruction phase of an apprentice's training. In Utah, this comes under the responsibility of the State Department of Vocational Education. Discussion in greater detail of the roles of employer and state will be deferred until Chapter VI (On-The-Job Training) and Chapter VII (Related Classroom Instruction, Lay-Off Experience, and Wage Rates).

Other agencies with an interest in apprenticeship

The most important agencies involved in the administration of apprenticeship training in Utah have now been discussed. However, there are other agencies within the state which have an indirect interest in apprenticeship.[19] The one which is of greatest interest

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[18] Barocci, "The Drop-out and the Wisconsin Apprenticeship Program," pp. 18-22.

[19] Many established manpower programs such as those under NAB/JOBS, the Comprehensive Employment and Training Act (CETA), WIN, and others mention apprenticeship training among their stated objectives. The SAC services apprentices who are sponsored by these programs are required to meet the same standards as any other program.

to this study, however, is the Apprenticeship Outreach Program. The Outreach Program was begun in the second half of the 1960's by the Manpower Administration of the U.S. Department of Labor, with the purpose of recruiting and preparing minority youth, principally blacks and Spanish-Americans, for apprenticeship programs. The program is supported by U.S. Department of Labor funds and receives technical assistance from the AFL-CIO Building and Construction Trades Councils. The Utah Outreach Program, established by the U.S. Department of Labor in 1968, is conducted by the Utah Building Trades Councils, and is funded by the U.S. Department of Labor.

Since its inception in 1968, the Utah Outreach Program has placed 232 minority apprentices in apprenticeship programs. Unfortunately, no follow-up is attempted by the Outreach Program to determine what the status of these minority placements is. Therefore, it is not known, for example, how many of these apprentices have completed, cancelled, or are still serving their indentures. This situation will be alluded to once again in Chapter IX. Suffice it to say here that the lack of such follow-up data makes it impossible to make a sound judgment of the real effectiveness of the Apprenticeship Outreach Program in Utah.

Growth of apprenticeship in Utah

Apprenticeship in Utah, after a long period of gestation, has established itself as a proven means of skill training, experiencing rapid growth over the past seven years. The national trends towards choosing a career in the trades rather than one for which higher education is a prerequisite has definitely been seen in Utah. In 1965,

for example, there were 1,022 registered apprentices in the state. By the end of 1970 there were 2,013, a 97 percent increase over the five-year period.[20] This is significant growth, especially when compared with the national trend in apprenticeship for the same years, which shows a growth in the number of registered apprentices of 183,955 in 1965 to 279,693 in 1970,[21] an increase of 52 percent. The growth rate of apprenticeship in Utah was almost twice as large as the national rate for the same five-year period[22] (Figures 1 and 2). Much of this growth in Utah apprenticeship has been in the independent, non-union sector, and in trades that traditionally have not been looked upon as apprenticeable. At the present time, the SAC estimates that there are approximately 3,500 registered apprentices indentured in the state. Approximately 1,700, or close to 50 percent of these, are registered in the approximately sixty-seven jointly-sponsored (JATC) programs. The remainder are registered in the independently-sponsored programs.

Continuation of this growth is expected in the next ten years due to Utah's bright economic outlook, brought on primarily by increased migration to the western states, along with energy resources

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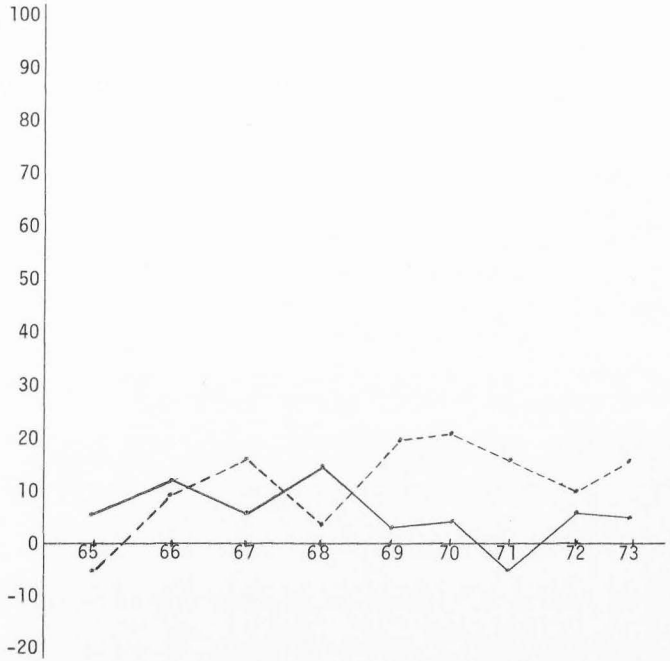
[20]Utah Apprenticeship Council, *Report on Registation Actions*, 1965-1970.

[21]U.S. Department of Labor, Manpower Administration, *Trends*.

[22]Part of the reason for the rapid growth in Utah apprenticeship during this period has been the thrust of economic development and industrialization which has occurred since the early 1960's.



———U.S.

------Utah

Source: Utah Apprenticeship Council, *Report on Apprenticeship Actions*, 1965-1970; U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, *Trends in Apprentice Registration*, Bulletin 72-40 (Washington, D.C.: Manpower Administration, 1941-1970).

Figure 1. Percentage change in the number of registered apprentices, 1965-1973 (Utah versus national).

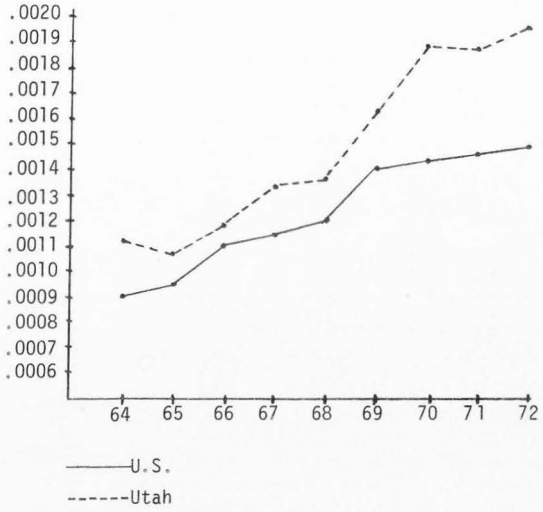


Figure 2. Number of apprentices per capita, 1964-1972 (Utah versus U.S.).

development, etc.[23] There is great interest at the present time on the part of apprenticeship administrators and labor officials within the state that the increased labor demands brought on by these developments be met by Utah workers. As a result, serious efforts are under way to train, through apprenticeship, a sufficient number of skilled workers to meet the demand.[24]

This past and projected rapid growth, as implied previously, has not been totally desirable. Growth has not been balanced, and the effects are being felt in the quality of training apprentices are currently receiving. Even with more than three times the number of apprentices now than in 1965, the number of field representatives of the BAT and SAC combined has only increased by one. This has seriously limited the capacity of the SAC to adequately service the increasing number of registered programs.

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[23]Utah's economic outlook is discussed in detail in the *Utah Economic and Business Review*, XXXV, No. 1 (January, 1975). According to estimates contained therein, "the development of energy and mineral resources when added to growth in manufacturing tourism and services in Utah and the region will bring sustained and rapid growth (4 to 7 percent per year) for the next decade and possibly for the balance of this century." Rapid growth in construction employment is expected "to compensate for slower rates of growth in manufacturing and services."

[24]As an example of this, on August 1, 1974, a meeting between apprenticeship administrators of the State of Utah and local government officials from southern Utah was held to discuss the skilled employment opportunities created by the Kaparowitz Power Plant construction in the Nipple or Four Mile Bench areas of southern Utah. The local officials were concerned with registering local workers in apprenticeship programs in order to fill the new jobs with local skilled labor. In addition, local craft unions are currently admitting more apprentices than current economic conditions would normally justify in order to have local skilled labor ready to meet future demands.

Conclusion

By now the reader should have gained an appreciation of the rather complex nature of the administration of apprenticeship training within the state of Utah. In meeting with officials from the various agencies and organizations discussed in this chapter, it becomes apparent that there is potential for duplication, lack of cooperation, and rivalry between them, even though they all sincerely espouse the common goal of expanding and improving the quality of apprenticeship within the state. The historical review in this chapter indicates that it has been extremely difficult in the past to mesh this common goal in with the subgoals and policies of each individual agency to facilitate the efficient administration of apprenticeship. The review suggests that this administrative structure is unwieldy and slow to respond to the changing training needs of today's apprentice. Further evidence of this is contained in the results of the evaluation of the apprentices' responses to many of the questions asked of them in the survey. In Chapter IX, a look at the problem of apprenticeship administration and some possible alternatives which have been proposed will be taken.

CHAPTER III

METHODOLOGY

In this chapter the methodology used in conducting the survey will be reviewed. Sample selection, questionnaire, data collection, and statistical procedures used will all be discussed. The methodology employed was designed to achieve the stated objectives of the survey as easily and effectively as possible. Due to the parallel nature of this study and the Wisconsin study nearly all of the techniques employed here are similar to those used in Wisconsin, including the data collection instrument.

Sample Selection

The overriding difficulty in securing an appropriate sample was that of obtaining current, accurate addresses on the apprentices to be surveyed. The only source for names and addresses of former apprentices is the Utah State Apprenticeship Council, which keeps data cards on all current and former registered apprentices in the state. However, these records contain *only* the address which the former apprentice listed at the time he began his indenture. Therefore, most of the addresses in the SAC files are outdated. At the commencement of the project Grant Tuckett, Director of the SAC, generously volunteered the time of his office staff in gathering whatever information was needed. He stressed, however, the problems which would be encountered with the majority of the addresses on file with his

office. It was therefore decided to define the statistical population as those apprentices who had either completed or cancelled their indentures during the five-year period from 1969-1974. Since the survey was taken in August of 1974, only those apprentices completing or cancelling indentures through June of 1974 were included in the population. It was hoped that in defining the population for these years the probability of getting valid addresses from the SAC files would be greater than if earlier years were used. Also, it was felt that the data so gathered would be a better indication of the current state of apprenticeship in Utah.

With the help of the staff of the SAC, names and addresses of the former apprentices who had completed or dropped out of the program within the specified years were obtained. In all, 1,353 names and addresses were obtained for completers, and 1,174 for the dropouts. Some of the addresses received, however, were lacking information such as street name, address number, city, or all three, and were thus invalid. In addition, some of the apprentices were listed more than once and thus were double-counted. After the duplication and invalid addresses were removed, the size of the population decreased considerably to 1,018 completers and 1,101 dropouts. It was then decided--in hopes of maximizing the number of returns--to take a census of *all* apprentices rather than random sample. Therefore, no sample was taken and instead questionnaires were mailed to all of the apprentices for whom *complete* addresses were available. It was hoped that in so doing a larger response would be obtained, thus improving the representativeness and accuracy of the data and providing a sure foundation for the statistical analysis and conclusions derived therefrom.

Questionnaire

The survey instrument was modeled after the instrument which was used in the Wisconsin survey, with only minor changes to make it more applicable to the unique needs of this study.[1] The final product was a three and one-half page questionnaire with thirty-eight questions. Many open-ended questions were altered so as to facilitate the data preparation and coding. Every effort was made to assure that it was as comprehensive as possible without being unwieldy and discouraging to the person filling it out.

Data Collection Procedures

The first mailing was made during the last week in August, 1974. At that time, a questionnaire was mailed to every dropout and completer for whom a complete address had been received. As mentioned before, this resulted in a census of 2,119 former apprentices. In addition to the questionnaire, an introductory letter[2] was included explaining the purpose of the survey and requesting the respondents' cooperation in the matter.

As was expected, large numbers of Post Office returns (dead letters) were received almost immediately. The procedure established for handling these dead letters was to conduct a telephone book search of the city or area wherein the apprentice last resided. If a new address was found, a new questionnaire and introductory letter were sent, and the person was "kept alive." If no new address could be

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[1] A copy of the data collection instrument can be found in Appendix C.

[2] See Appendix D for a copy of this letter.

found, the person was considered "dead" and not part of the "eligible sample." Thus, the "eligible sample" was defined to be *all those former apprentices from the 1969-74 population for whom current addresses were obtained.* This is admittedly a crude sampling procedure. However, the nature of the addresses received from the SAC files, as mentioned previously, militated against more formal random sampling procedures.

The reason for the large number of dead letters is fairly easy to understand, given the nature of the subject. Most former apprentices are quite young, with few or no dependents and some occupational skills. Therefore, residency at any one address for an extended period of time is unlikely. This is compounded by the fact that many of the addresses given were those of friends, relatives, parents, or sometimes even hotels or motels. Adding all these factors together results in a group which is highly unstable, mobile, and transient by nature. The policy of the U.S. Post Office is to continue forwarding first class mail for one year *if* a forwarding address is provided. These are probably the most important factors affecting the large number of Post Office returns.

After about four weeks, when completed returns began to subside, a second mailing was conducted. A new questionnaire along with a follow-up letter[3] again urging their cooperation were sent to each apprentice (dropout or completer) who had not been heard from (either dead letter or completed questionnaire). Table 4 summarizes the response received from each mailing.

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[3]See Appendix E for a copy of this letter.

Table 4. Completed returns by mailing

	Returns	Percent total
First mailing	375	60
Second mailing	253	40
Totals	628	100

Table 5 summarizes the responses (completed questionnaires), non-responses, and "dead letters" for the dropouts and completers.

Table 5. Summary of response

	Dropouts		Completers	
	Number	% Eligible sample	Number	% Eligible sample
Sub-population size	1,101		1,018	
"Dead' addresses	403		179	
"Eligible" sample	698	100	839	100
Completed questionnaires	225	32	403	48
Total non-response	473	68	436	52

Unfortunately, many of the returned questionnaires were unusable due to insufficient data, the individual being deceased, illegibility, etc. Almost forty-five of the dropouts turned out to be currently-indentured apprentices, so their data could not be used. In sum, usable

questionnaires for the dropouts amounted to 154 and for the completers 370. Throughout the remainder of the study these will be referred to (somewhat loosely) as the "sample."

Representativeness of the "Sample"

In addition to the address data, the SAC was also able to give information on the occupational area of apprenticeship, veteran/non-veteran status, and date of commencement of indenture for each of the apprentices in the statistical population. Chi-square tests between respondents and nonrespondents in these areas were performed in order to see if they differed significantly, and to thus test the representativeness of the sample. The comparison between respondents and non-respondents in the veteran/non-veteran classification did not yield a significant chi-square value.[4] However, significant chi-square values were obtained in the other two categories. However, differences between the two groups were slight. In the trade area category, 71.2 percent of the respondents came from the construction trades as compared to 63.9 percent of the nonrespondents. Twenty-two percent of the respondents came from the industrial trades, compared with 29 percent of the nonrespondents. Thus, the respondents are over-represented in the construction trades and under-represented in the industrial trades by about 8 percent each way. No significant difference was found between the two groups in the other trades. As far as date at commencement of indenture goes, the results of the comparison between the two groups in this area indicate that 74 percent

[4] .24023, 1 d.f.

of the respondents had begun their indenture since 1968 compared with 68.5 percent of the nonrespondents. Thus, the respondents were over-represented in the later years and under-represented in the earlier years.

This over-representation of the respondents in these areas may result in some bias in the data. However, this has been kept in mind throughout the data analysis and appropriate qualifications are made in the analysis of data which are most likely to be affected by this bias; i.e., wage data, employment status, income comparisons, etc. It is concluded, then, that the sample may not be entirely representative of the population as defined. It is felt, however, that it is sufficiently representative to make judgments concerning the current state of apprenticeship in Utah.

Personal Interviews

In addition to the data collected through the questionnaire, a great deal of data were also collected through personal interviews with apprenticeship administrators throughout the state. Dave Turner, State Director of the Bureau of Apprenticeship and Training, and Grant Tuckett, State Director of Apprenticeship, were particularly helpful in supplying data for the study. In addition, personal interviews were conducted by the author with all full-time Joint Apprenticeship and Training Committee (JATC) coordinators in the state, union officials, employers, and vocational education officials. A complete list of the apprenticeship officials contacted is contained in Appendix I.

Statistical Analysis

Data from the questionnaire were coded by members of the office staff of the Department of Economics at Utah State University under the direction of the author. The data were then programmed using the SPSS (Statistical Package for the Social Sciences) package. The bulk of the statistical analysis consists of descriptive table displays of two or more variables. Two-by-two contingency tables are heavily used in looking at the responses of the dropouts and completers. The chi-square statistic is used to determine significance. In some cases breakdowns of mean data are used, with significance tests for the difference between means used whenever advisable.

The author fully realizes the limitations of descriptive statistics when looking at relations between variables. Care should be exercised in the interpretation of the tables and the chi-square values. These will be used, in all instances, to support general a priori hypotheses about the relationships between the variables in question. It should be kept in mind, however, that the chi-square statistic does not indicate the strength nor the direction of a relationship between variables, but simply whether or not a relationship exists. This is brought out from time to time in the chapters dealing with the statistical analysis. Where a statement is made concerning the strength or direction of relationship between two variables it will be made on intuitive or hypothesized grounds, not statistical. It might be mentioned at this point that use of regression and correlation analysis did not seem prudent from a benefit/cost viewpoint. Later analysis of

the data using econometric techniques will be performed, but will not be included in the text of this study.

The null hypothesis to be used in this study is that the row and column variables of the contingency tables are *independent*. Thus, a significant chi-square value is one which is *greater than* the given chi square, and thus implies a statistical relationship between the variables in question. The .05 significance level will be used in all cases. Tests that are not significant (thus implying independence between the row and column variables) will be so indicated at the foot of the table.

Subprograms CROSSTABS and BREAKDOWN of the SPSS package were employed for the statistical analysis.

As mentioned earlier, the same variables, with some exceptions and some additions, which Barocci looked at in the Wisconsin study will be examined here. They can be categorized as follows:

I. Personal and occupational characteristics of apprentices

1. Sex
2. Race
3. Age
4. Education
5. Previous occupational experience
6. Marital status--beginning and end of apprenticeship
7. Dependents
8. Family vocational background
9. Father's occupational background
10. Occupational area of apprenticeship
11. Union status

II. Pre-apprenticeship experience

1. Trade-oriented courses taken during high school
2. Trade-oriented courses taken after high school
3. Exposure to trade during high school
4. Sources of advice to enter apprenticeship
5. Previous experience in apprenticable trade
6. Influences of military service
7. Pre-apprenticeship knowledge of the trade:
   a. Nature of the work
   b. Working conditions
   c. Rate of pay
   d. Job openings
   e. Long-term future of trade

III. Apprentices' attitudes towards the in-school and on-the-job training

1. On-the-job training
   a. Quality of on-the-job instruction
   b. Teaching ability of on-the-job instructors
   c. Equipment and tools on the job
   d. Working conditions
   e. Adequacy of job rotation
   f. Overall quality of on-the-job training
   g. Lay-off experience while in apprenticeship
   h. Opinion of apprentice wage rates
   i. Whether or not program was JATC-administered
2. In-school training
   a. Teacher's knowledge of subject material

b. Teacher's interest in students

c. Equipment in schools

d. Usefulness and relevance of school work to work on the job

e. Speed of presentation of the material

IV. Apprentice wage rates and post-apprenticeship employment and income

1. Beginning apprentice pay rates
2. Beginning rate as a percentage of journeyman wages
3. Ending apprentice pay rates
4. Ending rates as a percentage of journeyman wages
5. Present occupation
6. Supervisory nature of present occupation
7. Whether or not presently working in same general area as that in which apprenticeship was served
8. Post-apprenticeship income

V. Reasons for cancellation of indenture

1. Reasons for cancellation of indenture and their importance in relation to each other
2. Opinions of the apprentices toward the Utah State Apprenticeship Council or its field representatives and the services provided thereby.

All of the above variables will be discussed in the following chapters. In some cases the apprentices' responses in the above categories will be looked at for the group as a whole. In most cases, however,

contingency tables with the above variables cross-tabulated by completion status will be employed. Implications of the data and explanations of the findings will accompany the analysis of each variable.

CHAPTER IV

PERSONAL CHARACTERISTICS OF APPRENTICES

Personal characteristics and background, along with the occupational area in which the apprenticeship was served, would be expected to be strong determinants in an apprentice's completion or cancellation of her or her apprentice program. In this chapter, the apprentices' responses to questions regarding their personal and occupational backgrounds will be summarized, and important relationships and implications underscored. Specific areas which will be studied are: sex, age at start of apprenticeship, race, education, previous experience, marital status at beginning and termination of apprenticeship, number of dependents, occupational area of apprenticeship, family vocational background, union status, and JATC program status.

Sex

Apprenticeship has traditionally been a "for men only" method of skill training. However, women in apprenticeship are beginning to make headway in opening up greater opportunities for training--not only in occupations that have traditionally been staffed by women (health trades, service trades, and graphic arts), but also in the construction and industrial trades. A recent survey conducted in Wisconsin concluded that women were "capable of performing unfeminine tasks in many instances as well as men."[1]

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[1]U.S. Department of Labor, Manpower Administration, *Women in Apprenticeship: Why Not?* (Washington, D.C.: U.S. Department of Labor, 1974).

There is only a very small number of women currently working as apprentices in the construction and industrial trades in Utah. Of the survey respondents, only two were women. Most of the respondents, however, date back to before the establishment of direct efforts to recruit women apprentices. Although some states, such as Wisconsin, are showing considerable increases in the number of women apprentices, it is hard to tell at this time how well women will be able to fit into the apprenticeship picture. It is interesting to note, however, that in the Wisconsin survey, only 24 percent of the women apprentices surveyed were dropouts.[2]

In order to test the relationship between sex and occupational area of apprenticeship, a cross tabulation between sex and occupational area was performed. The results are summarized in Table 6. The highly significant chi-square value bears out the relationship which sex has with the occupational area chosen in which to train as an apprentice.

Of the two women respondents, one completed her indenture and the other cancelled out. The small number of women respondents made it meaningless to try and explore further relationships which the sex of the apprentice has on his or her training experience.

However, it should be noted that while greater numbers of women are being seen in apprenticeable occupations, they still tend to be concentrated in traditionally feminine tasks.[3]

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[2] *Ibid.*, p. 23.

[3] *Ibid.*

Table 6. Sex of respondent by occupational area of apprenticeship

	Male	Female
Construction	402	0
	70.3[a]	0.0
	100[b]	0.0
Industrial	126	1
	22.0	50.0
	99.2	0.8
Graphic arts	3	1
	0.5	50.0
	75.0	25.0
Service trades	41	0
	7.2	0.0
	100.0	0.0

[a]Percent of column total.
[b]Percent of row total.
Chi square: 72.262, 3 d.f.

Age at Beginning of Apprenticeship

In Utah and most other states, the minimum legal age at which a person can become a registered apprentice is sixteen. The exception to this rule in Utah is the apprentice plumber who, in order to comply with state licensing regulations, must be at least eighteen years old. Apprentices this young, however, are rarely if ever seen. This could be due to a variety of factors. First, to be an apprentice in most occupations in Utah, a person must hold a high school diploma or the equivalent. Very few young people meet this qualification at age sixteen. Second, the nature of the training and the occupations involved in apprenticeship militate against a young man's deciding to

be an apprentice at an early age. In Utah, perhaps more than other states, trades and blue-collar work still carry a somewhat anchronistic stigma. As will be shown in a later chapter, a young person receives very little, if any, exposure to trade work and its benefits while in high school. It appears that a young person who decides against some sort of higher education following high school enters into a period of "drift," working at various jobs, experimenting with various alternatives (military, laboring work, etc.) before actually seeing the benefits of formal apprenticeship. Data collected from the survey on age at the beginning of apprenticeship bear this out. The apprentices were asked to give their ages at the commencement of their indentures. The raw data results are given in Table 7.

Table 7. Mean age at commencement of indenture

Mean	Variance	Std. error	Std. dev.
26.9	64.6	.34	8.04

The remarkably high figure for the mean age at commencement of indenture leads to conclusions such as those previously discussed. Barocci's Wisconsin study found similar results,[4] although the average was somewhat lower at twenty-three years (this is still high). For a program that has traditionally been designed as a means for training young people and as a system of post-secondary education, it is somewhat

[4]Barocci, "The Drop-out and the Wisconsin Apprenticeship Program," p. 90.

confusing to see the majority of apprentices beginning at such a relatively late age. More shall be said about this later.

To further explore the significance of age, the total number of respondents in specific age classes at the beginning of their indentures is given in Table 8. Table 9 summarizes a cross-tabulation of age at commencement of indenture by completion status.

Table 10 shows the mean age at beginning of apprenticeship broken down by completion status. The significant chi-square and t values suggest that the older a person is the more likely he will complete his or her apprentice program. This is a logical consequence of the greater responsibility, foresight, and experience which come with age. It is by no means, however, a justification for tailoring apprentice programs to older participants. The implications of this will be discussed in greater length in Chapter IX.

Race

Tremendous advances have been made in opening up apprentice opportunities for blacks and other minorities. Apprenticeship has long been a very exclusive institution, virtually closed to all minorities. However, in the last three-four years, great efforts have been made in an attempt to recruit and prepare minority youth for apprenticeship. They appear to have been successful.

Most of these efforts have taken the form of Outreach Programs, Community Plans, etc. In addition, federal law[5] requires strict adherence to anti-discrimination policies designed to foster minority

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[5] 29 CFR 30.

