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ABSTRACT

The document is the final report of a project to develop a suitable method for studying the task content of accredited dental auxiliary education programs and the relationship between the tasks taught in such programs and the tasks involved in a professional situation. The set of instruments developed and pilot tested in 63 programs was used to collect data concerning: (1) characteristics of educational institutions and their accredited programs, (2) characteristics of faculty and preceptors responsible for teaching dental and dental-related tasks, (3) dental tasks taught in accredited auxiliary education programs, and (4) the level of responsibility with which graduating auxiliary students are expected to perform dental tasks. Chapters include: Introduction, providing background material; Review of Literature, presenting historical and current perspectives, task analysis, and educational curriculum and the world of work; Methods and Procedures, discussing the basic design of the study; Analysis and Findings, examining sample characteristics, survey instruments, biographical profiles, and dental task information; and Summary, Discussion, and Conclusions. Tables supplement the discussion and appendixes include the program questionnaire, interview, and letter forms; task inventories; reference notes to tables; and a hierarchical clustering scheme for 52 dental auxiliary education programs. (LH)

Determining Behavioral Task Content of the Curriculum in Occupational and Professional Education Programs:

THE DENTAL AUXILIARIES

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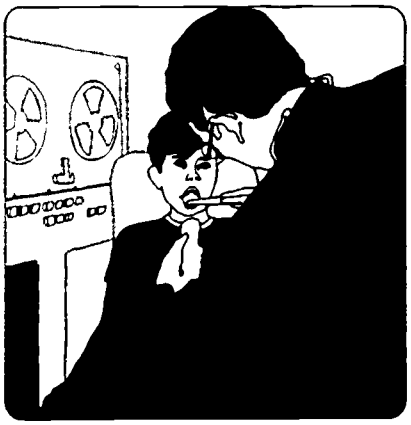

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David R. Terry

Rupert N. Evans

PREFACE

The research reported herein was performed pursuant to a research "compact" (No. MB 00014-02) with the Office of Special Programs, Bureau of Health Manpower Education, U.S. Department of Health, Education, and Welfare and with the following principal investigators of related research studies, who, as a group, constitute the Steering Committee of the Functional Task Analysis Cooperative Study Group: Dr. Rupert N. Evans, University of Illinois at Urbana-Champaign; Dr. David H. Gustafson, University of Wisconsin; Dr. Alfred M. Haynes, Charles R. Drew Post-Graduate Medical School; Dr. Arthur R. Jacobs, Dartmouth College; Dr. Lois C. Lillick, Department of Public Health, State of California; Dr. Marvin Marcus, University of California at Los Angeles; Dr. Maurice Wood, Virginia Commonwealth University; and Dr. Stephen R. Yarnall, Medical Computer Services, Seattle, Washington. The specific study of which this is a report was entitled Methodological Study For Determining Task Content Of Dental Auxiliary Education Programs and was directed by Rupert N. Evans as Principal Investigator and David R. Terry as Co-Principal Investigator. Grantees undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the research project. Points of view or opinions stated do not, therefore, necessarily represent official Bureau of Health Resources Development position or policy. Further, this document constitutes the final report of the University of Illinois project to the Functional Task Analysis (FTA) Cooperative Study Group, and does not, therefore, necessarily represent the position or policy of the Steering Committee of the FTA Cooperative Study Group.

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CHAPTER I

INTRODUCTION

Nature Of The Problem

A major portion of any educational program directed toward the preparation of individuals for the world of work is concerned with preparing individuals to perform certain functions whose parts may be identified as tasks. The designers of such instruction must constantly be aware of the interface between that which the student is being prepared to do and that work which the student will actually be called upon to perform upon actually entering the occupation or profession. The extent to which the educational program may be judged as providing the student with a valid curriculum is necessarily directly related to the quality of the communication and planning which has taken place between curriculum planners and those individuals in the world of work who can speak for what functions or tasks are required for both today's and tomorrow's work. A related element within the purview of education is directed toward identifying new or additional functions for an occupation or profession and for preparing individuals for that work. The constant struggle of vocationally oriented education to maintain objectively based curricula is particularly manifest in the health industry.

The health industry consists of a loosely associated network of agencies, facilities, and, most importantly, practitioners, all of which function through hundreds of types of activities to maintain, restore and protect the health of the Nation's population. The more than 4.5 million direct employees (USDHEW, 1973) in the health industry account for one in every twenty American workers. And yet, large as the health industry is, it nevertheless functions with only two principal types of personnel: (1) a cadre of physicians and dentists who are considered as the primary providers of health care, and (2) a large group of auxiliary personnel who work directly or indirectly with or through the primary providers in the delivery of health services.

An examination of some of the relationships between the primary providers and the associated, auxiliary providers of health care provides ample indication that changes are taking place within the industry regarding who is providing the health services it is

designed to deliver. Physicians and dentists active in medicine, osteopathy, and dentistry numbered about 437,750 in 1971 (USDHEW, 1973). Between 1900 and 1971 these practitioners increased in number almost threefold (2.9 times). However, as a proportion of the aggregate health manpower work force they declined from 44 to 10 percent of the total. Over the same period, the numbers of dentists alone increased numerically 3.5 times, while as a proportion of the aggregate of dentists and dental related auxiliaries, the dentists declined from 86 percent in 1900 to 39 percent in 1971.

It would appear from these numerical changes in relationships that significant changes are occurring in the delivery of medical and dental health care. In fact, these figures raise at least two related questions in terms of today's health care, (1) Who is doing What in the delivery of health care services? and (2) Who is being prepared in which formal academic health-related educational programs to do What?

It was in the latter of the above questions that this study found its genesis. Specifically it is concerned with that portion of the question which is related to the field of dentistry and to the formal academic preparation of dental auxiliary personnel.

Statement Of Problem

The primary problem of this study was to develop a method of collecting data regarding the tasks taught and the responsibility levels to which they are taught in the curricula of educational institutions. Specifically the study centered on the preparation of dental auxiliary personnel, i.e., dental assistants, dental hygienists, and dental laboratory technicians. The secondary problem of the study was to attempt to determine those differences among the educational institutions and their educators which appear to account for the varying numbers and kinds of tasks taught as well as for the range of levels of responsibility at which tasks are expected to be performed at the time the student graduates.

Importance Of The Study

While the delivery of dental care by a recognized professional has been available since shortly after 1840 when the first school of dentistry was established, it has been

only during the past five to ten years that the practice of dentistry began to take on some of the characteristics of a health delivery system attempting to meet the needs of the total society rather than the needs of a select few within the society. Formerly, the dentist worked alone and on one patient at a time, primarily delivering restorative dental services. In contrast, there are today large dental service corporations which provide hundreds of thousands of individuals with a dental care system through a cadre of dentists and dental auxiliary personnel - a system whose components include oral health education and preventive services as well as various kinds of restorative and curative services. As progress towards developing systems of delivering dental services was begun, however, there was and continues to be considerable difficulty in identifying, in defining, and in establishing the roles of the dental auxiliaries in relation to each other and to the practicing dentist.

Much of this difficulty has arisen as a result of the curricula and the various educational strategies used to prepare auxiliary personnel. Dental assistants, for example, may be prepared through formal institutional programs plus on-the-job training (OJT) programs or through OJT alone. Formal institutional programs range from those of a few weeks duration offered in proprietary schools to those extending over a twelve month period and offered as accredited programs in public or private schools and institutions. On-the-job training programs may range from a solo dentist taking someone into the practice to "help out around the place" to large clinic practices preparing many people to perform narrow ranges of highly specific tasks. While nearly all dental hygiene programs are offered in formal educational institutions offering accredited programs (OJT preparation is recognized in Alabama), the programs may range from two to four years in length and be located in either dental or nondental school settings. Finally, dental laboratory technician preparatory programs traditionally have been offered on a preceptorship (OJT) basis. However, within the past few years there has been an effort to establish programs in technical schools, community colleges, and senior institutions.

This multiplicity of approaches to dental auxiliary education appears to be one of the sources of difficulty in identifying, defining, and establishing the roles of the auxiliaries relative to each other and to the dentist. Indeed, with the exception of

those dental schools engaged in giving dental students some opportunity to work with dental assistants in the course of their training, there appears to be no dental education programs wherein a dental student and each of the auxiliaries are prepared together in such a way as to identify them as a team and how to work together. Further, with the recent movement into "expanded functions" programs by each of the auxiliaries, there has been a great deal of discussion of "What new responsibilities can the auxiliaries take on?"

The above question is being responded to not only by dental auxiliary educators, but also by dentists using dental auxiliaries in their practices. The former may derive their answers from several sources, e.g.: (1) from dental experts sitting on advisory councils, (2) from experimental programs designed to carefully investigate the extent to which a given auxiliary curriculum may be expanded, (3) or from a priori decisions. Educators may feel certain constraints as they ponder their answers, e.g.: (1) the tradition of the program, (2) the institutional setting in which the program is located, (3) the competencies of the faculty, (4) the limitations of the dental practice act of the state in which the program is offered, (5) the influence of the local dental association, (6) whether the program is designed to prepare students to practice in any state or just in the local state. In a similar manner, the responses of practicing dentists to the question may be influenced by such factors as: (1) the resolutions and policies of the American Dental Association, (2) the state and local dental associations to which they may hold allegiance, (3) the state dental practice act, (4) the confidence of the dentist in the competencies of his/her currently employed auxiliaries, (5) the self-confidence of the dentist himself.

Given that dental auxiliary educators and practicing dentists are both responding to the question of "What new responsibilities can the auxiliaries take on?" the question now arises, "What are the agreements between their responses?" This question patently suggests the need for an evaluation methodology which may be applied equally to educational programs preparing auxiliaries and to dental practices utilizing dental auxiliaries. Such a methodology should lend itself to identifying the roles of the auxiliaries relative to each other and to the dentist and to producing the information necessary for currently defining each of the auxiliaries.

This study was designed to develop such a methodology. If the methods are successful, commonalities and distinctions among educational programs for a specific type of auxiliary can be identified as well as the commonalities and distinctions among educational programs for the dental auxiliaries. It is anticipated that the methods will be applicable to new types of dental auxiliaries as they may appear. Finally, and perhaps most importantly, the methods may be used to gather a minimum data set in a uniform manner from both the world of dental auxiliary education and dental care practice in such a way that correspondence between the education and utilization of auxiliaries may be identified.

Research Questions

The general problem identified above suggested a series of research questions which were used to provide direction to the development of the study - including the research design, the methodology to be developed for studying the dental auxiliary education programs, and the methods and techniques to be used in analyzing the data. The findings of the more specific research questions were utilized to determine conclusions pertinent to the general research questions and to develop hypotheses to be tested.

This study proposed to develop a set of instruments which may be considered appropriate and effective for collecting data concerning the (1) characteristics of educational institutions and their accredited programs which prepare dental auxiliaries, (2) characteristics of the institution's Faculty and Preceptors responsible for teaching dental and dental-related tasks, (3) dental tasks taught in accredited auxiliary education programs, and (4) level of responsibility to which auxiliary students are expected to be able to perform those dental tasks at the time of graduation from the program. From data obtained by these instruments the following research questions may be explored:

I. What is the reliability (stability) of the dental auxiliary educator's responses to dental task statements in an inventory questionnaire which has a large number of items?
   A. By respondents across all dental auxiliary education programs?
   B. By Faculty and by Preceptor across all dental auxiliary education programs?

C. By respondents across all programs of a given dental auxiliary?

D. By single-task task statements and by multiple-task task statements?

II. Are the Faculty and Preceptors (if used) of dental auxiliary education programs able to provide valid responses to a question regarding the accumulated total time he or she spends teaching each dental task he or she teaches in the curriculum?

III. What are the characteristics and descriptions of an educational institution, its accredited dental auxiliary education program(s), and the Faculty and Preceptors (if used) associated with the auxiliary program(s) which may distinguish among the number and types of dental tasks taught in the various programs?

A. By type of dental auxiliary program -- dental assistant, dental hygiene, dental laboratory technician?

B. By type of institutional setting in which a given dental auxiliary may be taught?

C. By the number of continuous weeks required to complete an educational program for a given dental auxiliary?

D. By the number of Faculty in a given dental auxiliary program?

E. By type of dental auxiliary as reported by the respective Faculty and by the Preceptors (if used)?

IV. What are the differences in the level of responsibility to which dental tasks are expected to be performed at the time the auxiliary student graduates?

A. By type of auxiliary?

B. By type of institutional setting in which the auxiliary program is situated?

C. By the number of Faculty in preparatory programs for a given dental auxiliary?

D. By level of educational completion for a given dental auxiliary?

E. As expressed by the Faculty and by the Preceptors (if used) of a dental auxiliary education program?

V. What tasks are being delegated by dentist Preceptors in their private practice and to what level of responsibility are they being delegated, irrespective of to which dental auxiliary they are delegated?

VI. What tasks are currently being performed by practicing dental auxiliaries, by type of auxiliary, and to what level of responsibility are they being performed?

Definition Of Terms

For purposes of this study selected terms are used in the following context:

Criterion Class is the one currently enrolled dental auxiliary class which is nearest to completion or graduation in each institution studied.

Dental Auxiliary Personnel are health occupations personnel working in the delivery of dental care services whose occupations are identified as dental assistant, dental laboratory technician, or dental hygienist, and who have completed, or are completing the requirements of an educational program accredited by the Council on Dental Education of the American Dental Association. The work performed by these individuals is done at the discretion of a dentist who retains the legal, ethical, and moral responsibility for delivery of quality dental care as established by the dental profession and the legal practice acts of the state wherein the dental services are rendered.

Dental Assistant is the occupational title given to individuals whose work includes those acts of both supporting and delivering dental services in the general areas of operatory chairside assisting, education, reception and secretarial, and dental laboratory work.

Dental Hygienist is the occupational title given to individuals whose primary work includes acts related to providing oral prophylaxis and to providing preventive dental education but which may also include acts of both supporting and delivering

other dental services allowable within the provisions of the state legal practice acts under which the dental hygienist is licensed.

Dental Laboratory Technician is the occupational title given to individuals who fill the dentist's prescriptions for various kinds of restorative and corrective appliances but may include other tasks in the general areas of operatory chairside assisting and education.

Faculty are dental auxiliary educators whose primary job responsibilities are performed within the educational institution itself and whose primary teaching responsibilities are directed specifically to the teaching of dental or dental-related tasks.

Preceptors are practicing dentists or dental auxiliaries associated with a dental auxiliary education program whose teaching responsibilities are performed within a dental office or clinic outside the educational institution itself. Auxiliary students are accepted into dental offices or clinics where they are provided clinical tutelage for specified periods of time.

Task Analysis is a process in which the work activities of persons bearing a given job title are separately identified and studied. Any job is the sum of the work activities or tasks associated with it. The unit of work activity called the task is of such a size that a meaningful production or service output can be associated with it. Similar tasks may be performed by persons having quite different job titles.

Limitations Of The Study

This study limited itself to collecting data from formal educational institutions offering dental auxiliary education programs which have either (1) provisional approval, (2) conditional approval, or (3) full accreditation status with the Council on Dental Education of the American Dental Association. It is recognized that other programs are available for preparing certain dental auxiliaries, but using the above criteria for selection provided at least minimal, recognized measures of uniformity and quality among the programs selected.

The study also was limited to collecting data from the Faculty and Preceptors utilized in each of the selected institutions. As noted elsewhere (see Definition of Terms), the Faculty were limited to those individuals whose primary responsibility was teaching dental or dental-related tasks. This stringent definition precluded using individuals who may have been teaching dental-related tasks but whose primary teaching responsibility was to a broader group of students, e.g., business and office management faculty not teaching courses explicitly for dental auxiliary students. Further, guest lecturer type faculty were included only if it was determined by interview with the program director that the responses these individuals would make would not be included in the responses given by the regular faculty. In those cases where a preceptor also served as a guest lecturer, there was an attempt to secure the response of the preceptor as a preceptor rather than as a faculty member.

While every faculty member in each auxiliary program participated in the study, not every preceptor was asked to participate. Time and travel constraints required the use of a sample of preceptors from each program. However, since each auxiliary student did not serve a preceptorship under every preceptor, this limitation does not appear to be too critical to determining the nature of the program as experienced by most students.

Assumptions Of The Study

The assumptions underlying this study were that (1) a questionnaire and inventory approach to determining dental task components of the curriculum will yield valid data; (2) the task statements included in the dental task inventory are valid tasks and are stated in such terms that the faculty and preceptors can identify whether or not these dental task statements are curricular outcomes for which they are responsible; (3) the faculty and preceptors are able to identify the conceptual distinctions among the definitions given for each level of responsibility in the scale used in the task inventory.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This review of the literature will first present an abbreviated historical development of the dental auxiliaries utilized in the study together with a review of recent efforts to expand the scope of the dental procedures, functions, and tasks which these auxiliaries may perform in the delivery of dental services. The second section of the review will treat the subject of task analysis as it relates specifically to the definition and identification of tasks. A third section will deal with attempts to relate tasks identified in the world of work to the task content of educational curricula. The fourth section will deal with methods of analysis of task analysis data and methods of reporting these results.

Historical And Current Perspectives

The Dental Auxiliaries

Dental auxiliary personnel, as eventual providers of certain dental services and thus as components of a delivery system of dental services, had their beginnings over eighty years ago when Dr. Edmund Kelt of New Orleans placed a sign in his window noting "Lady in Attendance" (Gilman, 1967). These "Ladies" eventually became identified as "dental assistants" after the first formal dental assistant education program was offered in 1921. In 1913 the "dental hygienist" made an appearance as Dr. Alfred Fones in Bridgeport, Connecticut, identified the occupational title and opened the first dental hygiene preparatory program (Joy, 1972). His stated purpose was to show the value of education and preventive treatments when applied to the mouths of school children. The "dental laboratory technician" developed almost entirely on a preceptorship basis and as late as 1965 there were only five formally accredited academic programs in the United States preparing these technicians (American Dental Association, 1971). From such informal beginnings and slow moving developments it is apparent that the dental auxiliaries have emerged from use rather than from being initiated through formalized educational programs.

Recent Trends In The Development Of Dental Auxiliaries

In 1947 the Council on Dental Education of the American Dental Association (ADA) initially established a set of "Requirements" for the accreditation of schools of dental hygiene and waited until 1965 for their first revision. The "Requirements" for schools preparing dental laboratory technicians were established in 1948 and not revised until 1967, and as recently as 1960, the Council prepared the initial set of "Requirements" for dental assistant preparatory programs.

Dental auxiliaries had been in existence for nearly fifty years when in 1946 the U.S. Public Health Service funded experimental programs which eventually led to the concept of "chairside dental assisting." Through two now classical studies which extended over five years (Abramowitz, 1966; Hammons and Jamison, 1967) and through short courses, practitioners were urged to experiment with what has become known as four-handed and more recently six-handed dentistry. In 1961 through a federal competitive grant program the Dental Auxiliary Utilization (DAU) Program was inaugurated in a few dental schools for the purpose of exposing dental students to four-handed dentistry (U.S. DHEW, 1969).

But while the DAU program was trying to establish new methods of dental practice, the ADA was developing a "Statement of Policy Regarding Experimentation in the Training and Utilization of Dental Hygienists and Dental Assistants" (Transactions, 1961). The policy statement gave the Council on Dental Education the authority to approve experimental auxiliary programs except those which proposed to initiate curriculum development in "restorative, prosthetic, orthodontic, and other procedures which require the knowledge and skill of the dentist" (Transactions, 1961). It was the sense of the Association that dental laboratory technician programs were not to be involved in such experimentation. This statement of national policy was, however, to be modified.

In 1966 the Council on Dental Education made a determined effort to encourage greater experimentation in the use of dental auxiliaries in the delivery of dental services. The Council expressed the view that the determination of duties that can be assigned to auxiliary personnel was the dual responsibility of the profession as well as educational institutions. In support of this philosophy, the ADA adopted the following resolution (Transactions, 1966):

> Resolved, that it is the responsibility of individual practitioners, acting through component and constituent dental societies and state dental examining boards to proceed promptly with studies, decisions and legislative actions which will help meet the manpower needs of the public, including the identification of additional functions which can be delegated to auxiliary personnel working under the direct supervision of the dentist. (p. 341)

Several experimental programs were developed following the action of the ADA in 1961 and its later action in 1966. Government agencies and universities developed experimental programs to prepare dental assistants and dental hygienists in specifically selected tasks or functions. Eventually the new tasks or functions became designated as "expanded functions," although no formal studies had been reported as to what functions were already being taught to or performed by the various auxiliary personnel. "Expanded functions" have become generally recognized as those which the auxiliaries at some previous time had been specifically prohibited from performing, based on implications or direct statements in the previous "Requirements" for accredited programs and/or in each state's statutory dental practice acts.

But even with revised guidelines and practice acts, dentists and dental school faculties were slow to adopt new approaches to the delivery of dental care. In 1968 each of the fifty active schools of dentistry had a DAU program, but resistance on the part of their faculties to the concepts espoused by the program made it "very difficult" to implement significant changes in the delivery of dental care (Diefenbach, 1969).

In 1970, and after four years of debate over whether the ADA's existing policies (adopted in 1961) were too limited to permit sufficient latitude for experimentation with dental auxiliaries, the Council and the Association adopted the report of an Inter-Agency Committee on Dental Auxiliaries. This report outlined a set of general guidelines for the preparation and utilization of auxiliaries for use by the Association's constituent societies and by state boards of dentistry in establishing procedures for both immediate and long-range delegation of responsibilities for patient care. After adopting the Committee's report, the Association then passed the following resolution (Transactions, 1970):

> Resolved, that the Association encourage continued experimentation by recognized educational institutions, federal agencies and professional organizations on improved systems

> of providing dental health service through more effective utilization and assignment of additional responsibilities for patient care to dental hygienists and dental assistants, . . . and be it further
>
> Resolved, that the "Statement of Policy Regarding Experimentation in the Training and Utilization of Dental Hygienists and Dental Assistants" (Transactions, 1961: 221) with its subsequent amendments be rescinded. (p. 441)

These new directions allowed for further experimental studies in the formal education and preparation of all the dental auxiliaries, including the dental laboratory technician. The 1972 report of the Inter-Agency Committee encouraged "all appropriate agencies that are concerned with the education and utilization of dental auxiliaries to continue development of a more realistic and effective system of auxiliary education" (Inter-Agency Committee, 1972).

Further, the Inter-Agency Committee adopted several basic principles which will influence future decisions regarding the preparation of dental personnel. Among those listed by the Committee are the following (Inter-Agency Committee, 1972):

1. Under present education requirements, existing accredited educational programs offer an unmatched resource for the teaching of expanded functions.

2. The profession and related auxiliary groups should make every effort as soon as possible to develop flexibility within the educational requirements for auxiliary training programs. This flexibility should permit the teaching of expanded functions without an increase in the length of the existing auxiliary curriculums as well as permit experimentation with shortened curriculums.

3. Research dealing with the education and utilization of expanded function personnel should be fostered by all appropriate agencies and educational institutions.

4. Although the Committee is convinced that American Dental Association policy should continue to provide a flexible framework within which states can make decisions, it recognizes the need for a greater degree of uniformity in educational program content and procedures for the teaching of expanded functions. If there is to be maximum manpower utilization and mobility, the auxiliary education system must not only prepare auxiliaries to function effectively in the immediate community and state, but also must prepare auxiliaries to function effectively in any state.

5. To expand its service to provide the best possible care for the people of this country, dental practitioners should employ qualified auxiliaries. The profession should continue its efforts to provide programs that will help all practitioners utilize auxiliary personnel more effectively.

As noted in the Inter-Agency Committee's report and in the early philosophy of the Council on Dental Education of the ADA, it was the dual responsibility of the profession as well as educational institutions to provide the task descriptions for the auxiliary personnel in the delivery of dental care. Such a philosophy acknowledges, first, that the educators which prepare dental auxiliaries have a perception of the "appropriate" task descriptions. Such perceptions, of course, may be stated explicitly or implied within the curricula developed for preparing auxiliaries who can perform the tasks as described. The appropriateness of the task description will depend upon several factors, among which are the type or kind of dental system with which the task descriptions are associated and the capacity of the developers of the task descriptions to produce valid descriptions for any system of delivering dental services.

Second, the philosophy recognizes that both the educators as well as the curricula of the educational institutions have an effect on how the graduates from their programs will be prepared to accept delegated tasks with their attendant responsibilities within a given dental delivery situation. The philosophy implied not only an interaction of the educators with the various dental communities (local, state, and national) and agencies related to the quality control of the schools and their products, but it also seemed to imply that the dental auxiliary educators should assume some degree of leadership for implementing the task descriptions operative in the dental care delivery system(s).

Third, the philosophy suggested a need to know where the auxiliary educational system is today. If the educators in the auxiliary programs were to plan for expansion of the curricula into areas of expanded functions, it would be appropriate to determine which tasks are currently in the curricula and to determine the level of responsibility expected to be associated with the various tasks for each auxiliary.

The "Requirements" for accredited auxiliary programs have undergone recent revisions which have allowed those educational programs on the cutting-edge of change to change their curricula to take advantage of the more permissive "Requirements." The more conservative programs are not as likely to have undergone much change. To determine the bench-mark of the tasks taught in each auxiliary program would be most difficult, particularly when it is noted that there are over 380 dental auxiliary programs in the nation

which have some type of accreditation status from the Council on Dental Education (ADA, 1973), and, yet, it appeared imperative to attempt to identify some bench-mark of tasks taught within each and among the programs. This effort was especially needed if consideration was to be given to the fourth principle among those noted earlier from the Inter-Agency Committee on Dental Auxiliaries.

It appeared, therefore, that a methodology needed to be identified for determining the auxiliary educator's perceptions of the role of the dental auxiliary with which they are associated, and more specifically the nature of those perceptions as made evident in the expected outcomes in terms of performances of the graduates they prepare. Using such methods as may be appropriate from such a methodology, it may well be possible to get back to the question of Who is being prepared to do What in the formal academic educational programs preparing health personnel, and to at least suggest indirectly an answer to the question of Who would be able to do What in the delivery of dental care.

Task Analysis

Webster's New World Dictionary (1966) defines task as "a piece of work assigned to or demanded of a person." In the same dictionary the term analysis is defined as the "separating or breaking up of any whole into its parts so as to find out their nature." One might conclude, therefore, that the objective of task analysis is to identify either the nature of a piece of work or the nature of the total pieces of work assigned or demanded of a person. Indeed, both objectives for task analysis have been reported in the literature.

Charles R. Allen was, as far as this writer could determine, the first of what was to become a long list of writers to discuss the significance of analyzing the trade (job analysis) for the purpose of preparing a trade list (task inventory) which could be used as the building blocks (content areas) of a curriculum. In his book The Instructor, The Man, and The Job Allen (1919) sets out the principles and concepts which he had conceived a few years earlier and which brought him national aclaim during World War I. From his early preparation in the physical and chemical sciences, taken at the Massachusetts Institute of Technology and at Harvard, he approached, with scientific acumen, the

monumental job of preparing a ship building manpower force sufficient to the country's wartime needs. Using the trade analysis techniques he developed and using the trade lists developed from the analyses, in thirteen months Allen supervised and directed the work of 36 instructor training centers which prepared over 1,000 instructors representing thirty trades. (National Association of State Directors of Vocational Education, 1928, p. 44).

Charles Allen's method of job analysis was intended to serve two distinct functions: "(1) To serve as a training device for the teacher, and (2) To secure such essential facts concerning the trade which the teacher was expected to teach as would make it possible for a practical and sensible course of instruction to be formulated" (NASDVE, 1928, p. 42). The job analysis (trade analysis), as Allen saw it, consisted of "listing out all the things that the learner must be taught if he is to be taught the complete trade" (Allen, 1919, p. 42). If less than the complete trade was to be taught, it was important "to pick out what [was] required in that case from the complete trade list [task inventory]" (p. 43). Allen had captured the essence of what was later to become known as occupational analysis, job analysis, and task analysis and to use the findings to devise relevant curricula.

Selvidge and Fryklund (1930, p. 66) recognized that "the analysis of a vocation on the basis of the jobs or duties one may be called upon to perform if he is engaged in that vocation is wholly inadequate from the stand of determining what should be taught." The reason for this is that one task may be reported in a large number of jobs or duties. If the task is taught, the worker can generalize its application in several jobs, and the efficiency of instruction is improved by minimizing repetition. (See also Miller, 1973). Foley notes that, "some sort of job task identification has always been included in good vocational training" (Foley, 1973).

The work of these early writers appears to be missing from the current literature of industrial psychology. Apparently since most of the early work in job and task analysis was applied to the building trades, production, manufacture, and military training, and since most of this work found its way into vocational education rather than into the more "academic" curriculums, little attention has been drawn to it (Foley, 1973).

Although the terms "task," and "job," have been used somewhat liberally in the

foregoing discussion, they have not been explicitly defined. Their definitions are presented here as a glossary and to set the focus for the methodology used in this study.

In the opening paragraph of this section of the review of literature, the words "task" and "analysis" were defined in general terms. The conclusion was then drawn that the objectives of task analysis may be to identify either the nature of a piece of work or the nature of the pieces of work and it was noted that both objectives may be found in the task analysis literature. As Foley puts it, "the process [task analysis] includes two levels of analysis - task identification or job analysis and analysis of the identified tasks" (Foley, 1973). But what is a task?

Fine (1971, p. 7) introduces the term task by using it in a section title: "Getting Hold of the Fundamental Unit of Work: The Task." He goes on to indicate that "A job is made up of a series of tasks and that training is designed to enable a worker to perform a series of tasks in his job" (p. 9). (Note that these descriptions are parallel to Allen's early descriptions.) Fine then provides a definition of a task, one which had evolved over a number of years at the Upjohn Institute (p. 9):

> A task is an action or action sequence grouped through time designed to contribute a specified end result to the accomplishment of an objective and for which functional levels and orientation can be reliably assigned. The task action or sequence may be primarily physical, such as operating an electric typewriter; or primarily mental, such as analyzing data; and/or primarily interpersonal, such as consulting with another person.

Several writers (McCormick and Tombrink, 1960; Miller, 1956 [cited in Altman, 1966, p. 13]; U.S. Department of Labor, 1965) define a task as a set of related activities which occur in sequence or closely together in time and which are directed toward a common goal, or outcome. Shartle (1959) indicated that

> a task is a distinct work activity carried out for a distinct purpose,

while the Armed Forces analysts define the task either as

> a unit of work activity which forms a consistent and significant part of a duty [Air Force] (Morsh, Madden, and Christal, 1961, p. 3)

or as

> one of the work operations that constitutes a logical and necessary step in the performance of a duty [Army] (Morsh, 1961, p. 3).

In the later definitions, the difficulty with identifying the task becomes dependent upon the definition of the term "duty." But, as Miller points out, "task analysis is an art, and as an art is largely dependent for its excellence and utility on the expertise of the task analyst" (Miller, 1973). In other words, task analysts are still working to develop a satisfactory approach to task descriptions (Miller, 1962, p. 188):

> It is important to differentiate heuristic description from scientific description of a set of events. A scientific description generally seeks to describe a set of events with variables which are mutually exclusive and have fixed, usually quantitative, relationships to each other . . . . In contrast, although heuristic descriptions may aspire to the rigorous characteristics of scientific description, they may be satisfied with much less. A sufficient criterion for a heuristic description is that it aids a job or class of jobs to get done. Task analysis at present is a heuristic description of activities at the functional interface of the human . . . and the objects, [individuals], and environments with which he interacts.

The systems analysis approach of the industrial engineers tends to lend itself to the development of task statements which reflect an interface between man and machine more frequently than between man and man. While this was reflected in Miller's definition (cited in Altman, 1966, p. 13), Verdier's (1960) definition of a task provides some added insights (p. 37):

> A limited and orderly grouping of individual human activities applied methodically to things or equipment for the purpose of satisfying some problem or need.
>
> To clarify the definition, human activities in tasks are generally, but not always, limited to those performed by one individual within a convenient period of time, usually less than one day. These activities are orderly, in that they are grouped in a homogeneous manner with an observable start and completion stop. The task is composed of elements; these are simple, discrete responses which are carried out in a cumulative and progressive sequence. Task activities, or elements, are usually applied to, or concern, specific things or equipment. The things that task activities are applied to should be mentioned in the description of the task; as example, calibrate a voltage meter, adjust a carburetor, ship a container, etc. The purpose and activity of the task should also be inferred as a verb in the task description; this clarifies the problem or need for which the task is performed.

Verdier then suggests some useful principles to follow in breaking a task down into proper elements (p. 41):

a. The element should be the most simple form of discrete activity within the task, a single stimulus-response act, if possible.

b. An element should contain the smallest observable, continuous, integrated, activity within the confines of one central idea, as example; "Remove container cover."

c. Elements are reflective of the smallest coherent action relationship between the human and the equipment.

d. The element should have an observable start and a completion stop.

e. The central idea of what is to be done within the task element should not only be clear, but should be defined on the work-sheet as concisely as possible by some commonly understood verb. As example; "Remove the cover," "Read the gauge," "Insert the gasket."

f. If a single element accomplishes a task, the element may then be the task.

g. Elements are best presented on the task analysis worksheet in a logical, numbered sequence, in exactly the same order that these are carried out in the best performance of the task.

h. There should be a minimum of overlapping of the same elements within the total task breakdown.

i. Elements are best worded in the present tense, second person, and should start with an action verb; there may be exceptions, however.

j. Each element should contain some actual, observable activity; something the performer does.
   Examples: Thinking about what to do is not an observable activity. Looking, inspecting, or perceiving, by itself is not an observable activity. Waiting by itself is not an observable activity; however, waiting until the gauge reads 275 lbs. is an observable activity, as it contains a start and completion stop.

k. Elements are best stated in the task analysis worksheet in simple, concise, and commonly understood terms. Terms with a double or misinterpretable meaning should be avoided.

These elements, together with the previous definitions, offer useful insights into at least one portion of task analysis - that of identifying job tasks. But what are the structure and form of a task statement? Using the elements cited by Verdier and others (Fine, 1971; Miller, 1973), it is seen that a task statement consists of at least two basic components: first, and usually stated first in the statement, is an action the worker is expected to perform, and second, the result expected of the worker action. These components are identified in the following example: Place rubber dam clamp on tooth. The subject of the statement is implicit and is understood to be "I," "you," or simply the

"worker." The action verb "place" is a concrete, explicit verb and indicates the result expected, the action, is that of affixing a rubber dam clamp on a tooth. In all cases an environment is assumed and also that the performer is sufficiently knowledgable to perform the task in the environment.

But what of the other elements or components suggested for inclusion in the task statement? It is at this point, as Bennet (1971) has recently noted, that one of the problems in defining the concept of "task" comes to light: what should be the level of inclusiveness (or complexity) for this unit of work - the task.