Table 8. Age of apprentices at commencement of indenture by classes

	Absolute frequency	Percent
Under 19 years	77	14.7
20-24 years	175	33.3
25-29 years	125	23.8
30-34 years	54	10.3
35-39 years	36	6.9
40-56 years	58	11.0
Total	525	100.0

Table 9. Age of apprentices at beginning of apprenticeship by completion status

	Dropout	Completers	Total
Under 19 years	32 (41.6)[a]	43 (55.8)	75
20-24 years	62 (35.4)	109 (62.3)	171
25-29 years	35 (28.0)	88 (70.4)	123
30-34 years	6 (11.1)	47 (87.0)	53
35-39 years	7 (19.4)	29 (80.6)	36
40-59 years	3 (5.2)	55 (94.8)	58
Total	145 (28.1)	371 (71.9)	516

[a]Percent row total in parentheses.
Chi square: 39.9, 10 d.f.

Table 10. Mean age at beginning of apprenticeship broken down by completion status

	Mean	Std. dev.
Completer	28.6	8.53
Dropouts	23.9	6.03

t = 7.03 (significant at .05 level).

participation in apprenticeship with the BAT having responsibility for monitoring the compliance to these standards. Programs administered by the Utah State Apprenticeship Council are required to insert a formal nondiscrimination clause into all apprenticeship standards submitted to the Council for approval. The Council recommends that the nondiscrimination clause be similar to the following:

> Selection of apprentices under this program shall be made on the basis of qualifications alone and all applicants will be afforded equal opportunity under these standards without regard to race, creed, color, religion, national origin, or physical handicaps except to the extent that such physical handicaps affect the applicant's qualifications for the trade or craft.[6]

Only four of the respondents were black; twenty-five were members of other minority races. A total of 5.1 percent[7] of the respondents came from minority races. Again, the majority of the respondents date back to before the formal establishment of many of the present programs designed to increase minority participation in apprenticeship. As can be seen in Table 11, minority participation in registered apprentice programs in Utah is experiencing moderate growth.

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[6]Utah, *State of Utah, Utah Apprenticeship Council Policy Manual*, sec. 22.2.

[7]See Table 12.

Table 11. Minority apprentices registered in formal programs: 1972 and 1974

	Number	Percent of total apprentices	Percent of minority work force
1972	164	7.5	0.6
1974	238	7.9	0.9

Source: Biennial reports of the Utah Apprenticeship Council, 1970-72 and 1972-74.

Table 12. Breakdown of respondents by race

	Number	Percent
White	540	94.9
Black	4	0.7
Other	25	4.4

Table 13. Race by completion status

	Completers	Dropouts
White	354 70.1[a] 95.9[b]	144 28.5 94.1
Black	3 100.0 0.8	0 0.0 0.0
Other	12 57.1 3.3	9 42.9 5.9

[a]Row percent.
[b]Column percent.
Chi square: 3.52, 4 d.f. (n.s.).

In order to look at the retention rate of the minority respondents, race was cross-tabulated with completion status. The results are summarized in Table 13. The chi-square value indicates independence between an apprentice's race and completion status. The relatively high number of completers to dropouts is due to the over-representation of completers in the sample in the case of whites. It may not be in the case of blacks and other minorities. The small number of minority respondents makes it difficult to determine the significance of the results in Table 13.

In conclusion, although the data indicate some success by minorities in Utah apprenticeships, a firm conclusion on the question must be delayed to that time in the future when adequate data will be available.

Education

In Utah, as is the general rule with most states, a high school diploma or its equivalent (as shown by a GED examination) is necessary in order to be accepted for a registered apprenticeship. Generally, no previous experience or vocational education is required. However, most JATC's administer aptitude, manual dexterity, and oral tests (including interviews by members of the JATC) to determine whether or not the person is adapted to the specific trade.

It seemed worthwhile to use the data collected from the respondents to determine how closely the minimum education requirement was adhered to. The results are presented in Table 14. As can be seen, there was a substantial number of apprentices (13 percent of the respondents) who appear to have not completed the minimum educational requirements

for apprenticeship. There are a few possible explanations for this. First, many sons adopt the trade of their fathers and begin formal training with the help of their fathers even without completing the formal educational requirements. Second, the educational requirement may be waived by the BAT or SAC through adequate performance on a GED examination, or, alternatively, through substitution of certified experience.

Table 14. Education by completion status

	0-8 years	9-11 years	12 years	12+ years	Total
Completers	6 (1.6)[a]	52 (13.8)	313 (83.2)	5 (1.3)	376 (100)
Dropouts	1 (0.6)	11 (7.1)	142 (92.2)	0 (0.0)	154 (100)
Total	7 (1.3)	63 (11.7)	455 (86.1)	5 (0.9)	539 (100)

[a]Percent of row total.
Chi square: 9.52, 6 d.f. (n.s.).

Closer examination of the results in Table 14 reveal that the dropouts reported less post-secondary education than did the completers, but not to any significant degree as reflected by the low chi-square value. In sum, it appears that the educational backgrounds of dropouts and completers do not vary significantly.

Previous Experience

In order to determine what occupational experience the apprentices had between high school and the beginning of their indentures, along with whether or not it differed between dropouts and completers, the

respondents were asked to list their previous occupational experience. Their responses are summarized in Table 15. Closely related to the findings on age is the figure related to entering apprenticeship directly from high school. This adds further strength to the hypothesis that many young people are "drifting" or experimenting with various occupational alternatives before settling down in an apprenticeship. The large number of respondents who had worked in the trade prior to becoming apprentices suggests that there may be some hesitancy--probably due to indecision--on the part of young people to formally indenture themselves. This idea will be explored in greater detail in Chapter IX.

Table 15. Previous occupational experience

Experience	Absolute frequency	Percent
Worked same area	293	50.6
Worked unrelated area	160	27.6
Attended vocational school	37	6.4
College	9	1.5
Military	23	4.0
Entered apprenticeship directly from high school	11	1.9
Worked in trade during high school	15	2.6
Other	31	5.4
Total	579	100.0

To determine whether dropouts and completers differed significantly in their previous occupational experience, a cross-tabulation between previous experience and completion status was performed. The results are presented in Table 16. The significant chi-square value is important in underscoring the differences in responses to this question between completers and dropouts. Of particular significance is the fact that a great deal more completers had previous post-high-school experience in the trade (59 percent) as compared to dropouts (31 percent).

Marital Status

Respondents were asked to indicate their marital status at the beginning and termination of their indenture. It is hypothesized that the added responsibilities of married life act as further inducements to successful completion of apprenticeship with its attendant financial security.

Cross-tabulation of marital status at beginning and termination of apprenticeship is given in Tables 17 and 18. The high chi-square values support the hypothesis that there is a relationship between an apprentice's marital status and whether or not he will complete a program.

This is an expected result. Marriage tends to make an individual more responsible and pragmatic. Financial security and a solid career take on new importance. In addition, the single apprentice is more mobile than his married counterpart. These are just a few of the reasons (perhaps not the most important ones) why marital status and

Table 16. Previous experience by completion status

Experience	Dropouts	Completers	Total
Worked same area	47 (16.9)[a] (30.9)[b]	231 (83.1)[a] (58.8)[b]	278
Worked unrelated area	62 (41.1) (40.8)	89 (58.9) (22.6)	151
Attended vocational school	15 (44.1) (9.9)	19 (55.9) (4.8)	34
College	11 (28.2) (7.2)	28 (71.8) (7.1)	39
Military	7 (38.9) (4.6)	11 (61.1) (2.8)	18
Entered directly from high school	5 (45.5) (3.3)	6 (54.5) (1.5)	11
Worked in trade during high school	5 (36.0) (3.3)	9 (64.0) (2.3)	14
Total	152	393	

[a]Row percent in parentheses.
[b]Column percent in parentheses.
Chi square: 51.8, 32 d.f.

Table 17. Marital status at beginning of apprenticeship by completion status

	Single	Married	Divorced	Separated	Total
Completions	86(23)[a]	277(74.1)	10(2.7)	1(0.3)	374
Cancellations	62(40.5)	86(56.2)	4(2.6)	1(0.7)	153
Total	148(28.5)	363(68.5)	14(2.6)	2(0.4)	527

[a]Percent of row total.
Chi square: 20.6, 6 d.f.

Table 18. Marital status at termination of apprenticeship by completion status

	Single	Married	Divorced	Separated	Total
Completions	22(5.9)[a]	336(90.1)	15(4)	0(0)	373
Cancellations	44(28.8)[a]	104(68)	5(3.3)	0(0)	153
Total	66(12.7)	440(83.6)	20(3.7)	0(0)	526

[a]Percent of row total.
Chi square: 52.1, 4 d.f.

Table 19. Mean number of dependents broken down by completion status

	Mean	Std. dev.	Variance	N
Completers	3.6	1.708	2.917	368
Dropouts	2.4	1.741	3.030	149

Calculated t = 7.091 (significant at .05 and .01).

completion status are related. However, the direction and strength of this relationship cannot be determined using chi-square tests.[8]

It is interesting to note that while 67.4 percent of the respondents were married at the beginning of their indentures, more completers were married than dropouts. As Table 17 shows, 74.1 percent of completers were married at the beginning of their indentures, as opposed to 56.2 percent of the dropouts. It is interesting to compare the two groups in the single category also. Of the dropouts, 40.5 percent were single at the beginning of their indentures, as opposed to only 23 percent of the completers.

The relationship between marital status at termination of apprenticeship and completion status is not considered since it is a vague and perhaps meaningless one, the principal reason for this being the fact that terminations of indenture were coming at different times and thus changes in marital status could be attributed to different terms of indenture. Thus, marital status at commencement of indenture was chosen as the relevant relationship in this case.

Number of Dependents

It is generally believed that those with dependents are more likely to complete educational or training programs than those without for the same reasons as those listed previously in the discussion of marriage.

It was therefore expected that the completers in the sample would have been responsible for more dependents during their indentures than were the dropouts, and hypothesized that those who complete apprenticeships *in general* have more dependents than dropouts.

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[8]Multiple regression and correlation techniques must be used.

To test this hypothesis, figures for the mean number of dependents of completers and dropouts in the sample were obtained. A t-test for the difference between two means was carried out and the results are summarized in Table 19. The highly significant t value supports the hypothesis that completers have a greater number of dependents than dropouts. It may be noted that the mean number of dependents for the respondents taken as a whole was 3.2.

A major criticism of apprenticeship is that it does not provide the apprentice a financially sound income. However, it appears from the findings of this section and the preceding one that this is not a valid criticism. The present data, as well as Barocci's,[9] tend to contradict the claim that one reason for high dropout rates is that an apprentice can't support his family on an apprentice's salary. Indeed, just the opposite appears to be true: the greater the family responsibilities of an apprentice, the more likely his completion of an apprentice program. Again, the *exact* nature of this relationship and its strength can only be determined using regression and correlation methods.

An oversight in the wording of the data collection instrument may have produced some bias in the results of this section. The respondents were asked to indicate their dependents (excluding themselves) at the time they completed the questionnaire, rather than during the period of their indentures. However, it appears that the results have not been seriously affected because of this oversight. There are two reasons for this. First, as was shown in the discussion of age at

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[9]Barocci, "The Drop-out and the Wisconsin Apprenticeship Program," p. 99.

commencement of indenture, the mean age of the completers when they started their programs was significantly greater than the mean age of the dropouts (28.6 as compared to 24). Second, considerably more of the completers in the sample were married at the beginning of their indentures than were the dropouts. An examination of Table 17 shows that while 74.1 percent of the completers were married, only 56.2 percent of the dropouts were. This fact, coupled with the fact that the mean ages differed widely, leads us to feel that the relationships we found between number of dependents at the time of completion of the questionnaire and completion status hold also for the period of indenture. That is, the evidence suggests that the completers were likely responsible for more dependents during their indentures than the dropouts were. This, of course, corroborates Barocci's findings in the Wisconsin study.

Occupational Area of Apprenticeship

Apprenticeship authorities have long realized that some apprenticeable occupations are more desirable than others. In addition, the majority of apprenticeable occupations are still found in the crafts where apprenticeship had its beginning. These occupations are considered, also, to be the most desirable, and indeed tend to offer the most favorable short- and long-range benefits and opportunities. It was expected, then, that the overwhelming majority of respondents would represent the construction (crafts) industry, which they did (almost 70 percent). Table 20 presents a cross tabulation of occupational areas of apprenticeship and completion status.

Table 20. Occupational area of apprenticeship by completion status

	Construction	Industrial	Graphic arts	Service	Total
Completers	259(69.6)[a] /70.6/[b]	94(25.3) /77/	1(0.3) /25/	18(4.8) /46.2/	372
Dropouts	103(66.9) /29.4/	27(17.5) /22.1/	3(1.9) /75/	21(13.6) /53.8/	154
Total	362(69)	121(22.9)	4(0.8)	39(7.3)	526

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 19.3, 6 d.f.

Sixty-nine percent of the respondents represented the construction trades, with the next largest group coming from the industrial trades. As was expected, the overwhelming majority of apprentices indentured in the construction and industrial trades (70.6 and 77 percent, respectively) completed their apprenticeships, while the graphic arts and service trades showed less favorable results.

The significant chi-square value suggests that there is a relationship between occupational area of apprenticeship and completion status. The data suggest that apprentices in the construction and industrial trades are more likely to complete an indenture than in the graphic arts or service trades. There exist several possible explanations for this. As Barocci points out, it may be due to the existence of superior programs or superior apprentices in these trades.[10] The author feels that the former is probably closer to the truth. In Utah, as is probably the case in many other states, the majority of

[10]*Ibid.*, p. 106.

the apprentices in the construction and industrial trades are members of union programs and trained under the aegis of a Joint Apprenticeship and Training Committee (JATC). It has been our experience that in general these programs tend to be of much higher quality than independent or unilateral programs. More will be said about this later.

Family Vocational Background

Barocci found that apprentices coming from families where the father or mother or both had either participated in some form of vocational training or worked in a vocation were more likely to complete an indenture than if they had come from a family with no vocational background.[11] To see if there was some relationship between a respondent's completion status and his family vocational background, the surveyed apprentices were asked to indicate whether or not their father or mother or both had ever taken vocational courses or if they were employed in a vocational trade during their last year of high school. The apprentices' responses are summarized in Tables 21, 22, and 23. Looking at the figures in these tables, it becomes apparent that the apprentices were fairly uniform in their responses. The low chi-square values indicate no relationship between family vocational background and completion status.

Upon first examination, this appears to be in contradiction to Barocci's findings, and indeed, given our sample, it is. However, the influence of the predominant religion in Utah may account for this result. Mormon culture is inherently achievement-oriented and places

[11] *Ibid.*, p. 102.

Table 21. Father vocational course by completion status

	Yes	No	Total
Completers	80(26.2)[a] /66.1/[b]	225(73.8) /72.1/	305
Dropouts	40(30.5) /33.1/	91(69.5) /28.7/	131
Total	120(27.6)	316(72.4)	436

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 1.35, 2 d.f. (n.s.).

Table 22. Mother vocational course by completion status

	Yes	No	Total
Completers	35(13.1)[a] /68.6/[b]	232(86.9) /69.7/	267
Dropouts	15(13.0) /29.4/	100(87.0) /30.0/	115
Total	50(13.3)	332(86.7)	382

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 2.36, 2 d.f. (n.s.).

Table 23. Father or mother employed in vocational trade by completion status

	Yes	No	Total
Completers	90(25.3)[a] /63.8/[b]	266(74.7) /71.9/	356
Dropouts	51(33.6) /36.2/	101(66.4) /27.3/	152
Total	141(27.6)	367(72.4)	508

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 4.8, 2 d.f. (n.s.).

a great deal of emphasis on higher education and self-improvement. As a result, fathers and mothers with vocational backgrounds may orient their child towards higher education rather than the pursuit of a trade. This characteristic may have distorted the findings and caused a bias in the data. It still must be concluded, however, that on the basis of the data completion status and family vocational background are independent.

Union Status and JATC Programs

Union membership is considered an important determinant of success or failure in completion of an apprenticeship, and thus a strong relationship between union membership (either during or prior to apprenticeship) and completion status was expected.

The reasons for these expectations relate to the quality of union vs. non-union apprenticeship programs. Union programs whether of the JATC type or unilateral, generally have uniform standards and curricula

established by the international union and tend to be more meticulous in the observance of these standards. In addition, unions have more experience with apprenticeship since apprenticeship had its origins in the craft unions and has long been a union institution. In summary, union programs generally are of all-around higher quality and offer more advantages to the apprentice than independent programs.

Table 24 summarizes a cross tabulation between union membership and completion status intended to determine if a relationship between the two variables exists.

Table 24. Union membership by completion status

	Member	Formerly member	Never member	Total
Completers	281(78.9)[a] /81/[b]	17(4.8) /58.6/	58(16.3) /42.3/	356
Dropouts	63(42.0) /19.1/	10(6.7) /41.4/	77(51.3) /56.2/	150

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 77.72, 4 d.f.

The wide differences in responses between completers and dropouts (reflected by the very significant chi square) support the aforementioned expectations. Almost 84 percent of the completers were union members either during or previous to apprenticeship and 16.3 percent were not. This differs widely from what the dropouts reported. Only 48.7 percent of that group reported that they were union members during or prior to apprenticeship, while 51.3 percent said they had never been union members.

Closely related to union membership is whether or not the apprentice served his indenture under the auspices of a JATC. For many of the same reasons mentioned above in the discussion of unions, JATC programs have the reputation in apprenticeship circles of being the "cream of the crop." JATC programs are heavily preferred by young people entering apprenticeship, and as a result, a very small percentage of applicants are admitted into their programs each year. Thus, coupled with their high quality, the JATC programs also appear to be getting the best people as apprentices. Consequently, a high completion rate among those respondents who had been indentured in JATC-administered programs was expected. To test this hypothesis, the apprentices' responses to the question, "Was your apprentice program administered by a J.A.T.C.?," were cross tabulated with completion status. The results are presented in Table 25.

Table 25. JATC program by completion status

	Yes	No	Total
Completers	296(88.6)[a] /77.3/[b]	37(11.1) /53.6/	333
Dropouts	88(73.9) /23.5/	31(26.1) /46.3/	119
Total	384(84.7)	69(15.3)	452

[a]Percent of row total in parentheses.
[b]Percent of column total in parentheses.
Chi square: 15.93, 4 d.f.

The divergence in responses is again substantial. Of the completers, 88.6 percent indicated that they were indentured in programs administered by JATC's, as compared to 73.9 percent of the dropouts. The difference is significant as indicated by the chi-square value. More will be said about JATC-administered programs in the following chapters.

Summary

In this chapter we have examined specific personal and occupational characteristics of the respondents. Some have a particularly significant relationship upon whether or not an apprentice completes his or her indenture. Sex, age at commencement of indenture, race, previous occupational experience, marital status at commencement of indenture, number of dependents, occupational area of apprenticeship, union status, and JATC program were all seen to be related to whether or not an apprentice completed or terminated the indenture. Again, the nature of these relationships must be kept in mind. The chi-square statistic is only a test for independence between the row variables and column variables as far as contingency tables are concerned. A significant chi-square value proves only that there is dependence between the row and column variables. Again, the exact nature, strength, and direction of this relationship can only be determined through regression and correlation analysis.

CHAPTER V

PRE-APPRENTICESHIP EXPERIENCES AND INFORMATION

One of the concerns which apprenticeship program administrators in Utah have is whether or not persons entering apprenticeship are adequately informed as to what they can expect from apprenticeship and what will be expected from them. Not a few officials with whom we spoke felt that perhaps one of the reasons apprentices were terminating their indentures prematurely was that they had been misinformed about certain aspects of their training prior to beginning their apprenticeships.

In this chapter the apprentices' responses concerning how well they felt they were informed on the various facets of apprenticeship will be examined as well as other aspects of their pre-apprenticeship experiences, including: sources of advice to enter apprenticeship, trade-oriented courses taken after high school, exposure to the trade during high school, and a brief look at the high school guidance counselors and apprenticeship.

Pre-Apprenticeship Information

In order to determine how well the apprentices were informed of the processes of apprenticeship prior to indenturing themselves, the respondents were asked to indicate whether they felt they were poorly informed, somewhat informed, or well informed about the following things: nature of the work of their trade, the conditions which they would be working under, the rate of pay they would receive as apprentices,

job openings, the long-term prospects of their trade, the time required for completion of the indenture, veterans' benefits for apprentices, and advancement criteria. Tables 26-33 summarize the dropouts' and completers' responses to these questions. Each one shall be looked at individually.

Nature of the work

Naturally, one of the most important aspects of orientation into apprenticeship would be how well the apprentice understands the nature of the work of the trade in which he is going to be indentured. It is understandable that an apprentice whose expectations are not met on the job is more likely to become disenchanted than if they were. Table 26 summarizes the apprentices' ratings of the information they received regarding the nature of the work.

Table 26. Nature of the work

	Well informed	Somewhat informed	Poorly informed	Total
Completers	217(58.6)[a] /73.8/[b]	127(34.3) /69.4/	26(7.0) /62.2/	370
Dropouts	78(51.0) /26.3/	58(37.9) /30.5	17(11.1) /37.8/	153
Total	295(56.4)	185(35.4)	43 (8.2)	523

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 8.58, 4 d.f. (n.s.).

There was only a slight difference in the responses between dropouts and completers, with the completers generally giving a higher ranking than dropouts. Of the completers, 58.6 percent said they felt they were well-informed as compared to 51 percent of the dropouts. On the other end, only 7 percent of the completers said that they felt they were poorly informed, while 11.1 percent of the dropouts so indicated. The difference is not significant, however, as shown by the low chi-square value.

Working conditions

Closely related to information on the nature of the work is information on working conditions. Consequently, misinformation in this area could lead to an apprentice's disenchantment as rapidly or more so than misinformation on the nature of the trade as discussed in the previous section. Table 27 summarizes the apprentices' responses in this area.

Table 27. Working conditions

	Well informed	Somewhat informed	Poorly informed	Total
Completers	215(58.7)[a] /75.4/[b]	121(33.1) /70.5/	30(8.2) /51.7/	366
Dropouts	71(46.4) /24.7/	53(34.6) /29.4/	29(19.0) /48.3/	153
Total	286(54.5)	174(34.1)	59(11.4)	519

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 18.68, 4 d.f.

The apprentices' responses differed to a greater extent in this aspect than in the previous one. This is perhaps understandable, since it is much easier for a potential apprentice to understand beforehand what types of tasks he will be expected to perform than it is for him to understand without prior experience what types of working conditions to expect. There will certainly always be difficulty in conveying this type of information to the potential apprentice, especially if he has had no prior exposure to the work. However, 58.7 percent of the completers felt they were well-informed in this area as opposed to only 46.4 percent of the dropouts. The dropouts were somewhat more negative also, with 19 percent saying they were poorly informed, and only 8.2 percent of the completers feeling this way. It can be concluded, in light of the chi-square value, that the completers were generally better informed on working conditions than the dropouts.

Pay

A generally accepted reason behind many apprentices' decision to terminate their indenture is a lack of understanding of what they were to be paid as apprentices to begin with and how this was to change as their training progressed. Evidently, the greatest misunderstanding comes at the beginning of the indenture when the apprentice usually receives from 40 to 60 percent of a journeyman's wages, but many times expects to earn more than that. Further discussion on the problem of wages will be delayed until the next chapter. Table 28 summarizes the apprentices' rankings of pre-apprenticeship information on pay. Again, significant differences in the responses of the two groups can be seen. Of the completers, 76 percent felt they were well-informed,

while only 45.8 percent of the dropouts felt that way. Note also that only 4.1 percent of the completers said they were poorly informed as compared to almost 21 percent of the dropouts. It may be that these data simply reflect rationalization or bitterness on the part of the dropouts. This should be kept in mind when interpreting the responses to queries as subjective as these.

Table 28. Pay

	Well informed	Somewhat informed	Poorly informed	Total
Completers	279(76.0)[a] /80.2/[b]	73(19.9) /60.5/	15(4.1) /33.4/	367
Dropouts	70(45.8) /19.9/	51(33.3) /39.5/	32(20.9) /66.7/	153
Total	349(66.5)	124(24.4)	47 (9.1)	520

[a]Row total in parentheses.
[b]Column total in parentheses.
Chi square: 61.7, 4 d.f.

Job openings

As can be seen from Table 29, completers were significantly more positive in their responses than dropouts.

Long-term future of trade

Being adequately informed regarding the long-term prospects for remunerative employment in the trade is important to the apprentice's perspective on his training and his perseverance in completing it. The apprentices' responses to how well they were informed in this respect differ widely between completers and dropouts, as can be seen in Table 30.

Table 29. Job openings

	Well informed	Somewhat informed	Poorly informed	Total
Completers	223(61.9)[a] /84.3/[b]	105(29.2) /61.0/	32(8.9) /46.0/	360
Dropouts	42(27.6) /15.7/	69(45.4) /39.0/	41(27.0) /53.9/	152
Total	265(51.4)	174(34.0)	73(14.6)	512

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 59.5, 4 d.f.

Table 30. Future of trade

	Well informed	Somewhat informed	Poorly informed	Total
Completers	224(62.6)[a] /79.7/[b]	109(30.4) /67.5/	25(7.0) /39.7/	358
Dropouts	58(37.9) /20.3/	54(35.3) /32.5/	41(26.8) /60.3/	153
Total	282(55.0)	163(31.9)	66(13.1)	511

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 45.6, 4 d.f.

Significant differences in the responses of the dropouts and completers exist as supported by the significant chi-square value. Of the completers, 62.6 percent felt well-informed in this area as opposed to 37.9 percent of the dropouts. Of the dropouts, 26.8 percent felt poorly informed, while only 7 percent of the completers felt that way.

Time required to complete

The length of time required to complete an apprenticeship is again one aspect of an indenture which it is crucial that the apprentice thoroughly understand. It appears from talking to persons involved in apprenticeship throughout the state that many apprentices don't fully realize the time required to complete an indenture in their respective trades. The apprentices' responses are summarized in Table 31. Completers were again more positive in their responses than dropouts, with almost 85 percent of the completers indicating they were well-informed, with 60.7 percent of the dropouts so indicating. Of the dropouts, 18 percent felt poorly informed compared to only 3.6 percent of the completers.

Table 31. Time required to complete

	Well informed	Somewhat informed	Poorly informed	Total
Completers	306(84.8)[a] /77.3/[b]	42(11.6) /58.9/	13(3.6) /34.1/	361
Dropouts	91(60.7) /22.7/	32(21.3) /41.0/	27(18.0) /65.9/	150
Total	497(77.1)	74(15.0)	40(7.9)	511

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 49.17, 4 d.f.

One of the possible reasons for this wide difference in responses may well be the difficulty which apprentices with prior experience in the trade have in receiving credit for that experience. Both the JATC's and the SAC are theoretically supposed to grant credit towards completion of an indenture to apprentices with certified previous experience in the trade. However, apprenticeship administrators are reluctant to grant this credit and it is seldom given. Thus, many apprentices have had the experience of entering an apprenticeship program with the impression that they would receive credit for their previous experience only to find that they were not able to receive it. This can be very frustrating to a person who already possesses skills in the trade and is probably reflected in the difference in responses between completers and dropouts in Table 31. As has been indicated in other studies,[1] many of these persons, rather than complete their indenture, are able to secure remunerative employment in the trade, sometimes receiving journeyman's wages.

Veterans' benefits

Under the G.I. Bill, veterans participating in apprenticeship programs are eligible to receive benefits somewhat similar to those who enroll in school full-time. The only difference, however, is that the benefits are decreased as the apprentice receives his step pay increases. The problem the apprentice faces, however, is that while he is receiving 5 percent step increases each six months, the benefits he receives under the G.I. Bill are decreased over 20 percent, depending on the number of dependents he is responsible for. It has been a cause of concern on the part of SAC officials that many veterans

[1] *Ibid.*, p. 158.

entering apprenticeship do not realize this, either expecting the full payments to continue throughout the length of their indenture or not expecting the six-month decreases to be as large as they are. Table 32 illustrates this further.

Table 32. Veterans' benefits

	Well informed	Somewhat informed	Poorly informed	Total
Completers	100(32.9)[a] /69.9/[b]	71(23.4) /65.2/	133(43.8) /71.5/	304
Dropouts	44(31.4) /30.1/	39(27.9) /34.8/	55(39.3) /28.5/	138
Total	144(32.2)	110(24.7)	188(42.6)	442

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 6.44, 6 d.f. (n.s.).

As can be seen, the dropouts and completers are fairly uniform in their responses in this area. The low chi-square value indicates no relationship between an apprentice's completion status and his responses to the question. The results are important, however, in their *uniformity*. A total of almost 43 percent of the respondents indicated that they were poorly informed in the area of veterans' benefits, while almost 25 percent indicated they were only somewhat informed. That they were well-informed was indicated by 32.2 percent. This contrasts greatly with the results summarized in the other tables. As mentioned before, this is probably due to the apprentices' lack of understanding of or misinformation regarding veterans' benefits and how they work.

It may also be due to the fact that veterans entering apprenticeship in the state are not being informed that such benefits exist.

Advancement criteria

In asking the apprentices to indicate how well they felt they were informed regarding advancement criteria, it was hoped that it could be determined whether or not the apprentices were aware of the pay step increases and what they were expected to accomplish in order to receive them. Their responses are summarized in Table 33.

Table 33. Advancement criteria

	Well informed	Somewhat informed	Poorly informed	Total
Completers	170(48.9)[a] /80.7/[b]	126(36.2) /70.8/	52(14.9) /49.5/	348
Dropouts	41(27.2) /19.2/	53(35.1) /29.1/	57(37.7) /50.4/	151
Total	211(41.9)	179(35.8)	109(22.2)	599

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 39.37, 4 d.f.

The completers were significantly more positive in their responses again. Fifty percent indicated they were well-informed, and only 15 percent that they were poorly informed. As for the dropouts, 27.2 percent felt they were well informed and 37.7 percent poorly informed. It is interesting to note also that as a whole the apprentices were

considerably more negative in their responses in this area (58 percent felt they were either somewhat or poorly informed) than in most of the others.

In conclusion, then, it appears that the dropouts and completers differed significantly in how they felt they were informed prior to apprenticeship about all the above areas except nature of the work and veterans' benefits. The implications of their uniformity of response in these areas have already been discussed. On the whole, however, it appears that completers have received better pre-apprenticeship information and thus have more accurate perceptions of what to expect than do the dropouts. The reasons for this are not completely clear. Cross-tabulation between the pre-apprenticeship information variables and whether or not the apprentice was in a JATC or non-JATC program did not yield consistent results, so it appears that there is no significant difference between union, JATC, and independent programs as far as how well they inform the potential apprentice concerning the above items.

Sources of Advice to Enter Apprenticeship

Barocci found in his Wisconsin survey that young persons considering entering an apprenticeship program received very little encouragement from high school vocational guidance counselors.[2] In addition, he found that the majority of apprentices entered apprenticeship on their own initiative, with very few entering on advice from their parents. The respondents in our survey were also asked to indicate their

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[2] *Ibid.*, p. 116.

most important sources of advice on becoming an apprentice. Their responses are presented in Table 34. The data very closely parallel those of Barocci in this area. Only 1.1 percent of the respondents had received advice from their school guidance counselors in becoming an apprentice. This may not necessarily mean, however, that high school guidance counselors in the state are not encouraging apprenticeship as a possible route to take after high school. This has been a problem in the past, but in talking with apprenticeship officials throughout the state, it appears that high schools are becoming more and more conscious of career opportunities in apprenticeable trades and are making these opportunities known. It appears more likely that the principal reason why more of the apprentices had not received advice from their school counselor is the fact that the majority of them had not seriously considered apprenticeship while still in high school, even though they may have been exposed to it through career seminars, job fairs, etc. Also, there is a general hesitancy on the part of high school students to consult their guidance counselors. As the data indicate, a young person is much more likely to go to friends, relatives, and parents for outside advice. It seems plausible, and likely, that this is the case no matter what the young person aspires to.

In conclusion, then, it appears that the majority of the apprentices enter apprenticeship on their own initiative. There is evidence that the reason more of the apprentices had not received advice from school counselors is not that they were unwilling to give positive encouragement in the direction of apprenticeship, but because of indecision on the part of the apprentice and general reluctance to discuss career goals with school guidance counselors. Again, there is

Table 34. Most important source of advice

Source of advice	Completers	Dropouts
Friend or relative	72(65.4)[a] /18.8/[b]	38(34.5) /24.8/
VA counselor	4(33.3) /1.1/	8(100.0) /5.2/
Parents	38(67.3) /9.4/	17(32.7) /11.1/
School counselor	2(16.7) /0.6/	5(83.3) /3.3/
Personal decision	223(75.8) /59/	71(24.1) /46.4/
Friend, relative, parent	1(50.0) /0.3/	1(50.0) /0.3/
Friend, relative, school counselor	1(100.0) /0.3/	0(0.0) /0.0/
Other	40(75.5) /10.5/	13(24.5) /8.5/

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 45.85, 22 d.f.

Table 35. Trade courses post-high-school by completion status

	Yes	No	Total
Completers	132(35.4)[a] /69.4/[b]	241(64.6) /72.3/	373
Dropouts	59(38.3) /30.6/	95(61.7) /27.7/	154
Total	191(36)	336(64)	527

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 1.16, 2 d.f. (n.s.).

plenty of evidence that trade work and apprenticeship are receiving fair exposure in the high schools of Utah.

Trade Courses After High School

In order to determine if having studied in trade courses after high school was important in whether an apprentice completed an indenture, the respondents were asked to indicate whether or not they had taken trade courses in a post-secondary institution. Their responses were cross-tabulated with their completion status, and the results of the cross-tabulation are presented in Table 35. As can be seen, no significant differences in response are indicated between completers and dropouts. It appears that no relationship exists between whether or not an apprentice has taken trade courses after high school and whether or not he completes his indenture. This could be interpreted as meaning that post-secondary trade courses do not give a person any special advantage in apprenticeship over those who have not had such courses. In talking with apprenticeship officials in the state this appears to be true. Experience with persons with vocational school training has indicated strongly that they are *not* able to compete with apprentices who have spent an equal amount of time in active apprenticeship. Therefore, in Utah only in rare instances is credit equal to the number of years of vocational school an apprentice applicant has had granted towards the completion of an indenture.

Exposure to Trade During High School

It might be expected that having some exposure in the trade during high school would be important in eventually becoming an apprentice and

completing an indenture. The data were insufficient in this area, with only fourteen respondents indicating that they had had experience in the trade during high school (nine completers and five dropouts). The Wisconsin survey found, however, that exposure to the trade while in high school had no significant effect on the likelihood of completion.[3]

Summary

This chapter has been concerned with the pre-apprenticeship experience of the respondents along with the information on apprenticeship which they possessed prior to beginning their indentures. To summarize, it appears as though the amount of information regarding apprenticeship which a person has prior to indenture is a significant variable in completion or cancellation. Further, more of the completers in the sample consistently indicated that they felt they had been well-informed as opposed to the dropouts. Further, exposure to the trade during high school and post-secondary vocational courses don't appear to have had a significant effect upon an apprentice's completion status. Finally, it appears that the apprentices' most important source of advice to enter apprenticeship is related to whether or not they complete their indenture. Our data indicate that personal initiative is the most widely given source of encouragement or advice to enter apprenticeship, with outside advice coming most often from friends, relatives, and parents.

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[3] *Ibid.*, p. 123.

CHAPTER VI

ON-THE-JOB TRAINING (OJT)

In this and subsequent chapters we will examine the specific phases of the apprenticeship training process; i.e., on-the-job training in the work processes of the trade and related classroom instruction. In this chapter we will examine the on-the-job phase of the training process, and in Chapter VII we will focus our attention on the related classroom instruction phase.

On-the-job training is apprenticeship's most outstanding characteristic. Indeed, the whole concept of apprenticeship emphasizes on-the-job rather than theoretical learning. In the past four years, however, on-the-job training has begun more and more to be complemented by related theoretical instruction, the subject of the next chapter. Nevertheless, this "learn-on-the-job" emphasis of apprenticeship is and always will be its most salient characteristic.

Rigid standards for on-the-job training are required if a program is to be registered with the State Apprenticeship Council (SAC). The program sponsor (employer) must demonstrate that the learning process will require *at least* 4,000 hours (two years) of on-the-job training. In most apprenticeable occupations, however, and especially in the industrial and construction trades, usually from four-five years of on-the-job training is required for an apprentice to master all of the work processes of the trade. Not all states require a minimum of

4,000 hours of on-the-job training; in fact, national apprenticeship standards require a minimum of only 2,000 hours (one year) of on-the-job training.[1]

In addition to the minimum hours requirement, in order to register an apprentice program with the SAC it is required that a program contain

> ... a sufficiently broad schedule of work processes for the acquirement of competency in the trade. Work process schedules should be developed by those responsible for the training of apprentices and in sufficient detail to serve as an outline of the basic elements of the trade to be learned.[2]

The subject of work processes shall be examined more closely in this chapter. Suffice it to say at this time that compliance to this requirement on the part of employers of apprentices has been the cause of considerable controversy.

It is the general policy of the SAC that every reasonable effort be made to assure that employers of apprentices use the job as a means of adequate skill training.[3] In addition to the requirement that formal work processes be established, the SAC also "encourages" its registrants to ahere to the following:[4]

1. That the schedule of work processes be included in the apprentice program, outlining the major classes of the trade to be learned and, where practicable, the estimated amount of time required to be spent in each process.

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[1] U.S. Department of Labor, Manpower Administration, *The National Apprenticeship Program* (Washington, D.C.: U.S. Government Printing Office, 1972).

[2] Utah, *Policy Manual*, sec. 4.

[3] *Ibid.*, sec. 5.

[4] *Ibid.*, sec. 6.

2. That the sponsor maintain a record of the amount of experience the apprentice has in each process and use this record in assigning the apprentice to work in order to assure that he receives skilled training and experience in all phases of the trade.

3. That the apprentice's job experience record be used in evaluating the apprentice's progress and in determining work assignments for additional training and experience.

4. That the sponsor assign the apprentice to unusual or infrequently encountered jobs or to those requiring a varied combination of skills and knowledge.

5. That the sponsor obtain the support and assistance of the journeymen in the training of the apprentice.

6. That the sponsor provide guidance to the journeyman in teaching the apprentice.

In summary, it can be seen from the foregoing that in order for a program to be eligible for registration with the SAC, adequate proof must be presented that the program has met the above standards and is capable of producing competent, all-around journeymen in the respective trade. Indeed, this is the purpose of quality on-the-job training: to produce craftsmen who will be thoroughly trained in all aspects of the trade.

It should be observed at this point that Utah is not unique in its requirements relating to on-the-job training--guidelines are set by the Bureau of Apprenticeship and Training (BAT) on a nationwide basis for registration of programs with its offices. The only way a state apprenticeship council can become the registration agency for its respective state is if the apprenticeship laws of that state *at least*

meet the minimum national standards. Therefore, all states, including those with state apprenticeship councils, have fairly uniform standards with respect to on-the-job training.

In the present study the apprentices were asked to rate the various aspects of their on-the-job training experience in the following areas: overall quality of on-the-job training, quality of on-the-job instruction, teaching ability of journeymen instructors, equipment and tools on the job, working conditions, adequacy of job rotation so that all phases of the trade could be learned, and general supervision by journeymen. In addition, the apprentices were asked to give the approximate or average journeyman-to-apprentice ratio on their job. They were also asked if they felt that they had received adequate on-the-job training.

To determine if there were any significant differences between completers and dropouts in their opinion regarding the various aspects of on-the-job training, their responses were cross-tabulated with completion status. The results are summarized in Tables 36-41, with brief discussions of the implications of the results. The chapter will be concluded by looking at the relationship between the average size of firm the apprentice worked for and the likelihood of completion.

Quality of OJT Instruction

Underlying the OJT process is the quality of instruction the apprentice receives on the job. This includes such things as teaching ability of the journeymen instructors, interest on the part of the instructors in helping the apprentice to master the work processes,

knowledge of instructor, etc. The apprentices' rankings of the quality of OJT instruction, broken down by completion status, are given in Table 36.

Table 36. Quality of OJT instruction

	Excellent	Good	Fair	Poor	Total
Completers	99(26.5)[a] /78.0/[b]	166(44.5) /73.9/	73(19.6) /74.5/	35(9.4) /48.7/	373
Dropouts	28(18.5)	59(39.1)	26(17.2)	38(25.2)	151
Total	127(24.0)	225(42.7)	99(19.3)	73(14.0)	

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 29.35, 6 d.f.

There are two or three important things to note about the results in Table 36. First, less than one-quarter of the respondents (dropouts and completers combined) rated the quality of OJT instruction as excellent. Of the respondents, 66.7 percent as a whole rated quality of OJT instruction as excellent or good and 14 percent as poor. In the aggregate, this is a positive ranking of the variable. Breaking the ratings down by completion status, however, we again see significant differences between the dropouts and completers. The two groups' responses differ most markedly in the "excellent" and "poor" categories. Of the completers, 26.5 percent rated the quality of OJT instruction as excellent, with 18.5 percent of the dropouts likewise responding. On the other end, 9.4 percent of the completers rated the instruction as poor, while a significantly larger group of 25.2 percent of the

dropouts so rated. The significant chi-square value suggests that there is a relationship between the quality of OJT instruction and whether an apprentice completes or cancels an indenture.

Teaching Ability of OJT Instructors

One of the greatest concerns of persons involved in apprenticeship throughout Utah (and, no doubt, other states) is the competency of the journeyman and others responsible for the on-the-job training of the apprentice. A phrase heard often when discussing problems of on-the-job training with apprenticeship administrators, employers, and the apprentices themselves is that "a good journeyman may not necessarily be a good instructor." The apprentices' rankings of the teaching ability of their OJT instructors, cross-tabulated by completion status, are presented in Table 37.

Table 37. Teaching ability of OJT instructors

	Excellent	Good	Fair	Poor	Total
Completers	90(24.1)[a] /78.0/[b]	168(45.0) /73.7/	87(23.3) /72.9/	28(7.5) /48.4/	373
Dropouts	26(17.3) /22.0/	60(40.0) /26.3/	33(22.0) /27.0/	31(20.7) /51.7/	150
Total	116(22.3)	228(43.2)	120(23.1)	59(11.4)	523

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 23.06, 6. d.f.

Again, on the whole, the apprentices ranked the teaching ability of the OJT instructors about as expected; 65.5 percent felt it was excellent or good, while only 11.4 percent felt it was poor. It was felt to be fair by 23.1 percent. Of course, what's fair to one apprentice may be poor to the next, so it must be stressed that these rankings are very subjective. Some big differences can be seen between the responses of the dropouts and completers to the question.

First, 24.1 percent of the completers felt the teaching ability of the instructors was excellent, while only 7.5 percent of them ranked it as being poor. On the other hand, 17.3 percent of the dropouts ranked instructors' teaching ability as excellent, while 20.7 percent of them ranked it as being poor. Again, it must be kept in mind that these ratings are purely subjective. By any means, the differences between the responses of the completers and dropouts may be due either to the fact that actual differences do exist between the instructors whom the dropouts and completers had, or else the respondents' perceptions of teaching ability differ. The differences in responses are more than likely a combination of the two. Nevertheless, the significant chi-square value indicates that a relationship between the teaching ability of the OJT instructors and completion status does exist.

Equipment and Tools On the Job

No significant differences in responses between the dropouts and the completers were indicated by the data with respect to the equipment and tools used on the job. Table 38 summarizes the apprentices' rankings of this facet of their on-the-job training. Taken as a group, 68.7 percent of the dropouts and completers rated the equipment and

tools on the job as being good or excellent. Only 9.3 percent of the respondents ranked them as being poor. The low chi square indicates that no relationship exists between the equipment and tools on the job and the completion status of the respondents in the sample.

Table 38. Equipment and tools on the job

	Excellent	Good	Fair	Poor	Total
Completers	88(23.6)[a] /76.3/[b]	173(46.4) /71.0/	79(21.2) /69.8/	33(8.8) /67.3/	373
Dropouts	28(18.7)	71(47.3)	35(23.3)	16(10.7)	150
Totals	116(22.3)	244(46.4)	114(22.0)	49(9.3)	523

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 4.47, 6 d.f. (n.s.).

Working Conditions

The respondents were asked to rank working conditions according, as well as with previous variables, to whether they felt they were excellent, good, fair, or poor. It was not expected a priori that there would be a great deal of difference in the responses of the dropouts and completers since generally working conditions are somewhat similar within a trade whether an apprentice is union, non-union, JATC, or non-JATC. The responses are presented in Table 39. The differences in rankings between the two groups, as expected, do not differ to a great degree. However, the differences *are* significant. As can be seen in Table 39, the completers tended to give working conditions more

positive ratings than did the dropouts. The significant chi-square value indicates that there is a relationship between working conditions and an apprentice's likelihood of completion of an indenture.

Table 39. Working conditions

	Excellent	Good	Fair	Poor	Total
Completers	61(16.5)[a] /78.5/[b]	185(50.1) /76.0/	92(24.9) /67.1/	31(8.4) /56.4/	369
Dropouts	17(11.6) /21.5/	59(40.4) /24.0/	46(31.5) /32.9/	24(16.4) /43.6/	146
Total	78(15.2)	244(47.3)	138(26.9)	55(10.6)	515

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 12.79, 6 d.f.

Job Rotation

As mentioned earlier in this chapter, adequate job or work rotation so that all aspects of the trade are learned is a salient characteristic of the apprenticeship system. Theoretically, an apprentice should be exposed to all the work processes involved in his trade and thus acquire competency as a well-rounded journeyman. However, the general feeling among persons involved in apprenticeship in Utah, including the apprentices themselves, is that the apprentices are *not* receiving adequate job rotation and therefore not acquiring competency in all the aspects of their trade.

To test this hypothesis, the respondents were asked to rank the "job rotation they received while working as apprentices so as to learn

all aspects of the trade." Table 40 presents their rankings of this very important aspect of their training.

Table 40. Job rotation

	Excellent	Good	Fair	Poor	Total
Completers	73(19.7)[a] /77.9/[b]	106(28.6) /74.1/	90(24.3) /71.9/	101(27.3) /64.8/	370
Dropouts	21(14.0) /22.1/	37(24.7) /25.9/	36(24.0) /28.1/	56(37.3) /35.2/	150
Totals	94(18.1)	143(27.2)	126(24.4)	157(30.3)	520

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 8.16, 6 d.f.

As the chi-square value indicates, there are no significant differences in the responses of dropouts and completers. However, there are crucial implications to this as well as other data presented in the table. First, the uniformity of responses indicates that both dropouts and completers faced the same situations with respect to the job rotation they received. Second, the dropouts and completers both gave markedly *lower* ratings to this very important aspect of their training than to the other areas that have been discussed. Looking at Table 40 again, only 18.1 percent of the respondents felt the job rotation they received was excellent, while a very high 30.3 percent of them felt it was poor. It was felt by 54.7 percent that it was either fair or poor. The implications of this are highly important. First, it is obvious that the respondents didn't feel that they had

received job rotation adequate to effectively master *all* aspects of the trade. Second, if this is true, then the primary objective of apprentice training is not being met. Third, it follows that the apprentices are "serving time." They are required to indenture themselves for a period of time sufficient to be exposed to all work processes of the trade, yet they are obviously not receiving this exposure. It follows, then, that they must be spending time on processes they have already mastered. In effect, they are *not* becoming all-around journeymen, but competent specialists in *specific* work processes. More will be said about this later.

This fact is no secret among apprentice administrators. It is well known that many times it is difficult to rotate an apprentice adequately, since many jobs simply do not require *all* of the work processes of a trade. Many times, therefore, it is impossible to expose the apprentice to all aspects of his trade. This is a common problem. What *is* important, however, is that the apprentice have the foundation whereupon he is able to perform these tasks when it is required of him to do so. However, it appears that perhaps the apprenticeship model, as it now stands, may not be doing what it claims to do. If so, some rearrangement may perhaps be in order. This possibility will be explored in greater detail in Chapter IX.

Journeyman Supervisor

The last aspect of the apprentices' on-the-job training we shall look at is the supervision the apprentices received from the journeymen with whom they worked. Clearly, such supervision by *all* journeymen with whom an apprentice works is vital to his mastery of the trade.

A lack of such supervision may lead to the production of an inferior journeyman or cancellation of the indenture.

Again, wide differences in the way dropouts and completers responded to this question. The results are presented in Table 41. It can easily be seen from the table that completers indicated they felt they received better journeyman supervision than did the dropouts. Sixty-eight percent of the completers felt journeyman supervision was excellent or good, while only 42.7 percent of the dropouts so indicated. Only 10.2 percent of the completers gave journeyman supervision a poor rating, while 22.8 percent of the dropouts felt that way. The chi-square value underscores the differences in response between the two groups and implies some relationship between journeyman supervision and an apprentice's likelihood of completion.

Table 41. Journeyman supervision

	Excellent	Good	Fair	Poor	Total
Completers	82(22.0)[a] /79.6/[b]	171(46.0) /77.6/	81(21.8) /65.4/	38(10.2) /52.8/	372
Dropouts	21(14.1) /20.4/	50(33.6) /22.3/	44(29.5) /34.6/	34(22.8) /47.2/	149
Total	103(19.6)	221(42.6)	125(24.1)	72(13.7)	521

[a]Percent of row total in parentheses.
[b]Percent of column total in slashes.
Chi square: 24.84, 6 d.f.

In summary, the data suggest that the apprentice's attitude toward the quality of OJT instruction, teaching ability of OJT

instructors, working conditions, and journeyman supervision are related to whether or not he will complete or terminate an indenture.

Effect of Union Membership or JATC Program

It was hypothesized that the apprentices' attitudes toward the previously discussed aspects of their on-the-job training would be related to whether or not their programs were JATC-administered or whether or not they were union members during their apprenticeship.

In visiting with apprenticeship administrators throughout the state, it appeared that the JATC programs were more closely regulated than were independent programs. Work records on each apprentice are kept to assure his exposure to all work processes, and journeymen responsible for training generally receive some kind of instruction to aid them in this. Cross-tabulation between JATC program, union membership, and the apprentices' ratings of the previously discussed variables were made to test our hypothesis. Since most union programs are administered by JATC's, there will be some overlap between these cross-tabulations. Cross-tabulations using union membership as the column variable were done to account for those union programs that are unilateral in nature.

Opinion variables by JATC program

The results of the cross-tabulation between the JATC variable and job rotation were insignificant,[5] so their presentation was left out.

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[5]Chi square: 3.05, 6 d.f.