Beginning with the early writings of Allen and continuing into the current task analysis literature, one finds numerous examples of what are frequently referred to as "abbreviated" task statements. These statements, as illustrated in the example above, include only the action verb and the respondent action. As the behavioralistic philosophy, however, began to find its way into task analysis, the second portion of task analysis - that of analyzing the task - began to reflect the philosophy that (Miller, 1966, p. 197; Fine, 1971, p. 11; Stern, 1971; Verdier, 1960) additional components were needed to complete the task statement. The conditions under which the action was to take place needed to be specified; e.g., the tools, equipment, work aids, raw materials, the economy with which the action was to be taken - time and fiscal constraints, and the discretionary content of the task - what is prescribed and what is discretionary with respect to instructions or procedures should be identified. In addition, the criteria for the results expected should be specified; e.g., the reliability of the result, the quality of the result, and the quantity of the result. Depending upon the analyst and upon the purpose for which the task statement was prepared, the statement might be expected to contain any or all of the above additional components. For example, the abbreviated task statement may read, "Take patient's history." The complete statement may read, "Ask patient questions, listen to responses, and write answers on standard patient history form, exercising leeway as to sequence of questions and time for interview, in order to record basic history of patient's health."

In a current study of job analysis in the health services, Gilpatrick (1972, p. 3-2) has defined a task as

a series of set of work activities (elements) that are needed to produce an identifiable output that can be independently consumed or used, or that can be used as an input in a further stage of production by an individual who may or may not be the performer of the task.

Gilpatrick further elaborates on the task by noting

1. In principle, someone other than the performer of the task must be able to use or consume the output of the task.

2. Theoretically, it should be possible for there to be an elapse of time between tasks.

3. A task includes all the possible conditions or circumstances which a single performer is expected to deal with in connection with a single production stage.

4. A task includes all the elements that require continuous judgment or assessment by the same performer in order to assure the quality of the output.

5. A task includes all of the elements needed to produce an output which can be independently used or acted upon without special explanations to the next performer in the next stage of production.

6. A task includes all the elements needed to complete an output to a point at which another performer (who would continue with the next production sequence) would not have to redo any elements in order to continue.

7. A task includes all the elements needed to complete an output to a point at which another performer, in order to continue with the next stage of production, need not perform extra steps.

8. The task must not require that, for another performer to continue with the next stage in a production sequence, current institutional arrangements would have to be changed.

9. A task must be sufficiently broad in statement that it can be rated on its frequency of occurrence.

10. Two tasks are the same if their elements result in the same output, require the same things to be used (including the alternatives to be chosen among in what is used), and if the kind of recipient, respondent or co-worker involved is the same in terms of what the performer needs to know in order to deal with the person.

It is quite obvious from the above definition and elaborations that Gilpatrick prepared a very detailed task description (statement) which lent itself as much to an "analysis of the task" as it did to an "identification of the task." For example, one analyst's abbreviated task: "Remove patient's sutures," is written as a completed task statement by Gilpatrick: "Remove a patient's sutures using antiseptic, clamp, scissors,

forceps; evaluating healing; deciding on ordering antibiotics, medication, irrigation and/or bandaging; recording" (Gilpatrick, 1972, p. B-15).

At this point, it is appropriate to return to Foley's (1973) point that "the purpose or purposes for which the [task] analysis is being made may determine how the tasks are identified." And as Miller (1973) notes, "there are many practical reasons that task analysts have not been overly worried about whatever might be meant by consistency in level of description [of useful units of work activity] . . . After all, the description is intended to serve a purpose for training, etc., and whatever is grist for the personnel mill is de facto justified." This is not to suggest, however, that an identified unit of work will, when stated in one form or another, always reflect certain contingency conditions related to its performance. It should be understood that a good portion of that which may be identified is not easily described in a single statement.

It was apparent from the foregoing review that while definite efforts are being made to place the work of task analysis into a more scientific frame of reference, there are still many variables associated with task analysis methodology that remain to be fully developed and defined. Indeed, as Miller (1973) has indicated, it is still too early to try to write a set of guides which may be expected to be useful in all, or even most, task analyses studies. It is evident from the literature, however, that the process of task identification must be accomplished at least under the direction of trained task analysts.

Dental And Dental-Related Tasks

In a review of the dental literature, it becomes apparent that the term "procedure" is used in at least two contexts. In the first context the word "procedure" is used to identify the things dentists do in the delivery of dental services. In the second context the word "procedure" is used to describe or identify the process by which dentists do these things. On the other hand, if one looks at the dental auxiliary related literature within the dental literature, it becomes apparent that the term "function" is used to describe the things dental auxiliaries do and the term "procedure" is reserved for describing or identifying the process by which the functions are done. These differences are relevant to both an approach to the identification of dental tasks and to the following

additional definition of a task.

Jackson (1972, p. 5) indicates that a task is

> a separate and distinct part of a function requiring some physical or mental energy related to a specific purpose. To the extent possible, it is best to describe tasks in behavioral terms to more clearly depict what activity is to be performed to accomplish the task.

While this definition is similar to that of Fines (1971, p. 9), it does, nevertheless, make use of the term "function" in describing that of which a task is a part. Jackson goes on to indicate that a function is (p. 5)

> a group of tasks which are similar in nature. When expressed in behavioral terms, (for example, in the job description), the subject matter changes but not the behavior. A function therefore might include many individual tasks.

The above definition lent itself to use in this dental task analysis study designed, in part, to identify those <u>things</u> which a dentist may be delegating or allocating to dental auxiliaries. The definition not only makes use of the term "function" in a manner similar to the way it is used in dentistry, but it also suggests that functions may consist of several tasks or maybe a single task in and of themselves. For the current study, however, it would be necessary to set the parameters around the definition to further delimit the task.

Using various of the elements of a task identified by previous writers, this study proceeded to look for tasks which had the following characteristics:

a. Sufficiently discrete that someone other than the original performer should be able to use or consume the output of the task;

b. The task should consume enough time that by delegating or allocating it the dentist is freed to pursue other "procedures" or tasks;

c. The task includes all the "normal" or "routine" conditions, circumstances, and judgments which the dental auxiliary is expected to deal with in order to assure the quality of the output;

d. The task includes all the elements needed to complete the output to a point at which another dental auxiliary, the dentist, or another worker would not have to redo any element in order to continue; (and)

e. The task is sufficiently broad in statement that it can be recognized without undo cause for question of overlap with other tasks.

It was anticipated that this study could identify from the literature a list of dental procedures, functions, and tasks which could be used as a base for constructing

an inventory of dental task statements which would meet the above definition and expansion. A search of the literature revealed dozens of articles and reports which contained such information. In the studies of Parks (1972a and 1972b), Kilpatrick and MacKenzie (1972a and 1972b), Kingston and Freeland (1971), Morsh, Adkins, and Boyce (1968), and the U.S. Air Force (1969, 1973a, and 1973b [note: the latter two date citations are current revisions of previous inventories]), actual attempts were made to make a formal task analysis study and, except for the report by Kilpatrick, each report contained a dental task statement inventory per se. The following were major sources for the Dental Task Inventory used in this study: ADA, 1971a and 1972; Hammons and Jamison, 1967; Lotzbar, Johnson, and Thompson, 1971; Brearky and Rosenblum, 1972. In addition, suggestions and informal sources, such as the UCLA Dental School faculty, were utilized as resources for content and construction of the task inventory.

The Educational Curriculum And The World Of Work

It is not uncommon to find references to early vocational education curricula which were built from task analysis-type study or review of the occupations and jobs from which the educational programs drew their identities. Indeed, the work of Allen (1919), and Selvidge and Fryklund (1930) are but examples of such curricula development. Allen stressed the need to not only conduct analyses of the trade when considering the curricula, but also the advantages, if not the need, to hire a trained and experienced worker from the job or trade to do the teaching.

Allen's idea of selecting teachers from among the trained and experienced work force caught on in not only the vocational programs but also in other fields, although it was primarily in the vocational programs that curricula were built on findings from task analysis studies. Eventually, however, it became apparent that the task analysis approach, using interviews and observations from the world of work, turned into a case of the teachers (who naturally regarded themselves as experts) talking among themselves as they evaluated the relevance of the curricula. This was not so bad as long as there was considerable turnover in the faculty with new faculty drawn from the current world of work. But, as the faculty replacements began to come directly from their formal training,

without occupational experience, cries of irrelevant programs and accountability for what is taught were heard.

One of the objectives of this study was to develop a task analytic method of determining certain portions of the task content of a curriculum and to do it in such a way that analogous information from the world of work could be obtained using the same instruments. Previous studies by Schill and Arnold (1965) had provided a method for evaluating the relevance of the curriculum content among post-secondary technology education programs as measured by the responses of employed technologists working in the respective technologies. While this study was curriculum content oriented, it was not specifically task content oriented.

As the literature was further reviewed to find studies closely related to the objectives of this study, none could be found. Considering that the reviewer might not be reviewing the right subject areas, telephone calls were placed to several experts in the field of task analysis type research in an attempt to discover the proper areas of the literature to search. The reviewer concluded there were no studies directly relatable to the stated objectives of this study after communicating with the following individuals who have been extensively involved in task analysis:

Dr. E. J. McCormick, Occupational Research Center, Purdue University;

Dr. H. L. Ammerman, Instructional Systems Design Program, The Ohio State University;

Dr. R. E. Christal, Air Force Human Resources Laboratory, Lackland Air Force Base;

Dr. J. W. Cunningham, Center for Occupational Education, North Carolina State University; and

Dr. E. P. Prien, Personnel Psychology, Memphis State University.

As Christal (1973) has noted, the U.S. Air Force began its Occupational Research Project over fifteen years ago with objectives which included job analysis, job performance, performance evaluation, job requirements, and so on. Using task inventories to continuously monitor changes in jobs, the Project has been able to work closely with the Air Training Command in developing and maintaining the task content of the curricula for the occupational career ladders identified by the Service. In addition, the Air Training Command training centers continuously monitor their training courses to (U.S. Air Force,

1972, p. i):

> determine the ability of graduates to perform the tasks required in the field during their [graduates] initial job assignments; to discover any specific areas of inadequacy in the training provided by the course, as evidenced by graduate performance; to discover any areas of undertraining or overtraining in the course; and to learn of any internal factors in the operation of the training programs which might have an adverse effect on the quality of the training provided by the course.

These systems of curriculum development and evaluation provided insights for the current study; however, since the dental auxiliary education programs encountered in the civilian world have not been either constructed or monitored in such a manner as those in the military world, it was not possible to make a direct application of these methods in meeting the objectives of the current study.

In earlier studies conducted by the U.S. Air Force Air Training Command (Teske, 1973; U.S. Air Force, 1954; U.S. DOD, 1965), procedures were developed to identify course training standards which were "primarily an inventory of jobs performed by the student while undergoing training and [are] therefore basically job analysis of a training course" (U.S. Air Force, 1954). While this definition of Training Standards is not dissimilar to that currently utilized by the Air Force, the course evaluation procedures went a step further than that mentioned above. In the latter evaluations the instructors in the training centers were asked to identify the specific tasks they were teaching and the level of proficiency to which they were teaching them. If instructors reported they were not teaching a task, they were asked to identify the reason for the omission. Or, if the task was taught to a proficiency level other than the one specified for the course, the instructor was also asked to account for the difference.

This methodology appeared to be relevant for educational programs built from a task analysis base, but it could not be used where neither the tasks nor the levels of proficiency had been explicitly identified in the curricula.

The UCLA Allied Health Professions Projects (Kingston, 1971, p. iii) was designed to prepare curricula and instructional materials relevant to a number of allied health professions (including nursing) by identifying those tasks identified with each of the occupations or professions. The Projects did identify a number of task inventories and some curriculum materials were developed and published. The objectives of the projects,

however, was on the development of educational materials as opposed to the determining of the task content of the curricula then, or now, in existence. Further, while the long term goals of the project were to maintain a current task inventory for further curricula development and revision, no guidelines were identified for maintaining an evaluation of the task content of the curricula being used.

In a study initiated by Tomlinson, Bailey, Hindhede, and Langdon (1969) and continued by Kerr, Petersen, Hoadley, Holloway, and Davis (1970), 99 nursing functions (tasks) were identified and questions about them were asked of employed licensed practical nurses and their registered nurse supervisors, and of the faculty members of 45 licensed practical nursing educational programs. These studies used a selected task inventory to evaluate the relevance of the curriculum content of the educational programs. The task statements also were designed to identify the range of tasks taught in the curricula and the range of functions performed by the employed licensed practical nurses (LPNs). The tasks were not, however, designed to identify the total task content included in the educational programs or the total of the tasks performed in the employment setting. The studies were unique, however, in that the same task inventory, together with the same questions and response scales were used to compare the types and range of tasks performed on the job (as evidenced by the LPNs and by the LPN nurse supervisors) with the types and range of tasks included in the educational curricula preparing the LPNs. These two studies were the only studies identified in this review which attempted to evaluate the relationships between the tasks identified in the civilian world of work and in the educational programs preparing graduates for employment in the respective occupations and professions. The response scales utilized in the two studies will be discussed in the following chapter.

Methods Of Analysis

In the present study the emphasis of data analysis was placed on the ability of the instruments to (a) describe the task content of the individual dental auxiliary curricula, and (b) to describe those differences among educational institutions and their faculty which might account for difference in task content within an auxiliary and/or among the dental auxiliary education programs.

In reviewing the literature reported above, the studies provided data which tended to identify the task or curriculum content as the unit of observation (the independent variable) and to relate various dependent variables to the tasks. Such methods as these provided the opportunity to perform factor analysis and correlation studies to identify significant relationships between the observations (tasks) and the dependent variables. Indeed, in the studies by Gilpatrick (1972) and by Schill (1965), both simple and two-mode factor analyses were utilized. This allowed, in the case of the Gilpatrick study, not only the identification of the principal variable factors but also provided a method for grouping or clustering the tasks by rank order. However, while these methods of analysis and those used by Tomlinson (1969) and Kerr (1970) were appropriate to the reported studies in which they were used, they did not provide a mechanism for treating the data in this study.

The Dental Task Inventory utilized in the current study contained 563 task statements. To deal with an analysis of such a large number of variables presented a major problem to the study. Further, after the data had been screened, it was apparent that the distribution was neither normally distributed nor did it have sufficient variance for effective correlational studies. These findings led the investigator to dismiss such analytic treatments as those based on correlational measures of the data not to mention the problem of having fewer total respondents than there were variables (task items) in the study.

Discussion with faculty of the College of Education and the Center for Advanced Computation at the University of Illinois suggested that a Hierarchical Clustering Scheme developed by Johnson (1967) might lend itself to the data. The method was found to be of use and was used as a method for comparing the content of one educational program with that of every other program. The method of analysis is reported fully in the following chapter. It should be noted that the HCS was used to make comparisons across the profiles of each dental auxiliary education program. More detailed analyses of specific responses to the task statements by performance category, levels of responsibility, background of respondent, etc., can be made for detailed program descriptions or comparisons.

CHAPTER III

METHODS AND PROCEDURES

This study was conducted among sixty-three (63) selected dental auxiliary education programs for the purpose of developing and refining a methodology suitable for conducting similar studies among other occupational and professional education programs which have an identifiable task content in their curriculum. The basic design of the study used standard techniques of survey research, i.e., administration of a structured research questionnaire to a sample of the population under study and an appropriate analysis of the data gathered. The several phases of the study included: (1) sample selection, (2) development of instruments, (3) gathering of data by structured interview and mail-back questionnaire and (4) analysis of data. Each of these phases will be discussed below.

Sample Selection

Dental Auxiliary Education Programs

Although the titles of dental therapist and dental nurse are found in the literature, it is generally agreed that almost all auxiliary personnel currently associated with the care of civilian dental patients in the United States are of three types: dental assistants, dental hygienists, and dental laboratory technicians. It was with these auxiliaries, therefore, and with their educational programs that this study identified itself.

In selecting those dental auxiliary education programs to be studied it was recognized that a great number of both dental assistants and dental laboratory technicians receive their preparation for work through informal on-the-job training (OJT), and that this work force currently contributes greatly to the expanded manpower utilization practices in the delivery of dental health services. However, very few, if any, of these informal preparatory programs are formally evaluated by either their peer or related professional associations.

In contrast, those formal academic dental auxiliary education programs which are accredited by the Council on Dental Education of the American Dental Association are not

only recognized but offer some assurance that their graduates are meeting certain minimal standards of acceptable preparation for delivering dental related services. In addition, these auxiliary education programs can be identified with accredited technical institutes, community colleges, and senior institutions with and without associated schools of dentistry. Each of these educational settings, together with their associated levels of program completion (certificate; Associate, Baccalaureate, and Master's degree), offer a potentially different approach to the formal preparation of dental auxiliaries.

Consistent with the purposes of this study, therefore, and due to the constraints of time and fiscal resources, this study was essentially limited to an examination of those accredited dental auxiliary educational programs in civilian institutions of higher education. Two military institutions were included for comparison purposes.

Thirty-seven educational institutions were then identified which met the above criteria. They offered 63 dental auxiliary education programs (twenty-six dental assisting programs, twenty-six dental hygiene programs, and eleven dental laboratory technician programs). Among the thirty-seven institutions were technical institutes, community colleges, and senior institutions with schools of dentistry senior institutions without schools of dentistry, and two military training centers. The institutions were further categorized according to the availability of clinical education facilities: (1) those using only their own in-house clinic(s), (2) those without in-house clinics and thus dependent upon the clinics of preceptors, (3) those making use of both in-house clinic(s) and preceptor's clinics, and (4) special cases where in addition to one of the foregoing, military or other government clinics were associated with the programs through which the students could gain experiences which transcended the limitations which may have been imposed upon the program by the dental practice act of the state in which the institution was situated.

Respondent Selection

In addition to focusing on the educational institutions and their dental auxiliary education programs, it was essential to consider the appropriate type of respondent to be selected from the programs. Although the faculty or the students, or both, could have

been asked to respond for the study, it was decided to seek faculty responses. This decision was not based on considerations of the expected validity of the faculty's response as compared to that of the students; rather it was based on the practicalities of timing and of resources. If students were to be considered as respondents, they would have to be queried about their particular auxiliary education program immediately prior to their completion of the program in order for them to be conversant with all tasks taught in the program. To wait until after graduation would require additional time and resources for finding the graduates, to say nothing of the effects of post-graduation employment experiences or of the effects a longer recall period may have had on their responses.

Further considerations of the term "faculty" led to the decision to limit the scope of the institutional faculty to be solicited. Recognizing that the study was to be oriented to evaluating dental auxiliary education programs for the dental or dental-related tasks taught in them, the decision was made to eliminate those of the faculty whose primary teaching responsibilities did not include the teaching of dental or dental-related tasks. This limitation, for example, excluded those faculty teaching foundations in the basic biological and physical sciences except as a particular course may have explicitly included the teaching of selected dental tasks. In a similar manner, those faculty teaching business and accounting courses were excluded except in cases where a specific section of a course was designed specifically for dental auxiliary students. The decision to use this restricted definition of "Faculty" was made in order (1) to facilitate the identification of specific faculty who were acutely aware of their role in the auxiliary education program, (2) to utilize those faculty most likely to have contact with every auxiliary student, and (3) to avoid diluting the data with responses of every institutional faculty member who may have taught one or more of the auxiliary students in some section of a generally required course in the auxiliary curriculum.

As noted above, some dental auxiliary education programs use the services of practicing dentists and dental auxiliaries as preceptor faculty. While these individuals are variously recognized by the institutions with respect to their type and terms of appointment to the faculty, they play a very significant role in some dental auxiliary education programs. It was deemed necessary, therefore, to include such individuals among

ths rsspondsnts. Sincs it was not liksly, however, that svsry auxiliary studsnt would ssrve under the tutelage of every preceptor, thess rsspondents were rscognized as "Precsptors" rather than as "Faculty" in identifying the rsspondsnts.

Thers rsmainsd thoss potsntial rsspondsnts who were considsred as part-time faculty or as guest lscturers to the auxiliary programs. The decision was made to include thess among the Faculty respondents only if after interviewing a program director, it was dstermined that no other regular member of the Faculty would liksly respond to the contsnt area coversd by that part-time faculty member or guest lecturer. In cases whsre a practicing dentist was observed to fill both the roles of preceptor and of gusst lecturer or part-time faculty, his or her rssponse would bs solicited as a Preceptor.

After defining the faculty to be includsd in ths study, an attempt was made to determine the actual number of potential rsspondsnts in each of the 63 auxiliary education programs. A revisw of sach program with the program director for potential respondsnts indicated a range from two to ten or twslve among ths programs. Dental assisting and dental laboratory techrician programs would, on the average, have a faculty of four while dsntal hygisns would havs slightly largsr faculties. With such a small faculty in sach program, it was dstermined that sach student would most likely rsceive at least some portion of his or her education from each member of the faculty. Accordingly, it was dscidsd to attsmpt to snlist the coopsration of svsry Faculty member in every program. This approach would increase the assurancs of a program's evaluation bsing rsflective of the entire program and at the same time provide for a larger group upon which to test the data gathering instruments.

An svaluation of the number of potential Preceptor respondents indicated that in excess of twenty were used by nearly every auxiliary program using preceptors. Since, as noted earlier, it was unlikely that each student would work under each Preceptor, and since it would have required both time and resources beyond the scope of the study, it was decided that the Preceptors would be sampled.

Finally, in those institutions having two dental auxiliary education programs and whers members of the Faculty from either or both programs teach in the other program, it was decided to attempt to elicit a response from each of these FAculty to all data

collection instruments used in each of the programs with which he or she may be associated. This would provide an opportunity to determine those differences which may exist between two programs, and taught, at least in part, by the same Faculty.

The results of using the procedures noted above are reported in the following chapter under the section "Sample Characteristics."

Development Of Instruments

Dental Task Inventory

In order to study dental manpower utilization with an expectation that task delegation or allocation may be possible, one must begin with a descriptive analysis of what dental tasks are currently or may be performed and by whom. It is generally understood that many of the dental tasks heretofore performed only by the dentist are being delegated or allocated to dental auxiliaries. What is not understood, however, is (1) which tasks are being delegated or allocated, and (2) to which auxiliaries they are being delegated or allocated (assistants, hygienists, laboratory technicians, or perhaps to some new type of expanded function dental auxiliary personnel).

As noted in the review of literature for this study, several attempts have been made both to identify the nature of dental work, and thereby the dental or dental-related tasks performed in selected dental practices, and to derive through experimental dental and dental auxiliary education programs a number of new or additional dental tasks which might be included in the content of dental auxiliary education curricula. In the former studies, those dental tasks identified as being performed by dental auxiliaries may have found their way into the practice of dentistry either through formal auxiliary preparation, through on-the-job training or through both of these means. In the latter case of experimental education programs, there appears to be no way, at present, of identifying those new dental tasks which have found their way into nonexperimental auxiliary education programs.

To identify a number of dental tasks which may be related to both the world of dental practice and the world of dental auxiliary education, this study sought to develop from the literature, other studies, and from expert opinion a library of dental task statements. Prior to preparing the library, however, two decisions were made relative to its eventual

content. First, the specific kind of work performed within the confines of a dental practice from which the tasks were to be drawn were considered. For the purposes of this study, task statements were to be drawn from three broad kinds of work: (1) business and office management, (2) housekeeping - clinical and general, and (3) dental patient care (including dental laboratory work).

Second, the dental tasks had to have a "grain size" or comprehensiveness of context relative to their use in the study. They had to be observable acts and cover such a time duration that they occupy some meaningful portion of a dental or dental-related procedure. Indeed, if a task may be identified as being delegable or allocable to an auxiliary, that delegation or allocation must of consequence release the dentist or other responsible personnel to perform another task or procedure in the interim. Finally, the task must be a unit of work activity sufficiently self-contained that it would be recognizable from job to job or from employee to employee.

A library of over 4,000 dental and dental-related task statements was derived from an amalgamation and adaptation of dental procedures and task statements previously identified (Kingston and Freeland, 1971; Morsh, et al., 1958; American Dental Association, 1972; Kilpatrick and MacKenzie, 1972; Lotzkar, 1971; Parks, 1972). The library was then punched into computer tabulation cards, filed in a computer storage system and then screened for duplicate statements using a "Key Word Out of Context" computer program printout of the library. After all duplicates had been removed, the resulting library was then submitted to a review panel of five dentists (educators), a dental assistant, and a health occupations teacher educator to assess their relevancy to the scope and objectives of the study. Subsequent revisions of the library were made by the panel to establish a usable range of grain size of the task statements.

Since it was assumed by the panel that some dental functions or tasks were more likely than others to be delegated, allocated, or taught to dental auxiliaries, an arbitrary decision was made to formulate dental task statements of unequal grain size. For those dental procedures or functions considered most likely to be partially or completely delegated, allocated, or taught to dental auxiliaries, a series of task statements was generated to identify the procedures or functions by their task parts. Consequently,

some "task" statements may be recognizable as parts of a dental function while others may appear to be at the level of the function itself. For example, the excavating of a dental caries, the placing of the matrix band, the placing of the amalgam, the carving of the amalgam, and the polishing and finishing of the dental restoration may be considered by some educators and dental practitioners to be a series of work units (tasks) comprising a dental function (the restoration of carious tooth). Others may consider any one or some combination of these tasks to be a function.

Eventually, an inventory of 563 dental task statements was selected from the library and agreed upon by the panel noted above, whereupon questions arose as to their presentation in the study: (1) "How many of the tasks (or which tasks) within the inventory should be included in a questionnaire type instrument?" and (2) In what order should the tasks be presented within the instrument?" To the first question it was reasoned and accepted that since it was not known which tasks were being delegated, allocated, or taught to dental auxiliaries, the entire inventory should be presented in the pilot instrument to be used in the pilot study of nineteen dental auxiliary programs located in sixteen institutions (Terry, 1973).

To the second question, there was the point of view that the task statements should be arranged by some category sequence to facilitate their recognition. It was observed, however, that many of the statements would fit into two or more possible categories and their absence from any one of the categories would be obvious and lead to confusion. To place each task in all appropriate categories would have added repetition beyond that which the respondents might be expected to endure. It was further reasoned that to present the tasks by categories may present "mind sets" to the respondents. That is, given the number of task statements to be included in the instrument, there may be a tendency for the respondents to skip certain categories of statements on the assumption that "I don't deal with or do such tasks as will be in that category." On the other hand, there was the argument that the tasks should be placed randomly in the instrument. This would alleviate the chance for establishing mind sets to certain groups of tasks. At the same time it would place the respondent in the position of asking him or herself about each of the various procedures or functions wherein the task may be performed. The decision was made to present the tasks in random order.

Since it was not the intention of this study to create a static library of dental task statements, it was decided to label the dental task questionnaire a Dental Task Inventory. Inherent in this decision was the concept of using the Inventory as a modus for continually refining the library and for establishing some bench marks as to those tasks which appeared to be specific to a given dental auxiliary. Consequently, it was expected that subsequent inventories would be different from the initial inventory and more reflective of the dental auxiliary for which it may be prepared. A decision was made, therefore, to title the initial questionnaire as a Dental Task Inventory and further to identify each inventory as if it were prepared for use in evaluating a specific dental auxiliary. An example of the Dental Task Inventory used in this study is presented in Appendix A; 563 task statements were utilized in the pilot inventory, 489 task statements were used in the continuation of the study and 456 task statements were common to the whole of the study. The 489 task statements may be seen in Appendix E (categories identified in this appendix were not included in the inventory itself).

Response Scales To Dental Task Statements

In addition to identifying the dental tasks to be included in the Dental Task Inventory, it was necessary to develop an appropriate question and response scale for the Inventory which would yield more than a "yes" or "no" response as to whether or not a specific task was being taught. To evaluate the tasks taught within a particular program in the light of their potential for delegation or allocation, it would be important to ascertain the perceptions of both the Faculty and the Preceptor regarding the level of competency or responsibility which should be associated with the graduate's performance of each task taught. It is one thing to prepare the auxiliary to perform a task only under the conditions of direct supervision, but it is quite another to develop the competence (and have the associated responsibility) to perform the task under conditions of some shared responsibility or with independent responsibility. Only with the latter two levels of competency would it be possible actually to delegate tasks to dental auxiliary personnel to the extent that the dentist's time could be reallocated. It was considered appropriate, therefore, to develop a question and response scale which would produce a faculty response

regarding not only whether or not a specific task is taught, but to present a series of responses which would elicit some measure of the Faculty's and of the Preceptor's intent regarding the level of competence to which they expected their graduates to be able to perform the task.

To develop the appropriate type of question and response scale to obtain the level of performance (responsibility) expected of the auxiliary graduate, this study turned to a four-year longitudinal study of the "Occupational Patterns and Functions of Employed LPNs" by Tomlinson, Bailey, Hindhede and Langdon (1969). The study developed and used a three-level scale for indicating the capabilities of the LPNs to perform tasks at three levels of responsibility. The responses, as modified for this current study, are as follows:

1. Not taught - Task not taught by or under the direction of the respondent
2. Direct supervision - Actions of this type include those where the graduate (a) is given a specific instruction to perform an action and report back immediately following its completion, (b) assists a higher level person with the action, or (c) performs the action under observation.
3. Shared responsibility - Actions of this type include those where there is some intervening activity by a dentist or other responsible person. This might be a situation in which the graduate's supervisor would give verbal instructions to perform an action, and it would not be necessary to report back to the supervisor upon completion of the action. The fact that another person has taken some action relating to the performance at the time of the performance gives them a part of the responsibility.
4. Independent responsibility - Actions of this type include those kinds of actions where the graduate may make an observation during his/her normal duties and/or take an appropriate action without checking with or getting additional instructions from some higher level person. Other situations may be where (a) standing orders, (b) specific instructions recorded on the patient's chart or (c)

established policies of the practice site would allow graduates to perform the task action "on their own." It may or may not include a recording of their action.

It was determined from the Tomlinson study that licensed practical nurses, their supervisors, and nurse educators could respond to 99 identified tasks performed by LPNs and give meaningful reasons and explanations of their decisions regarding the option selected on the response scale (Tomlinson, 1969, p. 120).

In the pilot study an attempt was made to determine what the time relationships were for teaching various dental tasks to noted levels of responsibility, and a second question was also presented with the task statements in the Dental Task Inventory. A response scale was developed which allowed the respondent to select an interval of time which indicated his or her total time devoted to developing the responsibility level to which a given task is expected to be performed by the graduate. This question and its scale is presented in Appendix A.

In the final form of the Dental Task Inventory, a second question was developed which would disclose (1) from the dentist, Faculty or Preceptor, - whether he or she currently delegates or allocates the task to some dental auxiliary and the level of responsibility to which the task is delegated; (2) from the auxiliary Preceptors - whether the task is currently delegated or allocated to them and to what level of responsibility they routinely perform the task; and (3) to the auxiliary Faculty - considering their own clinical work experience, either in their present position or in their past clinical work experience, whether they have performed the task and to what level of responsibility. An example of this question and its scale is presented in Appendix A.

Biographical Data Instrument

To identify those characteristics of the Faculty and of the Preceptors which may be pertinent to an interpretation of salient difference which may be noted among the auxiliary education programs, a Biographical Data instrument was developed and attached to the front of the Dental Task Inventory instrument. The instrument may also be seen in Appendix A.

Site Characteristics Data Instrument

A data collection instrument was designed to collect selected information about each of the educational institutions and their dental auxiliary education programs. Part one of the instrument was used for conducting a telephone interview with the director of the auxiliary program prior to completing Part 2, an on-site interview with the director and with the program's staff (Faculty and Preceptors). Examples of the two-part Site Characteristics Data instrument are included in Appendix B.

Data Collection

Interviews

The director of each dental auxiliary education program selected to be included in the study was contacted by telephone and interviewed to determine whether or not the individuals associated with the program would participate in the study. The interview was continued to collect selected information relative to the educational institution and its auxiliary program(s). A date was then set for making the on-site visit with the director and the program's staff.

At the time of the on-site visit an interview was conducted first with the program director for the purpose of further identifying the purposes of the study and to continue with the collection of data regarding the institution, its auxiliary program(s), and its staff of Faculty and Preceptors. Following this interview, a meeting was held with the Faculty to introduce them to the purposes of the study and to solicit their cooperation. For those Faculty not in attendance at the meeting, the program director was asked to obtain his or her cooperation by making a presentation similar to that of the study's staff. Individual interviews by the study's staff were then conducted with as many of the selected Preceptors (if used in program) as could be contacted and enlisted in the study.

As an incentive for each program's director, Faculty, and Preceptors (where used) to participate in the study and in an attempt to elicit their best efforts in responding to the Dental Task Inventory questionnaire, each auxiliary program was assured of receiving report unique to their program. The report was to consist of two parts, the first of which was a Faculty and Preceptor frequency response, by level of responsibility, to each of the

dental task statements. This part of the report would provide the program with a bench mark for identifying those dental tasks currently in the curriculum and with an index of the level of responsibility to which each of the tasks was being taught. The second part of the report was to be a Faculty frequency response, similar in format to that described above but identifying, by auxiliary, the combined response of all Faculty respondents in each auxiliary. This would allow each auxiliary program to compare their program with the combined total response for all similar auxiliary programs and with the combined responses of the other two dental auxiliaries. The third part of the report would identify, from all respondents, the task statements either being delegated or allocated by dentists or performed by auxiliary Faculty or Preceptors in the world of work. This would allow the auxiliary program to compare the relatedness of educational preparation to the demands of actual practice in delivering dental care.

In a further attempt to elicit honest and unbiased responses to the questionnaire, each auxiliary education program and each respondent within the program was assured personally of response anonymity through the use of a questionnaire identification coding system with a number unique to each individual. In addition, each respondent was provided with a return-addressed and stamped envelope for returning the questionnaire.

Criterion Class

Given that some auxiliary education programs would have more than one class of students currently enrolled, and assuming that the curricular content for any one class of students may vary from that of another class, a "criterion class" of students was defined for which all respondents would be asked to respond. The criterion class was the one currently enrolled dental auxiliary class which was nearest to completion or graduation in each institution studied.

Perspective For Faculty and Preceptor Response

The study of a dental auxiliary educational program may be approached from at least two perspectives when the study is to be based upon the teaching staffs' understanding of the curriculum's task content. From the first perspective, one may ask the staff to

respond to each statement in terms of "Is it your understanding that this task is included in the content of the curriculum?" To respond to this question the respondent must know not only those parts of the curriculum for which he or she is personally responsible for teaching, but also those parts of the curriculum for which others on the teaching staff are responsible. To further respond to the question in terms of the responsibility level to which each task is taught, the respondent must also know the appropriate responsibility response for those tasks taught by himself and for those tasks taught by others on the staff.

From a second perspective, one may ask the staff to respond to each of those tasks in the curriculum content which he or she teaches or which are taught under the respondent's direct responsibility. To determine the curriculum's total task content using this perspective requires the cooperation of the entire staff. But, given that occupation, together with an equal chance for unbiased responses, it may be assumed that analysis from this perspective would produce a more valid determination of both the task content of the curriculum and the levels of responsibility to which those tasks are taught than would a determination from the first perspective.

The following conditions were assumed to exist: (1) the number of Faculty in each of the auxiliary education programs was relatively small (4 to 6); (2) there was a good probability that all Faculty members could be identified; (3) knowing of the esprit de corps that is often found among small health occupations faculties, there was a good probability of enlisting the cooperation of all Faculty members in responding to the Dental Task Inventory; (4) the likelihood of each student being taught by all Faculty members was high; (5) in those auxiliary programs using Preceptors not every student serves under the tutelage of every Preceptor; and (6) each Preceptor is not likely to know the tasks taught, delegated, or allocated by every other Preceptor and Faculty member. Given, therefore, the conditions and the arguments presented above, the second of the two perspectives was selected for couching the two questions to be associated with each task statement in the Dental Task Inventory:

A. To what level will the graduate of the program be able to perform this task upon completion of the courses and other learning experiences given by you or under your direct responsibility?