The reader will notice significant differences in responses between apprentices whose programs were JATC-administered and those whose programs were not. Of particular note are the responses concerning quality of OJT instruction, teaching ability of OJT instructors, and journeyman supervision. Close study of the results in Tables 42, 43, 45, and 46 reveal that the apprentices who were indentured in JATC-administered programs were much more favorable in their responses than those who weren't. The significant chi-square value indicates, in each instance, the existence of a relationship between the quality of journeyman supervision, teaching ability of OJT instructors, working conditions, equipment and tools on the job, quality of OJT instruction, and whether or not the apprentice was in a JATC-administered program or not. The data suggest a strong *positive* relationship; however, the *exact* nature of the association cannot be known without the use of multiple regression and correlation techniques. The above results reinforce the hypothesis that JATC programs provide better training than do the independent or unilateral programs.

Table 42. Quality of OJT instruction

	Excellent	Good	Fair	Poor	Total
JATC	112(27.5)[a] /94.1/[b]	180(44.1) /85.4/	72(17.6) /80.0/	44(10.8) /71.0/	408
Other	7(9.5) /5.9/	31(41.9) /14.6/	18(24.3) /20.0/	18(24.3) /29.0/	74
Total	119(24.6)	211(43.9)	90(18.6)	62(12.8)	482

[a]Row percent in parentheses.
[b]Column percent in slashes.
Chi square: 20.02, 6 d.f.

Table 43. Teaching ability of OJT instructors

	Excellent	Good	Fair	Poor	Total
JATC	105(25.8)[a] /93.8/[b]	175(43.0) /83.4/	88(21.6) /82.2/	39(9.6) /75.0/	407
Other	7(9.5) /6.3/	35(47.3) /16.6/	19(25.7) /17.8/	13(17.6) /25.0/	74
Total	112(23.2)	210(43.8)	107(22.2)	52(10.8)	481

[a]Row percent in parentheses.
[b]Column percent in slashes.
Chi square: 12.91, 6 d.f.

Table 44. Equipment and tools on the job

	Excellent	Good	Fair	Poor	Total
JATC	95(23.3)[a] /91.5/[b]	196(48.2) /86.7/	84(20.6) /77.8/	32(7.9) /76.2/	407
Other	9(12.3) /8.6/	30(41.1) /13.3/	24(32.9) /22.2/	10(13.7) /23.8/	73
Total	104(21.8)	226(47.0)	108(22.5)	42(8.7)	480

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 13.23, 6 d.f.

Table 45. Working conditions

	Excellent	Good	Fair	Poor	Total
JATC	61(15.2)[a] /86.1/[b]	200(49.9) /88.5/	103(25.7) /78.0/	37(9.2) /80.4/	401
Other	10(13.5) /13.9/	26(35.1) /11.5/	29(39.2) /22.0/	9(12.2) /19.6/	74
Total	71(15.1)	226(47.5)	132(27.7)	46(9.7)	475

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 13.27, 6 d.f.

Table 46. Journeyman supervision

	Excellent	Good	Fair	Poor	Total
JATC	85(20.9)[a] /88.5/[b]	190(46.7) /88.9/	87(21.4) /80.6/	45(11.1) /73.8/	407
Other	11(15.3) /11.5/	24(33.3) /11.2/	21(29.2) /19.4/	16(22.2) /26.2/	72
Total	96(20.0)	214(44.8)	108(22.5)	61(12.7)	479

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 12.28, 6 d.f.

Opinion variables by union membership

The only cross-tabulations between the OJT variables and union membership that yielded significant results were job rotation and journeyman supervision. The results are shown in Tables 47 and 48. The results of the cross-tabulation in Table 47 do not support the hypothesis that union apprentices receive better job rotation than non-union apprentices. The data in Table 48 are somewhat difficult to interpret and are inconsistent with the hypothesis that union apprentices receive better journeyman supervision than non-union apprentices. The significant chi-square value, however, indicates a relationship between union membership and journeyman supervision and job rotation.

To further test our hypothesis concerning union membership during apprenticeship, the union membership variable was cross-tabulated with completion status. The results are summarized in Table 49. As indicated by the highly significant chi-square value, there exists a relationship between union membership and whether or not an apprentice eventually completes an indenture. The raw data results imply a positive relationship, inasmuch as 81 percent of the apprentices who were union members during their indentures completed, while about half as many (or 42.3 percent) of the non-union apprentices completed. Looking at it the other way around, only 18.2 percent of the union apprentices failed to complete the programs, while 56.2 percent of the non-union apprentices dropped out.

The same test was performed using the JATC variable and cross-tabulating it with completion status. The results of the cross-tabulation are presented in Table 50. Again, it appears that being

Table 47. Job rotation

	Excellent	Good	Fair	Poor	Total
Union member	63(17.7)[a]	93(26.2)	85(23.9)	114(32.1)	355
Former member	7(23.3)	4(13.3)	11(36.7)	8(26.7)	30
Never member	39(25.3)	45(29.2)	36(23.4)	34(22.1)	154
Total	109(20.2)	142(26.3)	132(24.5)	156(28.9)	539

[a]Percent row total.
Chi square: 11.35, 6 d.f.

Table 48. Journeyman supervision

	Excellent	Good	Fair	Poor	Total
Union member	67(18.7)[a]	165(46.1)	89(24.9)	37(10.3)	358
Former member	8(26.7)	8(26.7)	8(26.7)	6(20.0)	30
Never member	36(23.5)	55(35.9)	32(20.9)	30(19.6)	153
Total	111(20.5)	228(42.1)	129(23.8)	73(13.5)	541

[a]Percent row total.
Chi square: 14.85, 6 d.f.

Table 49. Union membership by completion status

	Member	Formerly member	Never member	Total
Completers	281(78.9)[a] /81.0/[b]	17(4.8) /58.6/	58(16.3) /42.3/	356
Dropouts	63(42.0) /18.2/	10(6.7) /34.5/	77(51.3) /56.2/	150
Totals	344(67.6)	27(5.7)	135(26.7)	506

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 77.72, 4 d.f.

Table 50. JATC program by completion status

	JATC	Other	Total
Completers	296(88.6)[a] /77.3/[b]	37(11.1) /53.6/	334
Dropouts	88(73.9) /22.7/	31(26.1) /44.9/	119
Total	384(84.7)	68(15.1)	453

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 15.93, 4 d.f.

indentured in a JATC program increases the likelihood of completion of an indenture. Of the apprentices, 77.3 percent who were in JATC programs completed their indentures, while 53.6 percent of the non-JATC apprentices completed. The retention rate is higher than in non-JATC programs, with only 22.7 percent of the JATC apprentices failing to complete, while about 45 percent of the non-JATC respondents dropped out.

The apprentices were asked to rate the *overall* quality of the on-the-job training experience they had as apprentices. Their responses are presented in Table 51, cross-tabulated by completion status.

Table 51. Overall quality of OJT training

	Excellent	Good	Fair	Poor	Total
Completers	76(20.3)[a] /79.4/[b]	195(52.0) /75.0/	82(21.9) /69.5/	22(5.9) /41.5/	375
Dropouts	20(13.2) /20.6/	65(43.0) /25.0/	36(23.8) /30.5/	30(19.9) /56.6/	151
Total	96(18.4)	260(49.2)	118(22.3)	52(10.0)	526

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 31.6, 6 d.f.

There appears to be a relationship between the overall quality of the on-the-job training and an apprentice's likelihood of completion, as implied by the significant chi-square value. This is understandable and could be expected a priori. Of the completers, 72.3 percent rated their on-the-job training as being excellent or good, while 56.2 percent of the dropouts so responded. A cross-tabulation between union

membership and overall quality of on-the-job training was performed without significant results.[6] The same cross-tabulation was done using the JATC variable instead of union membership. Table 52 shows the results.

Table 52. Overall quality rating of OJT by JATC program

	Excellent	Good	Fair	Poor	Total
JATC	79(19.4)[a] /91.9/[b]	211(51.8) /85.8/	88(21.6) /80.7/	29(7.1) /69.0/	407
Other	7(9.3)	34(45.3)	21(28.0)	13(17.3)	75
Total	86(17.8)	245(50.9)	109(22.6)	42(8.7)	482

[a]Percent row total in parentheses.
[b]Percent column total in slashes.
Chi square: 13.83, 6 d.f.

The data indicate a relationship between the quality of on-the-job training an apprentice receives and whether or not he is indentured in a JATC program. The chi-square value implies a relationship does exist between the quality of OJT training and JATC program status.

Apprentice-Journeyman Ratio

One of the determinants of the quality of the on-the-job training an apprentice receives is the journeyman-apprentice ratio allowed on his job. This ratio is not a constant. It may change from year to year as economic conditions permit. In Utah the responsibility for establishing the ratio rests with the JATC committee in the case of

[6]Chi square: 2.98, 6 d.f.

JATC programs, and with the parties to the collective bargaining agreement in the case of non-JATC union programs. In the case of independent programs where no bargaining agreement exists, the SAC has established the following policy:

> Where there is no bargaining agreement, the number of apprentices to be trained shall be in relation to (1) the needs of the plant and/or trade in the community with consideration for growth and expansion; (2) the facilities and personnel available for training; (3) opportunity for employment as skilled workers on completion; and (4) the customary practice of trade in the community. The number of apprentices in relation to the number of journeymen shall be indicated to the Utah Apprenticeship Council at the time recognition is requested.[7]

The journeyman-apprentice ratio has traditionally been considered a means of restricting entry into the trade. However, studies have indicated that this is probably not true, and this notion is decreasing more and more in popularity.[8] Indeed, it appears that in many instances, union programs have not been able to meet the quota of apprentices established by the ratio either through lack of applicants or reluctance of employers to take on the training function.[9]

By any means, the interest here in the journeyman-apprentice ratio is in terms of the quality of on-the-job training. It stands to reason that the greater the ratio, the closer the supervision the apprentice is apt to receive. Table 53 shows the results of a cross-tabulation between journeyman-apprentice ratios and completion status. As can be seen from the table, a greater percentage of the completers (68.9

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[7]Utah, *Policy Manual*, sec. 13.

[8]Daniel Q. Mills, *Industrial Relations and Manpower in Construction* (Cambridge: MIT Press, 1972), p. 232.

[9]*Ibid.*

percent) worked on jobs where the journeyman-apprentice ratio was *greater* than 2:1 than the dropouts (54 percent). The significant chi-square value indicates a relationship between the journeyman-apprentice ratio and the likelihood of completion of a program.

Table 53. Journeyman-apprentice ratios by completion status

Ratio	Completers	Dropouts	Total
1:1	58(17.0)[a]	33(26.6)	91(20)
2:1	48(14.1)	24(19.4)	72(15.4)
3:1	53(15.5)	11(8.9)	64(13.6)
4:1	49(14.4)	14(11.3)	63(13.4)
5:1	74(21.7)	12(9.7)	86(18.3)
6:1	14(4.1)	3(2.4)	17(3.8)
7:1	15(4.4)	3(2.4)	18(3.8)

[a]Percent of column total in parentheses.
Chi square: 40.87, 14 d.f.

From prior discussions in this chapter, it might be hypothesized that union and JATC programs have established greater journeyman-apprentice ratios than their independent counterparts. A cross-tabulation between the journeyman-apprentice variable and JATC program revealed no significant difference, however.[10] Cross-tabulating union membership during apprenticeship with journeyman-apprentice ratio, however, yielded highly significant results. They are presented in

[10]Chi square: 18.91, 14 d.f.

Table 54. Striking differences can be seen in the data between the three groups. Of the union apprentices, 76.4 percent were on jobs where the journeyman-apprentice ratio was *greater* than 2:1. This compares with 52 percent for the apprentices who were former union members and only 32 percent for those who were never union members. Assuredly, this can be traced directly to the collective bargaining agreement, wherein the ratio is legally established. It is obvious, then, that union apprentices are not in as much competition for supervision from journeymen as apprentices in independent programs are. Another implication is that independent programs are not as difficult to enter as are union programs. This is to be expected, since much of the economic function of unions is the rationing of skilled workers among available jobs.

Table 54. Journeyman-apprentice ratio by union membership

Ratio	Member	Formerly member	Never member	Total
1:1	34(10.3)[a]	9(36.0)	56(44.8)	99(20.6)
2:1	44(13.3)	3(12.0)	29(23.2)	76(15.8)
3:1	56(17.0)	3(12.0)	11(8.8)	70(14.6)
4:1	48(14.5)	5(20.0)	7(5.6)	60(12.5)
5:1	79(23.9)	2(8.0)	3(2.4)	84(17.5)
6:1	14(4.2)	1(4.0)	2(1.6)	17(3.5)
7:1	17(5.2)	0(0.0)	2(1.6)	

[a]Percent column total in parentheses.
Chi square: 103.8, 14 d.f.

Average Size of Firm Worked For

To determine if there is any relationship between the average size of firm worked for and an apprentice's completion status, the respondents were asked to indicate the average size of the firm(s) they worked for while serving their indentures. The data obtained on firm size were cross-tabulated with completion status, and the results of this cross-tabulation are presented in Table 55.

Table 55. Average size of firm worked for by completion status

	Small (1-19)	Medium (20-49)	Large (50 & above)	Total
Completers	90(24.2)[a]	68(18.3)	214(57.5)	372
Dropouts	74(50.0)	33(22.3)	41(27.7)	148
Total	164(31.6)	101(19.4)	255(49.0)	520

[a]Percent row total in parentheses.
Chi square: 42.45, 4 d.f.

The difference in responses between the dropouts and completers are significant, as implied by the chi-square value. Of the dropouts, 72.3 percent were employed in small- to medium-sized firms, with 50 percent in small firms. Only 42.5 percent of the completers worked for the same size firms. On the other side of the spectrum, 57.5 percent of the completers worked in large (fifty and above) firms, as opposed to only 27.7 percent of the dropouts. The chi-square value suggests a relationship between the size of firm the apprentice works for and his likelihood of completion of the indenture. This follows,

since the larger firm is better able to absorb the costs of training, as well as provide the expertise necessary to adequately train the apprentice. Also, the larger a firm, the more likely it is that its operations will be diversified, thus giving the apprentice the all-around training necessary to produce a competent journeyman.

Summary

The findings of the present study in regard to the apprentices' ratings of the on-the-job training aspects parallel very closely Barocci's findings in the survey of Wisconsin apprentices. Significant results were obtained by Barocci in the same areas surveyed here. In addition, the Utah data on job rotation showed the same results; i.e., that the apprentices as a whole gave this important aspect of their training lower ratings than the other areas. Barocci's data also showed, as did the Utah, that the completers in general gave significantly higher ratings to the categories than did the dropouts. He did not, however, look at the categories with respect to whether or not the program was a JATC-administered one. The Utah data yielded significant results in this area, as well as in the breakdown of the opinion variables by union membership. In summary, significant differences were found in opinion between the respondents whose programs were JATC-administered and those whose programs were not. In addition, significant differences in opinion between the union and non-union apprentices were found in the categories of job rotation and journeyman supervision. The data also indicate that union membership and/or

indenture in a JATC-sponsored program enhances an apprentice's likelihood of completion.

It appears, in conclusion, that the quality of on-the-job training is a significant determinant in whether or not an apprentice completes an indenture.

CHAPTER VII

RELATED INSTRUCTION, LAY-OFF EXPERIENCE, AND APPRENTICE WAGE RATES

In this chapter two more important aspects of the apprentices' training, related classroom instruction, and apprentice wage rates will be studied. In addition, the experiences the respondents had with lay-offs during their indentures and the relationship, if any, that it had with their completion or cancellation of indenture will be examined.

Related Instruction

In addition to the on-the-job training, most apprentices are required to take a specified number of hours annually of theoretical instruction in the classroom. The Utah Apprenticeship Council policy manual explains the theory behind related classroom instruction in this way:

> "Related instruction" is used to distinguish between instruction received on the job and instruction received away from the job. "Related instruction" is a systematic presentation of the theoretical, technical, and academic subjects considered essential to the development of a journeyman. Instruction received on the job is training given the apprentice in the manual and practical aspects of the trade by employers, supervisors, or journeymen during their regular contacts with the apprentice on the job.[1]

Related instruction has received considerable attention recently by apprenticeship practitioners and scholars alike. Like the other

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[1]Utah, *Policy Manual*, sec. 7.

aspects of apprenticeship training, it is being examined carefully to determine and assure that its objectives are being met.

Past studies have shown that in many instances apprentices have been more disenchanted with the related instruction aspect of their training than with any other feature.[2] In talking with former apprentices and apprenticeship officials in Utah, it is not very difficult to see that this is true in many cases here. There have been numerous difficulties in establishing curricula for independent plumbing programs, retaining competent instructors in all programs, and scheduling class times that are convenient for the apprentices. More about this later.

In Utah, as in other states, 149 hours of related instruction per year is the acceptable minimum. This is flexible, however, and if a trade requires less related instruction time, and this can be demonstrated to the State Apprenticeship Council (SAC), then it is possible to lower that minimum. Almost all trades, however, require *at least* this much related classroom time.

Related instruction in Utah requires the cooperation of union, vocational educators, employers, the SAC, and the apprentice. The State Board for Vocational Education has the responsibility for providing and/or coordinating related instruction when it is requested.[3] This responsibility may go only as far as the provision of facilities

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[2]George Strauss, "Related Instruction: Basic Problems and Issues," in *Research in Apprenticeship Training*, Proceedings of a Conference (Madison, Wisconsin: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967), p. 57.

[3]Utah, *Policy Manual*, sec. 7.

in some instances, and in others may involve the provision of materials, facilities, and instructor, depending on the nature of the program and whether it is union or non-union. Estimates from vocational education sources indicate that approximately $136,000 is spent per year by the Board for Vocational Education in related instruction for apprentices.[4]

As mentioned previously, the related instruction requirements placed on the State Board for Vocational Education differ depending on the program. Union and/or JATC-sponsored programs differ from independent programs in that the international union generally has established the curricula and prepared the materials for the related instruction of the apprentices indentured in their programs. These curricula are then adapted, if necessary, to local conditions. One of the functions, in fact, of the JATC is to review these curricula and make the necessary adaptations. The union and/or JATC programs usually (invariably if JATC) choose their own instructors.[5] In the case of JATC programs, the instructors are generally subsidized from training funds and are considered as working for the JATC or union. This situation has caused some serious problems recently. In the past, the unions have allowed independent apprentices in the same craft to attend the related instruction classes taught by union instructors and established for union apprentices. In effect, the independent apprentices were getting a "free ride." Recently, however, the local pipe trades union barred independent apprentice plumbers from attending

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[4]Estimates from budgets of Utah Technical Colleges at Provo and Salt Lake and Weber State College in Ogden.

[5]Or at least insist on having veto power if the institution chooses the instructor.

union-sponsored related instruction classes. This has caused serious problems for the independent plumbers, who are currently in the process of developing curriculum materials for the related instruction of independent plumbers. The other unions appear to be following the plumbers' example, and at the present time it is becoming more and more difficult for the independent apprentices to attend union classes. This has concerned SAC and vocational education people, since this "splitting-up" of union and independent apprentices has caused a down-grading and lack of uniformity in the related instruction of independent apprentices. In some cases, independent apprentices have not been able to enroll in a program of related instruction, since Utah law requires a minimum of twelve students in order to have a publicly sponsored formal class. As a result of this splitting up of union and independent apprentices, there have been instances where this quota has not been met.

It should be noted at this point that the responsibility for related instruction for independent apprentices is entirely borne by the Board of Vocational Education, working in cooperation with the SAC. Generally, they are responsible for selecting the instructor, establishing the curriculum, and providing the materials (texts, etc.). It is in this area that the bulk of the vocational education money spent on related instruction for apprentices goes.

The major problems that non-union programs appear to be facing are related to the fact that they are just starting to stand on their own feet after being barred from union classes. Lack of qualified instructors and uniform curricula and materials for the specific trades

appear to be the major problems faced by the independent programs at this time.

The "Little Red Schoolhouse" Problem

A serious problem with related instruction receiving much attention not only in Utah, but across the nation, is the lumping together of apprentices at all levels in a single class with a single instructor. The reason given for doing this is that splitting the apprentices up according to their year of apprenticeship would not be feasible, since indentures can be started any time during the year (and thus the related instruction), and also because doing so would, in many instances, result in not meeting the twelve-student quota established by Utah law. This lumping together of apprentices at all levels results, as already stated, in serious problems.

The heterogeneous nature of the classes makes it impossible for instructors to make anything but very general presentations to the class (first aid, etc.). This leads to the "workbook system," wherein apprentices at all levels engage in self-study activities under the general supervision of the instructor. Thus, as Strauss puts it, the "classroom" is usually little more than a supervised study hall. "To complicate matters further, students come from different backgrounds; those who have attended junior colleges may be in the same class as tenth-grade dropouts."[6]

This type of situation causes many complaints on the part of the apprentices, and understandably. Most apprentices attend their related

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[6]Strauss, "Related Instruction," p. 62.

instruction classes after work on their own time, when they are tired. They pay for tuition and books out of their own pockets. This may not sound extreme, and many college students do it. However, it must be kept in mind that apprentices generally are persons who have not desired further "booklearning" and have, instead, turned to vocational trades and manual work.

> The typical apprentice just cannot seem to settle down to do bookwork. As one put it, "I would much rather work with my hands than my head." He has little desire to return to a classroom situation, and he strongly resists anything put in theoretical terms. ... The workbook method requires apprentices to study alone and to learn from books--study methods which would seem particularly inappropriate for students who are often undermotivated, physically exhausted, and resentful of anything smacking of booklearning.[7]

This combination of factors results in the related classroom instruction being one of the most trying aspects of the apprentices' training.

Added to the list of the apprentices' problems in this area is the fact that they must often travel long distances to attend these classes (usually one or two nights a week). Since the classes are taught only in four locations (Cedar City, Provo, Salt Lake City, and Ogden), this makes it necessary for some apprentices to travel 100 miles round-trip to attend. Attendance is *mandatory*, and an apprentice *cannot* receive his periodic pay increases unless he can demonstrate adequate progress in his related instruction, as well as his on-the-job training. Many apprentices express frustration at this requirement and feel that it is arbitrary and only a matter of "serving time."

Apprentices indentured in rural areas face a special problem. SAC policy is that any apprentice who must travel more than 100 miles

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[7] *Ibid.*, p. 59.

(round-trip) to attend related instruction classes may substitute a supervised self-study correspondence course in lieu of the classwork.

As was the case in receiving credit for previous work experience, credit toward the related instruction requirement for courses taken prior to apprenticeship is extremely difficult to receive. It is the policy of the SAC and JATC's to grant such credit for certified courses. However, in talking with the vocational education representatives at some of the institutions where related instruction is provided, it appears that this credit is seldom, if ever, granted. This can be discouraging to an apprentice who may have attended one or two years of college. Said one journeyman who had recently completed an indenture and who had attended a university for a year prior to becoming an apprentice, "It appeared to me that attendance only was stressed--performance didn't seem to matter."

Improvements in Related Instruction Seen

All is not completely bad, however. Various JATC's in the area are researching and utilizing innovation in related instruction for apprentices in their programs. The Rancho Murietta concept of the Operating Engineers is one example. A detailed discussion would not be feasible given the scope of this study, but suffice it to say that there *is* concern on the part of most apprenticeship administrators within the state for improving related instruction.[8]

An examination of the attitudes of the apprentices in the sample towards various aspects of their related instruction programs will now

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[8]More information on Rancho Murietta can be obtained by contacting the Training Coordinator, Operating Engineers, Utah Subcommittee.

be made including: whether or not a program of related instruction was provided, teacher's knowledge of the subject, teacher's interest in students, equipment in the school, usefulness and relevance of classroom instruction to work on the job, speed of presentation of the material, and overall quality of related classroom instruction.

Was a Program of Related Instruction Provided?

The apprentices were first asked to indicate whether or not a program of related instruction was provided as part of their apprentice program. Their responses, broken down by completion status, are presented in Table 56.

Table 56. Was a program of related instruction provided?

	Yes	No	Total
Completers	351(94.4)[a]	21(5.6)	372
Dropouts	99(68.8)	45(31.3)	144
Total	450(87.3)	66(12.7)	516

[a]Percent row total in parentheses.
Chi square: 62.3, 2 d.f.

As can be seen, 12.7 percent of the respondents as a whole indicated that no program of related instruction was provided as part of their indenture. This could be due to various factors. First, some rural apprentices have not had provided for them an adequate correspondence course and thus may have indicated no related instruction.

This happens even in JATC programs, as Strauss points out.[9] Second, the "no" respondents may have been indentured in a trade where no formal program of related instruction was provided. Some trades, such as printing, do not have formal related instruction. To see if the apprentices' trade areas had some relationship to whether or not a program of related instruction was provided, the two variables were cross-tabulated and the results summarized in Table 57.

Table 57. Program of related instruction provided by trade area

	Construction	Industrial	Graphic arts	Service	Total
Yes	356/92.0/[a]	109/85.8/	1/25.0/	23/56.1/	489(87.5)
No	31/8.0/	18/14.2/	3/75.0/	18/43.9/	70(12.5)
Total	387	127	4	41	559

[a]Percent column total in slashes.
Chi square: 58.6, 3 d.f.

The significant chi-square value indicates a relationship between the trade area of the apprenticeship and whether or not a program of related instruction was provided. As was expected, the graphic arts trade had fewer apprentices in formal related instruction than the others. A significant number of apprentices in the service trades were without formal related instruction also.

As the chi-square value of Table 56 implies, there is a relationship between whether or not a program of related instruction was

[9]Strauss, "Related Instruction," p. 58.

provided and completion status. However, this relationship evidently stems from the fact that the majority of related instruction programs are found in the construction and industrial trades, the trades showing the greatest likelihood of an apprentice completing an indenture.[10]

Teachers' Knowledge of Subject

The apprentices' rankings of their instructors' knowledge of the subject by completion status are given in Table 58. The apprentices' responses give the instructors high marks in this area. As can be seen, 87 percent of the respondents as a whole said they felt that their instructors' knowledge of the subject was good or excellent. Surprisingly, it appears the dropouts were significantly more positive in their rankings than were the completers, as implied by the data and the significant chi-square value. The high rankings by both groups are a reflection of the fact that approximately 100 percent of the related instruction instructors in Utah are journeymen. The majority of them (around 85 percent) teach only part-time and work as full-time journeymen the rest of the time. Practical experience and knowledge of the trade, then, can be expected to be high and are evidenced by the apprentices' responses.

Teachers' Interest in Students

The respondents did not have such positive statements to make in this area as they did in the previous one. Table 59 summarizes their responses. Overall, the responses are still quite high in this area.

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[10] See Chapter IV, Table 21.

Table 58. Teachers' knowledge of the subject by completion status

	Excellent	Good	Fair	Poor	Total
Completers	136(38.1)[a]	173(48.5)	34(9.5)	14(3.9)	357
Dropouts	53(56.4)	30(31.9)	9(9.6)	2(2.1)	94
Total	189(42.2)	203(44.8)	43(9.5)	16(3.5)	451

[a]Percent row total in parentheses.
Chi square: 13.027, 6 d.f.

The differences in responses between the dropouts and completers are not significant, as the chi-square value indicates. Nor are they consistent. As mentioned, though, the instructors did not receive rankings as favorable in this category as in the previous one.

Table 59. Teachers' interest in students

	Excellent	Good	Fair	Poor	Total
Completers	99(27.7)[a]	161(45.0)	70(19.6)	28(7.8)	358
Dropouts	30(31.9)	38(40.4)	13(13.8)	13(13.8)	94
Total	129(28.7)	199(44.1)	83(18.2)	41(9.0)	452

[a]Percent row total in parentheses.
Chi square: 6.91, 6 d.f. (n.s.).

Equipment in the School

The apprentices' rankings of this category are shown in Table 60. No significant differences in the responses between the completers and dropouts were found. The biggest differences are found in the

"good" and "fair" categories where 38.7 percent and 16.1 percent of the dropouts, as opposed to 29.1 percent and 25.1 percent of the completers, respectively, responded.

Table 60. Equipment in the school

	Excellent	Good	Fair	Poor	Total
Completers	64(18.1)	103(29.1)	89(25.1)	98(27.7)	354
Dropouts	17(18.3)	36(38.7)	15(16.1)	25(26.9)	93
Total	81(18.2)	139(31.5)	104(23.1)	123(27.3)	447

[a]Percent row total in parentheses.
Chi square: 9.34, 6 d.f. (n.s.).

Relevance of Classroom Instruction to Work On the Job

The lack of relevance of classroom instruction to work on the job has long been a complaint of apprentices. A study done by Swanson, Horowitz, and Herrnstadt concludes that related instruction is a misnomer or has been interpreted too literally.[11] Indeed, it is understandable that attempting to coordinate the related instruction with the work on the job is an extremely difficult, if not impossible, task. This is due, as the aforementioned study puts it, "to unavoidable factors such as the cyclical variation in product mix, the uneven work flow, the casual nature of on-the-job training, and the lack of control over specific work assignments ... ."[12]

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[11]Steven Swanson, Morris Horowitz, and Irvin Herrnstadt, "Related Instruction: Is It Related?," *Apprenticeship Training in the 1970's: Report of a Conference*, ed. by Felician F. Foltman (Washington, D.C.: U.S. Department of Labor, Manpower Administration, 1974), p. 26.

[12]*Ibid.*

However, the apprentice expects the theoretical instruction he is receiving in the classroom to have some relevance or relationship to the work processes he is performing on the job. For the reasons just mentioned, this expectation on the part of the apprentice many times is simply not met. This results in further frustration on his part. It appears, as the Swanson study concludes, that a possible solution to this problem might be to change the objectives of related instruction to either: (1) the supplementing of on-the-job training so that all work processes may be learned, or (2) the instruction of the theoretical tools of the specific trade. The former objective has been adopted by the operating engineers as the rationale behind their Rancho Murietta school, and the latter is used by trades such as electricians and plumbers. Further discussion of this will be postponed until Chapter IX.

The responses of the apprentices to this question indicate that there is general dissatisfaction in this area. The results are presented in Table 61. Note that only 14.5 percent of the total respondents rated this category as excellent, while 19.4 percent rated it poor. Comparison of this category with the previous ones reveals that the apprentices as a whole gave this category lower marks than any of the previous ones. The dropouts and completers were fairly uniform in their responses, as the low chi-square value indicates.

Speed of Presentation of Material

As indicated earlier, related instruction classes are extremely heterogeneous as far as the level of apprentices within each class goes. Added to this problem is the fact that the educational levels of the apprentices are also highly varied. The apprentices were asked to

Table 61. Relevance of classroom instruction to work on the job

	Excellent	Good	Fair	Poor	Total
Completers	53(14.9)[a]	135(37.9)	101(28.4)	67(18.8)	356
Dropouts	11(11.7)	37(39.4)	25(26.6)	21(19.4)	94
Total	64(14.5)	172(37.9)	126(28.2)	88(19.4)	450

[a]Percent row total in parentheses.
Chi square: 7.6, 6 d.f. (n.s.).

indicate whether or not they felt that the material was presented too quickly, too slowly, or at the right pace. Table 62 summarizes the apprentices' responses to this query. As can be seen, no significant differences in the responses of the dropouts and completers are indicated by the chi-square value. Of the respondents, 54.7 percent indicated they felt that the pace of the instruction was satisfactory. It's interesting, also, to note that 26.5 percent of the respondents felt that the pace of instruction was too slow, while 18.9 percent indicated that the material was presented too quickly.

Table 62. Teaching pace

	Completers	Dropouts	Total
Material taught too slowly	94(27.3)[a]	22(23.7)	116(26.4)
Material taught too quickly	57(16.6)	26(28.0)	83(18.9)
Teaching pace O.K.	193(56.1)	45(48.4)	240(54.7)
Total	344	93	

[a]Percent column total in parentheses.
Chi square: 7.86, 4 d.f. (n.s.).

It can be concluded, then, that there was considerable dissatisfaction with the way the material was presented on the part of both dropouts and completers. However, no significant difference *between* the two groups was observed from the data.

Overall Quality of Classroom Instruction

Finally, the apprentices were asked to rank their perceptions of the overall quality of classroom instruction. The results are shown in Table 63. The results indicate that generally the apprentices' attitudes toward the overall quality of the classroom instruction bore no relationship to their likelihood of completion of indenture. On the whole, the apprentices ranked their related classroom instruction lower than their on-the-job training.[13]

Table 63. Overall quality of classroom instruction

	Excellent	Good	Fair	Poor	Total
Completers	53(14.8)[a]	159(44.4)	97(27.1)	49(13.7)	358
Dropouts	16(16.8)	43(45.3)	25(26.3)	11(11.6)	95
Total	69(15.3)	205(44.9)	122(26.7)	60(13.1)	453

[a]Percent of row total in parentheses.
Chi square: 3.16, 6 d.f. (n.s.).

[13]See Chapter VI, especially Table 50.

Apprentice Wage Rates

The purpose of this section will be to look at apprentice wage rates in their relationship to whether or not an apprentice completes his or her indenture.

Traditionally, apprentices have been paid some specified percentage of the journeyman's wage at the beginning of indenture, with that percentage being increased periodically at a rate specified in the indenture agreement until a certain limit is reached (usually 80-95 percent of the journeyman rate).

The starting wage traditionally has been somewhere between 45 and 50 percent of the journeyman wage. The only requirement that SAC places upon starting wage rates for apprentices is that they be in compliance with federal and state minimum wage laws, if they are covered under the Federal Fair Labor Standards Act. However, if they are not covered, SAC will not register any program providing for an entry rate of less than $1.00 per hour unless the rate is included in a bargaining agreement.

The SAC policy manual states the following as the general policy for apprentice wage rates in Utah:

> Wages for apprentices should be determined by employers, or by employers jointly with representatives of labor; they should be calculated so that training is the principal criterion; wages should be progressive, and there should be a gap between the final apprenticeship rate and the journeyman rate.[14]

To determine what the experiences of the apprentices were with respect to wages, they were asked to give their starting hourly wage at the

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[14]Utah, *Policy Manual*, sec. 6.

beginning of their indentures. The results are given in Table 64. The high chi-square value indicates a relationship between starting salary as an apprentice and completion status. The raw data indicate that completers began their apprenticeships at higher salaries than did the dropouts. Of the completers, 32.6 percent had starting salaries in the top three classes, while only 22.7 percent of the dropouts indicated they had received starting salaries in these ranges.

Table 64. Beginning pay rate by completion status

Hourly wage	Completers	Dropouts	Total
Less than $1.00	0(0.0)[a]	0(0.0)	0
$1.00-$2.00	45(15.0)	32(22.7)	78(17.2)
$2.01-$3.50	161(52.4)	77(54.6)	243(53.6)
$3.51-$5.00	93(30.3)	23(16.3)	116(25.6)
$5.01-$6.50	6(2.0)	6(4.3)	12(2.6)
$6.51-$8.80	1(0.3)	3(2.1)	4(0.9)

[a]Percent column total in parentheses.
Chi square: 20.65, 8 d.f.

However, looking at starting salaries as a percentage of the journeyman rate in the trade will give a more accurate picture of the beginning wage rates of the two groups, since this will solve the problem of the money wage differences between different trades. Cross-tabulating starting salary as a percentage of the journeyman by occupational area of apprenticeship, we find the results presented in Tables 65 and 66.

Table 65. Beginning pay rate as percentage of journeyman rate by occupational area of apprenticeship (completers)

	Construction	Industrial	Graphic arts	Service	Total
10% or less	2(0.9)[a]	1(1.4)	0(0.0)	0(0.0)	3(1.0)
11-40%	23(10.8)	10(14.5)	0(0.0)	1(7.1)	34(11.4)
41-55%	94(44.1)	7(10.1)	0(0.0)	1(7.1)	102(34.3)
56-100%	94(44.1)	51(73.9)	1(100.0)	12(85.7)	158(53.2)
Total	213(71.7)	69(23.2)	1(0.3)	14(4.7)	297

[a]Percent of column total in parentheses.
Chi square: 34.39, 9 d.f.

Table 66. Beginning pay rate as percentage of journeyman rate by occupational area of apprenticeship (dropouts)

	Construction	Industrial	Graphic arts	Service	Total
10% or less	1(1.3)[a]	0(0.0)	0(0.0)	0(0.0)	1(1.0)
11-40%	21(28.0)	3(18.8)	1(100.0)	8(72.7)	33(32.0)
41-55%	29(38.7)	5(31.3)	0(0.0)	2(18.2)	36(35.0)
56-100%	24(32.0)	8(50.0)	0(0.0)	1(9.1)	33(32.0)
Total	75(72.8)	16(15.5)	1(1.0)	11(10.7)	103

[a]Percent column total in parentheses.
Chi square: 14.09, 9 d.f. (n.s.).

Close examination of the results in Tables 65 and 66 reveals some interesting implications. First, it appears that just as starting wage rates were higher for completers (as shown by Table 64), so are starting wage rates as a percentage of the journeyman rate for the trade. Table 65 shows that 87.5 percent of the completers received starting wages greater than 40 percent of the journeyman rate for the trade. This contrasts with the results in Table 66 revealing that 67 percent of the dropouts received starting wages greater than 40 percent of the journeyman rate. The chi-square values in both Tables 65 and 66 must be interpreted cautiously, however, due to the small number of observations in some of the cells. However, it appears that there is a relationship between the occupational area of apprenticeship and the starting rate of pay as a percentage of the journeyman wage.

To further test the hypothesis that the starting wage rates as a percentage of journeyman's wage are greater for the completers than for the dropouts, tests for the differences between the mean starting wage rates were carried out. The results are presented in Table 67. The results of the "t" tests indicate that the mean starting wage as a percent of the journeyman wage is greater for the completers than for the dropouts.

Table 67. Lowest rate of pay received as percentage of journeyman wage

	Mean	S.D.
Completers	59.1	17.0
Dropouts	51.5	19.3

Calculated t value = 3.5.

In summary, it appears on the basis of our data that the completers received a higher starting dollar wage and wage as a percentage of the journeyman wage than did the dropouts. Further, it appears that the majority of the apprentices began at a wage rate that was 50 percent or greater of the journeyman wage (the average overall was 57 percent and the 95 percent confidence interval 55.1-58.5). The extremely low values in the tables may be assumed to be part-time apprentices, under-age apprentices working with their fathers, etc. In general, it appears that the 45-50 percent standard is adhered to quite closely. Barocci found, as we did, that there are still outliers in the 11-40 percent range among both completers and dropouts. He mentions two possible reasons for this. First, it is possible that those who began their indentures early in the sample may not have remembered the exact percentage. Second, they may have started their indentures at a time when SAC was not strictly monitoring the beginning pay rates. Whatever the reason, only sixty-seven of the apprentices in the sample began their indentures in this salary range.

Highest Pay Rates

The apprentices were also asked to indicate their highest salary as an hourly wage and also as a percentage of the journeyman wage. Comparisons between dropouts and completers in this category cannot be made since the highest wage is dependent on the time spent in the program. However, we can still use the data to get some idea of the wages dropouts are receiving at the time of cancellation of the indenture. It will also be valuable in learning what percentage of the

journeyman wage the completers were receiving upon completion of the program.

Table 68 gives the completers' responses cross-tabulated by occupational area of apprenticeship.

Table 68. Highest hourly salary received by trade area of apprenticeship (completers)

Hourly wage	Construction	Industrial	Graphic arts	Service	Total
Less than $1.50	0(0.0)[a]	0(0.0)	0(0.0)	0(0.0)	0(0.0)
$1.51-$3.00	3(1.5)	2(2.7)	0(0.0)	0(0.0)	5(1.7)
$3.01-$5.00	79(38.3)	54(73.0)	0(0.0)	11(64.7)	144(48.3)
$5.01-$7.00	89(43.2)	14(18.9)	1(100.0)	6(35.3)	110(36.9)
$7.01-$9.99	35(17.0)	4(5.4)	0(0.0)	0(0.0)	39(13.1)
Total	206(69.1)	74(24.8)	1(0.3)	17(5.7)	

[a]Percent of column total in parentheses.
Chi square: 33.68, 9 d.f.

The existence of a relationship between the occupational area in which the apprentice was indentured and highest salary is implied by the chi-square value. However, since there are a substantial number of cells in the matrix for which the number of observations is less than 5 or 0, care must be taken in interpreting the chi-square value. The raw data indicate that, except for the one completer in the graphic arts trade, the apprentices in the construction trades were receiving the highest money salaries upon completion of their indentures.

Looking at the salaries as a percentage of the journeyman rate in Table 69 will eradicate the money effect and facilitate comparisons between the occupational areas. Taking away the money effect resulted in no significant differences between trades in highest pay. Some interesting relationships can, however, be seen. First, the service and graphic arts trades paid the apprentices in those areas the highest salaries as a percentage of journeyman rate at the completion of their apprenticeships. Another interesting result is the four observations in the below 50 percent categories in the construction and industrial trades. Thus, it can be concluded that, although completers in the construction area receive higher money wages at completion than the completers in the other trades, construction does not appear to pay the highest wages when looked upon as a percentage of the journeyman wage. We can now look at the dropouts. Except for the one observation in the graphic arts trades, construction program dropouts were receiving the highest hourly rate of pay at the time of cancellation of indenture. It can be seen, also, that the majority of the dropouts (60 percent) were getting paid more than $3.00 per hour at the time of cancellation. Seventeen percent were earning more than $5.00 per hour (Table 70).

Table 71 looks at hourly wages as a percentage of the journeyman wage. Again, the low number of observations in many of the cells (<5) requires caution in interpreting the chi-square value. However, the raw data indicate that the majority of the apprentices were receiving over 50 percent of the journeyman rate at the time of cancellation. Also, it becomes apparent from close comparison of Tables 66 and 71 that the majority of the dropout apprentices were receiving the 5

Table 69. Highest pay as a percentage of the journeyman wage by occupational area of apprenticeship (completers)

	Construction	Industrial	Graphic arts	Service	Total
30% or less	1(0.5)[a]	0(0.0)	0(0.0)	0(0.0)	1(0.3)
31-50%	2(0.9)	1(1.5)	0(0.0)	0(0.0)	3(1.0)
51-75%	10(4.7)	2(3.0)	0(0.0)	0(0.0)	12(4.1)
76-100%	198(93.8)	63(95.5)	1(100.0)	13(100.0)	275(94.5)
Total	211(72.5)	66(22.7)	1(0.3)	13(14.5)	291

[a]Percent column total in parentheses.
Chi square: 1.71, 9 d.f.

Table 70. Highest hourly salary received by trade area of apprenticeship (dropouts)

Hourly wage	Construction	Industrial	Graphic arts	Service	Total
Less than $1.50	0(0.0)[a]	0(0.0)	0(0.0)	2(11.1)	2(1.5)
$1.51-$3.00	26(29.2)	12(48.0)	2(66.7)	12(66.7)	52(38.5)
$3.01-$5.00	42(47.2)	12(48.0)	0(0.0)	4(22.2)	58(43.0)
$5.01-$7.00	15(16.9)	1(4.0)	1(33.3)	0(0.0)	17(12.6)
$7.01-$9.99	6(6.7)	0(0.0)	0(0.0)	0(0.0)	6(4.4)
Total	89(65.9)	25(18.5)	3(2.2)	18(13.3)	135

[a]Percent of column total in parentheses.
Chi square: 32.65, 12 d.f.

percent pay step increases. Table 66 shows that approximately 32 percent of the dropout apprentices were paid 50 percent or more of the journeyman rate at the commencement of their indentures, while Table 71 shows that 68.4 percent of the dropouts were being paid more than 50 percent of the journeyman rate at the time they cancelled their indentures.

Table 71. Highest pay as a percentage of the journeyman wage by trade area of apprenticeship (dropouts)

	Construction	Industrial	Graphic arts	Service	Total
30% or less	2(3.0)[a]	1(5.6)	0(0.0)	0(0.0)	3(3.2)
31-50%	17(25.4)	1(5.6)	1(100.0)	8(88.9)	27(28.4)
51-75%	32(47.8)	9(50.0)	0(0.0)	1(11.1)	42(44.2)
76-100%	16(23.9)	7(38.9)	0(0.0)	0(0.0)	23(24.2)
Total	67(70.5)	18(18.9)	1(1.1)	9(9.5)	95

[a]Percent column total in parentheses.
Chi square: 24.58, 9 d.f.

Opinion of Apprentice Wages

The apprentices were asked to give their opinions of the wages they received as apprentices by indicating whether they thought that the pay was reasonable, too low, or reasonable at the start, but should have been increased. Their responses, cross-tabulated by completion status, are given in Table 72. The chi-square value suggests that there is a relationship between the apprentices' opinions of the pay

they received while indentured and their likelihood of completion of the indenture. Sixty-seven percent of the completers felt the pay was reasonable, while only 38.1 percent of the dropouts felt that way. In addition, it appears that more of the dropouts than completers did not receive the pay step increases they were supposed to receive. Of the completers, 14.2 percent indicated that the pay should have been increased, while almost 28 percent of the dropouts felt this way. This can either be interpreted to mean that these apprentices were not receiving their pay increases, that they were receiving them only infrequently or delinquently, or that they felt that the increases (generally 5 percent) were not adequate. It is the hypothesis of this study that it is for the former reasons that the apprentices gave the response.

Table 72. Opinion of apprentice wages

	Completers	Dropouts	Total
Satisfied with less pay	2(0.5)[a]	4(2.7)	6(1.2)
Pay was reasonable	246(67.0)	56(38.1)	302(58.7)
Pay too low	67(18.3)	46(31.3)	113(22.1)
Pay O.K. at start--but should have been increased	52(14.2)	41(27.9)	93(18.1)
Total	367	147	514

[a]Percent column total in parentheses.
Chi square: 38.8, 6 d.f.

A cross-tabulation of pay opinion and trade area did not yield significant results,[15] as the previous sections would imply.

Lay-Off Experience

The SAC has often expressed the concern that one reason many apprentices are terminating their indentures is that they are being laid off for long periods of time, often intentionally to avoid the pay increases. To investigate this, the apprentices were asked to indicate whether or not they were laid off during their apprenticeship. Their responses were cross-tabulated by completion status, and the results of the cross-tabulation are presented in Table 73.

Table 73. Laid off during apprenticeship by completion status

	Yes	No	Total
Completers	113(30.4)[a]	259(69.6)	372
Dropouts	62(42.8)	83(57.2)	145
Total	175(34.2)	342(65.8)	517

[a]Percent row total in parentheses.
Chi square: 12.90, 2 d.f.

It appears that the lay-off experience between dropouts and completers varied considerably. First, only 30.4 percent of the completers were actually laid off during their indentures. This contrasts with 42.8 percent of the dropouts. The difference is significant as the

[15]Chi square: 12.91, 9 d.f.

chi-square value indicates. Second, 34.2 percent of the entire respondents were laid off during their indentures. It can be understood that lay-offs present a serious problem to the apprentice. Not only does he lose a substantial amount of income, but the continuity of his training is interrupted. As will be seen in the next chapter, the lay-off problem is of considerable importance as a determinant of cancellation of indenture. Of the dropouts, 22.7 percent indicated that being laid off was either important, of some importance, or very important in their decision to cancel their indentures.

While fewer of the completers indicated that they had been laid off, further analysis of the data indicates that they were, on the average, laid off more times than were the dropouts. This is probably due to the fact that they were indentured for a longer period of time. The average number of times laid off was 3.31 for the completers and 1.74 for the dropouts. A t-test indicates significance at the .05 level.[16]

The apprentices were asked to indicate the longest period of time (in weeks) that they were ever laid off. The results indicate that there was no significant difference between the two groups.

Summary

The data on related instruction indicate that dropouts and completers generally are uniform in their opinions. The data indicate that the apprentices were least satisfied with the relevance of the classroom instruction than any other category. Further, the data

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[16] t value = 5.531.

indicate, as do Barocci's, that the apprentices were less satisfied with their related instruction than they were with their on-the-job training.

The findings indicate that the completers received higher money wages at the beginning of their indentures, as well as a greater percentage of the journeyman rate. It can be concluded that the construction and graphic arts trades (only one observation) paid the highest money wages. It also appears that the apprentices are generally receiving the 5 percent pay increases (94.5 percent of completers were earning an average of 88 percent of the journeyman rate). Finally, these findings do not differ significantly from Barocci's.

The data on lay-off experience, however, do contrast with the Wisconsin survey. Barocci found no difference between dropouts and completers in number and duration of lay-offs. The Utah data indicate that more of the dropouts were laid off than were the completers, with the cross-tabulation being significant. It is also significant to note that while only 6 percent of the dropouts in the Wisconsin study indicated that they dropped out because they were laid off and found other jobs, 22.7 percent of the respondents in the Utah sample indicated that this had been important in their decisions to terminate their indentures.

CHAPTER VIII

POST-APPRENTICESHIP INCOME AND EMPLOYMENT STATUS, AND REASONS FOR CANCELLING THE INDENTURE

In this chapter the apprentices' post-apprenticeship income and employment status will be examined. Special emphasis will be given to comparing the dropouts and completers with respect to their current income, job status, positions, etc. In addition, a look at the reasons the apprentices gave for cancelling their indentures will be taken.

Post-Apprenticeship Income

It is sometimes claimed that any person considering any kind of post-secondary education will do so for the added income and employment possibilities (little mention is ever made of the non-monetary benefits) which will accrue to him for so doing. So it is with apprenticeship. The claim is that, while other routes to journeyman status may be taken, the apprenticeship system is the only "formal" route and those who reach journeyman status through apprenticeship will be the highly paid "nucleus" of their respective crafts.

Indeed, a recent study presents strong evidence that apprentice-trained journeymen work significantly and consistently more hours than non-apprentice-trained journeymen.[1] The apprentices were asked to

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[1] Ray Marshall, William S. Franklin, and Robert W. Glover, *Formal and Informal Training of Selected Construction Craftsmen* (Austin, Texas: Center for the Study of Human Resources, University of Texas, 1973), p. 186.

indicate their current annual incomes with the purpose of seeing how they differed between dropouts and completers, trade area of apprenticeship, and between dropouts and completers who are currently employed in the same trade (or a related one) that they served their indenture in.

There are several limitations to the income data which must be kept in mind in order to interpret the data in the right perspective. First, we asked the respondents to give their current annual income. This very likely involved estimation on their part, since it was mid-1974 when they were asked to respond. They could have been asked to indicate their 1973 income and thus have avoided the problem of estimation; however, since the sample included apprentices who completed their indentures in early 1974, asking them to indicate their 1973 income would have resulted in these apprentices giving their apprentice income and thus would have resulted in a downward bias in the data.

Another problem which the data present is the fact that the sample includes apprentices who have recently completed or dropped out of the program, as well as those who dropped out early in the sample (1969). The income figures for either group could result in either an upward or downward bias, depending on which group was over-represented. It was shown earlier that a disproportionate number of respondents came from the later years due to the nature of the addresses used in the sample.[2] It will be assumed that the data on income are adequate for the analysis at hand, and potential biases and their implications will be considered.

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[2]See Chapter III.

The mean current income for dropout and completer in the sample is $10,063 and $13,143, respectively. The difference between the two means is significant at the .05 level.[3] In order to glean further information about current income, the data on current income were broken into classes and cross-tabulated by completion status. The results of the cross-tabulations are presented in Table 74.