1. Not taught under my direction

2. Will be able to perform only under direct supervision

3. Will be able to perform with shared responsibility

4. Will be able to perform with independent responsibility

B-1. (Utilized only in pilot Dental Task Inventory and study)
How many of the organized hours of instruction in the courses/labs/clinics taught by you or under your direct responsibility are devoted to developing competency in this task?

1. Content relevant to this task not taught under my direction

2. One to 20 minutes of instruction

3. Over 20 minutes and up to 1 hour of instruction

4. Over 1 hour and up to 3 hours of instruction

5. Over 3 hours and up to 6 hours of instruction

6. Over 6 hours and up to 12 hours of instruction

7. Over 12 hours of instruction

B-2. (Utilized in final form of Dental Task Inventory)
To the auxiliary Faculty:
Considering your own clinical work experience, either in your present position or in your past clinical work experience, have you performed this task, and if so, to which level of responsibility did you perform it?

1. Have not performed

2. Have performed only under direct supervision/assisted with

3. Have performed with shared responsibility

4. Have performed with independent responsibility

To the auxiliary Preceptor:
Is this task currently delegated or allocated to you, and if so, to which responsibility level do you routinely perform the task?

1. Not delegated or allocated to me

2. I perform only under direct supervision/assist with

3. I perform with shared responsibility

4. I perform with independent responsibility

To the dentist - Faculty or Preceptor:
Doctor, do you currently delegate or have you allocated this task to any dental auxiliary in your clinical practice, and if so, to which responsibility level have you delegated or allocated it to be performed?

1. Not delegated or allocated to any auxiliary
2. Is being performed only under direct supervision/assist with
3. Is being performed with shared responsibility
4. Is being performed with independent responsibility

Respondent Follow-up

Follow-up telephone calls and letters were used to sample the nonrespondents and to clarify questions regarding the replies of those respondents who did not appropriately complete the Dental Task Inventory (DTI) questionnaire. A review of both the respondent response rate and the respondent completion rate for the DTI questionnaire is found in the following chapter under the section "Survey Instruments."

Methods Of Data Analysis

This study is considered as essentially exploratory and descriptive in nature. Generally the data collected were nominal, with some ordinal data gathered by the task inventory instrument. The raw data were coded for machine processing (see Appendix C) and punched into computer tabulation cards. The punched data were verified and cleaned to insure that each value punched was within the limits set for each variable.

Since the dental task statements were originally identified by observation of dental practice procedures and by a review panel of dental educators, their validity is assumed to be acceptable.

To examine the reliability (stability) of the respondent's responses the first question regarding each task statement in the long DTI questionnaire used in the pilot study (563 task statements), a 10 percent (60 items) random sample of the task statements was selected for repetition and placed randomly within the inventory. An analysis was made of stability of responses to each pair of statements using the following techniques.

First, the duplicate items were treated as pairs of scores and a product moment correlation was computed for each respondent. This approach was based on the fact that the DTI questionnaire required about three hours time for completion. Considering this time factor and the total of 623 (563 plus 60 duplicates) task statements in the questionnaire, the analysis was considered to be analogous to a test-retest (time-interval) (Gronlund, 1971, p. 108) reliability measure.

As a second technique, the duplicate items were analyzed, by paired items over all respondents, for exact agreements, i.e., 1-1, 2-2, 3-3, and 4-4 responses. The Faculty and Preceptors were treated as a group and as separate groups. This analysis applied a more stringent test to the responses than did the first technique and in addition allowed for an examination of those items with "poor" agreements.

Finally, the duplicate items were analyzed, by item and by Faculty and Preceptor groups, for three disagreement response patterns: (1) all combinations of disagreement to all possible responses, (2) all combinations of disagreement to all except 1-1 (Not taught under my direction) responses, and (3) each "do teach"-"do not teach" disagreement to all except 1-1 responses. This analysis provided the opportunity of examining those task statements with greater disagreements patterns and would, it was hoped, allow for an identification of problem areas in task statement construction and content.

Since the dental task statements were ordered randomly in the Dental Task Inventory questionnaire, it was necessary to categorize them, both for analysis and for preparing the feedback reports to the participating auxiliary education programs. While a number of classification categories had been utilized in developing the task library, they were not considered appropriate for data analysis purposes. What was needed was a relatively small set of categories which could be hierarchically arranged, first by general type of work performed, and, second, by a small, but fairly encompassing number of procedures within each type of work.

To determine a set of categories which met the above criteria, a panel of two dentists, a dental assistant, and a dental hygienist was assembled. They identified the following 14 categories:

I. Business and Office Management
II. Housekeeping -- General and Clinical

III. Direct Patient Care (including laboratory work)
1. Patient Care: Records -- Dental, Medical
2. Patient Care: Examination -- Including Diagnostic Tests & X-rays
3. Patient Care: Analysis, Treatment Planning, and Consultation
4. Patient Care: Preventive and Patient Education
5. Patient Care: Preparation
6. Patient Care: Anesthesia and Medications
7. Patient Care: Surgery and Surgically Related
8. Patient Care: Impressions
9. Patient Care: Dental Laboratory
10. Patient Care: Insertions and Restorations
11. Patient Care: Adjustments and Repairs
12. Patient Care: Chairside Assisting and Clinical Support

Following the development of the categories, they were reviewed by the program directors of each of the nineteen dental auxiliary education programs participating in the pilot study, who commented on the suitability of the categories for determining the task content of their curriculum. The categories were accepted by the directors and the task statements were then organized accordingly. Of the 563 dental task statements utilized in the pilot study, 383 fell into category placement easily, but there was some question as to where 180 of them should be placed. These were reviewed by two dental school educators; a dentist directing a dental hygiene education program; a dentist directing both a dental assisting and a dental hygiene education program; a dental hygienist (educator); and a dental assistant to determine into which categories they should be placed. Some of the statements were obviously difficult to place as evidenced by the number of categories identified for some statements: 72 task statements were placed in a single category while 71 statements were placed in each of two categories, 31 statements were placed in 3 categories, and 6 statements were placed in 4 categories. A review of the responses indicated that a definition of each category would have helped the panel organize the statements. For some statements there was clearly a difference between what is and what is not chairside assisting dental tasks. The final decision of task placement among the categories was made based upon best judgement after reviewing the review panels responses.

One-way frequency tables were produced for summarizing and reporting the responses from the first question to the task statement items in the DTI questionnaire. The first tables were prepared for each participating program and reported, by category and by respondent types, the frequency response to each level of responsibility for each dental task statement. Copies of these tables were provided to the directors of the respective

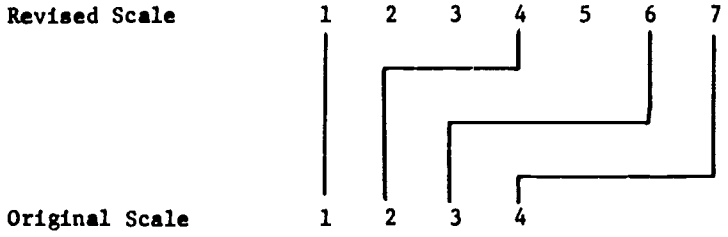
participating dental auxiliary education programs. A second frequency table identified across programs, by category and by auxiliary, the Faculty responses, to the first question, to each level of responsibility for each task statement (see Appendix E). A copy of this table was also sent to each program director as the second half of each participating program's feedback report. A third one-way frequency table was produced which identified, by auxiliary and by dentist, the frequency and percent response to the level responses to each task within each category for the second question asked of each task statement. This table has been combined with the data of the second table and is presented in Appendix E.

The data gathered through the DTI questionnaire should be of great value in identifying the similarities not only among various educational programs preparing students for a given auxiliary role, but the data should also provide a means of assessing the similarities and differences among the three dental auxiliaries. In an attempt to make such comparisons, a hierarchical clustering scheme (Johnson, 1967) was used to measure the extent to which each program is similar to every other program. Such an analysis raquires again making explicit an assumption noted earlier in this paper: given the small number of Faculty identified in each auxiliary program and given the relatively small number of students admitted to each program, it was assumed that all students within a program are taught by every auxiliary Faculty member. It may be further assumed, therefore, that every student has been exposed to the expected outcomes of the program and that upon satisfactorily completing the program, the student will be able to perform to the level of those expected outcomes. It would follow, therefore, that if each respondent's responses were valid, a profile of the task content of the total curriculum and of the level of responsibility to which each task is taught may both be drawn and made complete to the extent that each Faculty member participated in the study and could respond to both the task statements and the response scales used in the DTI questionnaire.

To examine the profile of the task content of the curriculum, a composite response to the responses elicited in the first question associated with each task statement in the DTI questionnaire was produced. This was accomplished by using as the program response to any one task statement the highest level of responsibility assigned to the task by one or

more members of the Faculty who reportedly taught that task.

It was assumed that the level of responsibility scale used for considering each task statement is not an equal interval scale, i.e., in terms of potential delegation or allocation of tasks or functions to an auxiliary the distance between levels 1 and 2, and 2 and 3 are meaningfully greater than the distance between 3 and 4.' To express these differences, the original scale was arbitrarily modified using the following transformation model:



Using, then, the profile data set for each participating program, a new profile was generated using the revised scale. This transformation was performed to provide the Faculty response profile and to provide the Preceptor response profile, but the two respondent groups were not merged to form a single profile.

The hierarchical clustering scheme (HCS) of analysis is a technique used for partitioning objects (in this case, the profiles of dental auxiliary education programs) into optimally homogeneous groups on the basis of empirical measures of similarity among those objects. As Johnson (1967) notes, "Suitable data on the similarities among the objects . . . may be obtained directly or indirectly." For example, one may measure a number of attributes of the objects (in this case, the task content of the curriculum) and combine them to form a profile or single measure of similarity. "Various kinds of measures of profile similarity can be used for this purpose, (e.g., product moment correlation, covariance, or the sum of squared or absolute differences between corresponding components of the profiles) (Johnson, 1967)."

To apply the HCS model to this study, a symmetric matrix s was constructed, giving, for each of the pairings of dental auxiliary education programs a measure of their similarity, $s(i,j)$, defined for a given pair of programs i and j by either

$$s(i,j) = \sum_{p=1}^{563} |x(i,p) - x(j,p)|$$

or

$$s(i,j) = \sum_{p=1}^{563} [x(i,p) - x(j,p)]^2$$

where x(k,p), (p=1,...,563–number of tasks used in pilot study), are the highest transformed responsibility responses to the 563 dental task statements for the kth program. In the latter matrix, the sum of squared differences over the tasks will accentuate the differences among the programs and thereby possibly more sharply define the clustering developed by the sums of absolute differences matrix.

CHAPTER IV

ANALYSIS AND FINDINGS

Introduction and Overview

As was noted in the previous chapter, this study was conducted to develop a suitable method for studying the task content of accredited dental auxiliary education programs. Further, it was the intention of the study to develop a package of instruments which could be used, in the future, to relate the task content of these educational programs to the delegation and allocation of dental and dental-related tasks in the world of dental care practice in such a way that a linkage could be made between educational preparation and work assignments on-the-job. To these ends, an initial instruments package was developed and pilot tested in a study of nineteen dental auxiliary education programs in a midwestern state (Terry, 1973). After refining the instruments, the study was continued and expanded to include an additional 44 programs located in twelve additional states. The present chapter presents the analysis and finding of the study in four sections: (1) sample characteristics, (2) survey instruments, (3) biographical profiles, (4) dental task information.

Sample Characteristics

The population in this study consisted, except for the programs at the two military sites, of accredited dental assisting, dental hygiene, and dental laboratory technician education programs located in public or private post-secondary educational institutions in thirteen states. Sixty-six programs were identified and their program directors were contacted by telephone interviews to determine their willingness to participate in the study. Table 1 identifies, by type of auxiliary, by level of educational completion, and by type of institutional setting in which the programs were situated, the 63 programs investigated in this study. Those schools which did not elect to participate in the study had internal situations which precluded their participation in spite of their willingness to become involved.

TABLE 1

DENTAL AUXILIARY EDUCATION STUDY SITES

AUXILIARY PROGRAM COMPLETION AWARD	TYPE OF EDUCATIONAL SETTING: Community College & Technical Institute	University without Dental School	University with Dental School	TOTAL	PERCENT
Dental Assistant					
Certificate	17	3	4	24	38
Associate	2			2	3
Dental Hygienist					
Certificate	2		2	4	6
Associate	9	3	2	14	22
Baccalaureate		2	6	8	13
Dental Laboratory Technician					
Certificate	2			2	3
Associate	7	1	1	9	14
TOTAL	39	9	15	63	
PERCENT	62	14	24		100*

*Does not total to 100 percent due to rounding.

On-site personal interviews were conducted with the program director of each of the participating auxiliary education programs. These interviews were designed to gather pertinent information regarding the program and to identify those members of the institution's faculty who met the criteria for service as Faculty respondents. In addition, consideration was given to the number of preceptors utilized by the program (if any) and decisions were made, based upon type of dental practice and geographic area, as to which preceptors would be sampled as Preceptor respondents.

TABLE 2

RESPONSE RATE TO DENTAL TASK INVENTORY
BY AUXILIARY AND BY RESPONDENT TYPE

AUXILIARY	IDENTIFIED FACULTY/ PRECEPTORS	DISTRIBUTED N	DISTRIBUTED %	RETURNED* N	RETURNED* %
Dental Assisting					
Faculty	152	152	100	142	93
Preceptors	460	410	89	282	69
Dental Hygiene					
Faculty	265	236	89	216	92
Preceptors	0	0	0	0	0
Dental Laboratory Technician					
Faculty	62	56	90	51	91
Preceptors	34	19	56	13	68
TOTAL					
Faculty	479	444	93	409	92
Preceptors	494	429	87	295	69

*DTI questionnaires which were returned, complete or usable.

Survey Instruments

Response Rate

The study appeared to be welcomed by the program directors, Faculty, and Preceptors. It was seen as a method of collecting certain information about their program which, for various reasons, they had heretofore been unable to gather.

As was noted in the previous chapter, a 100 percent response rate was anticipated from the Faculty of each program. These expectations were met for the eleven dental assisting and two dental laboratory technician education programs used in the pilot study. The 91 percent response rate for the seven dental hygiene programs in the pilot study was considered acceptable when it was determined that the majority of nonrespondents were

part-time Faculty. The overall 92 percent (Table 2) response rate from the Faculty of all 63 programs was considered exceptionally good and nearly met the expectations of the study. For those individual programs with less than a 100 percent response, telephone interviews were conducted with the program director to (1) determine if they felt that the lack of data from the specific nonrespondents would significantly affect the "picture" of the task content of their curriculum and (2) determine if they wanted their program to remain in the study. In only one case, a dental laboratory technician program, was there a request to remove the program from the study and in every other case the program director indicated that it was virtually certain that the tasks which would have been identified as being taught by the Faculty nonrespondents would be identified (and to the same responsibility level) by other Faculty respondents. Considering these comments from the program directors, it was assumed that with 409 of 444 Faculty responding in the total study, an acceptable Faculty response rate had been received.

The Preceptors, not being as intimately identified with the auxiliary education program as were the Faculty, were not equally as interested in the study as were the Faculty. There was, however, a very prevalent attitude among the Preceptors interviewed of wanting to be of help to the school and its auxiliary program. Many of the Preceptors expressed an interest in learning what their Preceptor colleagues were teaching as compared to themselves. While the overall Preceptor response rate in the pilot study (113 of 172, or 66 percent) was considerably less than that for the Faculty, the Preceptor response rate of 69 percent for the total study was considered high enough to be a valid representation. The Preceptor rate was influenced particulary by the effects of the low response rate from four dental assisting programs. Overall, however, the response rate for dental assistant and dental laboratory technician programs was nearly identical.

In one dental assisting program, one of the Faculty respondents (an individual who shared the position of program director with another of the Faculty respondents) apparently "panicked" after reviewing the Dental Task Inventory (DTI) questionnaire. Evidently this individual had some reservations about the study being able to maintain the anonymity of the program's responses and, consequently, the "program director" called the program's Preceptors and requested that they not respond to the DTI questionnaire. Several

Preceptors had already responded, but the remainder did not. Although the study staff finally gained the confidence of this program co-director (and received a DTI questionnaire response from the individual) the study staff did not attempt to recontact the Preceptors except to mail a follow-up letter to them (see Appendix G).

In a second dental assisting education program where the Preceptor response was very low, quite a different development took place. Shortly after the study staff had personally interviewed each of the Preceptors sampled and had received a commitment from them to participate in the study, the dentists in the area met in one of their regularly scheduled local dental association meetings. During the course of the meeting it was brought out that several dentists in the group had been asked to participate in the study. From what the study staff was able to learn later from talking with the dental assisting program director, the dentists decided during their meeting not to respond to the DTI questionnaire, not because of any embarrassment they wanted to bring upon the auxiliary education program, but because of the time it would take to respond to the instrument. As in the first case noted above, some Preceptors had already returned their DTI questionnaires and they were used in the study. No attempt was made, however, to recontact the remaining Preceptors from this dental assisting program.

No reason could be identified for the low rate of response from Preceptors in the other two dental assisting programs.

Dental Task Inventory Questionnaire Completion Rate

The completion rate for the 409 Faculty and the 295 Preceptor DTI questionnaires returned in the total study is noted in Table 3. Completion rates were calculated as the percent of items completed by respondents to question 1 regarding whether the task is taught and to question 2 regarding whether the task is delegated. The completion rate for the time scale question, question 2 in the pilot instrument, which was discarded as unreliable and probably invalid is not presented in the table. (See following section of this chapter.) Completion rates to question number one of over 99 percent of all task statements for the Faculty and of over 98 percent for the Preceptors were achieved in the pilot study with a minimum of follow-up to those respondents who had not entirely completed

TABLE 3

COMPLETION RATE OF DENTAL TASK INVENTORY BY AUXILIARY PROGRAM AND BY FACULTY AND PRECEPTOR RESPONDENTS

DENTAL AUXILIARY EDUCATION PROGRAM	Faculty		% Completion*** Question		Preceptors		% Completion*** Question	
	N(1)*	N(2)**	1	2	N(1)*	N(2)**	1	2
Dental Assisting	142	93	99.6	82.4	282	177	96.2	97.0
Dental Hygiene	213	163	99.4	86.3	0	0	0	0
Dental Laboratory Technician	54	46	99.5	82.8	13	13	99.7	99.4
TOTAL	409	302	99.5	83.8	295	190	97.8	98.2

* N(1): Number Faculty or Preceptor questionnaires from both pilot study and total study returned and utilized in data analysis of DTI question number 1 - regarding do you teach this task.

** N(2): Number Faculty or Preceptor questionnaires returned and utilized in data analysis of DTI question number 2 - regarding do you delegate/perform this task. Respondents from pilot study are not included since they were not asked to respond to this question.

*** Mean percent of dental task statements responded to in DTI questionnaire.

the DTI questionnaire at the time it was first received from the respondent. The equally high, over 99 percent, completion rate for all Faculty respondents to question number 1 in the total study was reassuring of the Faculty's interest in the study. The lower completion rate by the Faculty to question number 2 may be explained by two principal factors. First, a visual scanning of the responses in the questionnaire reveals that the Faculty tended to skip responding to question 2 on various pages as if they did not like to respond to so many questions - a point validated by a number of telephone interviews and letter responses to Faculty who had done some skipping. Secondly, a number of the Faculty, dentists and auxiliaries, had gone directly into teaching after graduation from their

respective training program and had, therefore, not had work experience and therefore tended to skip question number 2. It is noteworthy that the Preceptors' completion rate averaged about 98 percent to question 1 and 2.

In several cases, Faculty as well as Preceptors, the respondents had not completed one or more pages of the DTI instrument, whereupon a letter and copies of those pages not completed were returned to the respondent along with the instrument's pages of instruction, definitions, and uncompleted task inventory questions and response scales (see Appendix G for letters to respondents). While a few respondents never completed the omitted pages, their original questionnaires, which were practically complete, were placed in the data bank for their respective programs.

Considering both the response rates and the completion rates of the Faculty and the Preceptors to the DTI questionnaire, it may be assumed that despite the number of items in the instrument and the time required for its completion, the respondents were quite interested in the study being conducted and in the feedback reports which were to be returned to their respective programs. It should be noted that in the case of several Faculty members and Preceptors, where either or both were teaching in two different programs, they were asked to complete the task inventory portion of the DTI questionnaire for each program in which they participated. In every case where such a request was made, two instruments were received from each respondent.

Response Reliability

The DTI questionnaire consisted of two sections: (a) a biographical data section used to identify certain biographical characteristics of the Faculty and Preceptors, and (b) the dental task inventory portion designed to gather information regarding the dental and dental-related task content of the auxiliary program's curriculum - including the responsibility levels to which the tasks are taught and, in the pilot instrument, the cumulative time devoted to teaching each task or, in the final instrument, those responsibility levels to which the tasks are delegated or performed. As will be noted from a review of Appendix A, each of these sections was fairly sizable and taken together required as much as three or more hours to complete. Therefore, in the pilot study it was

considered desirable to obtain a measure of respondent consistency (stability) as a necessary condition for considering the validity of the study's findings as taken from the DTI queationnaire. This was done by inserting 60 duplicate items at random among the 563 dental task statements used in the pilot DTI instrument.

To assess the stability of each respondent's responses to question number 1 in the task inventory, two types of analysis were made of the responses obtained from the pilot study data. In the first analysis, a two-way frequency table was prepared which identified, by number of paired responses (excluding paired nonresponses) and by percent of exact agreements, the number of respondents in each stability level. Table 4 revesls that 163 respondents (73 percent) made identical responses to the duplicate items; i.e., 1-1 ("Task not taught under my direction"), 2-2 ("Student will be able to perform task but only under direct supervision"), 3-3 ("Student will be able to perform task with shared responsibility"), 4-4 ("Student will be able to perform task with independent responsibility"); each responded to no less than 95 percent of the duplicate pairs. One hundred and seventy-three respondents (79 percent) made identical responses to at least 86 percent of the duplicate pairs regardless of the number of pairs to which they responded. Of the 47 respondents with fewer than 86 percent exact agreements, the Preceptors accounted for 81 percent of the total. As a proportion of all Preceptors, 34 percent of the Preceptors had less than 86 percent exact agreements while the proportion of Faculty with less than 86 percent exact agreements was only eight percent.

These findings of respondent consistency indicate that the dental auxiliary educators were not only able to identify dental task statements as part of the task content of the curriculum, but they also were able to identify consistently the level to which the dental task was taught. While the Faculty were more consistent in their responses than were the Preceptors, this difference may be a function of the Preceptor's inability to generalize from that which he or she teaches a given student in a few weeks to that which he may teach another student during another period.

In a further study of each respondent's consistency of response in question 1 to the pairs of duplicate task statements used in the pilot study, a correlation coefficient was computed for each respondent (see previous chapter). Each pair of scores for which each

TABLE 4

CONSISTENCY (STABILITY) OF FACULTY AND PRECEPTOR RESPONSES TO SIXTY DUPLICATE STATEMENTS IN DENTAL TASK INVENTORY QUESTIONNAIRE

NUMBER OF DUPLICATE TASK STATEMENTS RESPONDED TO	PERCENT EXACT AGREEMENTS							TOTAL	
	100-96	95-91	90-86	85-81	80-76	75-71	Less Than 70		
	N	N	N	N	N	N	N	N	%
59-60	74	46	29	14	11	7	4	185	84
57-58	6	4	4	7	1			22	10
55-56	2	1	1		1			5	2
53-54	1	1						2	1
51-52	2			1				3	1
Less than 50	2					1		3	1
TOTAL									
N	87	52	34	22	13	8	4	220	
%	40	24	15	10	6	4	2		100*

*Percent does not add to 100 due to rounding.

respondent responded were treated as x and y scores to be correlated to produce a "stability coefficient." Although the correlation was computed on sixty pairs of scores, each score of which could have a value from one through four, the results of the correlation were spurious, e.g., one respondent with a 97 percent exact agreement to sixty duplicate pairs yielded a stability coefficient of .981 while another respondent with a 92 percent exact agreement to sixty pairs of statements yielded a stability coefficient of only .187.

An examination of Table 5 indicates that of those Faculty and Preceptors responding to each duplicate pair of dental task statements, no single pair of statements received less than 152 (73 percent) exact agreements while one task had 216 (99 percent) exact

TABLE 5

STABILITY OF FACULTY AND PRECEPTOR RESPONSES

TO DUPLICATE DENTAL TASK ITEMS*

TASK ITEM NO.	TOTAL** RESPONDENTS N	EXACT AGREEMENT 1-1,2-2 3-3,4-4 FAC + PRE %	EXACT AGREEMENT 1-1 FAC %	EXACT AGREEMENT 1-1 PRE %	DISAGREEMENT RESPONSE PATTERNS*** 1 FAC %	1 PRE %	2 FAC %	2 PRE %	3 FAC %	3 PRE %
1001	218	98	98	96	1	3	50	40	50	60
1002	218	95	97	71	0	9	0	13	0	31
1003	216	93	91	84	5	9	50	22	50	56
1004	215	92	65	86	7	9	5	27	19	67
1005	215	85	57	67	11	19	22	31	27	58
1006	216	87	93	63	4	23	38	20	50	63
1007	219	99	96	94	0	3	0	0	0	43
1008	217	89	80	57	5	16	10	15	24	38
1009	218	95	91	91	7	5	40	10	70	50
1010	218	95	87	87	5	5	21	20	36	33
1011	219	93	84	76	6	9	18	11	35	37
1012	213	93	83	68	5	10	11	6	28	31
1013	216	94	87	95	9	3	57	20	71	60
1014	215	94	90	83	5	8	46	11	46	47
1015	218	97	91	93	3	4	10	25	30	50
1016	212	81	73	62	15	23	41	25	55	60
1017	212	81	57	34	14	25	30	6	33	37
1018	217	91	78	71	5	13	8	19	21	44
1019	214	100	98	100	0	0	0	0	0	0
1020	216	91	77	71	4	15	12	13	16	50
1021	216	98	95	95	1	3	0	0	20	50
1022	216	86	77	79	13	15	38	0	58	70
1023	219	90	78	75	6	15	21	14	25	61
1024	215	94	92	93	7	5	44	0	78	63
1025	216	84	79	56	9	23	27	2	46	52
1026	215	91	82	75	6	13	26	19	32	52
1027	217	89	74	72	5	16	14	16	18	58
1028	218	92	90	88	7	9	64	15	64	77
1029	219	95	80	89	8	4	24	8	38	33
1030	218	97	93	96	4	2	50	0	50	50
1031	218	97	93	88	2	5	13	15	13	39
1032	217	93	87	77	4	10	0	10	29	36
1033	216	94	71	79	7	2	10	13	23	26
1034	217	97	88	95	4	3	15	0	31	50
1035	216	89	73	22	7	16	10	5	24	22
1036	218	99	97	97	1	2	33	0	33	67
1037	218	91	89	87	7	12	50	60	58	87
1038	217	89	68	78	10	12	12	17	32	54
1039	217	95	91	39	3	6	30	33	30	58
1040	216	78	72	30	12	32	30	9	43	46
1041	214	74	53	38	21	32	26	18	44	52
1042	213	93	84	47	3	10	6	0	18	20
1043	217	86	51	19	5	23	10	11	10	28
1044	218	84	82	39	7	25	26	13	37	41
1045	212	88	50	7	11	13	19	1	23	14
1046	215	92	65	83	10	6	8	16	30	37
1047	216	89	68	50	4	17	6	15	12	35
1048	218	91	82	75	5	14	11	32	26	54
1049	218	94	94	87	3	9	33	13	50	67
1050	218	97	86	94	3	4	20	14	20	57
1051	218	96	97	93	1	7	33	38	33	100
1052	216	92	71	21	4	12	10	6	13	15
1053	216	88	72	73	9	16	13	24	33	59
1054	214	79	76	51	13	28	23	15	54	57
1055	215	94	96	84	2	11	50	28	50	67
1056	215	88	86	83	10	13	47	6	73	78
1057	209	73	47	42	19	35	18	24	35	61
1148	214	92	70	62	6	10	9	5	19	27
1308	217	89	72	69	6	17	7	31	20	54
1355	218	97	94	93	2	4	17	13	33	50

* See Appendix D for task statements.

** Total potential respondents: 220; Faculty: 107; Preceptors: 117.

*** Pattern 1: (1-2,1-3,1-4,2-3,2-4,3-4)/(1-1,2-2,3-3,4-4,1-2,1-3,1-4,2-3,2-4,3-4)
Pattern 2: (1-2,1-3,1-4)/(2-2,3-3,4-4,1-2,1-3,1-4,2-3,2-4,3-4)
Pattern 3: (1-2,1-3,1-4,2-3,2-4,3-4)/(2-2,3-3,4-4,1-2,1-3,1-4,2-3,2-4,3-4)

agreements. On the average, each pair of dental task statements received 197 exact agreement responses (90 percent of the total responses). Such a high percent of exact agreements per pair of task statements was, of course, expected after a review of Table 4.

To further examine the exact agreements, a study was made of each task statement to determine the frequency of each kind of exact agreement, i.e., 1-1, 2-2, 3-3, 4-4. Table 5 reveals that for the Faculty respondents, as many as 98 percent of their exact agreements to a single item were "1-1" responses ("Not taught under my direction"), and for the Preceptors as few as seven percent of their exact agreements were "1-1" for a single statement. The mean "1-1" response rate among exact agreements was 81 and 72 percent for the Faculty and Preceptors respectively. This high percent of 1-1 agreements, then, was apparently the factor which effectively reduced the value of the "stability coefficient" as an efficient measure of each respondent's consistency. To be able to use the "stability coefficient" as an effective measure, it appears that a group of task statements must be selected which tend to have a greater dispersion in being taught and to be taught to various levels.

To return to the general considerations of response reliability (stability), it would appear that if the percent exact agreement responses to all duplicate task statements were considered, it would have to be concluded that the responses to the task statements were very consistent (stable). But what of the consistency of response to those duplicate task statements which were reported to be taught at least once in each pair of task statements?

To examine the above question, several analyses were conducted to identify certain types of disagreement response patterns which might exist in the data. In the first analysis, the question was asked, "What percent of all the paired responses to the duplicate items were other than exact agreements?" The results of this analysis are noted in response pattern 1 of Table 5. An example from the table will illustrate how disagreement response pattern 1 is read. For task item 1001, it is first noted that 98 percent of all Faculty responses were "1-1" agreements. Of the other two percent of their responses, what percent were some type of disagreement? Disagreement response pattern 1 indicates that only one percent were disagreements. It was evident from this finding that there were

few disagreements for the majority of the Faculty respondents. But, if the "1-1" responses were removed from the analysis, then what percent of the paired responses to the duplicate items were other than exact agreements?

Disagreement pattern 3 in Table 5 indicates the findings of this analysis. It answers the question, "Where the respondents had decided at least once in each pair of responses that they do teach the item, what percent of their responses were disagreements?" Again using a task item for illustration, it was noted for item number 1035 that the Faculty had less difficulty making a stable response than did the Preceptors. Although the Faculty did have a 24 percent disagreement rate to this item, as compared with a 22 percent rate for the Preceptors, the Faculty generally had less difficulty making stable responses to the total inventory than did the Preceptors. This particular analysis, however, did not indicate if the respondents were having difficulty deciding between whether they "did teach or didn't teach" the task or whether the problem was "To what level do I teach it?"

Disagreement response pattern 2 of Table 5 addresses itself to this last question. This analysis addressed the question, "Considering only the items to which the respondents did respond with a 'do teach' in at least one response of each pair of responsibility responses, what percent of the paired responses were of the type 'don't teach - do teach?'; i.e., '1-2,' '1-3,' '1-4.'" The data in pattern 2 indicate the Faculty and the Preceptors had less trouble with this type of uncertainty (instability) than they did with the "to which level do I teach it?" problem. For task item number 1355, for example, only seventeen percent of the Faculty responses were of the type "do teach - don't teach." The corollary of this finding was that 83 percent of the Faculty responses to the item showed they had trouble answering the question, "To what level do I teach it?" The Preceptors in this analysis had less trouble than the Faculty with the "do teach - don't teach" problem; i.e., in only twenty of the items (33 percent) did the Preceptor response rate exceed that of the Faculty.

To summarize the findings presented in disagreement response patterns 2 and 3 of Table 5, the Preceptors exhibited less stability than the Faculty given they had marked one task statement pair with a "do teach" response, but their instability was more likely than was the Faculty's to be of the type, "To what level do I teach it?"

Validity

The reliability studies presented in the previous section indicate there was sufficient respondent consistency (stability) to provide a supporting base for the instruments' validity; i.e., the validity of the Faculty and Preceptor response to the DTI questionnaire.

Dental Task Inventory

As was reported in the previous chapter, the dental task statements utilized in the Dental Task Inventory were derived from dental tasks, functions, and procedures statements identified in dental job analysis studies reported in the literature and from a panel of dentists (educators) and dental auxiliary personnel who worked together with the study staff to prepare an inventory of dental task statements relevant to the objectives of this study. It was assumed, therefore, that the inventory has a considerable degree of content validity. It apparently also has considerable face validity judging from discussions of the DTI questionnaire with each of the respondents at the time the instruments were distributed. In addition, in discussions with several of the respondents and program directors following the pilot study there were few comments made relevant to challenging the content of the inventory - except that it was very long. Several comments were made relevant to a few of the compound statements, i.e., those constructed with slashes (/) and containing dual verbs, adjectives, etc. to indicate tasks which were considered to usually be performed as part of a series, therefore all compound statements were re-evaluated for ambiguity problems before preparing the final DTI. Otherwise, there was little to suggest that the Dental Task Inventory's content was not considered as a valid representation of tasks taken from the world of dental care work and from the content material of dental auxiliary curricula.

In a study designed to identify those dental tasks being performed by various dental personnel actually delivering dental care services, Dr. Marvin Marcus of the School of Dentistry at the University of California at Los Angeles, California, is using a Patient Contact Record form and a Dental Task Inventory questionnaire for collecting data. The dental task statements in Dr. Marcus' DTI questionnaire were developed jointly by his staff

and this study and thus the two studies share common task statements in their data collection instruments. In addition, Dr. Marcus' Patient Contact Record form, which lists 269 dental tasks from which dental personnel may select those tasks they perform day by day in the delivery of their services, lists 152 task statements which are duplicates of the dental task statements found in the pilot DTI questionnaire developed jointly by the two studies. An additional 135 dental task statements from the pilot DTI questionnaire may be identified with two or more of the remaining 117 dental tasks identified on the Patient Contact Record form. In personal communications with Dr. Marcus, it has been learned that he is experiencing little or no difficulty with the dental tasks listed on the Patient Contact Record and that except for the length of the DTI questionnaire, and the difficulties of trying to get individuals to respond to both data collection instruments, his study has not identified any serious problems with the dental task statements as they are responded to by practicing dentists and dental auxiliaries. This information suggests additional weight may be given to the content validity of the Dental Task Inventory used in this study.

Responsibility Levels For Tasks Taught

The comments received from Faculty and Preceptor respondents related to the scale used for the responsibility levels to which dental tasks were taught indicated that the levels were both understandable and usable. These findings were similar to those of Tomlinson (1969, p. 120), from whom this study's scales were adapted, who found that licensed practical nurses, their supervisors, and nurse educators could respond to 99 identified tasks performed by LPNs and give meaningful reasons and explanations of their decisions regarding the option selected on the responsibility response scale.

There was, as was noted in the previous section of this chapter (see Table 5), some difficulty on the part of the Preceptors to maintain as much consistency as the Faculty to duplicate task statements using the scale, but this difficulty was apparently not so much related to the scale as it was to context in which the Preceptor found himself when responding. Many of the Preceptors reported some difficulty in responding to what they teach because of the short period of time which each student spends with them, and because

of the variation among the students and their individual capabilities and attitudes. Notwithstanding this problem, the Preceptors indicated they did not have trouble with the scale per se.

Instructional Time

The second question used with the pilot study Dental Task Inventory - "How many of the organized hours of instruction in the courses/labs/clinics taught by you or under your direct responsibility are devoted to developing competency in this task?" - was found to be a very poor question for obtaining any degree of reliable response; hence, the validity was surely low as well. The problem became very apparent when it was noted that many of the Faculty and a great majority of the Preceptors stopped answering the second question after completing the first few pages of the pilot DTI questionnaire. In follow-up interviews with the respondents it was learned that it was very difficult for them to (a) remember or determine how much time was spent teaching each task or part of a task on each occasion it was taught, (b) remember or determine on how many occasions the task or part of a task was taught, and (c) accumulate the time, especially for those tasks which are closely related to more than one type of dental procedure. The problem of recall was heightened for those Faculty teaching in programs with two and four year academic curricula and for those Faculty teaching in more than one auxiliary education program. The Preceptors were especially reticent in responding to the question for several reasons. First, they expose any one auxiliary student to only those dental tasks performed in the dental practice during the period of time in which the student is assigned there. Consequently, depending upon the flow of patients at any given time, each student may encounter different teaching opportunities. The problem is further complicated for the Preceptor by the types of student assigned to work under his or her tutelage; e.g., some students with a good deal of self-confidence and initiative are allowed to do more than students who may be less confident and shy. As a result of these findings, the study did not further analyze the data collected by this question.

Responsibility Levels For Tasks Delegated or Performed

A second question was added to the DTI questionnaire for the National study which would gather information related to the level of responsibility to which either the dentist respondent delegated the task to an auxiliary or the level to which the auxiliary does now or has performed the task in the real world of work. As might be expected from the discussion above under the heading Responsibility Levels For Tasks Taught, both Faculty and Preceptor respondents were able to relate to the scale used in this question utilized in the final DTI questionnaire. The completion rate for this question, 82 percent for Faculty and 97 percent for Preceptors (Table 3), indicates that the respondents could both relate to the question and use the scale.

In a final note on the validity of the responses to the pilot study DTI questionnaire, an interesting point regarding the accuracy of the responses is noted on Table 5. Another look at the "1-1" exact agreements for the Faculty and for the Preceptors indicates that for the statements selected as duplicate items for the pilot study DTI questionnaire, the Preceptors, on the whole, tended to teach more of the tasks than did the Faculty.

It was noted in the previous chapter that the "Faculty" respondents were selected on the basis of whether they were identified by the auxiliary education program directors as having as a primary responsibility for the teaching of dental or dental-related tasks. This definition, it will be recalled, excluded those institutional faculty members teaching business and office management courses to the dental auxiliaries except in cases where a specific section of a course was designed specifically for dental auxiliary students. Given this limitation, only one dental auxiliary education program could identify a business and office management teacher who would qualify as a Faculty respondent. Many of the auxiliary education curricula included business and office management courses, but the institutional faculty member(s) teaching the courses did not meet the definition for a Faculty respondent.

In view of the above limitation, it would be expected that only a small proportion of dental tasks taught, as reported by the Faculty, would come from the category of "Business and Office Management"; i.e., if the Faculty were accurate in their responses, one would expect to find fewer tasks identified as being taught, or taught to a high level

of responsibility, in this category. It is meaningful to note, therefore, that among the thirteen duplicate task statements in the "1-1" exact agreement columns of Table 5 wherein there was a twenty percent or greater discrepancy between the Faculty and Preceptors in favor of the Preceptors teaching the tasks, ten of the thirteen dental tasks (77 percent) fall in the category of "Business and Office Management." These findings tend to indicate that the Faculty were not, in at least this category of dental tasks, over-stating their teaching roles.

Institutional And Faculty Characteristics

Two instruments were designed to identify a number of auxiliary programs and auxiliary personnel characteristics which serve as dependent variables. The following section includes a discussion of a number of those characteristics.

Institutional and Program Characteristics

As Table 1 indicates, 63 dental auxiliary education programs were included in the study. Among the 63 programs were 26 dental assisting programs, 26 dental hygiene programs, and eleven dental laboratory technician programs. Thirteen of the accredited dental assisting programs offered certificates of completion and two offered associate degrees to those satisfactorily completing the courses of study which ranged from thirty to forty weeks in length (33 weeks mean). Each of the nine civilian dental laboratory technician programs were accredited and offered the Associate degree upon completion of the courses which ranged from 48 to 80 weeks in length (61 weeks mean). The accredited dental hygiene programs included sixteen "two-year" academic programs and eight Baccalaureate degree program. The "two-year" programs ranged in length from 62 to 96 weeks (71 weeks mean); fourteen offered the Associate degree and two offered a certificate upon satisfactory completion of the programs.

Two military training institutions, one Army and the other Air Force, offered four dental assisting, two dental hygiene, and two dental laboratory programs which were included in the study. These are reported with the Technical Institutes in Table 1. While none of these programs were accredited, they were included in the study for the purpose of

TABLE 6

ENTRANCE REQUIREMENTS FOR DENTAL AUXILIARY EDUCATION PROGRAMS

REQUIREMENTS	DENTAL AUXILIARY PROGRAMS					
	D. Assisting N=26		D. Hygiene N=26		D. Laboratory Technician N=11	
	N	%	N	%	N	%
High school diploma or equivalent	24	92	24	92	9	82
High school rank or grades	9	35	11	42	2	18
Specific high school course requirements	2	8	5	19		
American College Testing Program (ACT) scores	10	38	16	62	3	27
Personal interviews	14	54	14	54	5	45
Letters of recommendation	3	12	4	15	1	9
Aptitude tests	5	19	15	58	6	55
Physical examination	3	12	3	12	1	9
Test for color-blindness					3	27
Typing skills	4	15				
Complete open door policy	4	15			3	27
Other (specify)	5	19	17	65	5	45

making some comparisons with the civilian programs, which were accredited.

Table 6 identifies the entrance requirements for acceptance into the three auxiliary education programs. A high school diploma or equivalent was required by ninty percent of all programs and by 100 percent of all accredited programs. In general, however, most of the dental auxiliary programs appeared to be reflecting that while a number of requirements may be listed for completing an application, it would be difficult to rank order them or even to say that each of the components was used in the process of selecting every member of every class. The dental hygiene programs did, however, appear to be most selective in their admission of students.

Table 7 indicates that regardless of the size of the criterion class, each of the

TABLE 7

CRITERION CLASS ENROLLMENTS, EXPECTED COMPLETION, AND STUDENT-FACULTY RATIOS FOR DENTAL AUXILIARY EDUCATION PROGRAMS

	DENTAL AUXILIARY PROGRAMS		
	D. Assisting	D. Hygiene	D. Laboratory Technician
Criterion Class Enrollment			
Mean	35	30	20
Range	15-115	10-110	6-50
Expected Completions			
Mean	28	28	15
Range	14-106	10-104	5-34
Student-Faculty Ratio*			
Mean	8	4	4
Range	3.0-10.7	1.2-10.5	2.0-10.0

*Number of students per identified full- and part-time Faculty teaching dental tasks.

three types of dental auxiliary education programs had had a relatively small student - Faculty ratio (number of students per identified full- and part-time Faculty). Those auxiliary programs offered in institutions with schools of dentistry tended to have smaller student - Faculty ratios due to the immediate availability of the large number of dental school faculty members who serve as part-time Faculty members and as guest lecturers in the auxiliary education program.

Except in the case of two Baccalaureate dental hygiene programs, each of the various auxiliary education programs had graduated at least three previous classes of students. One dental assisting program was graduating its 38th class and one dental hygiene program was graduating its 61st class. The median number of total classes graduated was twelve for dental assisting and dental hygiene, respectively. One dental laboratory technician program had graduated nineteen previous classes (median 6 classes).

A most interesting piece of data was that dealing with the use of advisory councils by the auxiliary education programs. While all dental auxiliary programs in community colleges and technical institutes had an advisory council of practicing dentists, Faculty, and lay members of the community, only 44 percent of the auxiliary programs located in a

school of dentistry had one. All dental assisting and dental laboratory technician programs had advisory councils; dental hygiene programs located in institutions with a school of dentistry tended not to have such councils. The directors of those programs without advisory councils indicated that they did not have anything equivalent to an outside advisory council with which they could confer or which could review the program's curriculum and make suggestions for change. It is only fair to point out, however, that those programs with advisory councils reported varying degrees of success with their councils, notwithstanding each of them had met at least once in the past year.

While 76 percent of the dental assisting education programs utilized the services of dental Preceptors during the course of the academic program, only one dental hygiene program (four percent) utilized Preceptors (a civilian program placed students in a military clinic). Dental laboratory technician education programs were about equally divided in whether or not they used Preceptors.

Twenty of the 26 dental assisting programs utilized Preceptors, but all 26 of the programs exposed the students to one or more types of dental clinics (Table 8). Although the dental assisting students were rotated among the Preceptors, in those programs using Preceptors, it was universal that every student did not have an educational experience in each type of clinical setting. With some exception among the dental hygiene programs located in senior institutions with dental schools, dental hygiene students tended not to be placed in dental speciality clinics. Seven of the dental laboratory technician programs made some use of dental prosthetic laboratories located either in a school of dentistry or in a private commercial setting.

Faculty Characteristics

From several analyses made of the personal characteristics of the Faculty, it appeared that for both the dental assisting and dental hygiene education programs there were two types of preparation within the Faculty - the dentists and those prepared as one or more of the dental auxiliaries. The dentists were, as a rule, males and over 35 years of age. They tended to be married, and a few of them were other than white Caucasians. Except for the programs which had dentists employed as full-time administrative directors,

TABLE 8

TYPES OF DENTAL CLINICS AND SPECIALITIES IN WHICH DENTAL AUXILIARY STUDENTS ARE PLACED FOR FACULTY AND/OR PRECEPTOR TUTELAGE

TYPE OF CLINIC OR SPECIALITY	DENTAL AUXILIARY EDUCATION PROGRAM					
	D. Assisting N=26		D. Hygiene N=26		D. Laboratory Technician N=11	
	N	%	N	%	N	%
1. General dentistry clinic or practice not in a dental or auxiliary school	17	65	7	27	0	0
2. Periodontic clinic/ office	14	54	11	42	0	0
3. Prosthodontic clinic/ office	12	46	7	27	1	9
4. Orthodontic clinic/ office	14	54	5	19		
5. Endodontic clinic/ office	13	50	4	15		
6. Pedodontic clinic/ office	15	58	8	31		
7. Oral surgery clinic/ office	17	65	8	31		
8. General dentistry clinic in a dental school (not in an auxiliary school clinic)	9	35	8	31		
9. Clinic within the teaching institution & considered unique to the auxiliary education programs in question	7	27	19	73	3	27
10. A dental public health clinic/office	4	15	9	35		
11. A dental prosthetics laboratory	7	27	3	12	7	64
12. Other	3	12	8	31		

the majority of the dentists on the Faculty could be classified as part-time instructors and as part-time supervising dentists to the programs. In those programs located in schools of dentistry, there tended to be more dentists identified as Faculty although they held "full-time" appointments in the school of dentistry.

In the auxiliary group of the Faculty in the dental assisting and dental hygiene programs, the auxiliaries were all females and tended to be in the 20 to 35 year age category with some clustering around 24-25 years of age. There were many among them who had never been married, and among the civilian programs there was essentially no race or ethnic groups other than white, Caucasian found among them. Except for a few cases, they were full-time employees of the educational institutions and they accounted for a majority of the instructional hours produced by the program's curriculum.

As Table 9 indicates, the dental laboratory technician Faculty were all males and all, except for four dentists, were dental laboratory technicians. The Faculty of these programs also tended both to fall within the 20-35 years of age category and to be white, Caucasian.

The military programs account for 24 percent of the other than white, Caucasian Faculty. Dentist Faculty accounted for the overwhelming majority of non-white, Faculty members.

With such a large percentage of the Faculty in the 20 to 35 years of age category, several questions are raised which relate to the extent of the Facultys' professional experiences. From Table 10 it would appear that a clear majority (74 percent over all auxiliaries) of the Faculty have themselves been "out-of-school" over ten years. If, however, the auxiliaries group of the Faculty is considered apart from the dentist group, the findings for the auxiliaries Faculties move decidedly towards the "zero to five years since completing primary dental occupation education."

The Faculty, as a whole, have not had many years of professional work experience other than in their current job title (Table 10). Sixty-four percent of all Faculty have had five years or less. This is partially due to the extended education period required for the dentists which, when taken with their young ages, does not allow for many years of professional experience. If the auxiliary Faculty is considered as a group apart from the

TABLE 9

BIOGRAPHICAL DATA OF FACULTY IN SIXTY-THREE DENTAL AUXILIARY EDUCATION PROGRAMS

DENTAL AUXILIARY PROGRAMS BY INSTITUTIONAL SETTING AND BY EDUCATIONAL COMPLETION LEVEL	FACULTY	AGE TO NEAREST BIRTHDAY			SEX		RACE*						MARITAL STATUS		
	N	20-35 %	36-50 %	OVER 50 %	M %	F %	WH %	BL %	AI %	OR %	SS %	OT %	NEVER MARRIED %	NOW MARRIED %	OTHER %
DENTAL ASSISTING															
Community College & Technical Institute	62	45	32	23	27	73	96	0	2	2	0	0	21	60	19
Senior Institution w/o Dental School	13	39	39	23	38	62	100	0	0	0	0	0	31	69	0
Senior Institution with Dental School	34	50	29	21	41	59	97	0	0	3	0	0	31	56	13
Military	33	64	30	6	97	3	91	9	0	0	0	0	12	79	9
DENTAL HYGIENE															
Community College & Technical Insitute	63	59	19	22	32	68	95	2	0	3	0	0	21	65	14
Senior Institution w/o Dental School	34	47	26	26	53	47	91	0	0	3	3	3	21	74	5
Senior Institution with Dental School	108	50	39	11	48	52	85	6	0	4	2	4	25	69	6
Military	8	88	0	12	100	0	88	0	0	0	0	12	0	88	12
DENTAL LABORATORY TECHNICIAN															
Community College & Technical Institute	23	26	30	43	100	0	83	4	0	4	9	0	0	91	9
Senior Institution w/o Dental School	9	100	0	0	100	0	100	0	0	0	0	0	0	100	0
Senior Institution with Dental School	4	75	0	25	100	0	100	0	0	0	0	0	0	75	25
Military	18	50	50	0	100	0	72	22	0	0	0	1	6	88	6
ALL DENTAL AUXILIARY PROGRAMS **	409	52	30	18	54	46	91	4	0.3	2	1	1	20	70	10

*WH-White, BL-Black, AI-American Indian, OR-Oriental, SS-Spanish Surname, OT-Other

**Percents may not add to 100 due to rounding.

TABLE 10

EDUCATIONAL AND PROFESSIONAL WORK EXPERIENCE BACKGROUNDS

OF FACULTY IN DENTAL AUXILIARY EDUCATION PROGRAMS

AUXILIARY PROGRAM BY INSTITUTIONAL SETTING	FACULTY	YRS. SINCE PRIMARY DENTAL OCCUPATION EDUCATION COMPLETED			YRS. PROFESSIONAL WORK OTHER THAN CURRENT JOB TITLE			FACULTY	YRS. WORKED IN CURRENT PROGRAM IN CURRENT JOB TITLE			
		0-5	Over 5 & Up To 10	Over 10	0-5	Over 5 & Up To 10	Over 10		0-2	Over 2 & Up To 4	Over 4 & Up to 8	Over 8
	N	%	%	%	%	%	%	N	%	%	%	%
Dental Assisting												
Community College	57	19	18	63	46	28	26	67	40	16	43	0
Military	33	15	0	85	85	12	3	33	49	39	12	0
Senior Institution with Dental School	33	27	15	58	61	18	21	29	48	38	10	3
Senior Institution without Dental School	13	0	8	92	85	0	15	13	15	31	54	0
All Programs*	136	19	12	70	63	19	17	142	42	28	30	<1
Dental Hygiene												
Community College	62	21	16	63	42	29	29	63	48	32	19	2
Military	8	0	0	100	75	12	12	8	38	50	12	0
Senior Institution with Dental School	107	18	8	74	70	19	11	106	43	14	43	0
Senior Institution without Dental School	34	3	9	88	85	6	9	33	27	24	49	0
All Programs*	211	16	10	74	64	20	16	210	42	22	35	1
Dental Laboratory Technician												
Community College	23	13	13	74	44	13	44	23	26	13	57	4
Military	18	0	0	100	72	11	17	18	17	39	44	0
Senior Institution with Dental School	4	25	25	50	100	0	0	4	0	25	75	0
Senior Institution without Dental School	9	22	0	78	100	0	0	9	89	0	11	0
All Programs*	54	13	7	82	67	9	24	54	32	20	46	2
All Auxiliaries*	401	17	10	74	64	18	17	406	40	24	35	1

*Percents may not add to 100 due to rounding.

dentist Faculty, data from the nineteen programs in the pilot study indicate that 72 percent of the auxiliary Faculty have had five years or less professional work experience outside their current job title and nineteen percent have had over five and up to ten years professional work experience outside their current job title. This may suggest that a number of the auxiliary Faculty go directly into teaching upon completing their dental occupational education.

Forty percent of all Faculty have worked two years or less in their current job title in the specific auxiliary education program in which they are currently employed (Table 10), and 64 percent of all Faculty have held their current job title four years or less. In fact, 86 percent of all dental assisting Faculty located in schools of dentistry have four or fewer years of experience in their current job titles.

In an effort to determine how much "inbreeding" there may be among the Faculty in the auxiliary education programs the question was raised regarding the state in which Faculty had received primary dental occupational education. Over sixty percent of all Faculty received their primary dental occupational education in the state in which they were teaching. The auxiliary prepared Faculty was about evenly divided between those having received their education in the state in which they were teaching and other states while among the dentist Faculty there were twice as many dentists who had received their education in the state in which they were teaching as compared to those who received it elsewhere. As a special note from the pilot study, if all Faculty and Preceptor respondents are considered in answering the above question, 64 percent of 197 respondents answering the question had received their primary dental occupational education in the state in which they were teaching. Further seventy-four percent of the Faculty in the pilot study received their primary dental occupational education either in the state in which they were teaching or in one of the states contiguous to it.

Dental Task Inventory

The Dental Task Inventory (DTI) questionnaire used in the pilot study contained 563 task statements while the revised DTI questionnaire contained 489 task statements; 456 statements were exact and common to each questionnaire. In reducing the number of statements to 489, fifty statements were removed from Category 1, Business and Office Management,

and the remaining 24 statements were removed from among ten of the remaining categories. The further difference of 33 task statements (489-456) resulted from changes in wording between statements in the two questionnaires and thus the statements were not considered identical even though the intent of the statements were meant to be the same. Table E (see Appendix E) identifies, by category, each of the 489 statements used in the revised DTI questionnaire and, by footnote, delineates those 33 tasks common but not exact in wording between the two questionnaires. Unless specified otherwise, the following analysis of data is reported from the 456 task statements both exact and common to both questionnaires.

A confidential report of their own responses to the DTI questionnaire for each of the Faculty and the Preceptors of each of the dental auxiliary education program was prepared and sent to each of the 63 programs participating in the study. The report presented, by individual task statement, the frequency of response to each of the responsibility levels. To present such an analysis of each program here, however, is both beyond the scope of this discussion and outside the objectives of the study. What is germane is the extent to which the method utilized, together with the questions and response scales used, could be used to determine the task content of the curriculum of occupational and professional education programs. Specifically, the following discussion will examine the extent to which the DTI questionnaire was (a) effective in identifying similarities and differences among various educational programs preparing individuals for the same dental auxiliary role, (b) effective in identifying differences and similarities among any of the 63 dental auxiliary programs studied, and (c) effective in identifying similarities and differences between the Faculty and the Preceptors in their perceptions of the task content and the responsibility levels of those tasks being taught in the curriculum. A discussion of each of these and related questions is presented in the following sections.

Hierarchical Clustering of Auxiliary Programs

Although the DTI questionnaire was used to collect the same task data in each specific dental auxiliary program, the job of making an analysis of 456 statements for the purpose of comparing the programs appeared to be formidable. However, as was noted in the previous chapter, a method was found in the literature which was used effectively to cluster

individual educational programs according to similarities across the task content of their curricula. Johnson (1967) referred to the method as a Hierarchical Clustering Scheme, and as titled, the method utilized an algorithm which generated a clear, explicit, and intuitively rational pictorial presentation (clustering) of those auxiliary programs with empirical measures of similarity.

Clustering Across All Auxiliary Programs

Table 11 presents the results of the clustering schema for the 63 dental auxiliary education programs included in this study. An empirical measure of the similarity of the responses to all 456 dental task statements was computed between every combination of program pairings using the sum of the squared differences between the corresponding components of the individual program profiles (see Methods and Procedures section of previous chapter). Each of the 1,921 similarity measures was then compared to identify that pair of auxiliary programs with the smallest discrepancy between similarity measures; i.e., those programs most similar in their identified task content. After the first pair was identified and clustered as a two component cluster, the remaining individual clusters together with the newly formed cluster were again compared to find the next program or pair of programs most similar in task content, whereupon another new cluster was formed and identified in the hierarchy. The process continued until the hierarchy (schema) was completed. It should be noted there is an inverse relationship between the magnitude of the "Similarity Value" and the strength of the cluster; i.e., as the "Similarity Value" increases, there is less and less similarity among the, as yet, unclustered programs. (See Table 11.)

Before reviewing the clustering within Table 11, it is suggested that the reader note the ordering of the dental auxiliary programs across the top of the table. First, there are three dental hygiene programs, these are followed by two of the dental assisting programs, after which appear sixteen of the dental hygiene programs, which in turn are followed by another eighteen of the dental assisting programs, then a dental hygiene program followed by the final six dental assisting programs, and these are followed by the last five dental hygiene programs. Finally, the eleven dental laboratory technician

TABLE 11

HIERARCHICAL CLUSTERING SCHEME FOR FACULTY PROFILES
FROM SIXTY-THREE DENTAL AUXILIARY EDUCATION PROGRAMS

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

H H H A A H H H H H H H H H H H H H H A A A A A A A A A A A A A A A A A A H A A A A A A H H H H H H L L L L L L L L L L L L L
5 5 3 3 2 2 4 3 2 4 1 2 0 4 3 0 3 2 0 4 4 0 1 2 4 0 0 0 5 5 4 3 3 3 0 1 3 2 4 1 1 0 1 2 2 2 1 4 3 2 3 3 3 0 4 4 3 2 4 2 2 3 0 3 0
0 1 9 9 7 7 3 6 5 2 5 2 7 1 8 6 7 1 2 5 4 5 1 1 4 3 2 6 2 3 5 5 7 6 1 2 2 3 2 4 4 9 0 5 0 3 0 0 3 1 3 8 4 5 2 5 0 0 1 6 5 8 1

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

1 2 2 2 1 1 1 3 3 2 1 1 3 1 1 3 1 2 3 4 4 3 3 2 4 3 3 3 4 4 4 5 1 3 3 3 3 3 2 1 1 3 3 3 3 1 3 1 3 3 3 2 3 4 4 3 3 3 3 2 3 3 1 3

CERTIFICATE OR DEGREE AWARDED[3]

SIMILARITY VALUE[4]

3 2 2 1 1 2 3 2 2 2 1 3 2 2 3 2 1 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 3 1 1 2 1 1 2 3 2 2 3 2 1 1 2 2 2 2 2 2 2 2 2

316 . . . . . XXX . . . . . .
821 . . . . . XXX . . . . . XXX . . . . .
1012 . . . . . XXX . . . . . XXX XXX . . . .
1170 . . . . . XXX . . . . . XXX XXX . . . XXX
1191 . . XXX . . . . . XXX . . . . . XXX XXX . . . XXX
1242 . . XXX . . . . . XXX . . . . . XXXXXXX . . . XXX
1279 . . XXX . . . . . XXX . . . . . XXXXXXX . XXX XXX
1282 . . XXX . . . . . XXX . . . . . XXXXXXX . XXX XXX
1466 . . XXX . . . . . XXX . . . . . XXXXXXXXX . XXX XXX
1590 . . XXX . . . . . XXX . . . . . XXXXXXXXX . XXXXXXX
1638 . . XXX . . . XXX . . . . . XXX . . . . . XXXXXXXXX . XXXXXXX
1643 . . XXX . . . XXX XXX . . . . . XXX . . . . . XXXXXXXXX . XXXXXXX
1680 . . XXX . . . XXX XXX . . . . . XXX . . . . . XXX . . XXX . . . . . XXXXXXXXX . XXXXXXX
1700 . . XXX XXX . XXX XXX . . . . . XXX . . . . . XXX . . XXX . . . . . XXXXXXXXX . XXXXXXX
1832 . . XXX XXX . XXX XXX . . . . . XXX . . . . . XXX . . XXX . . . . . XXXXXXXXX . XXXXXXX
1914 . . XXX XXX . XXX XXX . . . . . XXX . . . . . XXX . . XXXXX . . . . . XXXXXXXXX . XXXXXXX
1936 . . XXX XXX . XXX XXXXX . . . . . XXX . . . . . XXX . . XXXXX . . . . . XXXXXXXXX . XXXXXXX
1970 . . XXX XXX . XXX XXXXX . . . . . XXX . . . . . XXX . . XXXXX XXX . . . . . XXXXXXXXX . XXXXXXX
2046 . . XXX XXX . XXX XXXXX . . . . . XXX . . . . . XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX . XXXXXXX
2096 . . XXX XXX . XXX XXXXX . . . . . XXX . . . . . XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2121 . . XXX XXX . XXX XXXXX . . . . . XXXXX . . . . . XXX . . . . . XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2128 . . XXX XXX . XXX XXXXX . . . . . XXXXX . . . . . XXX . . XXX XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2144 . . XXX XXX . XXX XXXXX XXX . . . . XXXXX . . . . . XXX . . XXX XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2153 . . XXX XXX . XXX XXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXX . . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2161 . . XXX XXX . XXX XXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXXXX . XXXXX XXX . . . XXX . . . . XXXXXXXXX XXXXXXXXX
2243 . . XXX XXX . XXX XXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXXXX . XXXXX XXX . . . XXX XXX . . XXXXXXXXX XXXXXXXXX
2251 . . XXX XXX . XXX XXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXXXX . XXXXX XXX . . . XXX XXX . . XXXXXXXXXXXXXXXXX
2254 . . XXXXXXX . XXX XXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXXXX . XXXXX XXX . . . XXX XXX . . XXXXXXXXXXXXXXXXX
2306 . . XXXXXXX . XXXXXXXXX XXX . . . . XXXXX . XXX . . . . XXX . . XXX XXXXX . XXXXX XXX . . . XXX XXX . . XXXXXXXXXXXXXXXXX
2337 . . XXXXXXX . XXXXXXXXX XXX . . . . XXXXX . XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXX . . . XXX XXX . . XXXXXXXXXXXXXXXXX
2366 . . XXXXXXX . XXXXXXXXX XXX . . . . XXXXX . XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2379 . . XXXXXXX . XXXXXXXXX XXX . XXX . XXXXX . XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2406 . . XXXXXXX . XXXXXXXXX XXX . XXX . XXXXXX XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2507 . . XXXXXXX . XXXXXXXXX XXX . XXX . XXXXXX XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2558 . . XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2664 XXX XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX . . XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXX XXX . . XXXXXXXXXXXXXXXXX
2670 XXX XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX XXX XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXXX XXX . . XXXXXXXXXXXXXXXXX
2679 XXX XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX XXX XXX XXX . . . XXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2737 XXX XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX XXX XXX XXX . . . XXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2742 XXX XXXXXXX XXXXXXXXXX XXX . XXX . XXXXXX XXX XXX XXX XXXXX . . XXXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2761 XXX XXXXXXX XXXXXXXXXX XXX XXXXX . XXXXXX XXX XXX XXX XXXXX . . XXXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2908 XXX XXXXXXX XXXXXXXXXX XXXXXXXX . XXXXXX XXX XXX XXX XXXXX . . XXXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2962 XXX XXXXXXX XXXXXXXXXX XXXXXXXXX XXXXXXXX XXX XXX XXX XXXXX . XXXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
2994 XXX XXXXXXX XXXXXXXXXX XXXXXXXXX XXXXXXXX XXX XXX XXX XXXXX . XXXXX XXXXX . XXXXX XXXXX . . XXXXXXXX . . XXXXXXXXXXXXXXXXX
3048 XXX XXXXXXX XXXXXXXXXX XXXXXXXXX XXXXXXXX XXX XXX XXX XXXXX . XXXXX XXXXXX XXXXX XXXXX . XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3089 XXX XXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXX XXX XXX XXXXX . XXXXX XXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3102 XXX XXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXX XXX XXX XXXXX . XXXXX XXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3143 XXX XXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XXX XXXXX . XXXXX XXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3352 XXX XXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XXX XXXXXX XXXXX XXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3367 XXX XXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XXX XXXXXX XXXXXXXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3459 XXXXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XXX XXXXXX XXXXXXXXXXX XXXXX XXXXXX XXXXXXXXXX . XXXXXXXXXXXXXXXXX
3529 XXXXXXXXXXXXXXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XXX XXXXXX XXXXXXXXXXX XXXXX XXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXX
3542 XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXX XXX XXXXXX XXXXXXXXXXX XXXXX XXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXX
3711 XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXX XXXXXX XXXXXXXXXXX XXXXX XXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXX
3840 XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXX XXXXXX XXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX
4162 XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX
4813 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX
4875 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX
5365 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX
6107 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX
8606 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX
10667 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (H) dental hygiene, (A) dental assisting, (L) dental laboratory technician, and H14 is a dental hygiene program from site 14 (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the sixty-three program's profiles. The first clustering (H14 with A14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

programs complete the order. The ordering of the programs is determined by the manner in which the clusterings took place and, therefore, there is an intuitive feeling from the beginning that there are perhaps three, maybe four, types of dental hygiene programs and perhaps three types of dental assisting programs in the population. In addition there appears to be one dental hygiene and one dental assisting program which are very similar to each other (A14 and H14) but quite different from all others except A09. And, of course, it appears that all eleven dental laboratory technician programs have fairly close similarity but are of two types.

The first cluster identified in Table 11 is noted to be between a dental hygiene program and a dental assisting program. Further identification of these two programs indicates that they are both located in the same institutional setting (site 14), and that several members of each program's Faculty teach in both auxiliary programs. It is further noted from the table that the proportionate increase between the similarity values 316 and 821 is greater than between all other similarity values. This fact would further indicate that these two programs are highly similar but distinctly different from all other programs. The question arises as to whether these programs are really as similar as they appear to be or whether the shared Faculty in the programs had some difficulty in separating the responsibility levels to which they prepared the students in each of the two programs. (It should be recalled that most shared Faculty completed a DTI questionnaire for each program in which they taught).

The next three clusters to appear in the hierarchy are among the dental laboratory technician programs. Since the dental laboratory technician education programs might be expected to teach a more circumscribed set of tasks compared with dental assisting or dental hygiene programs, it might have been suspected that the dental laboratory technician programs would have formed the first cluster, but the Hierarchical Clustering Scheme (HCS) method of analysis identified a first relationship which would have been difficult to identify from scanning the tables of data presented in Appendix E (Tasks taught data). One laboratory program, L44, appears to be quite different from the other ten.

The fifth cluster identified in the HCS of Table 11 is formed between another dental assisting and dental hygiene program located in the same institutional setting (site 39).

A feature of this cluster is that it remains as an identity until a point is reached in the clustering where 22 other clusters have been formed and then it combines to form a cluster with another pair of dental assisting and dental hygiene programs at a second site (site 27). These two dental assisting programs (A39 and A27) are decidedly more related in their task content to twenty dental hygiene programs than they are to any of the other dental assisting programs.

In making the original contacts with the dental auxiliary program directors at the various sites it was learned that four of the sites had "experimental" programs in progress in addition to their "regular" on-going program in the respective dental auxiliary. Two of the experimental programs were in dental hygiene and two were in dental assisting. The programs were program and site coded as follows: H22 (regular) and H50 (experimental), H42 (regular) and H51 (experimental), A44 (regular) and A52 (experimental), and A45 (regular) and A53 (experimental). The "experimental" programs were expanding the task content of their curricula.

Further examination of the experimental dental assisting programs reveals that they are conducted at military sites and that the programs are not accredited. In addition, both of the "regular" dental assisting programs are short term in length (one 6.5 weeks and the other twelve weeks) as compared with the median of 33 weeks for all accredited dental assisting programs. The "experimental" dental assisting programs were "add-on" in nature although they both required some work experience at the first level before entering the experimental program. Based on this information one might expect the two "regular" dental assisting programs to cluster quite closely and the two "experimental" programs to cluster near each other depending upon the degree of similarity between them. Table 11 shows the two "experimental" programs (A52 and A53) forming a direct cluster very early (close similarity) and remaining as an identity until quite late. Although the "regular" programs (A44 and A45) did not form a direct cluster, the A45 program did eventually both cluster with the experimental cluster and cluster with it before clustering with any other dental assisting programs.

The "experimental" dental hygiene programs (H50 and H51) joined late as a direct cluster and remained as an identity for some period before clustering with another cluster

at a low level of similarity. That these two programs clustered late indicates that other programs had more in common than did theae two programs, but by their forming a direct cluster it may be said that they had more in common with each other than they did with other programs. The "regular" dental hygiene programs (H22 and H42) did join in a formed cluater with H15, quite early thus indicating a high degree of similarity among these programs.

Finally, if one looks at programs H30, H23, H31, H33, and H08 in Table 11, it appears that although these dental hygiene programs have something in common, they are nevertheleas diatinct aa a group from the majority of the dental hygiene programs and, further, have more aimilarity with the great majority of the dental assisting programs than they do with the other dental hygiene programs. In fact, they have more in common with six dental aasiating programs (A09, A10, A25, A20, A13, and A40) than do these dental assisting programs with most all other dental assisting programs. This finding may indicate that the six referenced dental assisting programs and together with A39, A27, and A11 each have a curriculum which is more dental hygiene-like than like the other dental assisting programs.

Clustering Across Community College Auxiliary Programs

Since the community college based program profiles had shown some differences from the "all programs" profiles presented in Table 11, it was decided to examine the clusterings among the thirty community college based programs. Table 12 presents the results of this analysis. As in Table 11, the HCS in Table 12 presents a picture of two groups of dental assisting programs - seven in each group. The seven dental asaisting programs on the left side of the HCS show a decided similarity with three dental hygiene programs (H23, H31, and H08). These ten programs form a cluster which remains aa an identity while other dental hygiene programs continue to cluster. The order of magnitude of the difference in aimilarity value at which this ten-program cluster combines with all remaining dental assisting and hygiene programs (7134-4696=2438) is very high and indicates there is a aizeable dissimilarity between the ten-program cluster and the remaining programs.