Table 74. Current income by completion status

Income	Dropouts	Completers	Total
$0-$5,000	14(9.1)[a]	1(0.3)	15(2.8)
$5,001-$8,000	33(21.4)	6(1.6)	39(7.2)
$8,001-$10,000	26(16.9)	43(11.4)	69(12.8)
$10,001-$12,000	29(18.8)	118(31.4)	148(27.5)
$12,001-$14,000	10(6.5)	80(21.3)	91(16.9)
$14,001-$18,000	12(7.8)	87(23.1)	100(18.6)
$18,001-$22,000	3(1.9)	8(2.1)	11(2.0)
$22,001-$26,000	0(0.0)	4(1.1)	4(0.7)
$26,001+	27(17.5)	29(7.7)	62(11.5)
Total	376	154	530

[a]Percent column total in parentheses.
Chi square: 165.52, 16 d.f.

As is obvious from the table, wide differences in current annual income exist between dropouts and completers. On the whole, it appears

[3]t value = 6.198.

that the completers in the sample have higher current annual incomes than do the dropouts. Of the completers, 86.7 percent have incomes greater than $10,000, while only 52.5 percent of the dropouts fall into those classes. The disproportionately high number of dropouts in the $26,000+ range may be due to those who left trade work for more lucrative occupations; i.e., those for whom the opportunity cost of trade work and apprenticeship was too high. Thirteen of the dropouts indicated they left apprenticeship to enroll in school full time. This may possibly account, in part, for the high number of dropouts in the $26,000+ class. In sum, however, the data show strongly that the completers have higher current incomes than do the dropouts.

To look at the effect which the occupational area the apprentice was indentured in had on his current income, the income data were broken down by completion status and trade area and mean income figures for the two groups were obtained. The results are shown in Table 75.

Table 75. Mean income of former apprentices broken down by occupational area of apprenticeship

	Dropouts	Completers	Dropout's income as % of completer's income
Construction	$10,351 (n=86)	$13,590 (n=245)	76
Industrial	$11,144 (n=19)	$12,083 (n=84)	92
Service	$ 8,059 (n=20)	$12,329 (n=17)	65
Graphic arts	$ 8,333 (n=3)	$12,140 (n=1)	69

The figures reveal, to a degree, what was expected. First, in all but the industrial trade, completers are earning substantially more at the present time than are dropouts. According to the data, completers are earning about 22 percent more than the dropouts who were indentured in the same area. This is very close to what Barocci found (25 percent).

The data indicate that 36 percent of the dropouts in the sample indicated that they are currently employed in fields related to their training. To make a comparison of the current incomes of dropouts and completers employed in the same trade area, the current income data were broken down by trade area of apprenticeship and the "employed in field related to training" variable. The results are presented in Table 76.

Table 76. Mean income of former apprentices currently employed in trade broken down by completion status

	Dropouts	Completers	Dropout's income as % of completer's income
Construction	$10,871 (n-29)	$14,613 (n=233)	80
Industrial	$10,098 (n=8)	$12,170 (n=79)	83
Service	$ 8,668 (n=9)	$12,373 (n=15)	70
Graphic arts	$12,000 (n=1)	$12,140 (n=1)	99

Comparison of Tables 75 and 76 will reveal that in all cases except the industrial trades dropouts, those dropouts and completers who stayed

in the same trade rather than switching are earning a greater income than those who switched. Also, a comparison between the dropouts and completers in Table 76 reveals that the dropouts, in all cases except for the industrial trades, are earning a greater percentage of the completer's income than if they had changed occupational areas. The data indicate that dropouts who continue working in the same occupational area as they were indentured in are earning an average of 80 percent of the completer's income. This is strong evidence that perhaps many dropout apprentices simply secure gainful employment in the trade without completing their indentures. The Wisconsin data indicated the same results. And as Barocci concluded, dropping out of the program and staying in the same trade area closes the gap somewhat between the completers' and dropouts' incomes.[4] And, as was already pointed out, this fact may influence many of the dropouts to terminate their indentures early.

In summary, the data indicate that, on the whole, the current income of completers is significantly greater than that of dropouts. The data also indicate that completers in the construction and service trades are earning the greatest current incomes. Further, the Utah data imply, as did Barocci's, that dropouts and completers who stay in the occupational area in which they are trained tend to earn more than those who switched. Also, the dropouts' income was a greater percentage of the completers' in all cases except for the industrial trades. Again, the implication of this is that many dropout apprentices may feel that after a certain point the cost of remaining in the

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[4]Barocci, "The Drop-out and the Wisconsin Apprenticeship Program," p. 166.

program is too great, so they terminate their indenture and continue working in the same field at a rate approaching that of the completer.

Employment Status of Former Apprentices

As mentioned before, recent studies have presented evidence that the returns to apprenticeship are not only monetary. It is hypothesized by the apprenticeship community that apprentice program completers are employed continuously and consistently more than those who do not complete their indenture, especially if employed in the same trade area. In addition, the aforementioned study also concluded that journeymen who reach that status through apprenticeship are more likely to become supervisors and foremen than are those who reach journeyman status through other routes.[5]

To test these claims, and to look at the experiences of the apprentices surveyed in our sample, the respondents were asked to indicate whether they were currently employed, if they were employed in a field related to their training, and if their present position was of a supervisory nature.

Table 77 presents the results of a cross-tabulation between the apprentices' current employment status (employed or unemployed) and program completion status.

Significant differences between the completers and dropouts can be seen in their responses in this area. Only 2.9 percent of the completers indicated that they were currently unemployed, while 11.1 percent of the dropouts so indicated. The significant chi-square value

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[5]Marshall, Franklin, and Glover, *Training*, p. 186.

Table 77. Current employment status by completion status

	Employed	Unemployed	Total
Completers	363(97.1)[a]	11(2.9)	374
Dropouts	136(88.9)	17(11.1)	153
Total	499(94.8)	28(5.2)	527

[a]Percent row total in parentheses.
Chi square: 15.14, 2 d.f.

implies a relationship between employment status and completion status. However, no causation is implied here. Caution must be exercised in interpreting these results since many factors may lead to unemployment, such as illness, disability, or other exogenous factors. The only conclusion which may be reached is that, according to the data, a significantly greater number of dropouts were unemployed in comparison to completers in the sample. This does, however, support the general hypothesis mentioned before.

As mentioned earlier in the chapter, 36 percent of the dropouts in the sample were currently employed in a field related to their training. Table 78 summarizes a cross-tabulation between completion status and whether or not the apprentices are employed in a field related to their training.

The wide difference in responses between the completers and dropouts was expected. Of the completers, 96.4 percent indicated they were currently employed in a field related to their training as opposed to 36 percent of the dropouts. The significant chi square implies a relationship between whether or not an apprentice completes his or her

Table 78. Employed in field related to training by completion status

	Yes	No	Total
Completers	351(96.4)[a]	13(3.6)	364
Dropouts	50(36.0)	89(64.0)	139
Total	401(79.3)	102(20.7)	503

[a]Percent row total in parentheses.
Chi square: 227.09, 2 d.f.

indenture and the likelihood of working in the same trade in which he or she was indentured. This may be due to the dropout voluntarily leaving the trade for another or simply not having acquired enough skills during his partial indenture to secure gainful employment in the trade. As was mentioned before, it is hypothesized that the 36 percent of the dropouts who remained in the trade did so because they had acquired enough skills during their partial indenture to secure remunerative employment in the trade, as indicated by the wage data in Table 76.

The apprentices' responses to the query of whether or not they were employed in supervisory positions were cross-tabulated by completion status. The results are presented in Table 79.

The results indicate that proportionately more dropouts in the sample are holding supervisory positions than completers. The difference, however, is not significant as the low chi-square value indicates. Still, the findings are surprising and do not corroborate the general hypothesis that completers are more likely to hold supervisory positions than dropouts. There are two possible explanations of why the

Table 79. Employed in supervisory position by completion status

	Supervisory	Nonsupervisory	Total
Completers	80(26.5)[a]	222(73.5)	302
Dropouts	39(32.8)	80(67.2)	119
Totals	119(27.9)	302(72.1)	421

[a]Percent row total in parentheses.
Chi square: 2.96, 2 d.f. (n.s.).

data indicate this. First, the nature of the sample. It may be that the majority of the completers come from the later years in the sample. This would mean that they have been active journeymen for only one-two years. If so, their likelihood of already being in supervisory positions is not as great as if they had come from earlier years in the sample (1969-1970). Second, the dropouts who have indicated they hold supervisory positions may not necessarily hold these positions within the trade in which they were indentured, or even within the same trade as the completers with whom they are competing. Therefore, the only valid comparison is to look at the supervisory experience of only those dropouts and completers who are currently employed in the same fields as they were indentured in. The results of that cross-tabulation are presented in Table 80.

Surprisingly, even only when looking at dropouts and completers who are employed in fields related to their training, proportionately more of the dropouts indicated they held supervisory positions than completers. This is in direct contradiction to the general hypothesis that completers are more likely to hold supervisory positions than

Table 80. Employed in supervisory position by completion status for dropouts and completers in same trade

	Supervisory	Nonsupervisory	Total
Completers	76(26.2)[a]	214(73.8)	290
Dropouts	20(45.5)	24(54.5)	44
Total	96	238	334

[a]Percent row total in parentheses.

dropouts. This, again, supports the notion that enough skills are acquired through partial apprenticeship to work productively within a trade. It can also be construed as further evidence against the length of present apprenticeship programs, and we shall take a closer look at this in Chapter IX.

Reasons for Cancelling the Indenture

In this section a close look at the apprentices' reasons for cancelling their indentures will be taken. The apprentices were asked to review a list of possible reasons for terminating an indenture and then to indicate whether a reason was very important, important, of some importance, or not important at all in their decisions to cancel their indenture. Table 81 summarizes the dropouts' reasons, and their importance, for cancelling their indentures. In interpreting the table, it should be kept in mind that the apprentices could mark one or more reasons as very important, important, etc., so the column totals do not necessarily correspond to the exact number of dropouts who

responded. Also, an "other" category was listed among the alternatives. A content analysis of that category is presented in Table 82.

Some of the results in Tables 81 and 82 deserve mention. Thirty-eight percent of the dropouts indicated that either low pay or unfair treatment of apprentices by the employer were very important reasons in their decisions to terminate their indentures. Thirty percent of the reasons listed as very important were either the finding of a job comparable to what the dropout could have had upon completion of the apprenticeship, or that he was laid off and found a job before being called back. Thirty-five, or approximately 23 percent of the dropouts (n=154), indicated an important reason for cancellation of their indenture was because of lay-offs--either never having been called back, or finding another job before being called back. This finding tends to support the claim that employers may be using apprentices in time of labor shortages, and then releasing them during a slowdown in the economy.[6] A further possible indictment of employers comes from the fact that a total of 65, or 42 percent (n=154), of the dropouts indicated unfair treatment by employers as very important, important, or somewhat important in their decisions to terminate their indentures.

Important also are reasons which do not reflect on the weaknesses of the program. Forty-one percent of the reasons listed by the dropouts as being very important in their decisions to terminate their indentures were not necessarily reflections of program weaknesses, but rather indications of normal attrition. Reasons such as, "I found a

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[6]See Chapter VII, "Lay-off Experience."

Table 81. Reasons for cancelling the indenture

	Very important		Important		Of some importance		Not important	
	#	%	#	%	#	%	#	%
1. Employer was not fair to apprentices	37	20	14	17	14	18	50	15
2. Found a job as good as if completed apprentice program	35	19	19	23	20	25	40	12
3. Apprentice pay too low	34	18	17	21	16	21	51	15
4. Changed mind about wanting to work as apprentice	22	12	14	17	11	14	54	16
5. Laid off and found another job before called back	21	11	10	12	4	5	71	21
6. Did not like related instruction	19	10	8	10	13	17	71	21
7. Enrolled in school full time	11	6	0	0	0	0	2	0
8. Military	6	4	0	0	0	0	1	0
Total	185	100	82	100	78	100	340	100

Table 82. Content analysis of "other" category--reasons for cancelling the indenture

	Number	Percent
1. Laid off, never called back	20	59
2. Illness or accident	7	20.5
3. More money in other employment	7	20.5
Total	34	100.0

job as good as I could have gotten had I completed apprenticeship," "I changed my mind about wanting to work as an apprentice," and enrolling in school full time or military service are examples.

The findings in this area parallel very closely those of Barocci in the Wisconsin survey, which indicated unfair treatment of employers as being very important in the decision to terminate as well as apprentice pay and change of mind concerning apprenticeship. However, it is interesting to note that only 5 percent of the reasons for cancelling the indenture had to do with being laid off.[7] This contrasts sharply with our findings. This may perhaps be due to better supervision of programs on the part of the Wisconsin apprenticeship system. Likewise, only about 6 percent of the reasons the Wisconsin apprentices gave for terminating were due to dissatisfaction with the related instruction. This compares to about 26 percent in our sample. This may be due to the fact, as Barocci points out, that Wisconsin apprentices are paid by the employer for their attendance at related instruction classes.[8]

Another interesting implication of the data is that about 48 percent of the sample indicated finding a job as good as they could have gotten had they completed their indenture as an important reason in terminating. Barocci found 15 percent of his sample indicating this.[9] This fact, coupled with the findings earlier in this chapter, that 36 percent of the dropouts were employed in a field related to their

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[7]Barocci, "The Drop-out and the Wisconsin Apprenticeship Program," p. 169.

[8]*Ibid.*

[9]*Ibid.*

training, supports Barocci's claim that partial apprenticeship can result in acquisition of enough skills to secure gainful employment.[10]

To further investigate the reasons given for dropping out, the apprentices' reasons were cross-tabulated by occupational area of apprenticeship, and by the JATC variable, to see if any relationship existed between reasons for cancelling the indenture and in which trade area the apprentice was indentured, and whether or not his was a JATC-administered program. Significant chi-square values were obtained for the "pay too low" reason, and both the trade area and JATC variables, and the "employer not fair to apprentice" reason and only the JATC variable. Tables 83, 84, and 85 present the results of their cross-tabulations.

Table 83. "Pay too low" reason by trade area of apprenticeship

	Construction	Industrial	Graphic arts	Service
Not important	43(54.4)[a]	6(28.6)	0(0.0)	2(12.5)
Of some importance	9(11.4)	5(23.8)	0(0.0)	2(12.5)
Important	10(12.7)	4(19.0)	2(100.0)	1(6.3)
Very important	17(21.5)	6(28.6)	0(0.0)	11(68.8)
Total	79(66.9)	21(17.8)	2(1.7)	16(13.0)

[a]Percent column totals in parentheses.
Chi square: 32.16, 9 d.f.

[10]*Ibid.*, p. 148.

Table 84. "Pay too low" reason by JATC program

	JATC	Non-JATC
Not important	39(55.7)[a]	6(25.0)
Of some importance	9(12.9)	3(12.5)
Important	8(11.4)	6(25.0)
Very important	14(20.0)	9(37.5)
Total	70(74.5)	24(25.5)

[a]Percent column total in parentheses.
Chi square: 7.97, 3 d.f.

Table 85. "Employer not fair" reason by JATC program

	JATC	Non-JATC
Not important	28(41.2)[a]	10(41.7)
Of some importance	12(17.6)	1(4.2)
Important	10(14.7)	0(0.0)
Very important	18(26.5)	13(54.2)
Total	68(73.9)	24(26.1)

[a]Percent column total in parentheses.
Chi square: 9.85, 3 d.f.

As can be seen, a disproportionate number of construction and industrial trade dropouts indicated pay was not important in their decision to terminate.

Again, more JATC apprentices indicated pay was not a problem than non-JATC apprentices. This is probably related to the results in Table 83 in that the majority of JATC programs are found in the construction and industrial trades.

This disproportionately high number of non-JATC apprentices who listed this reason as "very important" is worth noting. The significant difference here is probably due to the better supervision and the resulting better apprentice-employer relationships in the JATC programs.

In summary, the results of the cross-tabulations indicate that, except for the "pay too low" and "employer not fair to apprentices" reasons, no significant differences in the reasons given for termination between apprentices in different occupational areas and between JATC and non-JATC apprentices were found.

Aside on SAC

The apprentices were asked to indicate whether or not they felt that the Utah Apprenticeship Council or its field representatives did everything they could to solve problems which came up during their terms as apprentices. Of the 512 dropouts and completers who responded to this question, 42.4 percent answered "yes" and 57.6 percent answered "no." Those answering "no" to this question were asked to indicate why they felt this way. The responses given, along with the number and percent of respondents giving each response are summarized in Table 86.

Table 86. Summary of responses of respondents indicating the SAC did not give adequate service

Response	Number	Percent
1. Never able to see a representative	71	41
2. Didn't know the SAC existed	40	23
3. Would not help with problems (didn't care)	55	31
4. Too much politics	8	5
Total	174	100

It should be observed that all those who responded "no" to this question did not give a reason why.

Forty-one percent of the respondents indicated that they were not able to see a representative. This is probably a result of two factors. First, SAC field representatives are too few in number to visit all programs. Second, and directly related to the first reason, an apprentice with problems would have to visit the offices in Salt Lake City during working hours in order to talk with a SAC representative. This would involve a long trip for many apprentices in addition to having to get the day off. This proves, many times, to be too difficult. Thirty-one percent said they felt that, after talking with representatives, the SAC would not help, or was not interested. A surprising number (forty, or 23 percent) indicated they had no knowledge of the SAC's existence. This could be due either to misunderstanding of the question or to actual lack of knowledge concerning the SAC.

To see if the dropouts and completers differed significantly in their responses to the SAC question, the responses were cross-tabulated by completion status. The results are presented in Table 87.

Table 87. Responses to SAC question cross-tabulated by completion status

	Yes	No	Total
Completers	149(45.4)[a]	179(54.6)	328
Dropouts	47(33.1)	95(66.9)	142
Total	196(41.6)	274(58.4)	470

[a]Percent row total in parentheses.
Chi square: 6.91, 2 d.f.

The results indicate that a much higher proportion of the dropouts answered "no" to the SAC question than did completers. This suggests that their experience with the SAC was not as beneficial or positive as that of the completers.

Summary

In this chapter a close look at the respondents' post-apprenticeship income and employment status, supervisory experience, and the reasons for cancellation has been taken. In addition, the apprentices' opinions of the SAC, its field representatives and service were also examined.

In summary, the data indicate that the completers' current income was significantly greater than the dropouts'. Further, the data suggest that those dropouts and completers who remain in the same trade as they were indentured in earn, in most cases, significantly more

income than those who switch. It was found further that completers are more likely to remain in the same trade than are dropouts, but the dropouts in the sample that did remain in the trade earn incomes approaching those of the completers and, surprisingly, hold proportionately more supervisory positions.

Finally, it appears as though the dropouts' experiences with the SAC were not as salutory as the completers' and, overall, that there could be some improvement in the performance of the SAC. The implications of these findings will be discussed further in Chapter IX.

CHAPTER IX

CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

Throughout the preceding discussions a rather intensive examination of the apprenticeship program in Utah has been made with the objective of determining how dropouts and completers differed in their training experiences. In so doing, many pertinent and important relationships have been observed which deserve a somewhat more extensive treatment. Before examining these relationships more closely, it may prove helpful to look at the major findings of the study. They may be summarized briefly as follows:

1. Completers and dropouts differed significantly in their personal characteristics; i.e., age, number of dependents, marital status, etc., with completers being older and responsible for more dependents than dropouts.

2. The completers in the sample indicated that they had received significantly and consistently better pre-apprenticeship advice and information.

3. The fact that an apprentice has attended vocational school prior to being indentured has no relationship to his likelihood of completion of an indenture.

4. The majority of the completers and dropouts in the sample indicated that they had not received adequate job rotation.

5. Completers in the sample were significantly more satisfied with the on-the-job training they had received than were the dropouts.

6. Apprentices indentured in union and JATC programs were significantly more positive in their ratings of the various aspects of their on-the-job training than were the non-union and non-JATC apprentices in the sample.

7. The dropouts and completers were less satisfied with the related classroom instruction than any other phase of their training.

8. Completers in the sample received higher pay as a percentage of the journeyman rate at the beginning of their indentures than did the dropouts.

9. A significantly greater number of dropouts in the sample had been laid off during their indentures than completers.

10. A close analysis of the reasons given by the dropouts for their decision to terminate their indentures reveals apprentice-employer problems to be a prominent factor in the decision.

11. Many apprentices dropped out of the program not because of program weaknesses, but merely through normal attrition.

12. The majority of the respondents were not aware of the State Apprenticeship Council and its function.

13. The completers in the sample currently earn significantly larger incomes than the dropouts.

14. The dropouts in the sample who are currently employed in the trade in which they were indentured earn substantial incomes approaching those of the completers in the same trade, and a substantial proportion hold supervisory positions.

15. The data on post-apprenticeship income and employment indicate substantial economic returns to partial apprenticeships when the dropout remains employed in the same trade in which he was indentured.

The following discussion will look at the findings in greater detail, giving emphasis to their implications for potential future policy action by state officials.

Conclusions and Recommendations

Although the purpose of this section is to pinpoint apparent weaknesses in the present system and make recommendations concerning them, it is by no means the intent of the author to disparage the work done by the officials and administrators of the State Apprenticeship Council. Indeed, there would have been no need for a study of this type had it not been for the efforts of these people in firmly implanting the apprenticeship system in Utah. Having only modest resources to work with, the officials of the SAC have worked hard in achieving remarkable growth in the size of the Utah Apprenticeship Program.[1]

However, the next ten-twenty years will present new and greater challenges to the officials of the SAC, labor leaders, and other apprenticeship administrators in the state. With the projected rapid growth in the local economy,[2] a continued increase in the demand for registered apprenticeship programs will be seen as the supply of skilled workers expands to meet the demand. It is extremely important that

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[1] From 1,111 in 1964 to 3,500 plus at the present time.

[2] An economic growth rate of from 4 to 7 percent is projected for the next ten to thirty years. See R. Thayne Robson, "The Outlook for Utah in 1975," *Utah Economic and Business Review*, XXXV (January, 1975), 1.

state apprenticeship officials are ready to handle this situation. The proposals and recommendations offered in the following discussion are meant as positive suggestions for improvement of the present system and as steps which should be taken now in order to improve the administration of apprenticeship in the coming years.

The Place of the Researcher in the Apprenticeship System

There has been considerable research done in the past two or three years on the subject of innovations in apprenticeship.[3] Out of this research have come significant and meaningful suggestions for improving our present apprenticeship system.[4] The majority of the research on apprenticeship, and thus the thrust for innovation and change, has come from the academic community. Needless to say, it has been received somewhat coolly by the practitioners. This is understandable, and as one practitioner puts it:

> Research and researchers are important to the apprenticeship system, but the apprenticeship system is also important to the researchers, at least to apprenticeship researchers, because if there were no apprenticeship systems, there would be no opportunity to research it.
>
> The application of research in apprenticeship can, and should, be tempered by a recognition of the problems in adopting the results of such research. The purity of research does not have to be compromised to be practical, and apprenticeship programs don't have to be compromised to incorporate the results of valid research. The problems inherent in bringing about change in apprenticeship as the

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[3]The major researchers in this area have been Somers, Roomkin, Hansen, Barocci, Strauss, etc.

[4]Many of the suggestions for improvement which have been proposed have their roots in foreign apprenticeship practices.

> result of research are one and the same as with any change in trade union policy. Simply put, trade union participation in the economy of the United States, unlike Western Europe, is still suspect ... open hostility affects trade union ability to treat issues solely in a philosophic or economic context. The first issue of concern is the politics of staying alive.[5]

Thus, in discussing any major changes or adjustments in the present apprenticeship system, researchers must understand the position of those who are responsible for administering it. The essence of instigating change in apprenticeship is cooperation and compromise between researchers and practitioners. In contemplating any changes for contemporary apprenticeship, researchers must bear in mind that just as Rome wasn't built in a day neither will apprenticeship be changed overnight (which of the two is the greatest task remains to be seen). Those advocating changes in apprenticeship will do well to begin by recommending the smaller changes, gradually working up to the larger ones.

But there still remains an important question to be asked: Is apprenticeship worth changing? Does it have sufficient economic and social value to justify the commitment of time and resources to changing and improving it? As far as the economic value of apprenticeship goes, this was discussed somewhat in Chapter VIII. Studies on the economic rate of return of apprenticeship are rare.. However, one study made tends to support the hypothesis that apprenticeship is a wise investment, yielding positive net present values in most

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[5]Reese Hammond, "A Trade Union Perspective on Apprenticeship Research," in *Apprenticeship Training in the 1970's: Report of a Conference*, ed. by Felician F. Foltman (Washington, D.C.: U.S. Department of Labor, Manpower Administration, 1974), p. 33.

cases.[6] Perhaps as important as its economic rate of return is the social value of apprenticeship. The "youthpower" approach to apprenticeship has been overlooked in previous discussions on the subject. Thus, apprenticeship has tended to be looked upon solely as a means of providing certain crafts with a nucleus of highly skilled workers, rather than as a critical link in the transition of youth from secondary education to the world of work.[7] The challenge issued by former Labor Secretary Peter Brennan to expand apprenticeship by making it available to more youth and more occupations suggests that perhaps there is a growing concern for utilizing apprenticeship more as an extension of the educational system in helping youth make an orderly transition from school to work. However, as one study points out, unless it could be "demonstrated that youth unemployment (which persists at eye-opening levels) causes disproportionate and deleterious consequences for the subsequent earnings and occupational growth of adults ...," it is doubtful that large-scale activities designed to make the transition from school to productive employment will be taken.[8]

Thus, while it appears that apprenticeship has indeed proven itself as an effective program of training skilled workers, it doesn't

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[6]Carl Schramm, "Follow-up Study on Mobility in Eight Crafts," *Apprenticeship Training in the 1970's: Report of a Conference*, ed. by Felician F. Foltman (Washington, D.C.: U.S. Department of Labor, Manpower Administration, 1974), p. 45.