It is noted that five sites have both dental assisting and dental hygiene programs (aites 02, 06, 23, 25, and 36). The A02 and A06 dental assisting programs are among the

TABLE 12

HIERARCHICAL CLUSTERING SCHEME FOR FACULTY PROFILES FROM THIRTY COMMUNITY COLLEGE DENTAL AUXILIARY EDUCATION PROGRAMS

SIMILARITY VALUE[3]	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS PROGRAM TYPE AND SITE CODE[1] CERTIFICATE OR DEGREE AWARDED[2]
	A A A A A A A H H H H H H H H A A A A A A A L L L L L L L 1 2 2 0 3 0 4 2 3 0 3 2 0 0 0 0 1 0 2 3 1 0 0 3 2 4 2 3 0 0 1 0 5 0 9 6 1 0 3 1 8 6 5 7 6 2 5 1 3 3 2 2 6 2 2 5 0 0 6 5 1 1 2 1 1 1 1 2 2 2 2 2 2 2 2 2 2 1 1 2 1 1 1 1 2 2 2 2 2 2 2
821	. . . . . XXX . . .
1012	. . . . . XXX XXX . . .
1242	. . . . . XXXXXXX . . .
1282	. . . . . XXXXXXX XXX .
1535	. . . . . XXXXXXXXXXX .
1638	. . . . . XXX . . . . . XXXXXXXXXXX .
1680	. . . . . XXX . . . . . XXX . . XXXXXXXXXXX .
1819	. . . . . XXX . . . . . XXX . . XXXXXXXXXXXXX
1970	XXX . . . . . XXX . . . . . XXX . . XXXXXXXXXXXXX
2128	XXX . . XXX . . . . XXX . . . . . XXX . . XXXXXXXXXXXXX
2148	XXX . . XXX . XXX . XXX . . . . . XXX . . XXXXXXXXXXXXX
2161	XXX . . XXX . XXX . XXX . . . . . XXXXX . . XXXXXXXXXXXXX
2219	XXX . . XXX . XXX . XXX . . XXX . . XXXXX . . XXXXXXXXXXXXX
2337	XXX . . XXX . XXX . XXX . . XXX . . XXXXX XXX XXXXXXXXXXXXX
2366	XXXXX . XXX . XXX . XXX . . XXX . . XXXXX XXX XXXXXXXXXXXXX
2427	XXXXX . XXX . XXX . XXXXX . XXX . . XXXXX XXX XXXXXXXXXXXXX
2679	XXXXX . XXX XXXXX . XXXXX . XXX . . XXXXX XXX XXXXXXXXXXXXX
2751	XXXXX XXXXX XXXXX . XXXXX . XXX . . XXXXX XXX XXXXXXXXXXXXX
2813	XXXXX XXXXX XXXXX . XXXXX . XXX XXX XXXXX XXX XXXXXXXXXXXXX
2947	XXXXX XXXXX XXXXX . XXXXXXX XXX XXX XXXXX XXX XXXXXXXXXXXXX
2979	XXXXX XXXXX XXXXXXX XXXXXXX XXX XXX XXXXX XXX XXXXXXXXXXXXX
3251	XXXXX XXXXX XXXXXXX XXXXXXX XXX XXX XXXXXXXXX XXXXXXXXXXXXX
3462	XXXXXXXXXXX XXXXXXX XXXXXXX XXX XXX XXXXXXXXX XXXXXXXXXXXXX
3711	XXXXXXXXXXX XXXXXXX XXXXXXX XXX XXXXXXXXXXXXX XXXXXXXXXXXXX
3770	XXXXXXXXXXXXXXXXXXX XXXXXXX XXX XXXXXXXXXXXXX XXXXXXXXXXXXX
3947	XXXXXXXXXXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXX
4696	XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
7134	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
10667	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (H) dental hygiene, (A) dental assisting, (L) dental laboratory technician, and A10 is a dental assisting program from site 10 (site code is known only by site respondents).

[2]Certificate or degree awarded: (1) certificate of completion, (2) associate degree.

[3]The "similarity value" is a "least distance" measure of the difference between two or more of the thirty program's profiles. The first clustering (L40 with L20) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

aeven dental assisting programs which cluster on the right of Table 12 and the respective H02 and H06 dental hygiene programs also cluster with these dental hygiene programs which tend to cluster to the right of H36. While there are no direct clustera formed with any of theae four programs, there eventual clustering showa more relatedness among them than with other dental assisting and hygiene programs to the left of H36. The pairs of programs from sites 23, 25, and 26 are each divided between the "left" and "right" sides of the table indicating less similarity between each of these latter pairs than between each of the former pairs. The three pairs of assiating and hygiene programs at the same site which had the great similarity were both located in four-year institutions, two of which were at dental schools. (14 and 27).

Clustering Across Senior Institution Auxiliary Programs

Table 13 depicts the HCS for 24 auxiliary programs located in senior institutions - both those with and without an associated dental school. In this table are six sites (14, 21, 27, 37, 39, and 4.; which each have both a "regular" dental assisting and hygiene program. In addition, site 22 has both a "regular" dental hygiene program (H22) and an "experimental" dental hygiene program (H50 - a separate site code waa used to distinguish the two programs) as does site 41 (H41 is the "regular" program and H51 is the "experimental" program). In looking at the sequencing of the programs across the top of the table it is quite obvious that there is more diversity among the dental assisting programs in four-year institutions than there is among dental assisting programs in the community colleges (Table 12). Three of the seven dental assisting programs are dispersed among the dental hygiene programs; two of the three are paired with the hygiene program at the same location (27 and 39). The dental laboratory technician programs, as noted in previous tables, cluster early and remain an identity until the last cluster is formed to include them.

The first two clusters formed in this HCS (Table 13) are A14 with H14 and A39 with H39 and the fourth cluster is A27 with H27. The two programs at site 14 ahare seven Faculty members (dentists and auxiliary), and the two programs at aite 39 share two dentists and two auxiliary Faculty members. (It should be recalled that each Faculty member completed a DTI questionnaire for each specific program in which he or she taught.) No

TABLE 13

HIERARCHICAL CLUSTERING SCHEME FOR FACULTY PROFILES FROM TWENTY-FOUR SENIOR INSTITUTION DENTAL AUXILIARY EDUCATION PROGRAMS

SIMILARITY VALUE[4]	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS PROGRAM TYPE AND SITE CODE[1] L L A H H H H H H H H A A H H H H H A A A A 3 2 2 4 3 2 1 4 3 2 5 2 2 3 3 5 4 3 3 1 1 4 3 1 8 1 1 1 8 2 5 2 7 1 0 7 7 9 9 1 3 3 0 4 4 2 7 3 TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2] 1 2 2 1 1 1 1 2 1 2 1 1 1 2 2 2 1 2 1 1 1 2 1 1 CERTIFICATE OR DEGREE AWARDED[3] 2 2 1 2 3 3 1 2 1 2 3 2 1 1 2 2 3 3 3 3 1 1 1 1
316	. . . . . XXX . . .
1191	. . . . . XXX . . . . XXX . . .
1643	. . . . . XXX . . . . . XXX . . . . XXX . . .
1668	XXX . . . . XXX . . . . . XXX . . . . XXX . . .
1700	XXX . . . . XXX . . . XXX XXX . . . . XXX . . .
1936	XXX . . . XXXXX . . . XXX XXX . . . . XXX . . .
2101	XXX . . . XXXXX . . . XXX XXX . . XXX XXX . . .
2254	XXX . . . XXXXX . . . XXXXXXX . . XXX XXX . . .
2271	XXX XXX . XXXXX . . . XXXXXXX . . XXX XXX . . .
2340	XXX XXX XXXXXXX . . . XXXXXXX . . XXX XXX . . .
2646	XXX XXX XXXXXXX . . . XXXXXXX XXX XXX XXX . . .
2761	XXX XXX XXXXXXXXX . . XXXXXXX XXX XXX XXX . . .
2921	XXX XXX XXXXXXXXX . . XXXXXXX XXX XXX XXX . XXX
2926	XXX XXX XXXXXXXXX . . XXXXXXX XXXXXX XXX . XXX
3044	XXX XXX XXXXXXXXXX . XXXXXXX XXXXXX XXX . XXX
3089	XXX XXX XXXXXXXXXX . XXXXXXXXXXXXXX XXX . XXX
3596	XXX XXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXX . XXX
3704	XXX XXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXX XXXXX
3749	XXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXX XXXXX
4875	XXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXX
5758	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
8049	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
10624	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (H) dental hygiene, (A) dental assisting, (L) dental laboratory technician, and L38 is a dental laboratory technician program from site 38. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, and (2) senior institution without a dental school.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the twenty-four program's profiles. The first clustering (H14 with A14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

Faculty members were shared at site 27. While there were no direct clusters formed between the two programs at each of sites 21, 37, and 42, there was one shared dentist Faculty at site 21. These findings suggest that the programs with shared Faculty or in the same institution tend to teach a greater number of tasks in common and are more likely to teach them to a similar level of responsibility; or the fact that some Faculty completed two DTI questionnaires could account for only a part of this similarity. While no formal study was undertaken to answer this quandary, it is the opinion of the author, based on interviews with several Faculty teaching in two or more programs, that if the task(s) is taught at an institution, the Faculty tend to both teach "All the student needs to know" about the task and bring the student up to the level of competency (responsibility) required to perform the task. Where highly developed lesson plans for each program are not used by a Faculty member, there would likely be more carry-over from one program to another.

Experimental programs H50 and H51 did not form a direct cluster in this HCS as they did when all programs in all sites were clustered in Table 11. It will be recalled that in Table 11 the two programs clustered somewhat late indicating they were indeed "experimental"; i.e., they did not have a great deal of similarity with other programs. However, when these two programs are compared with only those programs based in senior institutions (Table 13), H51 clusters with H43 as the sixth direct cluster among 22 dental assisting and hygiene programs and H50 clusters late (indicating it is quite different) and indirectly with a number of dental hygiene and assisting programs. This large cluster (H50, H27, A27, A39, H39, H51, H43, H33 and H30) may be a group of programs that have "expanded" the task content and/or the level of responsibility to which the tasks are taught in their curricula and done it in such that they are quite different from all other dental hygiene and assisting programs.

If the maximum "Similarity Values" are compared in Tables 12 and 13, it will be noted that the final value in both tables is of approximately the same magnitude. However, since there were a total of thirty community college programs and only 24 programs in the four-year institutions, the theoretical maximum Similarity Value for the community colleges would be somewhat higher. Therefore, it appears that there is somewhat greater discrepancy among the programs in the four-year institutions than there is among those in community

colleges. However, much of this greater differences in the community colleges is due to the inclusion of the dental laboratory programs.

Clustering Among All Dental Hygiene Programs

Table 14 presents the HCS for all 26 dental hygiene programs included in the study. In this analysis the two "experimental" programs (H50 and H51) again form a direct cluster and again since the cluster is formed somewhat late and is maintained as an identity, it may be concluded that these two programs are fairly similar to each other but quite different from the other dental hygiene programs. As would be expected from an examination of the previous HCS tables, H14 is indeed unique when compared to all other dental hygiene programs. Further, we see four major groupings among the 26 programs; sequentially, from left to right, they are (1) H50 through H43, (2) H07 through H06, (3) H05 through H21, and (4) H08 through H30). Those in group one are about equally divided among the three types of institutions represented while those in group two are nearly all in senior institutions with dental schools (H42 is run in two cooperating senior institutions one of which has a dental school in which the students are given a good portion of their training and H06 is in a community college). None of those in group three are located in senior institutions with dental schools; the group is essentially community college and military based. The fourth group shows great divergence (dissimilarity) among its members and thus might be considered an "other" kind of grouping. It is equally noteworthy that the students within the same cluster may be awarded different levels of degrees - in one cluster a certificate or an associate or a baccalaureate degree.

Clustering Among All Dental Assisting Programs

In Table 15 the HCS presents the 26 dental assisting programs as if they might be considered in five groups: (1) A14 through A09, (2) A42 through A01, (3) A37 through A10, (4) A35 through A52, and (5) A06 through A11. Group one with A14 and A09 are very similar but very dissimilar to all other programs as evidenced by the fact that they join with all other programs only in the last clustering and by the magnitude of the Similarity Value between the last two clusters. Group four contains the two "experimental" programs (A52

TABLE 14

HIERARCHICAL CLUSTERING SCHEME FOR FACULTY PROFILES FROM TWENTY-SIX DENTAL HYGIENE PROGRAMS

SIMILARITY VALUE[4]	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS PROGRAM TYPE AND SITE CODE[1] H H H H H H H H H H H H H H H H H H H H H H H H H H 5 5 3 2 3 2 3 4 0 4 3 2 1 4 3 0 0 4 4 0 2 0 3 2 3 1 0 1 6 5 9 7 3 3 7 1 8 2 5 2 7 6 5 4 5 2 1 8 1 3 0 4 TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2] 1 2 3 3 2 1 2 1 3 1 1 1 1 2 1 3 3 4 4 3 2 3 3 3 1 1 CERTIFICATE OR DEGREE AWARDED[3] 3 2 2 2 2 2 3 3 2 2 3 3 1 2 1 2 2 1 1 2 2 2 2 2 3 3
1638	. . XXX . . . . .
1643	. . XXX . . . . . XXX . . . . .
1832	. . XXX . . . . . XXX . . . XXX . . . . .
1936	. . XXX . . . . . XXXXX . . . XXX . . . . .
2046	. . XXX . . . . . XXXXX . . . XXX . . . . XXX .
2121	. . XXX . . . . . XXXXX . . . XXXXX . . . XXX .
2134	. . XXX . XXX . . . . XXXXX . . . XXXXX . . . XXX .
2144	. . XXX . XXX . XXX . XXXXX . . . XXXXX . . . XXX .
2274	. . XXXXX XXX . XXX . XXXXX . . . XXXXX . . . XXX .
2302	. . XXXXX XXX . XXX . XXXXX . . . XXXXX . . XXXXX .
2340	. . XXXXX XXX . XXX XXXXXXX . . . XXXXX . . XXXXX .
2379	. . XXXXX XXX . XXX XXXXXXX XXX . XXXXX . . XXXXX .
2406	. . XXXXX XXX . XXX XXXXXXX XXX XXXXXXX . . XXXXX .
2447	. . XXXXXXXXX . XXX XXXXXXX XXX XXXXXXX . . XXXXX .
2492	. . XXXXXXXXXX XXX XXXXXXX XXX XXXXXXX . . XXXXX .
2664	XXX XXXXXXXXXX XXX XXXXXXX XXX XXXXXXX . . XXXXX .
2803	XXX XXXXXXXXXX XXX XXXXXXXXX XXXXXXX . . XXXXX .
2908	XXX XXXXXXXXXX XXXXXXXXXXXXXX XXXXXXX . . XXXXX .
2962	XXX XXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXX . XXXXX .
2994	XXX XXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXX XXXXXX .
3519	XXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXX XXXXXX .
3542	XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXX .
4059	XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXX
5214	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXX
8606	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (H) dental hygiene, and H50 is a dental hygiene program from site 50. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, and (2) senior institution without a dental school, (3) C. College, (4) Military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the twenty-six program's profiles. The first clustering (H36 with H25) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE 15

HIERARCHICAL CLUSTERING SCHEME FOR FACULTY PROFILES

FROM TWENTY-SIX DENTAL ASSISTANT PROGRAMS

SIMILARITY VALUE[4]	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS PROGRAM TYPE AND SITE CODE[1] A A A A A A A A A A A A A A A A A A A A A A A A A A 1 0 4 2 3 1 2 3 0 3 4 1 2 3 2 1 3 4 5 5 0 0 0 4 2 1 4 9 2 3 2 2 7 6 1 7 0 3 0 9 5 0 5 5 3 2 6 2 3 4 1 1 TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2] 1 3 2 3 3 3 1 3 3 1 3 1 3 2 3 3 5 4 4 4 3 3 3 4 2 3 CERTIFICATE OR DEGREE AWARDED[3] 1 1 1 2 1 1 1 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1
1279	. . . . . XXX . . . . .
1680	. . . . XXX . . . . . XXX . . . . .
1914	XXX . . XXX . . . . . XXX . . . . .
1943	XXX . . XXX . . . . . XXX . . . XXX . . . . .
2128	XXX . . XXX . XXX . . . . XXX . . . XXX . . . . .
2137	XXX . . XXXXX XXX . . . . XXX . . . XXX . . . . .
2153	XXX . . XXXXX XXX . . . . XXX . . . XXX XXX
2220	XXX . . XXXXX XXX . . . XXXXX . . . XXX XXX
2337	XXX . . XXXXX XXX . . . XXXXX . . . XXX XXX . . XXX
2366	XXX . . XXXXX XXX . . . XXXXXXX . . XXX XXX . . XXX
2670	XXX . . XXXXX XXX . . . XXXXXXX . . XXX XXX XXX XXX
2710	XXX . . XXXXX XXX XXX . XXXXXXX . . XXX XXX XXX XXX
2742	XXX . . XXXXX XXX XXX . XXXXXXX . XXXXX XXX XXX XXX
2793	XXX XXX XXXXX XXX XXX . XXXXXXX . XXXXX XXX XXX XXX
2812	XXX XXX XXXXXXXXX XXX . XXXXXXX . XXXXX XXX XXX XXX
2921	XXX XXX XXXXXXXXX XXXXX XXXXXXX . XXXXX XXX XXX XXX
3143	XXX XXX XXXXXXXXX XXXXX XXXXXXX . XXXXX XXX XXXXXXX
3343	XXX XXXXXXXXXXXXX XXXXX XXXXXXX . XXXXX XXX XXXXXXX
3352	XXX XXXXXXXXXXXXX XXXXX XXXXXXX XXXXXXX XXX XXXXXXX
3433	XXX XXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXX XXX XXXXXXX
3711	XXX XXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXX XXXXXXXXXX
4054	XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXX
4309	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX
5365	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
7942	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (A) dental assisting, and A14 is a dental assisting program from site 14. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, and (2) senior institution without a dental school, (3) C. College, (4) Military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the twenty-six program's profiles. The first clustering (A53 with A52) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

and A53) and they do appear as the first cluster. This cluster is eventually joined by the "regular" program (A45) from one of the two military sites where the "experimental" program is located (A44 [regular] and A52 [experimental] are both at site 44 and A45 [regular] and A53 [experimental] are both at site 45). Looking at the great difference in Similarity Values among the four programs in this group, it is apparent that there is substantial discrepancy among all of them except those which form the first cluster.

In comparing the Similarity Values of the dental hygiene programs, Table 14, with the Similarity Values of the dental assisting programs in Table 15, it may be noted that the total difference among the dental assisting programs is of approximately the same magnitude as the difference for the dental hygiene programs. If the final Similarity Value for clustering all dental hygiene and dental assisting programs is compared in Tables 11, 12, 13, 14 and 15; i.e., 8606, 7134, 8049, 8606, and 7942 respectively, it is noted that there is a similar total discrepancy when considering all programs in both auxiliaries together as there is difference among programs in a single auxiliary even though the theoretical maximum discrepancy across both types of programs would be much greater. This actual lower level of discrepancy across all programs can be accounted for since a number of hygiene and assistant programs cluster together rather than with programs of their own type.

There appears to be as great, or greater, a discrepancy within each type of auxiliary program and among programs at different types of institutions as there is across all types of levels of programs.

Clustering Across All Auxiliary Programs Using Faculty And Preceptor Profiles

As was noted earlier, dental assisting education programs, as a whole, made considerable utilization of Preceptors; nineteen of 26 dental assisting programs (73 percent) used Preceptors who were in private practice while all but one of the programs conducted in senior institutions with dental schools placed the dental assistant student with the dental students in the dental school clinics. These latter "Preceptors" were not included in the definition of Preceptors as defined in this study and thus were not surveyed.

Table 16 presents the HCS for all 84 Faculty and Preceptor profiles developed in this study. The three dental laboratory technician Preceptor profiles clustered with the dental

TABLE 16

HIERARCHICAL CLUSTERING SCHEME FOR EIGHTY-FOUR FACULTY AND PRECEPTOR PROFILES

FROM SIXTY-THREE DENTAL AUXILIARY EDUCATION PROGRAMS

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

FACULTY OR PRECEPTOR IDENTIFICATION[2]

SIM. VALUE[3]

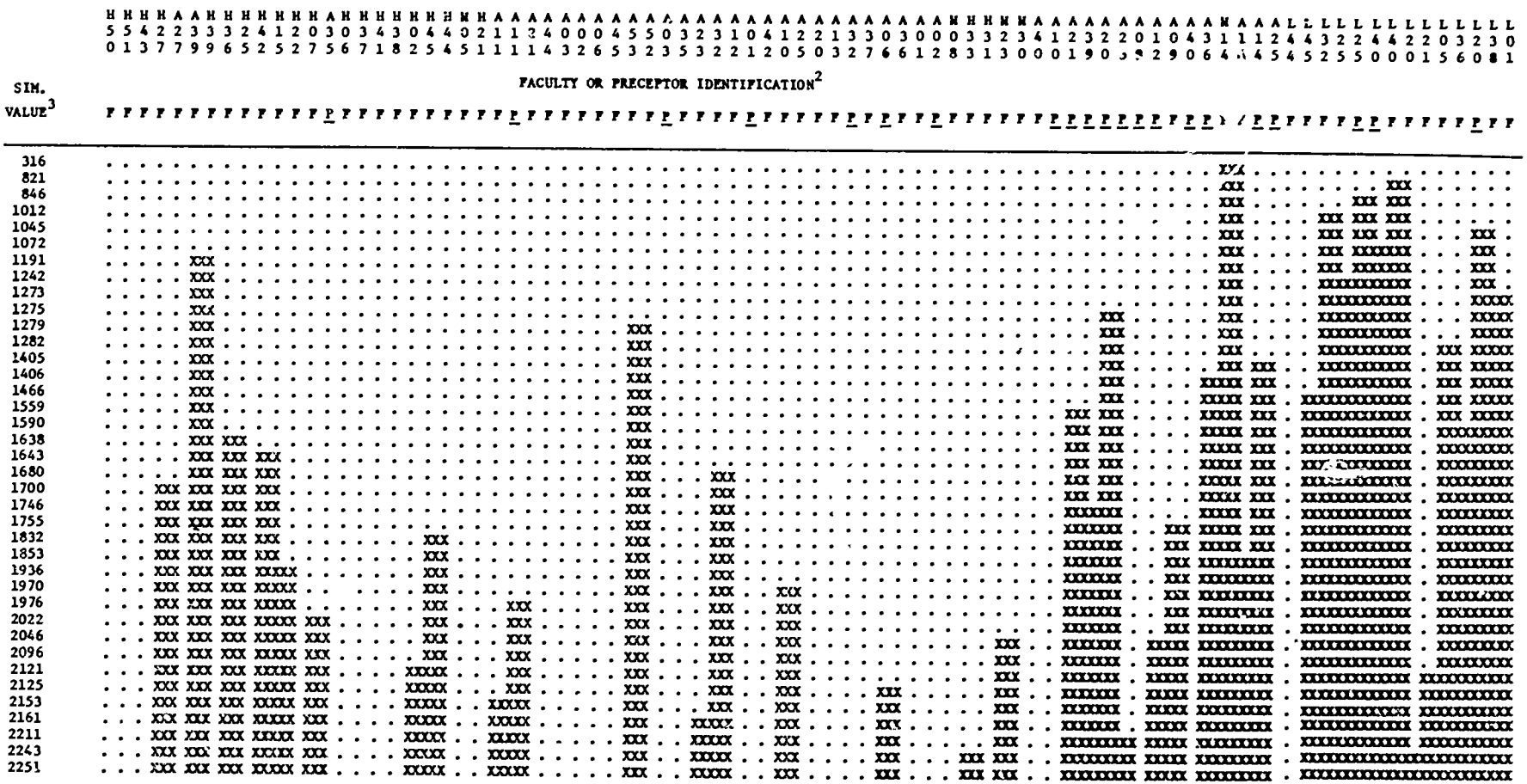
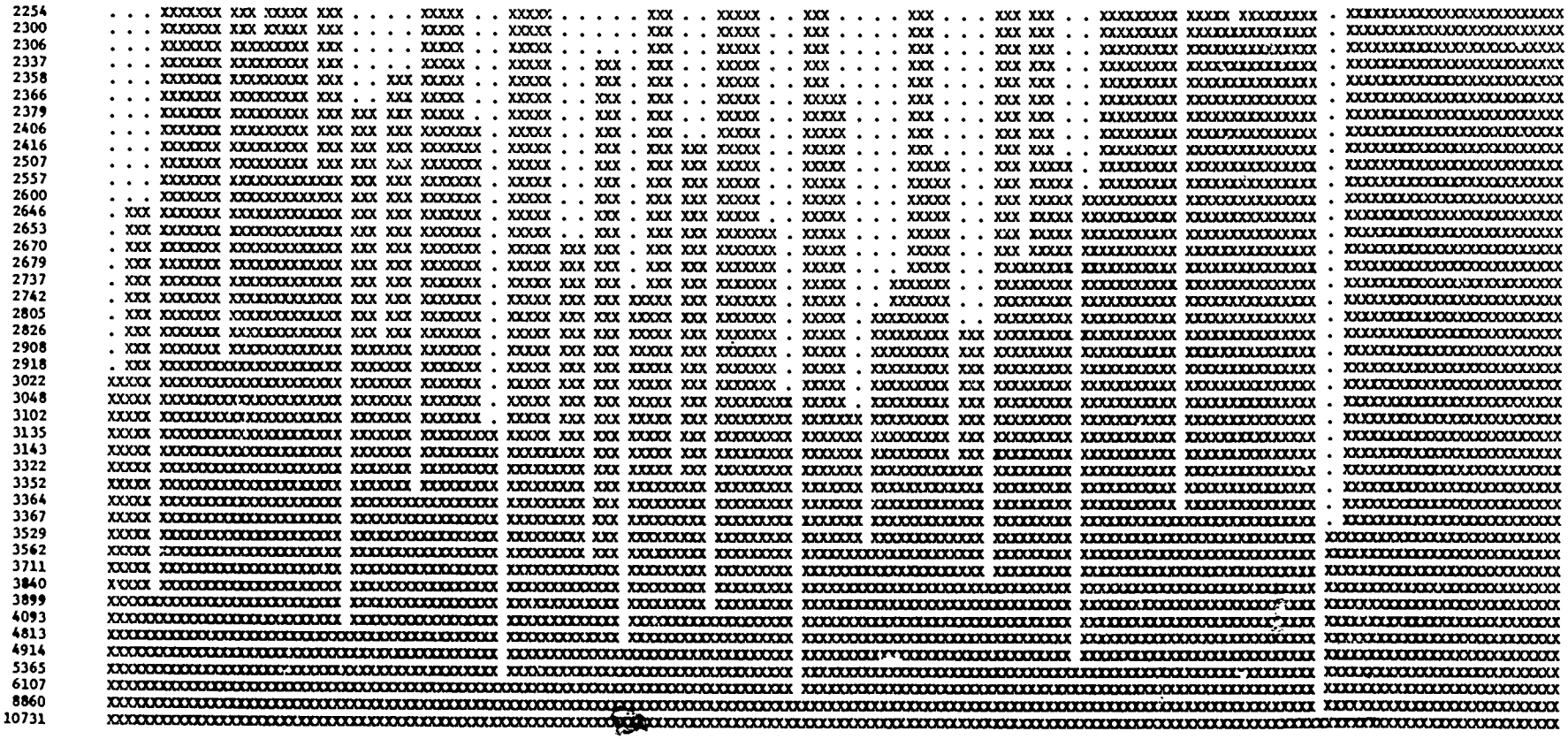


TABLE 16 (CONTINUED)



[1]Dental auxiliary program and site codes: (A) dental hygiene, (A) dental assisting, (L) dental laboratory technician, and H50 is a dental hygiene program from site 50 (site code is known only by site respondents).

[2]F: response of Faculty of dental hygiene program; P: response of Preceptors of dental assistant programs.

[3]The "similarity value" is a "least distance" measure of the difference between two or more of the sixty-three program's profiles. The first clustering (H14 with A14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

laboratory technician Faculty profiles. Although none of the three formed an early direct cluster with its respective Faculty profile, the Preceptor profiles for sites 25 and 40 did cluster with their respective Faculty profile after the two respective Faculty profiles had each clustered only with one other Faculty profile. This would indicate a high degree of similarity between the task content taught by each of these site-related Preceptor and Faculty groups. The Preceptor profile for site twenty did not initially cluster with even the same group of dental laboratory technicians programs with which its respective Faculty profile was grouped.

Eleven of the eighteen dental assisting Preceptor profiles (61 percent) tended to cluster together among themselves and formed a fairly well defined group as compared to most all other profiles. Of the three Faculty profiles which did fall within this group, two (sites 09 and 14) did each form in a three-way cluster with their respective Preceptor profiles. Only one other dental assisting Preceptor profile formed such a three-way cluster with its respective Faculty profile, site 11. None of the dental assisting Preceptor profiles formed direct clusters with their respective Faculty profiles. These findings would suggest that while there is a high level of agreement among a majority of the Preceptors themselves as to the task content of Preceptorships, there is less agreement between the Preceptors as a group and the Faculty as a group. This finding is given some validity by the author's interviews with many Preceptors who commented that they had never seen a curriculum guide for the specific program with which they were associated. Also, most of the Preceptors interviewed stated that while program directors or Faculty from the schools called at their office, it was most often a public relations type of call rather than one designed to talk about curriculum content. It should be said, however, that very few dentists expressed any concern over not having seen a curriculum guide or a task guide with an associated responsibility level for each task. There appears to be a strong hesitancy on the part of Faculty members to suggest to their dentist Preceptors just what duties (tasks) should be assigned to a student who is in their office.

Clustering Among Dental Assisting Preceptor and Dental Hygiene Faculty Profiles

While considering the apparent lack of detailed discussion and coordination between

dental assisting Faculty and Preceptors regarding the task content of the curriculum, the question arose as to whether or not the tasks taught by the Preceptors might have some overlap with those tasks taught by dental hygiene Faculty. In looking at Table 16 for relationships which might exist between the dental assisting Preceptor profiles and dental hygiene Faculty profiles, one direct cluster was noted between H07-Faculty and A35-Preceptor. That the cluster was the twenty-ninth of 83 clusters to eventually be formed would indicate that the two profiles had a moderate degree of similarity. Although there were no additional clusters present in the HCS, there was a possibility that the presence of the dental assisting Faculty profiles in the schema masked other relationships which might exist between dental assisting Preceptors and dental hygiene Faculty. To determine if additional relationships did exist, the HCS presented in Table 17 was produced.

Table 17 reveals that, as a group, the Preceptors tended to cluster among themselves although they form at least four groupings (1) H14 through A12, (2) A10 through A09, (3) A01 through A02, and (4) A11 through H07. In group one, the second direct cluster is formed between H14-Faculty and A36-Preceptors. That this particular dental hygiene Faculty clustered with a Preceptor group is not surprising in light of its previously found strong cluster with A14-Faculty. In group three a direct cluster is formed between H08-Faculty and A02-Preceptor and in group four a direct cluster is formed between A35-Preceptor and H07-Faculty. This latter cluster is formed quite early and remains as an identity for some time, thus there is most likely a high degree of similarity between these two profiles. The group two Preceptors do eventually form a cluster which includes H31, H23, and H30-Faculties; however, since these Faculty cluster quite late with these Preceptors, there is a great deal of discrepancy between them.

Notwithstanding the relationships noted above, the findings in Table 17 suggest that the dental assisting Preceptors reported teaching tasks, and at responsibility levels, quite different from that pattern of tasks taught by Faculty members at dental hygiene programs.