[7]For an excellent discussion on this matter see Gary B. Hansen and Myron Roomkin, "Implications of Foreign Training Practices for American Apprenticeship" (unpublished paper presented at the 27th Annual Winter Meeting of the Industrial Relations Research Association, December 27-28, 1974).

[8]*Ibid.*

appear likely that it will ever produce more than about 20 percent of active journeymen.[9] However, it is the author's opinion that apprenticeship is important enough, both for economic and social reasons, to merit the increased attention from public officials and policy-makers sufficient to maintain the present levels of quantity and improve the quality of training which it offers. With this basic philosophy in mind, an examination of certain problem areas which the data of this study underscore can be made, along with positive proposals and suggestions for improvement.

Transition from high school to apprenticeship

It is clear from an analysis of the questionnaire data that the apprenticeship program in Utah is not attracting youth as they leave high school. As the discussion in Chapter IV pointed out, the mean age of the respondents at the beginning of their indentures was twenty-seven. It appears that apprenticeship is not an attractive alternative to young people leaving high school, or that substantial barriers prevent their entry at that time. Yet, apprenticeship can clearly be an important step in the transition of many youths from high school to work. A greater effort needs to be made to introduce high school students to apprenticeship--with a special emphasis on improving the image of trade work and apprenticeship as an educational alternative. Apprenticeship, in most instances, needs no hard-sell campaign. As implied in previous chapters, there is no shortage of applicants in

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[9]One author, especially, who shows this opinion is Strauss. See George Strauss, "Apprenticeship: An Evaluation of the Need," in *Essays on Apprenticeship*, ed. by Norman Dufty (Madison, Wisconsin: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967).

most trades. However, it is regrettable that so many young people are not among these applicants.

Although the opportunities in apprenticeship and the trades are well known to young people, the image of apprenticeship and the trades must be improved. Increased promotion through job fairs, employment and vocational guidance counselors, church groups, etc., can aid in opening the eyes of young people to the advantages of apprenticeship and improving its image as an educational alternative. An especially effective way to bring apprenticeship to the younger person is through formal pre-apprenticeship programs in the high schools. This involves more than just vocational courses. Pre-apprenticeship involves theoretical and on-the-job instruction under the supervision of a formal apprenticeship agency which would give the participants credit toward high school graduation and completion of apprenticeship at the same time.[10] Programs of this type could be implemented on a trial basis under the sponsorship of the State Apprenticeship Council, with Joint Apprenticeship and Training Committees providing technical assistance, tools, etc. Funds to cover the costs of the program could come from the State Apprenticeship Council budget, the budget of the State Board for Vocational Education, Joint Apprenticeship and Training Committee trust funds, or the budgets of the school districts in which the programs would be established. It is felt that such a program

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[10] In Washington, D.C., a very successful pre-apprenticeship program for carpenters is being offered in the District of Columbia Public Schools. Sponsored by the local Carpenters' Joint Apprenticeship and Training Committee, the program has been responsible for placing forty-six high school graduates into apprenticeship programs since 1972, with thirty-one still employed as apprentices. See Darrell Lucas, "Apprenticeship: A Head Start in High School," *Manpower*, VI (November, 1974), 13.

would do a great deal towards educating youth in the advantages of apprenticeship, improving its image, and aiding in the transition from school to work. There has never been a formal attempt at establishing such a program in Utah. Although some trade courses have been offered at the high school level, they have not been designed to specifically prepare the student for apprenticeship nor have they been presented under the aegis of an apprenticeship entity. Such a program would also act as an incentive to employers to take on the training function, since the apprentice would be more productive at the outset, and would substantially reduce the number of dropouts from apprenticeship programs.

A primary, immediate objective of apprenticeship and education officials in Utah should be to get young people into apprenticeship, if they are inclined towards trade work, at an earlier age. Obviously, there are costs to the individual and to the economy in postponing skilled training for long periods of time.

On-the-job training

Importance of job rotation. As was mentioned in Chapter VI, the on-the-job training segment of the apprenticeship system is what distinguishes it from other forms of training, and is considered the most important phase of an apprentice's training. It will be recalled from the discussion in Chapter VI that, of all the aspects of their on-the-job training which the apprentices were asked to rank, job rotation so as to learn all the work processes of the trade received the poorest rankings. This deserves special attention since inadequate job rotation can play an extremely important role in undermining

the overall quality of an apprentice's on-the-job training. As was discussed in Chapter VI, inadequate job rotation can result from an employer's refusal to train the apprentice properly, or simply because the jobs which the employer has do not require many of the work processes of the trade. A good example of this would be the carpenters' local, whose members spend nearly 95 percent of their time in commercial and industrial work with very little residential work. Apprentices indentured in that program necessarily receive very little exposure to many of the work processes of the trade.

In cases like the one just mentioned, it would be difficult to assure the apprentice adequate job rotation even if he were transferred from one employer to another. However, the data suggest that there are employers who are able to rotate their apprentices, but do not do so to avoid the costs of training. In either case, the objective of apprenticeship--to produce a well-rounded craftsman--is not being met.

There do exist possible solutions to this problem. First, to eliminate the problem of employers who intentionally do not rotate their apprentices, more stringent monitoring by the SAC and BAT field representatives or the Joint Apprenticeship and Training Coordinator should be instituted. The JATC coordinators appear to be doing a good job in this respect, although many times, as previously mentioned, the nature of the job doesn't permit the apprentices' exposure to all the processes of the trade, even when this goal is actively pursued. Secondly, a program might be established within the independent or unilateral programs whereby the apprentice is indentured to a group of employers of the same trade within a specified geographic region. Under the supervision of the SAC, the apprentice could be rotated

among the employers so as to maximize his exposure to the work processes of the trade. A system of this type, it seems, would also alleviate the problem of intentional lay-offs of apprentices to avoid the pay-step increases, etc., since an apprentice could simply retain his registration and be transferred to another employer. Being indentured to a group of employers or a trade association would, in essence, provide the apprentice with the advantages of working for a large, diversified firm.

This is basically the method employed by the JATC's, in that apprentices registered in JATC programs have the advantage of being rotated among the union employers to receive maximum exposure to the trade. However, if work among employers in an area, union or non-union, is specialized, this "rotation system" still will not meet the objective of exposing the apprentice to all the trade processes. This poses an interesting question about the traditional objectives of apprenticeship. With trades tending to be more specialized, perhaps the training of "well-rounded" journeymen should no longer be the purpose of the apprenticeship system. Rather, the system could devote itself to producing competent, specialized, craftsmen, trained in the primary work processes of the specific trades. Levels of competence could be established, much the same as in academic fields, starting with journeyman, craftsman, master craftsman, etc.

Length of training. There is strong evidence that the "basic training" term could be shortened considerably and still maintain the level of competence possessed by most apprentice program graduates. For example, in Chapter VIII it was shown that many program dropouts

had acquired sufficient skills to obtain renumerative employment in the trade and even attain supervisory positions. This speaks strongly for having a type of "modular" approach to training for different levels of competence within the trade. Indeed, the data for this study and also Barocci's indicate that, at least informally, this is in essence what is occurring at the time.

The suggestions listed above would substantially shorten the length of apprenticeship training. They should be closely examined. Greater efforts to grant credit towards completion of a program for those with previous experience in the trade could also be made. It may be argued that shortening the length of training could discourage employers from assuming the training function since they would not have the fully-trained apprentice long enough to recoup their costs. However, if this proposal were coupled with mandatory pre-apprenticeship in the high schools, it is improbable that the employer's costs would be affected, since the shorter length of training would be offset by increased productivity at the beginning. It is the feeling of the author that these suggestions could be implemented without seriously undermining the quality of the on-the-job training apprentices are receiving.

Journeyman competence. A good journeyman is not necessarily a good instructor. Although most of the respondents indicated that the quality of journeyman instruction was good, there were still sufficient numbers, especially in the independent programs, that felt improvement could be made in this area. It seems necessary that journeyman upgrading programs be established with the express purpose of keeping journeymen "posted" on the latest techniques, tools, etc., as well as

training them in effective teaching methods. All of the craft unions sponsor journeyman upgrading programs, usually under the aegis of the JATC. This type of program is sorely needed for the independent, non-union employers, and could be organized under the supervision of the SAC. Many apprentices indicated that their journeyman instructors felt threatened by them and felt that they were, in essence, training their own competition. This is certainly not a good relationship between pupil and instructor. Upgrading journeymen will contribute to their competence and to their self-confidence in their ability to work in their trade, thus alleviating the fears many of them have of competition from apprentice graduates. It is also recommended that a deliberate attempt be made on the part of the SAC to assure that employers are adequately competent to accept the training function. This may require greater statutory authority on the part of the SAC as well as various administrative changes, topics which will be discussed in subsequent sections of the chapter.

Related instruction

The data as related instruction indicate general dissatisfaction in this area on the parts of both the completers and the dropouts. It is significant that the respondents ranked the overall quality of this phase of their training lower than the overall quality of on-the-job training.[11] In personal discussions with apprentices, the subject of related classroom instruction is a recurring and controversial one. Immediate steps should be taken to alleviate some specific problems in this area.

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[11]See Chapter VII for a detailed discussion of related classroom discussion and the apprentices' responses in this area.

The problem which warrants the most immediate concern is the need to establish a uniform curriculum for the independent plumbers' related instruction. As mentioned in Chapter VII, the independent plumbers are no longer allowed to enroll in union-sponsored plumbers classes and have been forced to fend for themselves, resulting in a serious curriculum and instructor problem.

Nor is this problem limited to just the plumbers' programs. Most union programs have uniform related instruction curricula, whereas the independent programs throughout the state of Utah do not, with different curricula used depending on the institution where the courses are taught. This results in an obvious lack of uniformity between independent and union programs, and among independent programs themselves. Officials of the SAC and the various institutions where related instruction courses are taught are concerned about this problem and feel that it causes a serious diminuation in the quality of related instruction that apprentices in independent programs are receiving. Cooperation between the SAC and the State Board of Vocational Education should be sought in the preparation of uniform, quality curricula for the independent programs. It is suggested that an advisory committee composed of representatives from the State Board of Vocational Education, SAC, and the various trades involved be established to coordinate the preparation of uniform curricula. This committee could also participate in the selection of competent journeymen or full-time instructors to teach the related instruction classes for independent apprentices. This is usually handled solely by the institutions where the classes will be taught, and generally adequate

instructors are chosen. However, this extra screening process could aid substantially in eliminating the problem of incompetent instructors. The committee could also coordinate the training of the instructors. All instructors must initially participate in training sessions presented by the state's universities. It is felt, however, that a continuing program is needed wherein the instructors must periodically go through refresher courses designed to maintain their competence. Finally, funding for the preparation of curricula, the subsidization of instruction, and the seminars and refresher courses could be obtained through the SAC and Board of Vocational Education budgets.

Two additional recommendations which should be made at this time are: (1) make it easier to receive credit for previous courses, towards the completion of related instruction requirements; and (2) the apprentices should receive some sort of remuneration for the time they spend in related instruction. Many apprentices expressed discouragement over the fact that it is extremely difficult to receive credit for any courses taken during high school or college. Steps should be taken to assure that credit is received where credit is due. This would help to alleviate the feeling of many apprentices who have some college education that they are only "serving time."

Paying apprentices for the time which they spend in related instruction classes is a controversial issue. It has been the practice in Wisconsin for some time, and currently at least one JATC (the ironworkers) has an incentive program wherein the apprentice is subsidized for tuition and books if he maintains an acceptable (C or better) grade point average. The operating engineers subsidize the related

instruction of the apprentices in their programs also. It is felt that such programs would greatly improve the apprentices' attitudes toward their related classroom instruction and their overall training. In the case of JATC programs, subsidies could be made from the training trust fund. In the case of independent or unilateral programs, subsidization could come through the employer if it could be shown to him that the related instruction courses make the apprentice more productive. But whatever the source of funding, some kind of incentive program (such as the ironworkers') or other subsidization appears worthy of serious consideration by Utah apprenticeship officials as a major step in improving the entire apprenticeship training program in the state.

Administrative and legislative proposals

Funding and program growth. Funding has always been a serious problem for the Utah SAC. However, since 1972 the SAC has been successful in obtaining significantly larger appropriations from the state legislature and has, as a result, been able to increase the size of its field staff from one to four.[12] Rapid program growth, starting in the 1960's and continuing to the present time, was the determining factor in the larger appropriations made by the legislature. This rapid growth has also succeeded in bringing the subject of apprenticeship to the public eye and has given many young people the opportunity to receive quality skill training.

However, it appears that at the present time program growth is the primary criterion of program success. There is strong evidence

[12]See Chapter II for an in-depth discussion of the funding problem.

that the major justification of continued state funding of the program is continued program growth.[13] This continued, rapid growth may not be completely desirable. The increase in the SAC field staff notwithstanding, the number of new programs militates against adequate servicing by the SAC.

It is strongly recommended that, instead of pursuing a rapid growth policy, a policy of healthy growth balanced against upgrading program quality be adopted. Time now used by SAC and BAT field staff in reviewing and registering new programs should be spent in servicing existing programs. This servicing should involve periodic visits to the apprentice on the job (at least four times annually), monthly review of work records, follow-up on existing programs to assure that the apprentice is being properly trained, monitoring of the apprentices' related classroom instruction progress, upgrading and technical assistance to journeyman instructors, etc. If labor market conditions demand that new programs continue increasing at the present rate, then larger appropriations should be allocated to the operation of the SAC to enable increases in the staff size. By no means should program quality be sacrificed for program growth, a situation which is apparently faced by the SAC at the present time. Legislators and the public should be educated more on the importance of program quality. Program growth alone should not be the principal criterion in the funding process. Perhaps the most critical problem facing the SAC at the present time is upgrading the quality of the independent programs.

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[13]This becomes very obvious when discussing the funding problem with SAC officials. See also Utah, *Annual Budget of the State of Utah, 1970-74;* Utah, *State of Utah, Appropriations Report, 1970-74.*

This would involve greater supervision of the on-the-job training which the apprentice receives, technical assistance to the employer (journeyman instructor), and, generally, adequate servicing as discussed above. This may well require greater statutory authority on the part of the SAC, which is the next topic of discussion.

Statutory authority. The SAC, by law, is charged with the responsibility of fostering the promotion of quality apprenticeship programs by encouraging the voluntary adoption by employers of apprentices, of the minimum standards outlined in the 1950 act.[14] The only authority the SAC has with respect to a program after it is registered is to assure that the standards are being met. If not, the program can be cancelled by the SAC as a registered program.

It appears, however, that the SAC requires more statutory leverage in order to better meet the objectives of the apprenticeship system. At the present time, BAT and SAC field staff cannot see the apprentice on the job without the permission of the employer. Thus, many times the apprentice will never be seen by the SAC or BAT representative. Legislation granting the SAC (and thus BAT) field representatives more direct authority over the apprentice and his training would seem appropriate and vital to upgrading the quality of independent programs. In essence, the SAC would be given the same authority over apprentices in independent and unilateral programs as the JATC has over apprentices in the JATC programs.[15]

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[14] See Appendix B.

[15] In effect, the SAC would almost be assuming a regulatory agency role, rather than the promotional and advisory role it currently assumes.

It may be argued that such a situation may discourage employers from taking on apprentices. However, there is no real evidence that this would be the case. Indeed, if such proposals were coupled with some type of technical assistance package to aid the employer in the training process, it may very well be an incentive in itself for assuming the training responsibility. Such a system--greater statutory authority for the BAT, coupled with a technical assistance pledge by the SAC to upgrade the employer's skills and aid him in the training function--would contribute a great deal towards the upgrading of the on-the-job training that apprentices are receiving.

Servicing. As was mentioned before, the primary emphasis of the SAC should be shifted from program quantity to program quality. One way this can be done, as implied previously, is to increase the effectiveness and quality of program servicing. A greater degree of control must be had over the training of apprentices, especially in the independent programs. A specific plan should be established and adhered to which clearly outlines the number of times a program is visited annually, the time necessary on each visit, and the specific objectives to be achieved during each visit, etc. The SAC should be meticulous in the adherence to such a plan. Provision also must be made for the cooperative use of BAT staff in the servicing function, if appropriate.

Again, it is emphasized that the staff size of the SAC must be sufficient to handle the servicing load. This must be the prime criterion in the budgeting process. Program growth must be balanced. In short, a "Frankenstein" must not be created which will exceed the capacity of the SAC to manage. Programs should be visited *regularly* at *specified intervals* (perhaps every two months) in order to assure

adequate follow-up and monitoring of registered programs. In addition, apprentice monthly reports, work records, etc., could be mailed monthly to the SAC office for review by the SAC staff, and many problem areas could thus be pinpointed.

It is recommended that apprentices registered in independent programs be required to mail their work records into the SAC at least once every two months. At the present time, this is not being done, and the only time these work records are examined is during the periodic visits made by SAC representatives. Since these visits are many times not made as often as necessary and such a correspondence system could aid greatly in assuring that the apprentices are receiving adequate on-the-job training, it is felt that the benefits derived from such a system would more than outweigh the clerical work involved. Such a system is used successfully by the majority of the JATC's in the state.

Data collection. It has been emphasized throughout the current discussion that program quality should be emphasized to a greater degree. In order to measure training quality, however, there must be vast improvements in the quantity and quality of data on each apprentice which the SAC keeps on file. At the present time, the only information which the SAC has on file for each apprentice is general information relating to the apprentice himself; i.e., name, address at time of registration, trade, military status, etc. In addition, the SAC does a good job of recording on an annual basis the number of new programs registered, the number of completions and cancellations, and the total number of registered apprentices at year's end. These types of data are very helpful, and the SAC should continue to keep them current. However, it is suggested that, in addition to this information,

information be gathered from each apprentice who completes or cancels a program during the year summarizing his experience and commenting on program strengths and weaknesses, as well as listing the reasons for cancellation of the indenture, if applicable. This could be patterned after the one used in this survey. Vital to the success of this effort would be the possession of accurate current addresses for all registered apprentices. Therefore, it is also suggested that change-of-address forms be provided to all registered apprentices so that the SAC may keep all addresses of registered apprentices current. The SAC could summarize the data thus received from the apprentices on an annual basis to measure improvement in program quality, retention rate, etc.

Such a service would be an invaluable aid in the effort to upgrade the quality of apprenticeship training in Utah. It would also provide another quantitative criterion which could be used in the annual budgeting process. It is assumed that the above process would be employed primarily with apprentices from independent programs. However, with the cooperation of the JATC's, it could be implemented in these programs also.

In order to improve the quality of apprenticeship, officials and administrators must first realize what is happening and where improvement is needed. The system proposed in the preceding paragraphs would fill the information gaps which exist at the present time and would add credibility to the notion that apprenticeship is indeed an education process.

Summary

The proposals discussed in the preceding paragraphs provide an outline of changes which need to occur in order to alleviate the troublespots underscored by the questionnaire data. It is recognized that changes of this type come slowly, and not without organizational changes, power struggles, and so on. JATC's, the Board of Vocational Education, the SAC, and the BAT are strongly urged to cooperate and pool their resources in the effort to implement these proposals and thus take a step forward in the improvement of apprenticeship training in Utah. Generally, however, the problems referred to are universal to the apprenticeship system, regardless of the specific geographic location. Many of the recommendations which have been discussed are also equally universal in their applications and relevance.

To improve the image of apprenticeship, the product itself must be cleaned up and tailored to appeal to today's young person. Flexibility and open-mindedness are urged. It must be emphasized once again that program quality, especially in the independent programs, must be upgraded. A concerted, cooperative effort on the part of everyone involved, together with realistic appropriations by the state legislature, will bring to pass this improvement and further establish the credibility of apprenticeship in Utah.

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APPENDIXES

Appendix A

[CHAPTER 663]

AN ACT

August 16, 1937
[H. R. 7274]
(Public, No. 308)

To enable the Department of Labor to formulate and promote the furtherance of labor standards necessary to safeguard the welfare of apprentices and to cooperate with the States in the promotion of such standards.

Labor standards for apprentices. Formulation and promotion of.

Encouraging inclusion of, in contracts.

Cooperation with State agencies, National Youth Administration, etc.

39 Stat. 232. 20 U. S. C. §17. 47 Stat. 414.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Labor is hereby authorized and directed to formulate and promote the furtherance of labor standards necessary to safeguard the welfare of apprentices, to extend the application of such standards by encouraging the inclusion thereof in contracts of apprenticeship, to bring together employers and labor for the formulation of programs of apprenticeship, to cooperate with State agencies engaged in the formulation and promotion of standards of apprenticeship, and to cooperate with the National Youth Administration and with the Office of Education of the Department of the Interior in accordance with section 6 of the Act of February 23, 1917 (39 Stat. 932), as amended by Executive Order Numbered 6166, June 10, 1933, issued pursuant to an Act of June 30, 1932 (47 Stat. 414), as amended.

Publication of information. Appointment of advisory committees.

Sec. 2. The Secretary of Labor may publish information relating to existing and proposed labor standards of apprenticeship, and may appoint national advisory committees to serve without compensation. Such committees shall include representatives of employers, representatives of labor, educators, and officers of other executive departments, with the consent of the head of any such department.

National Youth Administration relieved of responsibility for promoting standards; transfer of records.

Sec. 3. On and after the effective date of this Act the National Youth Administration shall be relieved of direct responsibility for the promotion of labor standards of apprenticeship as heretofore conducted through the division of apprentice training and shall transfer all records and papers relating to such activities to the custody of the Department of Labor. The Secretary of Labor is authorized to appoint such employees as he may from time to time find necessary for the administration of this Act, with regard to existing laws applicable to the appointment and compensation of employees of the United States: *Provided, however,* That he may appoint persons now employed in division of apprentice training of the National Youth Administration upon certification by the Civil Service Commission of their qualifications after nonassembled examinations.

Personal services.

Proviso. Employment of present personnel.

Effective date.

Sec. 4. This Act shall take effect on July 1, 1937, or as soon thereafter as it shall be approved.

Approved, August 16, 1937.

Appendix B

CHAPTER 8

APPRENTICE TRAINING

35-8-1. Declaration of public policy.–In the interpretation and application of this act the public policy of this state is declared to be as follows:

To open to young people the opportunity to obtain training that will equip them for profitable employment and citizenship; to set up, as a means to this end, a program of voluntary apprenticeship under approved apprentice agreements providing facilities for their training and guidance in the arts and crafts of industry and trade with parallel instruction in related and supplementary education; to promote employment opportunities for young people under conditions providing adequate training and reasonable earnings; and to relate the supply of skilled workers to employment demands.

History: L. 1949, ch. 50, §1; C. 1943, Supp., 42-8-1.

Title of Act.

An act authorizing the industrial commission to use up to $20,000 of its appropriated funds for establishing an apprenticeship council and local state joint apprenticeship committees for the purpose of effectuating an apprentice training program in the state of Utah; providing for a director of apprenticeship within industrial commission of Utah; prescribing a procedure for the determination of apprenticeship agreement controversies; requiring reports to the industrial commission of Utah to be made public.

Cross-Reference.

Employment on public works, 34-12-1 et seq.

Collateral References.

Apprentices 1.
6 C.J.S. Apprentices §1.

35-8-2. Apprenticeship council–Composition–Appointment of representatives–Terms of members–Filling of vacancy–Compensation of members–Duties–Director of apprenticeship–Designation of officers–Annual public report.–(1) The apprenticeship council shall be composed of: Twelve representatives, six of whom should come from, and be representatives of, employer groups or organizations; six representatives from bona fide employee organizations; and one nonvoting public representative not employed by the state; all of whom shall be appointed by the chairman of the industrial commission. Two representatives each of employers and employees shall be appointed for terms ending on the first Monday of 1961, 1962, 1963, 1964, 1965, and 1966 respectively, and thereafter, each member shall be appointed for a term of three years. Any vacancy occasioned otherwise than by expiration of term shall be filled for the unexpired portion of the term. The official designated by the state board for vocational education

to have charge of trade and industrial education, the chairman of the industrial commission, the administrator of the department of employment security, and one representative of a higher educational institution of the state (the latter to be appointed by the chairman of the industrial commission) shall be ex officio members of the council without vote.

(2) Members of the apprenticeship council not otherwise compensated by public moneys, shall receive $15 per day while in attendance upon meetings of the council, not exceeding four meetings in any fiscal year, or while performing necessary duties authorized by the council, and reimbursement as prescribed by law for state officers for expenses incurred in the performance of such duties.

(3) The apprenticeship council, with the approval of the chairman of the industrial commission, shall appoint, fix the compensation, and prescribe the duties and powers of a director of apprenticeship, and such other personnel as may be necessary to aid the council in the execution of its functions under this act. The appointment of the director of apprenticeship and all other full-time personnel shall be made in accordance with, and pursuant to, the merit system rules and regulations applicable to the employees of the department of employment security.