TABLE 17

HIERARCHICAL CLUSTERING SCHEME FOR PRECEPTOR PROFILES FROM EIGHTEEN DENTAL ASSISTANT PROGRAMS AND FACULTY PROFILES FROM TWENTY-SIX DENTAL HYGIENE PROGRAMS

```
                               DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

                                    PROGRAM TYPE AND SITE CODE[1]

            H A A A A A A A A A A A H H H A A A H A A A A H H H H H H H H H H H H H H H H H H H H H
            1 3 4 2 1 1 1 2 3 2 2 0 3 2 3 0 0 3 0 0 1 0 3 0 4 3 2 1 4 3 0 0 4 4 0 2 4 3 2 3 2 3 5 5
            4 6 0 5 4 2 0 1 9 0 3 9 1 3 0 1 6 2 8 2 1 3 5 7 1 8 2 5 2 7 6 5 4 5 2 1 3 3 7 9 5 6 1 0
                           TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

            1 3 3 3 1 3 3 2 2 3 3 3 3 3 1 3 3 3 3 3 3 3 5 3 1 1 1 1 2 1 3 3 4 4 3 2 1 2 1 2 3 3 2 1
                                 CERTIFICATE OR DEGREE AWARDED[3]

            3 1 2 2 1 1 1 1 1 1 2 1 2 2 3 1 1 1 2 1 1 1 1 2 2 3 3 1 2 1 2 2 1 1 2 2 3 3 2 2 2 2 2 3
SIMILARITY                       FACULTY OR PRECEPTOR IDENTIFICATION[4]
  VALUE[5]
            F P P P P P P P P P P P F F F P P P F P P P P F F F F F F F F F F F F F F F F F F F F F

   1275     . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
   1310     XXX . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
   1405     XXX . XXX . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
   1559     XXX . XXX . . XXX XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
   1638     XXX . XXX . . XXX XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX . .
   1643     XXX . XXX . . XXX XXX . . . . . . . . . . . . . . . . XXX . . . . . . . . . . . XXX . .
   1746     XXX . XXX . . XXXXXXX . . . . . . . . . . . . . . . . XXX . . . . . . . . . . . XXX . .
   1801     XXX XXXXX . . XXXXXXX . . . . . . . . . . . . . . . . XXX . . . . . . . . . . . XXX . .
   1832     XXX XXXXX . . XXXXXXX . . . . . . . . . . . . . . . . XXX . . . XXX . . . . . . XXX . .
   1853     XXXXXXXXX . . XXXXXXX . . . . . . . . . . . . . . . . XXX . . . XXX . . . . . . XXX . .
   1936     XXXXXXXXX . . XXXXXXX . . . . . . . . . . . . . . . XXXXX . . . XXX . . . . . . XXX . .
   2022     XXXXXXXXX . . XXXXXXX . . . . . . . . . . . XXX . . XXXXX . . . XXX . . . . . . XXX . .
   2046     XXXXXXXXX . . XXXXXXX . . XXX . . . . . . . XXX . . XXXXX . . . XXX . . . . . . XXX . .
   2121     XXXXXXXXX . . XXXXXXX . . XXX . . . . . . . XXX . . XXXXX . . . XXXXX . . . . . XXX . .
   2134     XXXXXXXXX . . XXXXXXX . . XXX . . . . . . . XXX . . XXXXX . . . XXXXX . . XXX . XXX . .
   2211     XXXXXXXXX . . XXXXXXXXX . XXX . . . . . . . XXX . . XXXXX . . . XXXXX . . XXX . XXX . .
   2274     XXXXXXXXX . . XXXXXXXXX . XXX . . . . . . . XXX . . XXXXX . . . XXXXX . . XXX XXXXX . .
   2300     XXXXXXXXXXX . XXXXXXXXX . XXX . . . . . . . XXX . . XXXXX . . . XXXXX . . XXX XXXXX . .
   2302     XXXXXXXXXXX . XXXXXXXXX XXXXX . . . . . . . XXX . . XXXXX . . . XXXXX . . XXX XXXXX . .
   2340     XXXXXXXXXXX . XXXXXXXXX XXXXX . . . . . . . XXX . XXXXXXX . . . XXXXX . . XXX XXXXX . .
   2379     XXXXXXXXXXX . XXXXXXXXX XXXXX . . . . . . . XXX . XXXXXXX XXX . XXXXX . . XXX XXXXX . .
   2403     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . . . XXX . XXXXXXX XXX . XXXXX . . XXX XXXXX . .
   2406     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . . . XXX . XXXXXXX XXX XXXXXXX . . XXX XXXXX . .
   2447     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . . . XXX . XXXXXXX XXX XXXXXXX . . XXXXXXXXX . .
   2463     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . XXX XXX . XXXXXXX XXX XXXXXXX . . XXXXXXXXX . .
   2492     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . XXX XXX . XXXXXXX XXX XXXXXXX . XXXXXXXXXXX . .
   2510     XXXXXXXXXXX . XXXXXXXXX XXXXX XXX . . . XXX XXXXX XXXXXXX XXX XXXXXXX . XXXXXXXXXXX . .
   2600     XXXXXXXXXXX XXXXXXXXXXX XXXXX XXX . . . XXX XXXXX XXXXXXX XXX XXXXXXX . XXXXXXXXXXX . .
   2664     XXXXXXXXXXX XXXXXXXXXXX XXXXX XXX . . . XXX XXXXX XXXXXXX XXX XXXXXXX . XXXXXXXXXXX XXX
   2803     XXXXXXXXXXX XXXXXXXXXXX XXXXX XXX . . . XXX XXXXX XXXXXXXXXXX XXXXXXX . XXXXXXXXXXX XXX
   2826     XXXXXXXXXXX XXXXXXXXXXX XXXXX XXX . XXX XXX XXXXX XXXXXXXXXXX XXXXXXX . XXXXXXXXXXX XXX
   2962     XXXXXXXXXXX XXXXXXXXXXX XXXXX XXX . XXX XXX XXXXX XXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3194     XXXXXXXXXXX XXXXXXXXXXXXXXXXX XXX . XXX XXX XXXXX XXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3286     XXXXXXXXXXX XXXXXXXXXXXXXXXXX XXX . XXX XXX XXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3299     XXXXXXXXXXX XXXXXXXXXXXXXXXXX XXX XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3367     XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3507     XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXX XXX
   3519     XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXX
   3542     XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX
   4294     XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX
   4394     XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX
   5330     XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   8860     XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H14 is a dental hygiene program from site 14. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, and (2) senior institution without a dental school, (3) community college, (4) military, (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]F: response of Faculty of dental hygiene program; P: response of Preceptors of dental assistant programs.

[5]The "similarity value" is a "least distance" measure of the difference between two or more of the forty-four program's profiles. The first clustering (A20 with A23) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

Hierarchical Clustering By Dental Task Categories

As was reported earlier, a given Faculty profile is prepared by using the highest response to the responsibility level scale by any one or more Faculty members at a given program to each task statement. This procedure results in a single Faculty response to each task statement for each program. The responses to each of the task statements yield a profile of that program. A similar profile was developed for the Preceptors in each program using them. The profiles used in comparisons in the previous sections of this chapter included all task statements in the DTI in each profile.

In this and later sections the profiles used in the hierarchical clustering schemas (HCS) were developed using only those task statements within a given "Category" of task statements (see Appendix E for listing of task statements by category). The HCS's produced using these categorical Faculty profiles clustered the dental assisting and dental hygiene education programs by the degree of similarity in their profiles in each of the categories and are presented in Appendix F. The reader is advised to familiarize him- or herself with Appendixes E and F before continuing.

Combined Faculty Profiles By Category Of Tasks

To develop a type of summary picture of the data presented in Appendix F, an analysis was made across each Faculty's profile as developed for each category of task statements. A matrix was produced which ordered either the 26 dental assisting or dental hygiene programs by rows and the Faculty's profile response to each task statement by columns. One could then look down the columns and see the various maximum response to each task statement -- which is what the HCS program did. One could also look across the rows and determine the number of statements in the category which had received level 1, 2, 3, or 4 responses. By summing the frequency within each response level across all tasks and dividing this total by the total number of all responses in the category another kind of Faculty profile could be developed--a combined Faculty profile which shows by level of responsibility the average of all responses by the 26 dental assisting programs to the task statements in the category. Such a combined Faculty profile (shown in percentages) for each category is presented in Table 18. The table is read as follows for Category 6,

TABLE 18

COMBINED FACULTY PROFILES*, BY CATEGORY, ACROSS TWENTY-SIX DENTAL ASSISTING, TWENTY-SIX DENTAL HYGIENE AND ELEVEN DENTAL LABORATORY TECHNICIAN AUXILIARY EDUCATION PROGRAMS

CATEGORY	DENTAL AUXILIARY											
	Dental Assisting				Dental Hygiene				Dental Lab. Tech.			
	1** %	2 %	3 %	4 %	1 %	2 %	3 %	4 %	1 %	2 %	3 %	4 %
1. Business and office management (37 tasks)	24	4	17	56	34	4	8	54	74	5	8	13
2. Housekeeping--clinical and general patient care (7 tasks)	2	1	2	95	1	0	3	96	61	1	5	32
3. Records--dental, medical (7 tasks)	4	2	13	81	0	.5	3	97	94	0	1	5
4. Examinations--including diagnostic tests and x-ray (35 tasks)	35	12	15	38	20	4	8	68	96	1	3	0
5. Analysis, treatment planning, and consultation (18 tasks)	44	13	18	25	35	7	13	45	68	5	10	17
6. Preventive and patient education (16 tasks)	23	12	9	56	2	2	3	93	92	2	2	4
7. Preparations (13 tasks)	59	31	4	6	81	9	4	6	96	2	1	1
8. Anesthesia and medications (31 tasks)	49	15	13	23	42	8	10	40	90	1	2	7
9. Surgery and surgically related (63 tasks)	64	22	6	9	70	8	6	16	97	1	1	1
10. Impressions (13 tasks)	21	17	17	46	46	8	7	38	55	6	8	30
11. Dental Laboratory (83 tasks)	62	8	8	22	76	6	5	12	7	5	12	76
12. Insertions and Restorations (45 tasks)	47	25	13	15	59	8	10	23	85	6	4	5
13. Adjustments and repairs (33 tasks)	61	18	11	10	67	9	8	16	60	8	10	22
14. Chairside assisting and clinical rapport (55 tasks)	7	5	7	81	17	4	7	73	80	2	4	14

*Each auxiliary's Faculty profile, by category, represents the percent of all responses by 26, 26, and 11 respective auxiliary programs to all tasks within the category; e.g., in Category 1, 24 percent of all responses by 26 dental assisting programs to 37 task statements were at level 1, 4 percent at level 2, 17 percent at level 3, and the rest or 56 percent were at level 4. Percents may not total to 100 due to rounding.

**Responsibility response levels: (1) not taught; (2) graduate will be able to perform, but only under direct supervision; (3) graduate will be able to perform with shared responsibility; (4) graduate will be able to perform with independent responsibility.

Preventive and Patient Education: 23 percent of all responses by the 26 dental assisting programs to the sixteen task statements were taught to a level 1, twelve percent were taught to level 2, none percent were taught to level 3, and the rest or 56 percent were taught to level 4. The combined dental hygiene Faculty profile is read in a similar manner.

In reviewing Table 18 several interesting comparisons are noted. First, on the whole, the dental hygiene programs are more likely to teach tasks (if they are taught at all) to a level of competency (responsibility) which will permit the graduate to perform them with independent responsibility (level 4) whereas there is considerably more likelihood that dental assisting students will be prepared to perform at the 2 or 3 level. This may suggest that the dental assistants are in fact being prepared as assistants to some other type of individual(s) while the dental hygienists are prepared to function in a more independent performance role. It should be noted, however, that in a number categories (1, 2, 3, 6 and 14) the Faculty profiles of both the dental assisting and hygiene auxiliaries indicate they prepare the student to perform over half of the tasks in the category to level 4 (independent performance). It should be pointed out that the actual tasks taught to level 4 may not be the same in both programs; an examination of Table E (Appendix L) should be made to determine which tasks are taught to which level in each type of program.

A second type of review of Table 18 reveals that for dental assisting and hygiene the tasks in categories 2, 14, 6 and 1, in order, have the highest percentage of tasks in common which are taught to level 4. On the opposite side, tasks in categories 9, 11, 13 and 7 are not taught in a majority of either dental assisting or hygiene programs. These two areas of commonality made the major contributions to the high level of clustering in the HCS's for these two auxiliaries and reported in earlier sections. Again, a review and comparison by specific task is necessary for precise comparisons.

A third kind of comparison between the dental assisting and hygiene auxiliary programs reveals that there is some general agreement from category to category as to the proportion of tasks in that category that are taught and not taught and the level of performance expected for those that are taught. Nearly half, and often more, of all tasks in categories 7, 9, 11, 12 and 13 are not taught in either auxiliary program; while, as noted above, more than half of all tasks in categories 1, 2, 3, 6 and 14 are taught in both

auxiliaries and taught to level 4. These patterns of results are consistent with expectations by those knowledgable in the field and tend to provide support for the validity to the data and to the methods used to collect the data.

In a fourth kind of comparison, an assumption of the study was that if the auxiliary is prepared to perform a task to either level 3 or level 4, more of the dentist's time may be released so that he/she can perform those tasks or functions which are reserved to persons of his/her higher level of skills. By combining the responses at levels 3 and 4 in each category, it is possible to estimate the potential increase in the number of tasks which either could be, or are being, delegated by the dentist. Categories 4 and 10 approach or exceed fifty percent for dental assistants and categories 5 and 8 approach or exceed fifty percent for dental hygienists. Between the two auxiliaries then, either or both auxiliaries could be performing to a somewhat "independent" level over fifty percent of all tasks in nine of the fourteen categories; i.e., 1, 2, 3, 4, 5, 6, 8, 10 and 14. A review of the column headed "Delegated by Dentist" in Table E shows the "Frequency" and "Percent" of dentists who do in fact delegate each of the specific tasks to an auxiliary.

Average Similarity Per Task Index

A review of the dental laboratory technician Faculty profile responses reveals that in only one category, category 11, was there a majority of responses at the independent level of responsibility (level 4). Combining the "3" and "4" level responses for this category brings the response up to 88 percent. That figure may be compared to thirty percent and seventeen percent, respectively, for dental assisting and hygiene responses in the same category. An examination of Table E-11 must be made to determine if there is a division of labor in the tasks of this category among the three auxiliaries as might be suggested by these figures. In nine of the fourteen tasks the dental laboratory technicians teach less than 26 percent of the tasks in the category and in eight categories they teach less than twenty percent of the tasks in the category.

While nine percent of the dental laboratory technician Faculty profile responses for category 8, Anesthesia and Medications, were at the "3,4" level of responsibility, a review of Table E-8 that the majority of the tasks receiving these responses were indeed related

to the type of work which might be expected of this auxiliary.

Turning to another type of summary analysis of the data in Appendix F, the reader is referred to the maximum Similarity Value in each of the F tables and to the number of tasks statements in each table, or category. Theoretically, the maximum possible size of the Similarity Value in each category is directly related to the number tasks in the category and to the number of profiles included in the analysis. Thus for a given number of task statements and profiles, an ultimate maximum similarity value could be generated by using the maximum dissimilarity among all task responses across all profiles. That value will be an arithmetic summation of the differences since no combinations or permutations are included in the calculations. Since there are 26 profiles for each assisting and hygiene in each profile, one can, therefore, divide the actual total Similarity Value in any one of the F tables (categories) by the number of tasks in the category and derive an index which indicates the average similarity per task in the category. For example, in Category 1, with 37 task statements, the total derived Similarity Value is 1,126 which when divided by 37 (tasks) gives an index of 30.43. In a similar manner the index for Category 2 is 11.57. Interpreted, the latter index indicates there is much greater average similarity among the seven tasks in Category 2 than there is among the 37 tasks in Category 1. Table 19 presents the average similarity per task index by category and indicates the rank order (from least to greatest discrepancy) of the tasks in each of the categories based upon the index.

The information presented in Table 19 can be used to provide perspective to the HCS's in Tables F-1 through F-14. For example, Table F-2, which has a rank order of one by the average similarity per task index, shows that on the whole there may be a great deal of overlap in the Housekeeping: Clinical and General task content of the curricula among the 26 dental assisting and 26 hygiene programs. Indeed, 45 of the 52 programs cluster together at once and at a Similarity Value of zero (no discrepancy); the remaining seven programs are then added and the final cluster is formed at a Similarity Value of 81, only a fraction of the theoretical maximum Similarity Value for the HCS for this category. The actual total Similarity Value of 81 in Table F-2 is only a part of the theoretical maximum and thus all that lies between the actual total derived value and the theoretical maximum value

TABLE 19

SIMILARITY/DISCREPANCY AMONG DENTAL TASKS IN EACH CATEGORY BY THE AVERAGE SIMILARITY PER TASK INDEX*

Category Number	Number of Tasks	Total Derived Similarity Value**	Average Similarity Index (Similarity Value/No. Tasks)	Rank Order By Index
1	37	1126	30.43	12
2	7	81	11.57	1
3	7	118	16.86	3
4	35	856	24.46	8
5	18	476	26.44	9
6	16	388	24.25	7
7	13	234	18.00	4
8	31	742	23.94	6
9	63	895	14.21	2
10	13	468	36.00	14
11	83	2589	31.19	13
12	45	1222	27.16	11
13	33	879	26.64	10
14	55	1220	22.18	5

*Based upon hierarchical clustering schemas of Faculty profiles from 26 dental assisting and 26 dental hygiene education programs. See Appendix F.

**Derived Similarity Value (actually a measure of discrepancy) determined from respective hierarchical clustering schemas in F tables of Appendix F.

represents commonality among the 52 programs. This statement is supported by the data in Table 18 which indicates that 95 and 96 percent of all responses by the 26 dental assisting and 26 dental hygiene programs (respectively) to the seven task statements in the category were at level 4.

Category nine has a rank order of two by the average similarity per task index. In looking at Table F-9 the conclusion might be drawn that there is a great deal of discrepancy both within and among the dental hygiene and assisting programs. However, given the average similarity per task index of 14.21 (Table 19) for this category and seeing that the highest of the indexes among the categories is 36.00, it can be concluded that there is comparatively

a good deal of similarity among the 52 programs across the 63 tasks in this category. Again, as in Table F-2, the actual total Similarity Value in Table F-9 in only a part of the theoretical maximum and thus all that lies between the actual total derived value and the theoretical maximum value represents commonality among the 52 programs. The conclusion of a high level of similarity among programs in category nine is supported by referring to Table 18 and noting that approximately two-thirds of the 63 tasks in category nine are not taught in either dental assisting or hygiene programs and thus the discrepancies among the programs are due to the remaining one-third of the tasks which are taught to differing levels of responsibility or not taught by one or the other of the programs.

Task Content Of Curricula And Of World Of Work

The data presented in Appendix F (Tables F-1 through F-14) and in Tables 18 and 19 have provided summaries of the similarities, and discrepancies, of the task content of the curricula for dental assisting and hygiene, and to a lesser extent, for dental laboratory technician educational programs. A further study of those data may be made by relating the findings to the data presented in Appendix E (Tables E-1 through E-14) where the data for each dental task statement is presented, in its category. Associated with each task statement in Appendix E are three kinds of data: (1) the actual frequency and percent of responses by each individual respective Faculty respondent to the question "do I teach" this task, (2) the Faculty profile response of each program within the auxiliary to the question, Which is the highest level of competency to which this task is taught by any one or more members of the Faculty in each of the programs within the respective auxiliary, and (3) the competency level to which the task (a) is being or has been performed by the auxiliary practitioner Faculty member and Preceptor or (b) is being or has been delegated or allocated to an auxiliary by the dentist serving as a Faculty or Preceptor. Thus the data presented in Appendix E can be used to analyze and identify specific commonalities or discrepancies within an auxiliary or among the three auxiliaries.

While it is not within the scope of this study to make an in-depth analysis of all the data presented in the Appendixes and Tables noted above, the following sections will present an example of the types of analyses that may be made to illustrate that the methods

developed in the study can be used to estimate the agreement between the task content of the educational curricula and also to relate the task content of the educational programs to practice in the world of work. This may be accomplished by looking at the level of responsibility (competency) to which the various tasks are taught, performed, or delegated.

From Table 19, developed from HCC's using Faculty profile responses for dental assisting and hygiene programs, it is noted that category three (PC: Records--dental and medical) was ranked number 3 by the average similarity per task index. Table 18 indicates that, by looking across the Faculty profiles of the 26 dental assistings programs, 94 percent of the tasks in category three were taught to level 3 or 4. For the 26 dental hygiene programs 99 percent of the tasks in this same category were taught to level 3 or 4. Then, by referring to category three in Appendix E, Table E-3, one may find the seven task statements which were used in the analyses presented in Table 18, 19 and F-3. (Those statements with the "†" symbol in the "E" tables were not included in the analyses).

The first task statement in category three, "obtain patient's chief complaint/present problem" is taught to level three or four by 46 percent of all Faculty members teaching in the 26 dental assisting programs and by 67 percent of all Faculty members in the 26 dental hygiene programs. The task was not taught at all by the Faculty members of the eleven dental laboratory technician programs. From Table F-3 it is seen that 25 of the 26 dental hygiene programs clustered across all seven tasks at a similarity value of zero. The basis for this high similarity may be seen by noting from Table E-3 that 25 of the 26 dental hygiene programs (96 percent) do teach the above task to level 4. In fact all seven of the tasks in category three are taught to level four by at least 96 percent of all the dental hygiene programs as reflected in the Faculty profiles of the programs. All seven statements are also taught to at least level three by at least 85 percent of all dental assisting programs. By sharp contrast, the seven task statements in this category are essentially not taught at all in the dental laboratory technician programs.

In comparing the Faculty profile responses of what is taught in the total occupational program (Table E-3) with the Faculty and Preceptor responses of what they themselves are actually performing, or have performed, in the world of delivering dental care (also shown on Table E-3), it is noted that 82 percent of all practicing dental assistants in the study

have done or do now "obtain patient's chief complaint/present problem" to at least level three and seventy percent actually perform it at level four. Ninety-one percent of all dental hygienists perform this task to at least level three and 88 percent actually perform it to level four. While none of the dental laboratory technician programs teach this task, 38 percent of the dental laboratory technician Faculty and Preceptor members have or do now perform the task to at least level three. Based upon these findings it would appear that the dental assisting and hygiene educational programs are preparing the students to perform this task to a level of performance somewhat higher than the program graduates may have the task delegated to them in the world of work as it is reported by either dental auxiliaries reporting their work or by dentists reporting that which they delegate. Only 65 percent of the practicing dentists delegate the task to at least level 3. There appears to be some question as to whether or not dental laboratory technicians graduates are prepared to perform this task requirement in the world of work as a result of their preparation programs. The level or degree of delegation reported by dentists in this study, may be somewhat higher than is occurring across the field since all dentists cited in this study were in some way associated with auxiliary education programs.

The differences between the practicing dentist's responses on "delegation" and the practicing auxiliary's responses on "performance" for all tasks in category three is fairly large and may indicate that the dental auxiliaries associated with educational programs may be more selective in taking employment where maximum utilization of their competencies is made -- even if they learned them on the job. Or, those who are most likely to receive the delegation are also those who are more likely to become Faculty members. It should be recalled that dentists reported much less interstate geographic mobility than did the auxiliaries and this may account for the dentists responding to what they do in "their" state while the practicing auxiliaries with a higher geographic mobility have reported what they have done "somewhere." A third possible reason for at least a part of this difference may be that many practicing dentists are not using a full complement of auxiliary personnel in their practice and may not be performing four-handed, or six-handed dentistry as is being reported in the literature. It should be noted that the agreement between the Faculty profile of what is taught and the practicing auxiliary's responses to what they either have

or do now perform is quite good.

From the Faculty profile data presented in Table 18 for the thirteen tasks in category 7 (PC: Preparations), it appears that few of the tasks in this category are taught to levels 3 or 4 in any of the auxiliary programs. Table 19 indicates that if only dental assisting and hygiene Faculty profile responses are considered, this category ranks number four by the average similarity per task index; this is an indication that there is considerably more commonality between the two auxiliary's responses to these tasks than there is for ten of the other categories with a higher ranking. Much of this commonality is due to the fact that the majority of tasks are not taught in either auxiliary program.

In Table 18 it is observed that the dental assistant programs report many more of the tasks to be taught to level 2 in this category; 31 percent of all their Faculty profile responses to the tasks in the category were at the "perform only under direct supervision/ assist with" level. Only nine and two percent, respectively, of the dental hygiene and laboratory technician profile responses were at this 2 performance level. This response pattern would indicate that this category of tasks is one which tends to show distinctions among the curricula of the three auxiliaries and, therefore, expected practice.

When looking at the Faculty profile responses by task in Table E-7, it is found that six of 26 dental hygiene and four of 26 dental assistant programs are teaching students to "excavate carie using hand piece" to at least a level of shared responsibility and four (15 percent) and three (12 percent) of the respective programs are teaching the task to an independent level of competency. The percent of the responses from practicing auxiliaries and practicing dentists to the question of "performed" or "delegated," respectively, indicate that indeed some utilization of these two auxiliaries is being made in performing this task. While there is a slight tendency to more often teach this task in dental hygiene programs, it should be noted that about an equal number of dental hygienists and assistants report that they are now, or have, performed the task. Among the eleven dental laboratory technician programs there is not a single program teaching this task to any level and yet a total of ten of 54 practicing laboratory technicians (nineteen percent) reported they have done or are now performing this task to some level of competency. The data collected in this study does not permit an opportunity to determine when or under what

circumstances the dental laboratory technicians are, or have, performed this task.

Category ten (PC: Impressions) is ranked last, number fourteen, by the average similarity per task index for dental assisting and hygiene programs (Table 19) and indicate that the Faculty profiles to the thirteen tasks in this category show less in common, or greater discrepancy, among curricula offered in the various programs than for any of the other thirteen categories (see also Table 18 and Appendix F, Table F-10). The HCS for this category (Table F-10) clusters 18 (69 percent) of the 26 dental assisting programs to the right of dental assisting program A02 on the schema and clusters them fairly early with eight dental hygiene programs. The other assistant and hygiene programs also cluster in a very mixed pattern. These results would indicate that there is considerable discrepancy of task content among and between dental assisting and hygiene programs in this content area of the curricula. From the combined Faculty profiles, Table 18 reveals that 63 percent of the program responses to the tasks in this category are at least to level three among the 26 dental assisting programs while only 45 percent of the tasks are taught to the same level among the 26 dental hygiene programs. Among the dental hygiene programs (Table 18) the highest rate of Faculty profile responses (46 percent) was at level one (not taught) while 38 percent of the task responses in the category were taught to the independent performance level. The dental assisting Faculty profiles indicated 21 percent of the tasks in this category were not taught. These findings would lead one to anticipate that for the tasks in this content area the dental assisting programs are, in general, teaching more of these tasks and to a higher level of competency than are the dental hygiene programs. However, with the great discrepancy between the programs and within the same type of program, a review of responses to individual tasks is necessary to identify specific differences.

From the data presented for category ten (Appendix E, Table E-10), it is evident that the Faculty profile responses are quite variable between the assisting and hygiene auxiliaries as well as among the task responses within each auxiliary program as compared to the generally high agreement for task content and level of competency between dental assisting and hygiene in category three. The Faculty profile data for "do teach" and the practicing auxiliary "performance" data in category ten tend to show considerable variance

among all three programs. There is a lower frequency of response to the higher levels of performance competency for most tasks in category ten than in category three. The difference between the curricula and reported performance is not as great in category seven as it was in category ten but the differences are apparent in both categories for tasks taught, tasks performed, and tasks delegated.

From the Faculty profile data of the tasks in category ten (PC: Impressions) (Table E-1) it is observed that over fifty percent of the dental assisting programs teach ten of the thirteen tasks to at least level three. Only five tasks are taught to at least the same level by fifty percent or more of the dental hygiene programs and only four tasks are similarly taught by at least fifty percent of the dental laboratory technician programs. It is obvious that there is considerable variance among the dental assisting programs so far as the tasks in this category that are being taught.

It is also of interest to note that much of what is taught in this category, to both dental assistants and hygienists and taught to levels 3 or 4, is utilized very little as measured by performance responses of practicing auxiliaries or is seldom delegated by dentists. For example, 96 percent of the dental assisting programs teach "construct custom impression tray" to level 4 while only 51 percent of the practicing dental assistant Faculty and Preceptors have or do now perform this task at level 4. Eighty-one of the dental hygiene programs teach "insert tray for final impression" to at least the level 3 while only 42 percent of the practicing dental hygiene Faculty report they have or do now perform the task to this level. For the same task only 30 percent of the Faculty and Preceptor dentists delegate or allocate the task to at least level 3.

The Dental Task Inventory together with its selected questions and responsibility (competency) response scale has been used to collect and present the data reported in Appendix E. The data have been collected and presented in a manner as to provide a number of interested audiences with information regarding the task content of the educational curricula of dental auxiliaries as well as with the task content of the world of work for dental auxiliaries delivering dental health care. The information available in the "E" tables will be of benefit to educational program evaluators, to individual program planners, to dental and dental-related associations in establishing criteria for accredited programs,

to individuals evaluating the appropriate utilization of currently existing manpower with specific occupational or professional job titles, to health planners developing new models for delivering dental health care, to dental school educators as they incorporate into the curriculum of the dentist the components of dental care the dental graduate might expect of auxiliary personnel, and to those with responsibility and interests in establishing policies, standards, and regulations for practice.

CHAPTER V

SUMMARY, DISCUSSION, AND CONCLUSIONS

Restatement Of The Problem

This study was designed to develop a method for identifying (1) the task content of an occupational or professional education curriculum, including the levels of competency (responsibility) to which the tasks are taught, and (2) the relationships which may exist between the tasks taught and the tasks required in the world of work for the occupation or profession. To meet these objectives the study was designed to develop a dental task performance methodology which may be applied both to educational programs preparing dental auxiliaries and to dental practices utilizing dental auxiliaries. It was the intention of the study to develop a package of instruments which could be used to relate the task content of the educational programs to the delegation and allocation of dental and dental-related tasks in the world of dental care practice in such a way that a linkage could be made between educational preparation and work assignments on-the-job. A further intention of the study was to attempt to determine those differences among the educational institutions and their educators which may account for the varying numbers and kinds of tasks taught as well as the range of levels of responsibility at which the tasks are expected to be performed at the time of the student's graduation.

Sample

The sample in this study was comprised of 63 dental auxiliary education programs (26 dental assisting programs, 26 dental hygiene programs, and 11 dental laboratory technician programs) located in community colleges, technical institutes, military institutions, and senior institutions with and without dental schools. The sample included programs from thirteen states plus the District of Columbia. Those faculty members in the educational programs identified as actually teaching dental tasks were selected as respondents and were subsequently identified as the Faculty and the Preceptors.

Procedures

In a structured interview, Faculty and Preceptors were asked to respond to a Dental Task Inventory (DTI) questionnaire consisting of two parts: (a) a biographical data section, and (b) a list of dental task statements (563 originals and 60 exact duplicates in the pilot study (Terry, 1973) and 489 in the final study; 456 statements were exactly alike in wording and common to both DTI questionnaires). In the task list section of the DTI, the respondents were asked to identify (1) the level of responsibility (competency) to which they personally taught or were personally responsible for the teaching of the task, and (2) the level of responsibility (competency) to which either dentist Faculty and Preceptors delegate or allocate the task to an auxiliary or the level of responsibility (competency) to which auxiliary Faculty and Preceptors have performed or currently perform the task in the world of providing dental care.

Collected data were key punched, cleaned and edited, and analyzed to (a) establish the reliability of respondent's responses, (b) determine the degree of content validity associated with the dental task statements and the responses to them, (c) identify selected characteristics of both the auxiliary programs and their Faculty and Preceptors, (d) determine the differences in the level of responsibility (competency) to which dental tasks are expected to be performed at the time the auxiliary student graduates, (e) obtain a measure of similarity of the task content in the three dental auxiliary curricula, and (f) determine relationships between tasks taught in educational programs and tasks actually required or performed by dental auxiliaries in the world of delivering dental care.

Findings

Reliability Of Dental Auxiliary Educator's Responsibility Responses

Considering the total number of task statements in the DTI, it was found that for all questionnaires returned there was a mean completion rate of 99 percent to all task statements in the DTI. Over 91 percent of all identified Faculty responded to the questionnaire.

To explore the question of response reliability, sixty of the task statements in the pilot DTI questionnaire were randomly selected from the dental task inventory and randomly placed as duplicates among the randomly listed statements from which they were drawn. The

respondent's responses to the duplicate pairs of statements were then analyzed for response stability.

Considering all respondents as a group, the analysis for response stability indicated a high level reliability. Seventy-three percent of all indiyiduals who responded to 95 percent or more of the paired statements had absolute agreements. Seventy-nine percent of all respondents made identical responses to at least 86 percent of the duplicate pairs regardless of the number of pairs to which they responded. By type of respondent, the Faculty tended to display greater overall stability to the duplicate items than did the Preceptors. With such a high stability rate over all Faculty respondents, it was not considered necessary to make an analysis of possible rate differences among Faculty respondents from each auxiliary.

Faculty respondents tended to have less difficulty with response stability than did the Preceptors, but the Faculty had more difficulty making a decision of/about whether or not they teach the task than did the Preceptors. The Preceptors on the other hand, had relatively more difficulty determining to which level they taught the task. These findings may indicate, as Christal (1973, p. 5) found,

> that, while being honest, many [respondents] will give themselves the benefit of the doubt. For example, a [respondent] might claim to perform [teach] a task when, in fact, he only performs [teaches] part of the task. This is one of the problems with statements which are too broad, and it helps to explain why our inventories now have over 500 task statements.

The absolute agreement response stability among the sixty paired responses of the Faculty and Preceptors together was lower among the compound task statements (two or more related tasks in a single statement) than it was among the simple task statements. About one-third of the duplicate pairs were compound statements (21 statements), and one-third of these had less than 86 percent exact agreements, considering the Faculty and Preceptors responses together. Only three percent of the simple task statements had less than 86 percent exact agreements.

In preparing the revised DTI questionnaire 33 of the task statements which seemed to have caused some difficulty in the pilot study were clarified (reworded) and included in the revised instrument.

Validity Of Dental Task Inventory Time Responses (Pilot Study)

In the pilot study it was found that neither the Faculty nor the Preceptors were able to provide reliable responses to the question in the DTI questionnaire designed to elicit cumulative time spent teaching each task. Indeed, few of the Preceptors were able to even respond to the question and many of the Faculty indicated by notes in the questionnaires and by telephone interviews that they were having difficulty providing meaningful responses. These findings are corroborated by those of Christal (1973, p. 6), "Research indicated that many workers do not have a clear idea of the exact percentage of their time devoted to each task they perform." After reviewing the responses, discussing the returns with the respondents, and attempting to make frequency tallies, no attempt was made to make further analysis of the time data.

The Auxiliary Education Programs

Institutions And Their Programs - The dental assisting and dental hygiene programs were found in five types of post-secondary educational institutions: community colleges, technical institutes, military schools, and universities with and without schools of dentistry. The dental laboratory technician programs were located in community colleges, technical institutes, military schools, and senior institutions with dental schools. Twenty-four dental assisting programs were identified as certificate level programs and two as Associate Degree level programs; the mean program length was 33 weeks (one was 6.5 weeks and another was 12 weeks at the low end of the range). The dental hygiene programs were identified as either "two-year" certificate and Associate Degree level programs or as "four-year" Baccalaureate Degree level programs. The two-year programs had a mean program length of 71 weeks while the latter had programs of 128 weeks. Nine of the eleven dental laboratory technician programs were Associate Degree programs and had a mean program length of 71 weeks.

Faculty and Preceptors - From the pilot study it was determined that dental assisting programs in community colleges had a mean identified Faculty size of 3.9 while those in the dental schools had a mean identified Faculty of 9.0. A similar difference was found in the

pilot study between the community college and dental school based dental hygiene programs where there was a mean identified Faculty in the dental schools was most likely a result of their immediate proximity to the dental school faculty members who were available for part-time teaching assignments in the auxiliary education program. The mean student-Faculty ratio was eight for dental assisting and four for both dental hygiene and laboratory technician programs.

Preceptors were utilized in eighteen of the 26 dental assisting programs and in three of the eleven dental laboratory technician programs. For the dental assisting programs the number of Preceptors varied by program, as did the types of dental practices they represented. It was found that every student in each auxiliary education program was, as a rule, taught by every identified Faculty member, but all students were not necessarily scheduled through all Preceptors or through all dental practice specialities.

The Faculty in all auxiliary programs tended to be young--in years of age, in years of professional work experience, and in their current job titles. The Faculty with dental auxiliary preparation tended to cluster around 24-25 years of age while the dentists among the Faculty tended to move the mean Faculty age up to 32-33 years. On the average, 64 percent of all Faculty had five years or less of professional work experience in other than their current job title. Sixty-four percent of all Faculty members had held their current job title four years or less, forty percent had held their current job title two years or less.

All Faculty (military excluded) with dental assisting and dental hygiene professional preparation were females while all dental laboratory technician Faculty were males. Except in cases where an auxiliary Faculty member had professional preparation as both a dental assistant and a dental hygienist, there were no auxiliary programs in which a dental assistant or dental hygienist was employed as a member of the Faculty in the opposite program. There was, however, some sharing of Faculty in some institutions which had both dental assisting and hygiene programs.

Of 409 total Faculty respondents, 33 (eight percent) were representatives of minority ethnic groups. With the exception of the Faculty in the military institutions, the minority ethnic groups were identified more with the dentist Faculty rather than with the auxiliary Faculty.

From the pilot study of nineteen auxiliary programs it was found that twice as many of the dentists on the auxiliary education Faculties had received their primary dental preparation in the state in which they were currently teaching as had received it in other states. The Faculty with auxiliary education and preparation, on the other hand, were about evenly divided between those who had received their educational preparation in the state in which they were teaching or elsewhere.

Implications of certain of these findings, as they relate to similarities and differences among the task content of the curricula of the three dental auxiliary education programs, will be discussed in the following sections.

Task Content Of Auxiliary Curricula - The respondents were asked to indicate, for each dental task in the DTI, the responsibility level to which they taught the task: (1) not taught, (2) student will be able to perform the task, but only under direct supervision, (3) student will be able to perform the task with shared responsibility, or (4) student will be able to perform the task with independent responsibility. With each Faculty member, and Preceptor, answering for only those tasks which he or she taught or for those which were taught under his or her direct responsibility, and with the finding that essentially every student in each program was taught by every Faculty member in the program (not so for Preceptors), it was concluded that a profile of the task content of the curriculum of each auxiliary program could be developed from the cumulative responses of the Faculty members in each program. This was accomplished by utilizing the highest responsibility response to each task from any one or more of the program's Faculty. This method has its limitations (e.g., statistically, extremes usually have greater variance than means); however, it was also to be recognized that each respondent was responding to what he or she actually taught or for that which was taught under his or her direct responsibility. This would suggest that the responses would have greater validity than if each respondent had been asked the question, "What do you understand the task content of this curriculum to be." To use the latter responses to determine the task content from which to construct a task content profile of the curriculum would undoubtedly result in a distortion of the content profile due

to "estimates" or "understandings" by Faculty members who were not actually knowledgeable about some areas of the curriculum.

Using, therefore, the program profile constructed for each program, a series of analyses were conducted to identify certain differences, and similarities, among the 63 auxiliary education programs. In addition to constructing the individual program profiles across all task statements, profiles were also developed for categories of tasks. The following findings were based on these profiles.

Dental Assisting Programs - From the pilot study and from data reported by the respondents of the larger study, there was a strong indication that the Preceptors taught at least as many and in some cases more tasks than the Faculty, and that the Preceptors taught the tasks to as high or higher responsibility level than did the Faculty. There was, however, a very high correspondence between the total number of tasks identified as being taught and the level to which they were taught by the Faculty and by the Preceptors in the dental assisting education programs utilizing Preceptors. In general, neither the Faculty nor the Preceptors made relatively much use of the "2" (under direct supervision/assist with) responsibility level in describing what they teach except in categories 7 (PC: Preparations), 9 (PC: Surgery and Surgically Related), and 12 (PC: Insertions and Restorations).

These findings for the Preceptors were interesting in two respects: (a) the Preceptors have their students for just two to four weeks, and (b) they teach and expect that the student within that time will be able to perform many tasks and to a high level of responsibility. The Preceptors as well as the Faculty, however, were able to discriminate among the tasks in identifying those procedures or functions (tasks) which the students were taught to perform. For example, when the tasks were sorted by categories, it was very evident that the dental assisting Faculty and the Preceptors had identified very few tasks which were being taught to the "3, 4" responsibility (competency) levels in categories 7, 9, and 12. It is interesting to note (Appendix E), however, that the dentist Faculty and Preceptors in the practice setting do delegate to auxiliary personnel a number of the tasks in these categories. It is not surprising that additional tasks and higher levels of performance are delegated to long-term experienced auxiliaries than would be delegated to

students who are serving an internship.

Across all dental tasks, there were very few differences between the Faculty profiles for curricula taught in the community college based dental assisting programs and for the same programs in senior institutions with dental schools. The HCS's produced by category for only dental assisting programs (not presented in this report) did not form any particularly specific clustering of dental school associated programs. These findings suggest that on the whole there is little difference in the curriculum of the dental assisting program with relation to the type of institution in which it is located.

In looking further at specific categories of tasks it was noted that in only categories two (Housekeeping) and three (PC: Records--dental and medical) was there very high Faculty profile agreement among all dental assisting programs that essentially all tasks were being taught to the "3, 4" responsibility levels. On the other hand, over seventy percent of all Faculty profile responses were either "do not teach" or "perform only under direct supervision/assist with" for categories seven (PC: Preparations), 9 (PC: Surgery and Surgically Related), 11 (PC: Dental Laboratory), 12 (PC: Insertions and Restorations), and 13 (PC: Adjustments and Repairs). It could be that for the tasks taught to level 2 in the latter four categories the Faculty are teaching the graduate to be able to "assist with" rather than to "perform under direct supervision."

Dental Hygiene Programs - Using the Faculty profile responses, comparisons were made among the 26 dental hygiene programs studied. As in the dental assisting programs, there was nearly unanimous Faculty profile agreement that essentially all tasks in categories two and three were taught and taught to the "3, 4" responsibility levels. In addition, category 6 (PC: Preventive and Patient Education) was similarily taught in the dental hygiene programs. Twenty-three percent more of the tasks in category 5 (PC: Analysis, Treatment Planning, and Consultation) were taught to the "3, 4" levels in dental hygiene programs than in dental assistant programs. Again, as in the dental assisting responses, the number of dental hygiene Faculty profile responses at the "3, 4" levels were lowest in categories 7, 9, 11, 12, and 13 although category 11 (PC: Dental Laboratory) fell to second lowest in terms of tasks taught for dental hygiene programs.

The "2" responsibility level showed less than a ten percent response in all fourteen categories for dental hygiene programs. Evidently, for this auxiliary, tasks are taught to be performed on a "shared or independent" basis of responsibility (competency), or they are not taught.

Dental Laboratory Technician Programs - Eleven dental laboratory technician programs were included in this study. Their Faculty profiles indicate that in only one category, number 11 (PC: Dental Laboratory), were a great majority (88 percent) of the responses at the "3, 4" responsibility levels. In eleven of the fourteen categories the combined Faculty profile responses indicated that not more than one-third of the tasks in the categories were taught to the "shared or independent" responsibility levels. Evidently, in this auxiliary, there are but few total tasks which could be delegated or allocated at the "shared or independent" responsibility level.

In the dental laboratory technician programs, as in the dental hygiene programs, the Faculty tended not to use the "2" level responsibility response. As indicated by the Faculty profile responses, there were only sixteen tasks in the entire Dental Task Inventory that were taught at the "2" level by one or more dental laboratory technician programs.

Additional Program Comparisons - Although it was expected that the dental assisting Faculty would make relatively greater use of the "2" responsibility level response, it was not expected that much use of this response level would be found among the dental hygiene and dental laboratory programs; these expectations were confirmed by the findings. There was, however, for the dental hygiene programs, more use of level 2 than was originally expected. Six categories: 7 (PC: Preparations), 8 (PC: Anesthesia and Medications), 9 (PC: Surgery and Surgically Related), 10 (PC: Impressions), 12 (PC: INsertions and REstorations), and 13 (PC: Adjustments and Repairs) were found to have the greatest number of "2" level responsibility responses from the dental hygiene Faculty profile responses. These are categories of work in which it has been more traditional for the dental assistant to be performing the tasks at this responsibility level and which is borne out by the findings

for dental assisting programs. It would appear that some programs may be preparing a somewhat dual role graduate.

Of the 456 task statements, only eighteen (18) were taught to the "3, 4" competency level by every dental assisting and dental hygiene program included in the study; these tasks were distributed across several categories. On the other hand, if one student were to selectively attend each of the 26 dental assisting programs and a second student were to selectively attend each of the 26 dental hygiene programs, each of the two students would have been taught and taught to at least the "3" level of competency 410 of the 456 tasks (90 percent) and would have been taught and taught to the "4" (independent) level of responsibility (competency) 342 of the 456 tasks (75 percent). These figures indicate the overlap of tasks taught between dental assisting and hygiene auxiliary personnel when all curricula in each of the auxiliaries are taken into consideration.

Hierarchical Clustering Schemas To Compare Programs - A hierarchical clustering scheme (HCS) (Johnson, 1967) permitted comparisons across the 63 auxiliary education programs based upon their Faculty profile responses to the 456 dental tasks common to both the pilot and current Dental Task Inventories. In this analysis each program's profile is considered initially as a "cluster" unto itself. Each combination of two programs were then compared by summing the squared differences between their profile responses to each of the task statements. These comparison values were then used to cluster together the first pair of programs with the least difference between their task responses. Using the first pair as a new "cluster identity" and the remaining program profiles (each also a "cluster"), comparisons were again considered to identify either the next program profile to be added into the first derived cluster or to identify another pair into a new cluster by determining the next order of least dissimilarity among the comparisons. In this manner a hierarchical clustering schema (HCS) of the programs being considered in each analysis was developed which identified those programs which had similarity (commonality) between and among them.

In reviewing the HCS derived from the 63 Faculty profiles across all tasks, it was apparent that the dental assisting programs were of two types, or kinds, each of which was

more similar to a group of dental hygiene programs than they were to each other. In other words, there appeared to be a group of dental assisting programs that were quite similar to a group of dental hygiene programs and there was another group of dental assisting programs that grouped with a second set of dental hygiene programs. This would suggest that there are, to put it one way, a number of dental assisting programs that are teaching students to be like certain dental hygienists and there is a small group of dental hygiene programs that are teaching their students to be more like a second kind of dental assistant than to the other hygienists. The dental laboratory technician programs clustered independently among themselves in every HCS produced in the study.

In three of the ten institutions which offered both dental assisting and hygiene programs, the program pairs tended to be very much alike and thus clustered together very early. In two of the institutions the pairs were more dental hygiene-like while in the third case the pair was more dental assisting-like. In the latter pair the two programs share seven Faculty members, in the former pairs one pair shared Faculty and the other did not.

Two dental hygiene and two dental assisting programs were each reported to be "experimental" in nature; i.e., the project staff was informed that a second, special or new curriculum was being used which incorporated additional tasks into their continuing and more traditional programs. Since this study was designed to identify programs with specific identities, the "experimental" programs were given identification codes to separate them from their parent program and then they were treated as a separate program to determine if indeed they were different from other dental assistant or dental hygiene programs.

The two "experimental" dental hygiene programs clustered together with each other and then with the other dental hygiene programs when HCS's were formed from Faculty profiles of all task statements. It appeared, therefore, that they were similar to each other and differed from the large group of dental hygiene programs with which they did eventually cluster. In following the two programs through the HCS's by category, they did not form direct pair clusters in seven of the fourteen categories. They did form direct clusters in categories 1, 2, 3, 6, 7, 13, and 14. In category 7 (PC: Preparations) the cluster

formed from these two "experimental" programs formed very early (much in common) and the cluster remained as a separate identity until very late in the clustering schema. This latter fact would indicate that these two dental hygiene programs are doing something in this category of tasks which is quite different from all other dental hygiene programs - data and discussions concerning these programs indicate the students are being taught to perform a number of additional tasks at the independent performance level.

The two "experimental" dental assisting programs were from different branches of the military and formed a direct cluster when all 63 Faculty profiles across all tasks were analyzed by the HCS. In this analysis their cluster remained an identity throughout most of the schema but did eventually cluster with other dental assisting programs. In following the two programs through the HCS's by category it is noted that they formed direct clusters in eight of the fourteen clusters (1, 2, 3, 7, 10, 11, 12, and 14). As in the two dental hygiene programs, the two "experimental" dental assistant programs appear to be teaching tasks in category 7 (PC: Preparations) and, in addition, in category 12 (PC: Insertions and Restorations). Again, they are being prepared to perform additional tasks and with a higher level of performance than the students in the more traditional programs at the same institutions.

Discussion

The methods of task analysis have been applied in this study to determining the selected task content of three dental auxiliary education programs. The Dental Task Inventory questionnaire developed as the instrument for data collection was designed following the recommendations for developing task inventories suggested by Christal (1973). As Christal had suggested, it was found that valid and reliable data could be collected using a task inventory instrument containing task statements written by experienced and qualified task inventory writers, and where the statements were written as specific task statements, rather than as broad task statements. This latter point was adequately demonstrated in the pilot study by the inability of either the Faculty or the Preceptors to provide as reliable (stable) responses to a number of compound task statements included in the DTI instrument as they did to the simple statements.

The number of task items in the DTI (623 in the pilot study and 489 in the current study) was not in itself a negative factor in the collection of data, although the large number of duplicate task statements included in the pilot study questionnaire was a disturbing factor to the respondents. The questionnaire return rate of more than 92 percent for the Faculty and nearly seventy percent for the Preceptors indicated, however, that

(a) When the instruments are personally distributed,

(b) When there is an adequate interview with the respondent at the time the instrument is distributed, and

(c) When there is the guarantee to the educational program of receiving a feedback report of the findings for their program,

there is an excellent probability of this being an acceptable type of research activity by the intended respondents. The mean rate of 99 percent completion of all task statements in the returned questionnaires offered added weight to the defense of the method.

The work of Christal (1973) suggested that respondents should be asked if they perform a task as opposed to how frequently do they perform a task. In developing the methodology of this study, the emphasis was placed not only on whether the task was taught, as Christal had suggested, but also on the responsibility level to which (a) the graduate was expected to be able to perform the task, and (b) the auxiliary or dentist performed or delegated, respectively, the task. Considering that the dentist is more likely to delegate or allocate tasks (functions or procedures) to those auxiliaries with adequate preparation, it appeared that a measure of preparation was required, one that could also be used in describing tasks performed, and by whom, in the delivery of dental services. Tomlinson's (1969, p. 121) responsibility level scale was adapted to this study and was found to be acceptable to the respondents. In addition, it was found that the respondents could, for the most part, identify sufficiently with the levels of responsibility to discriminate among the tasks.

A difference was noted between the Faculty and the Preceptors, however, which indicated the two respondent groups had different kinds of problems in using the responsibility levels to discriminate among the tasks. In the reliability (stability) analysis it was found that the Faculty had more difficulty than did the Preceptors in deciding whether or not they taught a task. On the other hand, the Preceptors were found to have greater difficulties determining to which level they teach a task.

These findings for the Faculty may indicate that the task statements were too broad in scope and that while the Faculty did teach some aspect of the task identified by the statement, they did not teach all of the task statement's content. This would likely be the case for those duplicate responses which were of the "1-3" type (not taught - will be able to perform task with shared responsibility) or of the "1-4" type (not taught - will be able to perform the task with independent responsibility). On the other hand, it may be that the Faculty had not been teaching in the programs long enough to immediately recognize every task which they may teach. It was found, for example, that over all Faculty members, 64 percent had held their current position four years or less and that in several programs the figure rose to 86 percent.

It was considered that the Preceptors had a different type of problem than did the Faculty as they tried to discriminate among the tasks using the responsibility level scale. The Preceptors, unlike the Faculty, see but one, or perhaps two students at a time, and very seldom, if ever, does any one Preceptor see every student in the criterion class from which the students come. These circumstances place the Preceptor at the disadvantage of having to identify with a very few students, often no more than two or three, as he or she decides on the level to which a task is taught. Indeed, many Preceptors indicated such would be the case in the initial interview with them. Many of the Preceptors also indicated during the interview that they tend to let the students do most of those tasks which they let their employed auxiliaries perform. This latter comment may suggest that the Preceptors had the additional difficulty of maintaining an identity with the students as opposed to the employed auxiliaries as he or she responded to the DTI questionnaire.

Before turning to a discussion of the task analysis findings, it should be noted that certain transformations of the data were completed prior to making the analyses. As has been noted earlier, one of the objectives of this study was to determine from the task content of the educational curricula those tasks which were being taught to levels of responsibility such that the dentist could delegate or allocate a task(s) and thereby be freed to perform other tasks or procedures. For those tasks which may be delegable under the above circumstances, the dentist may choose to initiate certain procedures under his/her own direction and subsequently delegate certain tasks associated with the procedure so as

to share the responsibility with a dental auxiliary. On the other hand, the dentist may delegate certain tasks to be performed with somewhat independent responsibility. In both cases, however, the dentist has delegated a task or function of a sufficient scope of activity and which requires enough time that he or she may be performing other procedures (including being physically away from the office or practice).

The above concept led the study to give special consideration to Faculty responses to the "3" (shared) and "4" (independent) levels of responsibility used in the DTI questionnaire. These levels of responsibility were considered to be reflective of a level of educational knowledge and skill sufficient that the dental auxiliary could perform the task (function) to the level of proficiency and quality expected of the dental profession. These levels were then referred to throughout the analyses conducted in the study.

The findings of the task analysis among the nineteen dental auxiliary education programs utilized in the pilot study indicated, as has been noted, that both Faculty and Preceptor respondents were able to provide highly stable (reliable) results to sixty duplicate task statements placed in the DTI questionnaire. In addition, it was noted that there was a very high correspondence between the Faculty and Preceptor responsibility level responses at both the task and at the category levels of analysis; i.e., as the Faculty responses tended to indicate that a task was not taught, the Preceptor's responses tended to indicate the same thing. These findings provided a measure of validity to the responses. There was, however, a decided tendency over all Preceptors to indicate that they taught more tasks and taught them to a higher level of responsibility than did the Faculty.

The overall finding that dental assisting and hygiene programs located in senior institutions with dental schools did not cluster more among themselves, even by auxiliary, was different than might have been expected. Evidently the task content of the curricula in these programs are not essentially different from the task content of the dental assisting and hygiene curricula found in community colleges and senior institutions without dental schools. These findings may be indicative of those of Diefenbach (1969, p. 3) regarding the resistance of dental school faculties to change.

The findings of the task analysis indicated that when all dental assistant and all dental hygiene programs are compared together, there were many similarities in the two

auxiliaries as viewed by the number of tasks taught or the responsibility levels to which the tasks were taught. Indeed, in the pilot study it was found that there were 498 tasks in the DTI to which one or more individual programs in each of the two auxiliaries (ten dental assisting and seven dental hygiene) indicated exact agreement. These findings would indicate that the curricula for these two auxiliaries are very similar if taken over a large number of programs. These findings were corroborated in the current study by the findings that among the 26 dental assisting and 26 dental hygiene programs 90 percent of all tasks in the DTI are taught to at least level three. It was particularly of interest to note the relatively large number (although it was proportionately small) of tasks taught to the "2" level of responsibility among the dental hygiene programs, particularly in those areas that are more traditionally considered to be performed by dental assistants.

The dental laboratory technician programs were decidedly oriented towards teaching fewer tasks in the DTI than were either the dental assisting or the dental hygiene programs. There was very little tendency of the dental laboratory technician Faculty to use the "2" responsibility level response.

Studies by Brearly (1972) and others have indicated that recent graduates of conventional dental assisting education programs are capable, after an additional twelve weeks of training and some additional in-service practice, of performing certain dental procedures both as quickly and with as high a level of quality as were senior dental students, and that as a group, the auxiliaries were significantly superior to the dental students in the performance of some procedures. These findings may help to explain the findings of this current study in which so many of the Faculty and Preceptor respondents indicated a large number of tasks being taught and taught to "shared or independent" levels of responsibility. One Preceptor's response to a question posed in an interview regarding the opportunity for the students to get experience in "expanded functions" during their preceptorship in the office was typical of many responses from progressive practitioners. The Preceptor responded, "We have a full-time dental assistant in the office who can carve and polish amalgam restorations as well as any dentist in this city and she performs essentially all of them done in this office. When we get a student who shows the least interest in such procedures and who exhibits some confidence in herself, we give her (sic) plenty of oppor-

tunity for experience in certain procedures."

There were few differences reported among the variables utilized in this study to identify those characteristics of the institution, the program, or the Faculty, which may have accounted for the variance among responses to the Dental Task Inventory. There was an indication that dental school based auxiliary education programs may have larger numbers of Faculty, and this may explain why some dental school based programs teach more tasks and to a higher level of responsibility. The findings were not completely substantiated, however, since some community college based dental assisting and dental hygiene programs with small numbers of identified Faculty taught as many tasks and to as high of levels of responsibility as did the dental school based programs. Future attempts to identify the relevant variables may want to consider the areas of policy makers, philosophy, and the intents of the programs.

The responses of practicing dental assistant and hygiene auxiliaries regarding the tasks they are or have performed and the level of responsibility to which they are or have performed them raises many questions for consideration which are beyond this study. Two or three points, however, may be raised in contemplation of the questions. First, it may be that if the Faculty and Preceptor auxiliaries were themselves taught in as many tasks and to as high a level of competency as are apparently many of the graduates of the respective auxiliary programs examined in this study, a great number of the auxiliary Faculty and Preceptors are under utilized in the delivery of dental health care. A second position or point might be that Faculty and Preceptor faculty may have learned to perform and did perform on the job - not in school, and then sought Faculty jobs or the school may have sought them. A third point may be made that it can be assumed that not every auxiliary Faculty and Preceptor must have themselves been prepared to perform every task within a curriculum and to perform it to the maximum level of performance to which the curriculum is designed to prepare the student. It would be expected, however, that there would be a tendency toward having a large majority of auxiliary Faculty and Preceptors which are or have performed the tasks taught within a curriculum and performed them to the level for which the curriculum is designed to prepare the graduate. These and other points are worth considering as one ponders the "do teach" and the "do or have performed" responses reported

in the study.

Conclusions

A number of findings were set forth throughout the preceding sections of this chapter. Based on the findings of the study the following statements are considered to be reasonable and are presented as principal conclusions of the study:

The methodology developed in this study provided a mechanism for collecting the data required to identify, (a) a selected portion of the task content of accredited, occupational and professional education programs, and (b) the level of responsibility (competency) to which the programs' graduates are expected to be able to perform the identified tasks upon completion of the program;

The methodology provides a mechanism for collecting data regarding the tasks taught in offices, clinics, and practice settings of practicing professionals serving as preceptors in cooperative education, and, thereby, served to identify certain tasks delegated or allocated to auxiliary practitioners in the occupation or profession in the world of work;

The methodology developed is capable of providing an interface between the world of work in occupations and professions and the educational programs preparing individuals to work in the respective occupations and professions;

A task inventory questionnaire consisting of over 500 task items has sound limitations but is acceptable to both faculty and preceptors teaching tasks if (a) personally distributed and explained and (b) a feedback report is promised and provided;

The basic form of the responsibility scale: (a) perform the task, but only under direct supervision; (b) perform the task with shared responsibility; and (c) perform the task with independent responsibility, utilized with a task inventory, questionnaire has validity for both faculty and preceptor members of occupational and professional education programs; in collecting data regarding both the task content of the curricula and the task content of work delivered in the world of work;

The hierarchical clustering scheme served as an appropriate method to identify, from empirical measures, the similarity of relationships across individual educational programs within an occupation or profession as well as the similarity between or among related occupations and/or professions.

The Dental Task Inventory (DTI) used in this study was sufficiently sensitive to identify gross and subtle differences in the task content of auxiliary education programs both within a dental auxiliary and among dental auxiliaries;

Across the curricula of all dental assisting programs, there were few differences in the number of tasks taught and in the levels of responsibility to which they were taught in comparison to the curricula of all dental hygiene programs;

The use of the fourteen categories identified for grouping the tasks by types of dental procedures (functions) was a valid classification relative to both curriculum content and to dental care services performed in the world of work;

Except for selected tasks in the categories of "Preparations," "Surgery and Surgically-Related," and "Adjustments and Repairs," a major number of the tasks identified in the DTI could be delegated to appropriate individuals from either the dental assisting or the dental hygiene auxiliary education programs;

The Preceptors in dental assisting education programs indicated they teach more tasks and to a higher level of responsibility than do the Faculty members from the same auxiliary;

The cumulative time spent teaching <u>each</u> task in a curriculum cannot be meaningfully reported by Faculty or Preceptor respondents using a scale of minutes/hours per individual task.

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APPENDIX A

DENTAL TASK INVENTORY QUESTIONNAIRE

(AN EXAMPLE)

O.M.B. NO. 68-S73031
APPROVAL EXPIRES JULY 31, 1974

DENTAL AUXILIARIES EDUCATION STUDY

Inventory For DENTAL HYGIENE Program

Bureau of Educational Research
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801
Phone 217-333-1450

Rupert N. Evans, Principal Investigator
David R. Terry, Co-Principal Investigator
Robert M. Tomlinson, Consultant
Diana L. Trone, Research Associate
James J. Girdley, Research Associate

DENTAL AUXILIARIES EDUCATION STUDY

FACULTY/ADMINISTRATOR DATA FORM

FACULTY/ADMIN. NUMBER ___ ___ ___

ASSIGNMENT CODE __/__/__

SITE NUMBER ___ ___ ___

SKILL CODE ___ ___

NOTE: IF YOU HAVE PREVIOUSLY FILLED OUT THE FOLLOWING DATA PAGES, PLEASE TURN TO PAGE 6.

ABOUT YOUR BIOGRAPHICAL DATA:

1. BIRTHDATE ___ __/___ __/___ __
   Mo Da Yr

2. SEX (Circle response)
   1. Male
   2. Female

3. RACE (Circle response)
   1. American Indian
   2. Black/Negro
   3. Oriental
   4. Spanish Surname
   5. White
   6. Other

4. MARITAL STATUS (Circle response)
   1. Never Married
   2. Now Married
   3. Other

ABOUT YOUR CURRENT JOB TITLE OR ASSIGNMENT:

5. Please answer A or B

A (If you are Institutional Faculty)

What is your current job title(s) in this educational institution?

_____

_____

_____

B (If you are a Preceptor or on Preceptor's Auxiliary Staff)

What is your current assignment(s) in this clinical practice site which is affiliated with the educational institution?

_____

_____

_____

6. How long have you been associated with this educational program or clinical practice site (Circle appropriate response)?

1. Less than 1 year
2. 1 year but less than 2 years
3. 2 years but less than 3 years
4. 3 years but less than 4 years
5. 4 years but less than 5 years
6. 5 years but less than 10 years
7. 10 years but less than 20 years
8. 20 or more years

ABOUT YOUR CAREER:

7. What was your last salaried, health-related job (excluding working in an educational program) held prior to joining this educational institution or clinical practice site?

a. Job Title

_____

b. Dates of Employment:

From ___-___ To ___-___
Mo Yr Mo Yr

ABOUT YOUR EDUCATION:

8. Formal Academic Type Education

A. What is the highest level of formal academic education that you have completed?

(CIRCLE ONE CODE NUMBER FROM LIST)

01 Did not complete high school

02 Graduated from a high school program

03 Received high school diploma by GED exam

04 Freshman year of college or junior/ community college

05 Sophomore year of college or junior/ community college

06 Received an associate degree

07 Junior year of college

08 Received a bachelors degree

09 Attended graduate school but did not earn a degree

10 Received a masters degree

11 Did course work for doctorate but did not earn a degree

12 Received a doctoral degree (PhD, EdD, etc.)

13 Received a health profession doctorate (MD, DDS, etc.)

14 Attended post doctoral program

B. Year you completed the academic program specified above?

1 9 __ __
Year

9. Educational Preparation Other Than Formal Academic

A. How much organized or directed technical or occupational preparation have you completed other than that which was reported in question 8A? (Circle one code in each section.)

MILITARY

01 None

02 Up to four months of technical or occupational preparation offered by one of the military services.

03 More than four months and up to one year of technical or occupational preparation offered by one of the military services.

04 Approximately two to three years of technical or occupational preparation offered by one of the military services.

VOCATIONAL OR TECHNICAL SCHOOL

05 None

06 Up to four months of technical or occupational preparation offered by a vocational or technical school.