(4) At the call of and subject to the approval of the appointive authority the apprenticeship council shall: (a) Designate from its membership a chairman and a secretary, neither of whom shall be employees of the state; (b) formulate policies for the effective administration of this act; (c) establish standards for apprenticeship agreements which in no case shall be lower than those prescribed in this act; (d) issue such rules and regulations as may be necessary to carry out the intents and purposes of this act; (e) perform such other functions relative to apprenticeship as the appointive authority may direct; and (f) not less than once each year, make to the appointive authority a report covering the activities and findings of the council, which shall be transmitted to the legislature and the public.

History: C. 1953, 35-8-2, enacted by L. 1959, ch. 58, §2.

Compiler's Note.

Sections 35-8-2 to 35-8-11, Code 1953 (L. 1959, ch. 50, §§ 2 to 11; C. 1943, Supp., 42-8-2 to 42-8-11), relating to apprenticeship, were repealed by Laws 1959, ch. 58, §1. New sections 35-8-2 to 35-8-8 were enacted by §2 of the act. The preliminary clause of section 2 read: "Sections 35-8-2 through 35-8-8, inclusive, are enacted to read: ..."

Title of Act.

An act repealing sections 35-8-2 through 35-8-11, inclusive, Utah Code Annotated 1953, and enacting new sections 35-8-2 through 35-8-8, inclusive, relating to apprenticeship providing for the creation of an apprenticeship council and apprenticeship committees; and providing for voluntary apprenticeship agreements and defining terms and providing an effective date.

Repealing Clause.

Section 1 of Laws 1959, ch. 58, provided: "Sections 35-8-2 through 35-8-11 are repealed."

Collateral References.

Apprentices 1.
6 C.J.S. Apprentices §1.

35-8-3. Official action by apprenticeship council—Vote required—Quorum.—No official action may be taken by the apprenticeship council without the concurrence of a majority of the voting members of the council. For the purpose of this act, a quorum shall consist of not less than eight representatives appointed under the provisions of this act, not less than four of which must be representatives of the employer groups or organizations and four of which must be representatives from bona fide employee organizations.

History: C. 1953, 35-8-3, enacted by L. 1959, ch. 58, §2.

Compiler's Note.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

35-8-4. Joint apprenticeship committees—Approval by apprenticeship council—Composition—Duties—Standards established by employers—Teachers and co-ordinators, selection and training.—(1) Joint apprenticeship committees shall be approved by the apprenticeship council in any trade or group of trades or individual plants or establishments or political subdivisions in cities or trade areas, whenever justified by apprentice training needs. Such committees shall be composed of equal numbers of employer and employee representatives appointed by the respective employer and employee organizations in the trade or group of trades affected, or in the case of individual plants or establishments the members of the committee shall be appointed by the employer and employee organization or organizations, or the apprenticeship council may act as such committee. The duties of the joint apprenticeship committees shall be to establish schedules for work experience training, assist in developing wage rates and working conditions for the apprentices, ascertain employer needs in the trade, specify the appropriate ratio of apprentices to journeymen, co-operate with school authorities in regard to education of apprentices in technical and theoretical subjects related to their trades and adjust apprenticeship differences.

(2) Standards of apprenticeship submitted by an employer or establishment conforming to the standards established under this act may be recognized and registered by the state apprenticeship council. Any such standards must meet the minimum standards of the state apprenticeship council.

(3) Related and supplemental instruction for apprentices, co-ordination of instruction with job experience, and the selection and training of teachers and co-ordinators for such instruction shall be the responsibility of state and local boards responsible for vocational education.

History: C. 1953, 35-8-4, enacted by L. 1959, ch. 58, §2; L. 1961, ch. 74, §1.

Compiler's Notes.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

The 1961 amendment deleted "the" before "employee organization or" and "where there is no employee organization" after "committee" at the end of the second sentence of subsec. (1), and deleted "In the event the employees are not members of a bona fide union," before "Standards" at the beginning of subsec. (2).

35-8-5. "Apprentice" defined.—The term "apprentice" as used herein and in Title 34 means a person at least fifteen years of age who has entered into a written agreement approved by the Utah Apprenticeship Council with an employer or his agent, an association of employers, an organization of employees, or a joint committee representing employers and employees which apprenticeship agreement provides for not less than four thousand hours of reasonably continuous employment for such person, and for his participation in an approved schedule of on-the-job work experience through employment for the number of hours per year of related supplemental instruction as may be set as a standard by the council.

History: C. 1953, 35-8-5, enacted by L. 1959, ch. 58, §2; L. 1961, ch. 70, §6; 1963, ch. 53, §1.

Compiler's Notes.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

The 1961 amendment inserted "and in Title 34" and "approved by the Utah Apprenticeship Council."

The 1963 amendment lowered the age from "sixteen" to "fifteen" and provided that the Utah Apprenticeship Council should set the required number of hours of related supplemental instruction.

35-8-6. Apprenticeship agreements—Terms and conditions.—Every apprenticeship agreement entered into under this act shall contain:

(1) The names of the contracting parties.

(2) The date of birth of the apprentice.

(3) A statement of the trade, craft, or business which the apprentice is to be taught, and the time at which the apprenticeship will begin.

(4) A statement showing the number of hours to be spent by the apprentice in work and the number of hours to be spent in related and supplemental instruction, which instruction shall be not less than one hundred forty-four hours per year.

(5) A statement setting forth a schedule of the work processes in the trade or industry divisions in which the apprentice is to be taught and the approximate time to be spent at each process.

(6) A statement of the graduated scale of wages to be paid the apprentice and whether the required school time shall be compensated.

(7) A statement providing for a period of probation during which time the apprenticeship agreement may be terminated by either party to the agreement upon notification in writing to the apprenticeship council, and providing that after such probationary period the apprenticeship agreement may be terminated for cause by the joint apprenticeship committee upon notification to the apprenticeship council setting forth the reasons for such termination.

(8) A statement that the services of the apprenticeship council may be utilized for consultation regarding the settlement of differences arising out of the apprenticeship agreement where such differences cannot be adjusted locally or in accordance with the established trade procedure.

(9) A statement that if an employer is unable to fulfill his obligation under the apprenticeship agreement he may transfer such obligation to another employer and the apprenticeship council shall be notified of such transfer in writing.

(10) Such additional terms and conditions as may be prescribed or approved by the council not inconsistent with the terms of this act.

History: C. 1953, 35-8-6, enacted by L. 1959, ch. 58, §2.

Compiler's Note.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

Collateral References.

Apprentices 1.
6 C.J.S. Apprentices §1.

35-8-7. **Application of act—Voluntary election.**—The provisions of this act shall apply only to such persons, firms, political subdivisions, corporations, employer associations, or bona fide organizations of employees as voluntarily elect to conform with its provisions.

History: C. 1953, 35-8-7, enacted by L. 1959, ch. 58, §2.

Compiler's Note.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

35-8-8. **Separability clause.**—If any provisions of this act, or the application thereof, to any person or circumstance is held invalid, the remainder of the act and the application of such provision to other persons or circumstances shall not be affected thereby.

History: C. 1953, 35-8-8, enacted by L. 1959, ch. 58, §2.

Compiler's Note.

For repeal and enactment of this section, see Compiler's Note under 35-8-2.

Effective Date.

Section 3 of Laws 1959, ch. 58 provided: "This act shall take effect on July 1, 1959."

35-8-9 to 35-8-11. Repealed.

Repeal.

Sections 35-8-9 to 35-8-11, Code 1953 (L. 1949, ch. 50, §§9 to 11; C. 1943, Supp., 42-8-9 to 42-8-11), relating to apprenticeship, were repealed by Laws 1959, ch. 58, §1 which repealed 35-8-2 to 35-8-11, Code 1953. Section 2 of the act enacted 35-8-2 to 35-8-8. See notes under 35-8-2.

Appendix C

UTAH APPRENTICESHIP SURVEY

1. Age at commencement of indenture_____

2. Present age_____

3. Sex: ____Male _____Female

4. What was your marital status at the beginning of the apprenticeship program?

   ____Single ____Married ____Divorced ____Separated ____Widowed

5. What was your marital status at the time you left the apprenticeship program?

   ____ Single ____Married ____Divorced ____Separated ____Widowed

6. Number of dependents, excluding yourself_____

7. Are you currently employed? ____Yes ____No

8. If yes, are you employed in a field related to your apprentice training?

   _____Yes _____No Is this position supervisory? _____Yes _____No

9. What is the highest grade of school or year of college you completed?

   Grade in school _____ Year of college _____

10. Have you taken any trade-oriented courses other than your apprenticeship after high school?

    ____Yes ____No If yes, what courses were these?_____

    _____

11. Of those listed below, which was the most important source of advice you received in making the decision to enter an apprenticeship?

    ____Friend or relative ____Parents ____School counselor ____Personal decision
    ____VA counselor ____Other (specify)_____

12. What job experience did you have prior to becoming an apprentice? (Please check all that apply.)

    ____ I worked in the same general area as I served my apprenticeship in.
    ____ I worked in a field entirely unrelated to that in which I was indentured.
    ____ I attended vocational school and had some classes related to my trade.
    ____ I attended college
    ____ I was in the military and was exposed to some trade work there.
    ____ I entered apprenticeship directly from high school.
    ____ I entered apprenticeship directly from high school, but I had some experience in the trade during high school.
    ____ Other (please explain briefly)_____

    _____

13. Before you entered into the apprenticeship program, how well informed were you about the:

	Well informed	Somewhat informed	Poorly informed
a. Nature of the work	_____	_____	_____
b. Working conditions	_____	_____	_____
c. Rate of pay	_____	_____	_____
d. Job openings	_____	_____	_____
e. Long-term future of trade	_____	_____	_____
f. Time required for completion	_____	_____	_____
g. Veteran's benefits	_____	_____	_____
h. Advancement criteria	_____	_____	_____

14. How long were you employed as an apprentice?

____Over 4 years ____3-4 years ____2-3 years ____1-2 years ____Less than a year

15. Please indicate the general trade area in which you trained as an apprentice.

_____ Construction (bricklayer, carpenter, electrician, plumber, etc.)
_____ Industrial (draftsman, machinist, welder, tool and die maker, etc.)
_____ Graphic arts (linotype operator, pressman, photographer, etc.)
_____ Service trades (mechanics, barber, health occupation, cooks, etc.)

16. Please check below the approximate average size of the firm or firms you worked with while serving your indenture.

____Small (1-19) ____Medium (20-49) ____Large (50 and above)

17. During the apprenticeship program, what were your lowest and highest rates of pay?

Lowest $_____ per hour, OR $_____ per week
Highest $_____ per hour, OR $_____ per week

18. Counting the journeyman rate for your trade as 100%, what percentage of this was the rate you were paid?

My lowest pay was _____% of the journeyman rate.
My highest pay was _____% of the journeyman rate.

19. Which one of the statements below best represents your opinion of the pay you received as an apprentice?

_____I would have been satisfied with less pay, since I was only learning the trade.
_____Pay was reasonable for an apprentice.
_____Pay was too low for a person doing the same job as a journeyman.
_____Pay was reasonable at the start, but should have been increased as the basics were learned.

20. Please rate **frankly** your on-the-job apprenticeship training with respect to:

	Excellent	Good	Fair	Poor
a. Quality of on-the-job instruction	_____	_____	_____	_____
b. Teaching ability of the on-the-job instructors (journeymen, etc.)	_____	_____	_____	_____
c. Equipment and tools on the job	_____	_____	_____	_____
d. Working conditions	_____	_____	_____	_____
e. Adequacy of job rotation so that all phases of the trade were learned.	_____	_____	_____	_____
f. Supervision by journeymen	_____	_____	_____	_____

What was the approximate ratio of journeymen to apprentices on your job? _____

21. Do you feel that you received adequate on-the-job training?

____Yes ____No

22. Was a program of related classroom instruction provided as part of the apprenticeship?

____Yes ____No **If not, go to question # 26.**

23. Please rate **frankly** your related classroom instruction with respect to:

	Excellent	Good	Fair	Poor
a. Teacher's knowledge of subject	_____	_____	_____	_____
b. Teacher's interest in students	_____	_____	_____	_____
c. Equipment in the school	_____	_____	_____	_____
d. Usefulness and relevance of classroom instruction to work on the job	_____	_____	_____	_____

24. How would you rate the overall quality of classroom instruction?

_____Excellent _____Good _____Fair _____Poor

25. How did you feel about the material presented in school during your apprenticeship?

_____ Material was taught too quickly to understand all of it.
_____ Material was taught at about the right speed.
_____ Material was taught too slowly; could have finished sooner.

26. How would you rate the overall quality of on-the-job training?

_____Excellent _____Good _____Fair _____Poor

27. Were you ever laid off while serving your apprenticeship?

____Yes ____No I was laid off _____ times, and the longest period was for _____ weeks.

28. What is your current approximate annual salary or wage income? $_____

29. Do you feel that the Utah Apprenticeship Council or its field representatives did everything they could to solve problems which came up during your term as an apprentice?

____Yes ____No

30. Why do you feel this way? _____

_____

_____

31. Check one:

_____ I completed the apprentice program.
_____ I am currently participating in the apprentice program.
_____ I cancelled out of the apprentice program.

32. (This question is **only** for those who cancelled out of the program.) Listed below are several common reasons an apprentice might have for ending his or her indenture. Please review the entire list and **check the category which indicates the importance of each in your decision to terminate your indenture.**

	Very important	Important	Of some importance	Not important at all
a. I found a job as good as the one I could have gotten had I completed the apprenticeship program.	_____	_____	_____	_____
b. The apprentice pay was too low, and I needed more money.	_____	_____	_____	_____
c. I did not like the related classroom instruction.	_____	_____	_____	_____
d. My employer was not fair to the apprentices.	_____	_____	_____	_____
e. I was laid off from the apprentice job and found another job I liked before being called back to the apprentice job.	_____	_____	_____	_____
f. I just changed my mind about wanting to work as an apprentice.	_____	_____	_____	_____
g. _____ I went into the military. (just check if applicable)				
h. _____ I decided to enroll in school full-time. (just check if applicable)				
i. Other (explain)_____ _____	_____	_____	_____	_____

33. Did your father or your mother ever take a vocational course of any type?

a. Father ____Yes ____No ____Don't know
b. Mother ____Yes ____No ____Don't know

34. Was your father or mother employed in a vocational trade during your last year of high school?

_____Yes _____No

35. Race: _____White _____Black _____Other (specify)_____

36. Were you a member of any labor union while serving your apprenticeship?

_____ Yes, I was a member of the _____ union.
_____ No, but I formerly belonged to the _____ union.
_____ No, I have never belonged to a union.

37. Was your apprentice program administered by a J.A.T.C. (Joint Apprenticeship and Training Committee)?

_____Yes _____No

38. We would appreciate any suggestions or comments you would like to make which you feel would serve to improve the apprentice training program in Utah._____

Appendix D

MANPOWER DEVELOPMENT SERVICE

UTAH STATE UNIVERSITY · UMC 35 · LOGAN, UTAH 84322 · (801) 752-4100 x 7203

Gary B. Hansen, Director
Lynn W. Heninger, Associate Director
Marion T. Bentley
John R. Cragun
Robert C. Mecham

August 16, 1974

Dear Sir or Madam:

Manpower Development Service, Utah State University, in cooperation with the Utah State Apprenticeship Council, is conducting a survey of current and former apprentices in the state of Utah in an attempt to determine how the apprenticeship program in Utah can be improved to make it more effective in meeting the skilled training needs of Utah citizens.

The purpose of this study is to determine the opinions and attitudes of people who have participated in apprenticeship, whether or not they completed the program. It is hoped that in so doing, certain areas where improvements can be made will be brought to light, thus resulting in better and more efficient apprenticeship programs.

Enclosed you will find a questionnaire that has been mailed to a sample of persons who, like yourself, have participated in apprenticeship programs since 1965. It consists of 38 questions, and it should take about fifteen minutes to complete. Please complete the questionnaire and return it to us in the enclosed, stamped envelope as soon as possible. All of your answers will be held in strictest confidence.

Since you are a member of a limited sample, it is very important to the success of this study that you complete and return the questionnaire as soon as possible. Your responses will be a great aid in the improvement of skilled worker training in Utah.

Sincerely,

Gary B. Hansen
Director

Mark Randle
Research Assistant

Enclosures

Appendix E

MANPOWER DEVELOPMENT SERVICE

UTAH STATE UNIVERSITY · UMC 35 · LOGAN, UTAH 84322 · (801) 752-4100 x 7203

Gary B. Hansen, Director
Lynn W. Heninger, Associate Director
Marion T. Bentley
John R. Cragun
Robert C. Mecham

September 20, 1974

Dear Sir:

A few weeks ago you should have received a letter and enclosed questionnaire requesting your cooperation in a statewide survey of former apprentices being conducted by Manpower Development Service of Utah State University.

As of this date, we have not received your response. In order to successfully complete this study, it is very important that you complete and return the questionnaire. In case you have lost or misplaced your copy of the questionnaire, we have enclosed another copy in this letter.

We realize this is a demand on your time and thank you in advance for your cooperation.

Sincerely yours,

Gary B. Hansen

Gary B. Hansen
Director

GBH/mr

Enclosures

CUMULATIVE RECORD OF APPRENTICE TRAINING 1964 TO 1972

	1964	1965	1966	1967	1968	1969	1970	1971	1972
NUMBER OF APPRENTICES ACTIVE JANUARY 1 EACH YEAR									
	1,095	1,111	1,086	1,193	1,348	1,395	1,689	2,013	2,060
NUMBER OF NEW AND REINSTATED APPRENTICES									
1stQtr	67	75	125	47	136	222	95	99	208
2ndQtr	131	70	110	335	87	153	214	128	189
3rdQtr	142	120	223	71	150	130	273	221	313
4thQtr	87	120	78	72	128	123	229	169	246
TOTAL	427	389	536	525	501	628	811	617	956
NUMBER OF CANCELLATIONS AND SUSPENSIONS OF AGREEMENTS									
1stQtr	52	82	85	34	52	45	38	88	68
2ndQtr	57	43	32	16	65	56	37	61	48
3rdQtr	31	36	64	33	44	45	93	116	83
4thQtr	70	54	53	101	141	38	67	69	71
TOTAL	210	215	234	184	302	184	235	334	270
NUMBER OF APPRENTICES RECEIVING JOURNEYMAN CERTIFICATES									
1stQtr	40	37	49	38	39	24	75	109	137
2ndQtr	68	76	65	44	43	89	60	97	269
3rdQtr	29	44	31	48	36	6	105	18	114
4thQtr	64	42	47	56	34	31	25	66	47
TOTAL	201	199	192	186	152	150	265	290	567
ACTIVE APPRENTICES FIRST DAY OF EACH QUARTER									
Jan 1	1,095	1,111	1,086	1,193	1,348	1,395	1,689	2,013	2,060
Apr 1	1,070	1,071	1,077	1,168	1,393	1,548	1,671	1,923	2,073
July 1	1,076	1,022	1,090	1,143	1,378	1,556	1,792	1,906	2,002
Sept 1	1,158	1,062	1,215	1,438	1,442	1,635	1,871	2,002	2,125
NUMBER OF ACTIVE APPRENTICES DECEMBER 31 EACH YEAR									
	1,111	1,086	1,193	1,348	1,395	1,689	2,013	2,060	2,201

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Trade	Active 10-1-73	New	Comp	Cnc	Susp	Active 12-31-73
Printing						
Cameraman (Platemaker)	3					3
Printer (Composing Room)	2					2
Embossing Pressman	2					2
Lithographer	1					1
Offset Pressman	7					7
Pressman	14	1				15
Screen Process Printer	1					1
Stereotyper	1					1
TOTAL PRINTING	31	1				32
Miscellaneous Service and Repair						
Baker	5					5
Bookbinder	2			1		1
Business Machine Mech	33	3		1		35
Cabinet Maker-Millman	16	4		4		16
Carman	21	6				27
Commercial Artist	2					2
Cook (Hotel)	1					1
Dental Lab Technician	6	1		1		6
Electrician (Other)	128	18	5			141
Electrician (L & P)	40	3	6			37
Farm Equipment Mech	5			1		4
Garage Mechanic	7	1				8
Gas Engine Mechanic	4					4
Glass Blower (Lab)	1					1
Gunsmith	2					2
Jeweler	4					4
Lineman	153	17	26	4		140
Lock & Safe Repairman	5					5
Maintenance Mechanic	1					1
Meatcutter	12	2				14
Metal Polisher-Electroplater		1				1
Optical Bench Techs	11	1		1		11
Photographer	1			1		
Plaster & Stone Caster	1					1
Radio-Television Repairman	10	4				14
Refrigeration Mechanic	23					23
Sewing Machine Mech	6					6
Shoe Repairman	2			1		1
Sign Painter	1					1
Upholsterer	7	1				8
TOTAL MISCELLANEOUS	510	62	37	15		520
GRAND TOTAL	2,706	250	94	121	15	2,726

Appendix G

APPRENTICESHIP AGREEMENT

Between Apprentice and Joint Apprenticeship Committee

THIS AGREEMENT, entered into this day of 19 between the parties to
represented by the Joint Apprenticeship Committee, hereinafter referred to as the COMMITTEE, and

born , at

hereinafter referred to as the APPRENTICE, and (if a minor)

hereinafter referred to as his GUARDIAN, shall remain in effect and be binding on the parties for a cumulative employment period of hours or years, except that the following stipulations shall apply.

(1). Any conflict between this agreement and contract of wages and working conditions officially negotiated and in effect between the employer or employer representatives and the employees or employee representatives in this (craft) (company) shall be settled by giving precedence to the Contract of Wages and Working Conditions.

(2). During an initial probationary period as specified in the Standards of Apprenticeship either the Apprentice, the Employer, or the Committee may withdraw from this agreement by giving notice to the other parties.

(3). Following the probationary period this agreement may be terminated only for cause and such reasons for the termination must be set forth in writing to the other parties and to the Apprenticeship Council.

(4). The period of apprenticeship shall be shortened by the amount of
hours or years, with the results that
hours or years remain to be completed
which amount of time is hereby granted by the Committee for previous trade experience and/or training which has already been satisfactorily completed by the Apprentice.

WITNESSETH THAT: The (Committee) (Employer) agrees to be responsible for the placement and training of said Apprentice in the trade of as such work is available with the (Employer) (Participating Employers) and in consideration said Apprentice agrees to apply himself diligently and faithfully to the work and studies incidental to learning the said trade during the period of apprenticeship, in accordance with the regulations of the Committee. The Plan and Standards of Apprenticeship referred to herein are hereby incorporated in and made a part of this agreement. Differences between the parties relating to matters of apprenticeship which cannot be settled locally may be referred to the following agency or agencies for consultation:

Utah Apprenticeship Council

IN WITNESS WHEREOF the parties hereunto set their hands and seals:

_____ (SEAL)	_____ (SEAL)
(APPRENTICE)	REPRESENTATIVE OF JOINT APPRENTICESHIP COMMITTEE
_____	_____
(ADDRESS)	TITLE
_____ (SEAL)	_____ (SEAL)
(PARENT OR GUARDIAN)	REPRESENTATIVE OF JOINT APPRENTICESHIP COMMITTEE
Registered with	_____
UTAH APPRENTICESHIP COUNCIL	TITLE
on	_____
	DIRECTOR OF APPRENTICESHIP

FORMS AVAILABLE THROUGH UTAH APPRENTICESHIP COUNCIL, SALT LAKE CITY, UTAH

FOR APPRENTICE

Certificate of Completion of Apprenticeship

★ ★ STATE of UTAH ★ ★

Know All Men By These Presents That

_____

has with merit fulfilled the terms of his Apprenticeship Agreement, entered into in accordance with the standards of the Utah State Apprenticeship Council and the Federal Committee on Apprenticeship in the trade of

and is hereby recognized as a qualified skilled worker together with all the rights, privileges, and opportunities which pertain thereto.

Witness our signatures and seal this _____ day of _____, 19____

_____ _____

For The Joint Apprenticeship Committee *For The Joint Apprenticeship Committee*

_____ _____

For The U. S. Department of Labor
Bureau of Apprenticeship and Training *For The Utah Apprenticeship Council*

Appendix I

The apprenticeship officials interviewed for this study were:

1. Grant Tuckett, State Director of Apprenticeship.

2. Dave Turner, State Director of the Bureau of Apprenticeship and Training.

3. Ken Quayle, Veterans' Program Certification Officer and Field Representative, State Apprenticeship Council.

4. Full-time JATC coordinators:

   L. Clark Cushing, I.B.E.W.
   Edward Evans, Pipe Trades
   Francis Crowley, Outside Linemen
   Donald Nielsen, Carpenters
   Leland Nielsen, Bricklayers
   John Thornton, Operating Engineers
   Ralph Van Dam, Ironworkers

5. Roger Plothow, Director of Continuing Education, Utah Technical College at Provo.

6. Geoffrey Brugger, Training Coordinator and Consultant, Utah Technical College at Salt Lake.

7. Terry Paskins, Coordinator of Extension Services, Weber State College.

VITA

Mark Douglas Randle

Candidate for the Degree of

Master of Science

Thesis: A Statistical Analysis of Apprentice Program Dropouts and Completers in Utah: 1969-1974.

Major Field: Economics

Biographical Information:

Personal Data: Born at Salt Lake City, Utah, February 23, 1951, son of Allan Charles and Sarah Holley Randle; married Linda Lee Tew on August 15, 1973; one child, Brenda Lee, born June 10, 1974.

Education: Attended elementary school in Salt Lake City, Utah; graduated from East High School in 1969; received the Bachelor of Arts degree from Utah State University, with a major in Economics, in 1974; completed requirements for the Master of Science degree, specializing in Manpower Economics, at Utah State University in 1975.