07 More than four months and up to one year of technical or occupational preparation offered by a vocational or technical school.

08 Approximately two to three years of technical or occupational preparation offered by a vocational or technical school.

HOSPITAL OR HEALTH FACILITY

09 None

10 Up to four months of technical or occupational preparation offered by a hospital or health facility.

11 More than four months and up to one year of technical or occupational preparation offered by a hospital or health facility.

12 Approximately two to three years of technical or occupational preparation offered by a hospital or health facility.

OTHER THAN ABOVE (SPECIFY) _____

13 None

14 Up to four months of organized short-term preparation plus on-the-job experience.

15 At least one year of informal on-the-job experience.

16 Participated in organized high school preparation program.

17 Other (specify) _____

_____

B. Year you completed the most recent health-related technical or occupational training specified in 9A. 1 9 __ __
Year

10a. Institution or facility and education program in which highest level of health-related education was completed (as indicated in questions 8 or 9):

1. Major area of specialization (most advanced): _____

2. Type of degree or certificate earned: _____

3. Name of institution or facility: _____

4. Year Completed: 1 9 __ __

5. Location: _____
State

10b. If you have preparation at two levels or in more than one health-related specialty, indicate the other preparation (as may be indicated in questions 8 or 9):

1. Major: _____

2. Type of degree or certificate earned: _____

3. Name of institution or facility: _____

4. Year Completed: 1 9 __ __

5. Location: _____
State

11. Current certifications, licenses or registries held in the health field. (Check appropriate title and identify up to three most appropriate credentials to current position.)

1. Lisc. ____/Cert. ____/Regis. ____ as a _____

Issued by (state(s) or assn.): _____

2. Lisc. ____/Cert. ____/Regis. ____ as a _____

Issued by (state(s) or assn.): _____

3. Lisc. ____/Cert. ____/Regis. ____ as a _____

Issued by (state(s) or assn.): _____

INSTRUCTIONS FOR THE FOLLOWING TASK INVENTORY

As you respond to the two questions regarding each of the following dental task statements, we ask you to consider the following general conditions:

1. You, as a member of the faculty of this dental auxiliary program, are the best Judge of the outcomes which you expect to observe in the graduates of the specific dental auxiliary program for which you are responding.

2. We know that many factors are taken into account when any one specific task might take place. These will include the condition of the patient, doctor's direct and/or standing orders, policies of the employing institution, the dental practice act(s), and many other factors. As you respond to each task, you are to consider that all of the above and other conditions would permit your graduates to perform the task to the level of competency that you have prepared them. We want your best judgment of the degree of competency he or she will have to perform the task.

3. There are no "right" or "wrong" responses except as you interpret or reflect your expectations of the graduates of the program. Also, there is no attempt to evaluate you, your colleagues or your institution. All information will be kept confidential.

DEFINITIONS OF RESPONSIBILITY

The levels of responsibility developed for use in this study are defined as:

Direct supervision/assist with - Actions of this type include those where your graduate is given a specific instruction to perform an action and report back immediately following its completion, assist a higher level person with the action, or to perform the action under observation.

Shared responsibility - Actions of this type include those where there is some intervening activity by a dentist or other responsible person. This might be a situation where verbal instructions by your graduate's supervisor were given to perform an action where it would not be necessary to report back to the supervisor upon completion of the action. The fact that another person has taken some action relating to the performance at the time of the performance gives them a part of the responsibility.

Independent responsibility - Actions of this type include those kinds of things where your graduate may make an observation during his or her normal duties and/or take an appropriate action without checking with or getting additional instructions from some higher level person. Other situations may be where (a) standing orders, (b) specific instructions recorded on the patient's chart or (c) established policies of the practice site would allow your graduates to perform the task action "on their own." It may or may not include a recording of their action.

THE CRITERION CLASS

The criterion class is that specific, currently enrolled, dental auxiliary class which is nearest to completion or graduation.

INTERPRETATION OF SLASH

As you read each task statement, interpret the slash (/) between two or more words to read "and/or", e.g., Load/unload film cassettes would be read as Load and/or unload film cassettes. If they will perform any part of the statement, you should respond.

TO MARK YOUR RESPONSES

Please fold out the flap page of this booklet to find the two questions and their respective response scales. Mark your two responses to each task statement by placing a slash mark (/) through the appropriate response number in each of the two columns to the right of each statement.

EXAMINE SINUSES, E.G. PRESSURE, TRANSILLUMINATION	1234	1234	131	312
FABRICATE WROUGHT METAL FRAMEWORK	1234	1234	1170	316
TAKE X-RAY OF MANDIBLE	1234	1234	285	318
PLACE PROVISIONAL SPLINT, EXTRACORONAL	1234	1234	1413	320
SOLDER CONTACT ON CROWN	1234	1234	1193	322
PERFORM GINGIVOPLASTY	1234	1234	1404	324
DETERMINE ARCH LENGTH FROM X-RAY	1234	1234	1373	328
WAX-UP FRAMEWORK FOR PARTIAL DENTURE	1234	1234	1163	330
CONSTRUCT PALATAL RELIEF	1234	1234	1130	332
TAKE X-RAY OF SINUS/SKULL	1234	1234	284	334
PERFORM INTRAORAL DENTAL EXAMINATION ON ADULT	1234	1234	1262	336
FIT REMOVABLE ORTHODONTIC APPLIANCE	1234	1234	1378	338
PERFORM TRACHEOTOMY/TRACHEOSTOMY	1234	1234	388	340
ADMINISTER INTRAVENOUS ANESTHETIC	1234	1234	319	342
POUR FINAL IMPRESSIONS TO PRODUCE MASTER CAST	1234	1234	1116	346
WRITE CORRESPONDENCE/REPORT/SUMMARY (NOT FORMS)	1234	1234	622	348
ORDER/PURCHASE OFFICE SUPPLIES/EQUIPMENT	1234	1234	724	350
INSERT HABIT CONTROL DEVICE	1234	1234	1315	352
MAKE PRELIMINARY ORAL EXAMINATION FOR ORTHODONTIC	1234	1234	1370	354
PERFORM HEAD GEAR ADJUSTMENT	1234	1234	1392	356
ORDER/PURCHASE MEDICAL/DENTAL SUPPLIES/EQUIPMENT	1234	1234	725	358

DEFINITIONS OF RESPONSIBILITY

The levels of responsibility developed for use in this study are defined as:

DIRECT SUPERVISION/ASSIST WITH - Actions of this type include those where your graduate is given a specific instruction to perform an action and *report back immediately* following its completion, *assist* a higher level person *with* the action, or to perform the action *under observation*.

SHARED RESPONSIBILITY - Actions of this type include those where there is some intervening activity by a dentist or other responsible person. This might be a situation where verbal instructions by your graduate's supervisor were given to perform an action where it would not be necessary to report back to the supervisor upon completion of the action. The fact that another person has taken some action relating to the performance at the time of the performance gives them a part of the responsibility.

INDEPENDENT RESPONSIBILITY - Actions of this type include those kinds of things where your graduate may make an observation during his or her normal duties and/or take an appropriate action without checking with or getting additional instructions from some higher level person. Other situations may be where (a) standing orders, (b) specific instructions recorded on the patient's chart or (c) established policies of the practice site would allow your graduates to perform the task action "on their own." It may or may not include a recording of their action.

PLEASE RESPOND ONLY FOR THE **DENTAL HYGIENE PROGRAM**

To what level will the graduate of the program be able to perform this task upon completion of the courses and other learning experiences given by you or under your direct responsibility?	*Auxiliary Staff*, is this task currently delegated or allocated to you, and if so, to which responsibility level do you *routinely* perform the task?
1. Not taught under my direction	1. Not delegated or allocated to me
2. Will be able to perform only under direct supervision/ assist with	2. I perform only under direct supervision/assist with
3. Will be able to perform with shared responsibility	3. I perform with shared responsibility
4. Will be able to perform with independent responsibility	4. I perform with independent responsibility

(Questions and Response Scales Utilized in Following the Pilot Study)

PLEASE RESPOND ONLY FOR THE **ASSOCIATE DENTAL HYGIENE PROGRAM**

To what level will the graduate of the program be able to perform this task upon completion of the courses and other learning experiences given by you or under your direct responsibility?

1. Not taught under my direction
2. Will be able to perform only under direct supervision
3. Will be able to perform with shared responsibility
4. Will be able to perform with independent responsibility

How many of the organized hours of instruction in the courses/labs/clinics taught by you or under your direct responsibility are devoted to developing competency in this task?

1. Content relevant to this task not taught under my direction
2. One to 20 minutes of instruction
3. Over 20 minutes and up to 1 hour of instruction
4. Over 1 hour and up to 3 hours of instruction
5. Over 3 hours and up to 6 hours of instruction
6. Over 6 hours and up to 12 hours of instruction
7. Over 12 hours of instruction

(Questions and Response Scales Utilized In Pilot Study)

APPENDIX B

TELEPHONE AND ON-SITE INTERVIEW FORMS

PROGRAM CODE _____

FTA SITE _____

DENTAL AUXILIARY TELEPHONE INTERVIEW FORM

NAME OF INSTITUTION _____

SUBUNIT OF INSTITUTION _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

OVERALL DIRECTOR OF ALL DENTAL AUXILIARY PROGRAMS FROM WHOM FOLLOWING INFORMATION WAS OBTAINED:

_____ (name)

_____ (address)

AREA ( ) _____ (phone)

Which of the following dental auxiliary programs do you offer and who is the individual in charge of each program?

If certificate and associate programs differ only by the amount of "general education," connect the two response lines with a parenthesis, e.g.,

(CERTIFICATE
 ASSOCIATE

DENTAL AUXILIARIES	PROGRAM(S) OFFERED (CODE A)	PROGRAM DIRECTOR	TELEPHONE
DENTAL LABORATORY TECHNOLOGY			
CERTIFICATE	(YES) (NO)		
ASSOCIATE	(YES) (NO)		
DENTAL ASSISTANT			
CERTIFICATE	(YES) (NO)		
ASSOCIATE	(YES) (NO)		
BACCALAUREATE	(YES) (NO)		
DENTAL HYGIENIST			
CERTIFICATE	(YES) (NO)		
ASSOCIATE	(YES) (NO)		
BACCALAUREATE	(YES) (NO)		
GRADUATE	(YES) (NO)		

DENT. AUX. TELEPHONE INTERVIEW

PAGE 2

PROGRAM CODE _____

FTA SITE _____

ASSOCIATE DENTAL LABORATORY TECHNOLOGY

INTERVIEWER: READ DEFINITION OF A "CRITERION CLASS."

What is the graduation date of the criterion class in your associate dental laboratory technology program? _____ (Mo) _____ (Yr)

What is the academic length of your associate dental laboratory technology program? _____

Let's see, that would be equivalent to how many consecutive weeks? _____ Weeks

How many students did you accept into the criterion class of the associate dental laboratory technology program? _____ Students

How many students do you expect to graduate from the criterion class of the associate dental laboratory technology program? _____ Students

In general, what were the admission qualifications for entrance into the criterion class of the associate dental laboratory technology program? (If more than 3, list only 3 most critical.)

1. Req. min. yrs. educ. _____
2. _____
3. _____

Considering the sequence of didactic, laboratory, and clinical practicum in your criterion class of associate dental laboratory technologists, how were these units blocked out? (Interviewer: get this in terms of weeks, if possible.)

_____

Are there any time constraints which would preclude us from visiting with you and your faculty in the next 30 days? Are there days of the week that are better than others for us to visit with you?

_____

Will the instructors participating in the final period of the clinical aspects of the curriculum be available for interview? (YES) (NO)

DENT. AUX. TELEPHONE INTERVIEW

PAGE 3

PROGRAM CODE _____

FTA SITE _____

ASSOCIATE DENTAL LABORATORY TECHNOLOGY

Would you please give me the name of every individual on the associate dental laboratory technology faculty for the total period of the criterion class. If some of your associate faculty divide their time between or among two or more dental programs, name them in each program in which they participate.

FACULTY OR ADMINISTRATOR	SKILL CODE (CODE B)	PRIMARY ASSIGNMENT (CODE C)	GENERALLY, WHAT PROPORTIONATE AMOUNT OF TIME WAS THIS PERSON WORKING IN THIS ASSOCIATE DENTAL LABORATORY TECHNOLOGY PROGRAM?

Interviewer, use additional pages, if necessary.

SKILL CODE (CODE B)

01 General Dentistry
03 Dental Assistant
05 Dental Hygienist
11 Dental Laboratory Technician
20 Specialist in Dentistry (not used unless speciality unknown)
23 Periodontist
24 Prosthodontist
25 Orthodontist
26 Endodontist
27 Pedodontist
28 Oral Surgeon
30 Health Occupations Educator
31 Business Education
40 Registered Nurse
41 Licensed Practical Nurse
99 Other (specify)

PRIMARY ASSIGNMENT (CODE C)

1 Administrator
2 Lecturer
3 Laboratory Instructor
4 Clinical Instructor
5 Preceptor
6 Lect., Lab. & Clin. Inst.
7 Lecturer and Lab Inst.
8 Administrator and Lecturer
9 Admin., Lect., Lab & Clin. Inst.
0 Auxiliary in Preceptor's Office

How many associate dental laboratory technology classes have you graduated? _____ Classes

Do you have a catalog and a curriculum guide for the associate dental laboratory technology criterion class that you can mail to me? (YES) (NO)

PROGRAM CODE _____

FTA SITE _____

DENTAL AUXILIARY ON-SITE INTERVIEW FORM

ASSOCIATE DENTAL LABORATORY TECHNOLOGY

INDIVIDUAL FROM WHOM INFORMATION WAS OBTAINED _____

TITLE _____

TELEPHONE NO. _____

Who or what was it that stimulated the initial development of the associate dental laboratory technology program? _____

Probable code

1. Local dental association
2. State dental association
3. School personnel - general
4. School personnel - someone specific (skill area) _____
5. Other
6. Funding available

Do you have an active, formal advisory council(s) for this associate dental laboratory technology program? _____

Probable code

1. Yes, program specific
2. Yes, auxiliary specific
3. Yes, across auxiliaries
4. No

Do you keep formal minutes of advisory council(s) meetings? (YES) (NO)

How frequently has your advisory council(s) met in past 12 months? _____ (FREQUENCY)

DENT. AUX. ON-SITE INTERVIEW FORM

PAGE 2

PROGRAM CODE _____

FTA SITE _____

Indicate every type of clinical setting in which the students in the criterion class of associate dental laboratory technology have obtained clinical experience.

Probable code		
01	A general dentistry clinic or practices not in a dental or auxiliary school	_____
02	A Periodontic clinic/office	_____
03	A Prosthodontic clinic/office	_____
04	An Orthodontic clinic/office	_____
05	An Endodontic clinic/office	_____
06	A Pedodontic clinic/office	
07	An Oral surgery clinic/office	
08	A general dentistry clinic in a dental school (not in an auxiliary school clinic)	
09	A clinic within the teaching institution and considered unique to the auxiliary program(s)	
10	A dental public health clinic/office	
11	A dental prosthetics laboratory	
12	Other (specify) _____	

Preceptor and Auxiliary in Preceptor's Office

I.D. No. of Preceptor _____

I.D. No. of Aux.	Name of Auxiliary Staff	Skill Code
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX C

TASK INVENTORY INSTRUMENT CODES

DENTAL AUXILIARIES EDUCATION STUDY
TASK INVENTORY INSTRUMENT CODES

CARD	COLUMN(S)	VARIABLE	CODE
01	1	FACULTY/PRECEPTOR/AUXILIARY A unique numeric identification for each respondent.	Column 1. Primary Assignment of respondent in a specific auxiliary program (assignment related to the teaching of dental tasks): 1. Administrator 2. Lecturer 3. Laboratory Instructor 4. Clinical Instructor 5. Preceptor 6. Lect., Lab. & Clin. Inst. 7. Lecturer and Lab Inst. 8. Administrator and Lecturer 9. Admin., Lect., Lab & Clin. Inst. 0. Auxiliary in Preceptor's Office A unique number was given each respondent within a specific institution, but only the first digit of the number was coded in order to preserve the anonymity of the respondent.
01	2-4	PROGRAM CODE A code which identified the primary institutional setting of a specific auxiliary program; the specific auxiliary program for which respondent is replying the type of completion awarded graduate of the program.	Column 2. Type of Institution in which Auxiliary Program is located: 1. Dental School 2. Senior Institution other than a dental school 3. Community or Junior College 4. Military Program 5. Program not associated with any of above types (e.g., hospital, laboratory, etc.) Column 3. Specific Auxiliary Program: 1. Dental Assistant 2. Dental Hygiene 3. Dental Laboratory Technology 4. A Specific Expanded Functions Program Column 4. Type of Completion Award: 1. Certificate 2. Associate Degree 3. Baccalaureate Degree 4. Masters 5. Doctorate
01	5-7	SITE NUMBER A unique three-digit number given to each institution in which participating auxiliary programs are located.	001 and continuing

CARD	COLUMN(S)	VARIABLE	CODE
01	8-9	SKILL CODE Occupational Skill of respondent	01 General Dentistry 03 Dental Assistant 05 Dental Hygienist 11 Dental Laboratory Technician 20 Specialist in Dentistry (not used unless specialty unknown) 23 Periodontist 24 Prosthodontist 25 Orthodontist 26 Endodontist 27 Pedodontist 28 Oral Surgeon 30 Health Occupations Educator 31 Business Education 40 Registered Nurse 41 Licensed Practical Nurse 99 Other (specify)
01	10-11	PROJECT NUMBER University of Illinois FTA project number.	02
01	12-15	DATE DATA COLLECTED Use zero, if needed, to right-justify columns.	Columns 12-13. Month Columns 14-15. Year
01	16-19	BIRTHDATE Use zero, if needed, to right-justify columns.	Columns 16-17. Month Columns 18-19. Year
01	20	SEX	1. Male 2. Female
01	21	RACE	1. American Indian 2. Black/Negro 3. Oriental 4. Spanish Surname 5. White 6. Other
01	22	MARITAL STATUS	1. Never Married 2. Now Married 3. Other
01	23	TIME ASSOCIATED WITH PROGRAM Use zero, if needed, to right-justify columns.	1. Less than 1 year 2. 1 year but less than 2 years 3. 2 years but less than 3 years 4. 3 years but less than 4 years 5. 4 years but less than 5 years 6. 5 years but less than 10 years 7. 10 years but less than 20 years 8. 20 or more years

CARD	COLUMN(S)	VARIABLE	CODE
01	24-26	LAST SALARIED HEALTH-RELATED JOB TITLE	Refer to 3-digit code used in Occupational Section of "1970 Census of Population: Alphabetical Index of Industries and Occupations"
01	27-34	TIME IN LAST HEALTH-RELATED JOB Use zero, if needed, to right-justify columns.	Columns 27-28. From Month Columns 29-30. From Year Columns 31-32. To Month Columns 33-34. To Year
01	35-36	HIGHEST LEVEL FORMAL ACADEMIC EDUCATION	01 Did not complete high school 02 Graduated from a high school program 03 Received high school diploma by GED exam 04 Freshman year of college or junior/community college 05 Sophomore year of college or junior/community college 06 Received an associate degree 07 Junior year of college 08 Received a bachelors degree 09 Attended graduate school but did not earn a degree 10 Received a masters degree 11 Did course work for doctorate but did not earn a degree 12 Received a doctoral degree (PhD, EdD, etc.) 13 Received a health profession doctorate (MD, DDS, etc.) 14 Attended post doctoral program
01	37-38	YEAR COMPLETED ACADEMIC PROGRAM	Date is entered as last two digits of year
01	39-40	MILITARY	01 None 02 Up to four months of technical or occupational preparation offered by one of the military services 03 More than four months and up to one year of technical or occupational preparation offered by one of the military services 04 Approximately two to three years of technical or occupational preparation offered by one of the military services

CARD	COLUMN(S)	VARIABLE	CODE
01	41-42	VOCATIONAL/TECHNICAL SCHOOL	05 None 06 Up to four months of technical or occupational preparation offered by a vocational or technical school 07 More than four months and up to one year of technical or occupational preparation offered by a vocational or technical school 08 Approximately two to three years of technical or occupational preparation offered by a vocational or technical school
01	43-44	HOSPITAL/HEALTH FACILITY	09 None 10 Up to four months of technical or occupational preparation offered by a hospital or health facility 11 More than four months and up to one year of technical or occupational preparation offered by a hospital or health facility 12 Approximately two to three years of technical or occupational preparation offered by a hospital or health facility
01	45-46	OTHER ORGANIZED/ DIRECTED TECHNICAL/ OCCUPATIONAL EDUCATION N.E.C.	13 None 14 Up to four months of organized short-term preparation plus on-the-job experience 15 At least one year of informal on-the-job experience 16 Participated in organized high school preparation program 17 Other
01	47-48	YEAR COMPLETED TECHNICAL/ OCCUPATIONAL EDUC.	Date is entered as last two digits of year
01	49-50	MAJOR AREA OF SPECIALIZATION IN HEALTH-RELATED EDUCATION	Use "Skill Code" (see Card 01, Columns 8-9)
01	51	TYPE OF DEGREE/ CERTIFICATE EARNED	Use "Completion Award" (see Card 01, Column 4)
01	52	INSTITUTION IN WHICH HEALTH-RELATED EDUCATION OBTAINED	Use "Program Location" (see Card 01, Column 2)
01	53-54	YEAR COMPLETED HEALTH-RELATED EDUCATION	Date is entered as last two digits of year

CARD	COLUMN(S)	VARIABLE	CODE
01	55-57	STATE OR COUNTRY WHERE HEALTH-RELATED EDUCATION OBTAINED	State: 101 AL 115 IA 129 NH 143 TX 102 AK 116 KS 130 NJ 144 UT 103 AZ 117 KY 131 NM 145 VT 104 AR 118 LA 132 NY 146 VA 105 CA 119 ME 133 NC 147 WA 106 CO 120 MD 134 ND 148 WV 107 CT 121 MA 135 OH 149 WI 108 DE 122 MI 136 OK 150 WY 109 FL 123 MN 137 OR 151 D.C. 110 GA 124 MS 138 PA 111 HI 125 MO 139 RI 112 ID 126 MT 140 SC 113 IL 127 NE 141 SD 114 IN 128 NV 142 TN OR Country: A three digit code - 201
01	58-59	MAJOR AREA OF SPECIALIZATION IN HEALTH-RELATED EDUCATION	Use "Skill Code" (see Card 01, Columns 8-9)
01	60	TYPE OF DEGREE/ CERTIFICATE EARNED	Use "Completion Award" (see Card 01, Column 4)
01	61	INSTITUTION IN WHICH HEALTH-RELATED EDUCATION OBTAINED	Use "Program Location" (see Card 01, Column 2)
01	62-63	YEAR COMPLETED HEALTH-RELATED EDUCATION	Date is entered as last two digits of year
01	64-66	STATE OR COUNTRY WHERE HEALTH-RELATED EDUCATION OBTAINED	Use "State or Country" code (see Card 01, Columns 55-57)
01	67-69	CURRENT LICENSES IN HEALTH FIELD	Column 67 use 1 Columns 68-69 use "Skill Code" (see Card 01, Columns 8-9)
01	70-78	BY WHOM LICENSED	Use "State or Country Code" (see Card 01, Columns 55-57)
02	1-11	DUPLICATE OF FIRST CARD	
02	12-14	CURRENT CERTIFICATIONS IN HEALTH FIELD	Column 12 use 2 Column 13-14 Use "Skill Code" (see Card 01, columns 8-9)

CARD	COLUMN(S)	VARIABLE	CODE
02	15-23	BY WHOM CERTIFIED	Association Code: 301 Board of Dental Public Health 302 Board of Endodontics 303 Board of Oral Pathology 304 Board of Oral Surgery 305 Board of Orthodontics 306 Board of Pedodontics 307 Board of Periodontics 308 Board of Prosthodontics 309 Certifying Board of the American Dental Assistants' Association 310 National Board for Certification in Dental Technology
02	24-26	CURRENT REGISTRIES IN HEALTH FIELD	Column 24 use 3 Columns 25-26 use "Skill Code" (see Card 01, Columns 8-9)
02	27-35	BY WHOM REGISTERED	Use "State or Country Code" (see, Card 01, Columns 55-57)
03	1-11	CARD IDENTIFICATION CARD SEQUENCE; FACULTY-ADMIN. NO.; ASSIGNMENT NO.	Columns 1-11 Duplicate equivalent columns from Card 01
03	12-78	TASK STATEMENTS	Columns 12, 14 . . . 78 Responsibility level to which dental task is taught: 1. Not taught under my direction 2. Will be able to perform only under direct supervision/assist with 3. Will be able to perform with shared responsibility 4. Will be able to perform with independent responsibility
03	15-79		Columns 13, 15 . . . 79 Level to which dental task is delegated: Doctor, do you currently delegate or have you allocated this task to any dental auxiliary in your clinical practice, and if so, to which responsibility level have you delegated or allocated it to be performed? 1. Not delegated or allocated to any auxiliary 2. Is being performed only under direct supervision/assist with 3. Is being performed with shared responsibility

CARD	COLUMN(S)	VARIABLE	CODE
03	15-79	Continued -	4. Is being performed with independent responsibility

OR

Faculty
Considering your own clinical work experience, either in your present position or in your past clinical work experience, have you performed this task, and if so, to which level of responsibility did you perform it?

1. Have not performed
2. Have performed only under direct supervision/assisted with
3. Have performed with shared responsibility
4. Have performed with independent responsibility

OR

Auxiliary Staff, is this task currently delegated or allocated to you, and if so, to which responsibility level do you routinely perform the task?

1. Not delegated or allocated to me
2. I perform only under direct supervision/assist with
3. I perform with shared responsibility
4. I perform with independent responsibility

APPENDIX D

DUPLICATE DENTAL TASK STATEMENTS

TABLE D-1

DUPLICATE DENTAL TASK STATEMENTS BY CATEGORY

CATEGORY TASK STATEMENTS	TASK ITEM NUMBER
1. Business and Office Management	
Transcribe/Type Dictaphone Tape	1002
Code Diagnosis/Service For Data Processing/Insurance	1006
Attend Course/Staff Meeting/Seminar	1017
Travel To/From Office/Clinic to Give Care	1023
Complete Report Form For Government Agency/Public Health/AMA, Etc.	1025
Present Case History at Staff Meeting	1029
Complete/Update Employees' Payroll Record	1032
Screen Visitor/Salesman to See Doctor	1035
Order/Purchase Office Supplies/Equipment	1040
Assist Patient to Complete Insurance Claim Form	1042
Prepare Collection Notice	1044
Write User Instruction For Equipment	1048
Record Telephone Message	1052
Organize/Revise a Filing System	1054
Write Instruction For Computer Data Processing	1055
2. Housekeeping -- Clinical and General	
3. Patient Care: Records -- Dental, Medical	
Log X-ray Number/Identification Onto Record	1047
4. Patient Care: Examination--Including Diagnostic Tests & X-ray	
Examine External Lymph Nodes	1004
Conduct Reexamination/Orthodontic Recall	1014
Take X-ray of Sinus/Skull	1022
Perform Indirect Laryngoscopy, i.e., with Mirror	1030
Identify Extraoral Habits Affecting Occlusion	1046
5. Patient Care: Analysis, Treatment Planning, and Consultation	
Plan/Adapt Diet for Patient (Not Order)	1005
Discuss Patient's Treatment with Prescriber	1016
Review Radiation Exposure Report	1020
Interpret Routine (Non-Contrast) X-ray	1033
Recommend Drug Therapy Based on Prescriber's Diagnosis	1037
Review Printed Patient Instructions on Examination/Therapy Procedures with Patient/Family	1041
Consult and Review Patient's Medical/Dental Record	1057
6. Patient Care: Preventive and Patient Education	
Give Oral Habit Therapy	1308
7. Patient Care: Preparation	
Prepare Tooth For Cast Restoration, e.g., Full Crown, Jacket, Etc.	1021
Prepare Tooth For Drainage Via Root Canal	1355

TABLE D-1 Continued

DUPLICATE DENTAL TASK STATEMENTS BY CATEGORY

CATEGORY TASK STATEMENTS	TASK ITEM NUMBER
8. Patient Care: Anesthesia and Medications	
Write Prescription For Prescriber's Signature	1012
Desensitize Hypersensitive Teeth	1038
9. Patient Care: Surgery and Surgically Related	
Perform Osseous Graft	1001
Perform Surgical Extraction, Full Bony Impaction	1007
Clean/Debride Wound/Cut (Not Abrasion or Burn)	1010
Establish/Maintain Airway by Using Endotracheal Tube	1013
Perform Direct Skeletal Fixation of Fracture	1019
Recover Tooth/Root From Antrum	1036
Control Bleeding by Ligation of Vessel	1051
10. Patient Care: Impressions	
11. Patient Care: Dental Laboratory	
Construct Palatal Relief	1009
Sandblast Partial Denture Framework Casting	1034
Pour Cast From Preliminary Impression	1043
Flask/Pack/Cure/Deflask Denture or Partial Reline/Repair/Duplicate	1050
Weld/Solder Orthodontic Band	1056
Soap Model	1148
12. Patient Care: Insertions and Restorations	
Install Removable Orthodontic Appliance	1003
Apply Varnish to Prepared Tooth	1008
Remove Temporary Crown/Jacket	1011
Place Wedge	1018
Adapt Matrix Band and Retainer to Teeth	1027
Try-in Partial Denture with Teeth Set in Wax	1031
Try-in Cast Restoration	1039
Try-in Partial Framework	1049
13. Patient Care: Adjustments and Repairs	
Adjust Partial Framework	1015
Adjust Provisional Dental Splint	1024
Repair Complete/Partial Denture (No Teeth Damaged)	1026
Adjust Fixed Orthodontic Appliance	1028
14. Patient Care: Chairside Assisting and Clinical Support	
Set Up Unit Bracket Table with Dental Instrument/Material	1045
Adapt Rubber Dam to One Tooth	1053

APPENDIX E

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS, (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM, AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS

REFERENCE NOTES TO TABLES E-1 THROUGH E-14

Each of the following tables (E-1 through E-14) identifies one of the fourteen categories among which the 489 dental task statements used in the second version of the Dental Task Inventory (DTI) were classified. Of the 489 task statements, 33 were statements which had been reworded from their original form in the Pilot DTI (Terry, 1973), and thus only 456 task statements were identical in wording in both the pilot and the current DTI. The 33 statements are marked "†" for identification, and since these statements were used only in the current study, the data reported for them in the tables must be interpreted by the following totals (N's) rather than those indicated in the tables: Dental Assisting: N^1=93, Dental Hygiene: N^1=163, Dental Laboratory Technician: N^1=46. The Faculty profile response for the 33 statements is not given.

The DTI questionnaire called for two responses for each task statement:

(1) To all Faculty and Preceptors -

> To what level will the graduate of the program be able to perform this task upon completion of the courses and other learning experiences given by you or under your direct responsibility?

and (2) To Auxiliary Preceptor -

> *Auxiliary Preceptor*, is this task currently delegated or allocated to you, and if so, to which responsibility level do you *routinely* perform the task?

OR to Auxiliary Faculty -

> *Auxiliary Faculty*, considering your own clinical work experience, either in your present position or in your past clinical work experience, have you performed this task, and if so, to which level of responsibility did you *routinely* perform it?

OR to Dentist, Faculty or Preceptor -

> *Doctor*, do you currently delegate or have you allocated this task to any dental auxiliary in your clinical practice, and if so, to which responsibility level have you delegated or allocated it to be performed?

To the first question asked of all Faculty and Preceptors, the responsibility (competency) scale was as follows:

1. Not taught under my direction
2. Will be able to perform only under direct supervision/assist with
3. Will be able to perform with shared responsibility
4. Will be able to perform with independent responsibility

To the second question asked, the responsibility scale was modified as follows for each respective respondent as noted above:

1. Not delegated or allocated to me or Have not performed, or Not delegated or allocated to any auxiliary
2. I perform only under direct supervision/assist with, or Have performed only under direct supervision/assisted with, or Is being performed only under direct supervision/assist with
3. I perform with shared responsibility, or Have performed with shared responsibility, or Is being performed with shared responsibility
4. I perform with independent responsibility, or Have performed with independent responsibility, or Is being performed with independent responsibility

The four responsibility scale levels are referenced in Tables E-1 through E-14 and are found below each of the four major column headings. The indicator "NR" (no response) is shown with level one as "NR-1." It should be noted that the overall respondent completion rate for the questionnaire was over 99 percent; hence, the "no response" component of the "NR-1" responsibility level is negligible.

In general, the "E" tables are used to present three kinds of findings concerning the dental task statements and the various responsibility scale responses associated with each statement. Each of the three kinds of data is found associated with the four major column headings which identify each of the three dental auxiliaries and a fourth column for dentists.

The first two rows of data associated each task statement reveal the frequency ^{1}(FRE) and percent (PCT) of all respective Faculty members responses to the "do I teach" question. Thus for the first task statement in Table E-1 it is noted that 93 of the 142 dental assisting Faculty members (65 percent) responded as not teaching the task (level "NR-1") while 22 of the Faculty members (15 percent) indicated they teach the task well enough that it can be performed by the dental assistant at an independent level (level 4) of competency. The data is read in a similar manner for each of the two other auxiliary programs.

The second two rows of data indicate the frequency (^{2}FRE) and Percent (PCT) of responses to a newly generated question, "What is the highest level to which the task is taught by any one or more of the Faculty in a given program within a specific institution?"

The data in these two rows thus present a picture of the highest levels of competency to which the task is taught among the programs within the three respective auxiliaries. Again, looking at the first task statement in Table E-1 and under the dental hygiene column it is noted that 3 of the 26 programs (12 percent) taught this task to be performed by the dental hygienist at a level of shared responsibility (level 3) while 19 of the 26 programs (73 percent) taught the task to level 4. The results of this question are not reported for the 33 task statements which were not common to the total study.

In the third set of two rows of data associated with each task statement is found the frequency (^{3}FRE) and percent (PCT) responses from both the Faculty and Preceptors (both auxiliary type and dentists) regarding whether or not they, the auxiliary, do now or have performed the task or whether or not the dentists delegate or allocate the task to any auxiliary. Looking a third time at the data for the first statement in Table E-1 it may be seen that 29 of 54 Faculty and Preceptor dental laboratory technicians (54 percent) either do now or have performed this task to level 4. Looking under the last major column heading (Delegated by Dentist) it is noted 49 of 168 dentists (29 percent) delegate or allocate this task to an auxiliary to be done at a shared level of responsibility (level 3). By adding together the dentist's responses for level "3" and "4" it may be seen that 85 of the 168 dentists (50 percent) delegate this task and to a high enough level of responsibility that these dentist's time is free or nearly free from having to perform this task.

TABLE E-1

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Write correspondence/report/summary (not forms)	[1]FRE	93	7	20	22	145	10	13	45	44	2	4	4				
	PCT	65	5	14	15	68	5	6	21	81	4	7	7				
	[2]FRE	2	1	6	17	3	1	3	19	3	1	4	3				
	PCT	8	4	23	65	12	4	12	73	27	9	36	27				
	[3]FRE	50	9	25	64	15	2	8	79	19	0	6	29	60	23	49	36
	PCT	34	6	17	43	14	2	8	76	35	0	11	54	36	14	29	21
Order/Purchase office supplies/equipment		88	4	22	28	164	5	17	27	33	7	7	7				
		62	3	15	20	77	2	8	13	61	13	13	13				
		0	0	7	19	6	0	3	17	1	0	3	7				
		0	0	27	73	23	0	12	65	9	0	27	64				
		20	5	35	88	14	4	18	68	11	0	4	39	46	4	57	61
		14	3	24	59	13	4	17	65	20	0	7	72	27	2	34	36
Order/Purchase medical/dental supplies/equipment		85	11	21	25	159	12	17	25	31	6	9	8				
		60	8	15	18	75	6	8	12	57	11	17	15				
		0	1	8	17	2	4	3	17	0	0	4	7				
		0	4	31	65	8	15	12	65	0	0	36	64				
		22	7	44	75	16	5	18	65	10	0	6	38	49	15	49	55
		15	5	30	51	15	5	17	63	19	0	11	70	29	9	29	33
Plan/update local administrative operating procedure/ regulations		119	8	12	3	194	6	6	7	49	4	0	1				
		84	6	8	2	91	3	3	3	91	7	0	2				
		11	2	10	3	13	4	3	6	7	3	0	1				
		42	8	38	12	50	15	12	23	64	27	0	9				
		104	5	26	13	61	6	18	19	38	4	6	6	109	15	23	21
		70	3	18	9	59	6	17	18	70	7	11	11	65	9	14	13
Update financial transactions in general journal		112	1	8	21	194	3	5	11	51	1	0	2				
		79	1	6	15	91	1	2	5	94	2	0	4				
		7	1	2	16	15	1	2	8	8	1	0	2				
		27	4	8	62	58	4	8	31	73	9	0	18				
		92	3	10	43	68	3	8	25	39	1	2	12	82	2	21	63
		62	2	7	29	65	3	8	24	72	2	4	22	49	1	13	38

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Follow up unpaid/lost/rejected insurance claim	[1]FRE	115	3	8	16	197	3	7	6	54	0	0	0				
	PCT	81	2	6	11	92	1	3	3	100	0	0	0				
	[2]FRE	9	1	4	12	14	2	5	5	11	0	0	0				
	PCT	35	4	15	46	54	8	19	19	100	0	0	0				
	[3]FRE	79	3	15	51	75	5	11	13	51	0	1	2	71	4	19	74
	PCT	53	2	10	34	72	5	11	13	94	0	2	4	42	2	11	44
Complete forms for employees' taxes (income and FICA)		115	0	9	18	199	3	2	9	51	0	1	2				
		81	0	6	13	93	1	1	4	94	0	2	4				
		6	0	5	15	14	3	2	7	8	0	1	2				
		23	0	19	58	54	12	8	27	73	0	9	18				
		102	6	14	26	67	5	10	22	38	1	1	14	94	5	24	45
		69	4	9	18	64	5	10	21	70	2	2	26	56	3	14	27
Balance books		110	2	4	26	191	2	5	15	49	2	2	1				
		77	1	3	18	90	1	2	7	91	4	4	2				
		6	1	1	16	11	1	3	11	6	2	2	1				
		23	4	4	69	42	4	12	42	55	18	18	9				
		62	5	18	63	54	3	13	34	29	5	2	18	76	6	20	66
		42	3	12	43	52	3	13	33	54	9	4	33	45	4	12	39
Extract billing data from doctor's notes/patient file		107	1	8	26	180	3	5	25	54	0	0	0				
		75	1	6	18	85	1	2	12	100	0	0	0				
		5	0	4	17	9	0	2	15	11	0	0	0				
		19	0	15	65	35	0	8	58	100	0	0	0				
		67	4	13	64	46	0	4	54	49	1	2	2	68	6	16	78
		45	3	9	43	44	0	4	52	91	2	4	4	40	4	10	46
Complete administrative form, e.g. incident, accident, safety report		110	2	17	13	178	8	10	17	52	0	2	0				
		77	1	12	9	84	4	5	8	96	0	4	0				
		6	0	9	11	9	2	5	11	9	0	2	0				
		23	0	35	42	35	4	19	42	82	0	18	0				
		75	12	19	42	57	4	12	31	33	2	7	12	83	13	34	38
		51	8	13	28	55	4	12	30	61	4	13	22	49	8	20	23
Prepare record/register for incoming patient		85	4	6	47	117	2	7	87	53	0	0	1				
		60	3	4	33	55	1	3	41	98	0	0	2				
		2	0	1	23	0	0	0	26	10	0	0	1				
		8	0	4	88	0	0	0	100	91	0	0	9				
		41	6	14	87	20	0	2	82	38	4	5	7	55	1	12	100
		28	4	9	59	19	0	2	79	70	7	9	13	53	1	7	60

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Explain insurance coverage to patient/family	[1]FRE	111	1	11	19	184	3	9	17	53	0	1	0				
	PCT	78	1	8	13	86	1	4	8	98	0	2	0				
	[2]FRE	9	0	4	13	11	0	4	11	10	0	1	0				
	PCT	35	0	15	50	42	0	15	42	91	0	9	0				
	[3]FRE	75	4	15	54	60	0	12	32	51	2	0	1	78	3	21	66
	PCT	51	3	10	36	58	0	12	31	94	4	0	2	46	2	13	39
Explain fees/charges to patient		104	5	9	24	125	3	15	70	52	1	1	0				
		73	4	6	17	59	1	7	33	96	2	2	0				
		5	1	2	18	3	0	0	23	9	1	1	0				
		19	4	8	69	12	0	0	88	82	9	9	0				
		53	4	15	76	23	2	10	69	44	1	5	4	62	8	30	68
		36	3	10	51	22	2	10	66	81	2	9	7	37	5	18	40
Analyze financial report accounting procedure		124	5	5	8	202	2	2	7	51	1	1	1				
		87	4	4	6	95	1	1	3	94	2	2	2				
		11	4	3	8	18	1	1	6	8	1	1	1				
		42	15	12	31	69	4	4	23	73	9	9	9				
		102	8	15	23	81	3	9	11	36	2	4	12	101	15	23	29
		69	5	10	16	78	3	9	11	67	4	7	22	60	9	14	17
Explain administrative procedure/form (other than insurance) to patient/family		103	2	18	19	152	3	13	45	54	0	0	0				
		73	1	13	13	71	1	6	21	100	0	0	0				
		3	0	6	17	3	0	0	23	11	0	0	0				
		12	0	23	65	12	0	0	88	100	0	0	0				
		72	4	17	55	42	3	9	50	46	1	3	4	62	7	34	65
		49	3	11	37	40	3	9	48	85	2	6	7	37	4	20	39
Schedule ancillary (lab. x-ray) patient services		101	5	13	23	153	5	15	40	52	2	0	0				
		71	4	9	16	72	2	7	19	96	4	0	0				
		4	2	5	15	5	0	2	19	9	2	0	0				
		15	8	19	58	19	0	8	73	82	18	0	0				
		81	5	17	45	52	2	13	37	39	1	7	7	74	4	34	56
		55	3	11	30	50	2	13	36	72	2	13	13	44	2	20	33
Interview/evaluate/hire prospective personnel		128	6	7	1	192	5	10	6	49	3	0	2				
		90	4	5	1	90	2	5	3	91	6	0	4				
		14	5	6	1	12	3	5	6	8	1	0	2				
		54	19	23	4	46	12	19	23	73	9	0	18				
		94	13	21	20	52	3	22	27	21	2	3	28	103	18	26	21
		64	9	14	14	50	3	21	26	39	4	6	52	61	11	15	13

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=168				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare bank deposit	[1]FRE	106	1	7	28	189	3	2	19	47	0	3	4				
	PCT	75	1	5	20	89	1	1	9	87	0	6	7				
	[2]FRE	6	0	2	18	10	0	1	15	6	0	2	3				
	PCT	23	0	8	69	38	0	4	58	55	0	18	27				
	[3]FRE	57	2	8	81	38	0	6	60	27	0	0	27	72	5	11	80
	PCT	39	1	5	55	37	0	6	58	50	0	0	50	43	3	7	48
Prepare statement for patient billing either for patient or billing service		107	2	5	28	186	2	5	20	52	0	1	1				
		75	1	4	20	87	1	2	9	96	0	2	2				
		6	0	2	18	8	0	5	13	9	0	0	1				
		23	0	8	69	31	0	19	50	82	0	9	9				
		50	4	12	82	42	1	11	50	45	0	3	6	67	3	6	92
		34	3	8	55	40	1	11	48	83	0	6	11	40	2	4	55
Complete form for filing patient's insurance		109	2	9	22	187	4	5	17	54	0	0	0				
		77	1	6	15	88	2	2	8	100	0	0	0				
		7	1	4	14	11	2	1	12	11	0	0	0				
		27	4	15	54	42	8	4	46	100	0	0	0				
		67	6	14	61	53	2	12	37	51	1	1	1	69	5	17	77
		45	4	9	41	51	2	12	36	94	2	2	2	41	3	10	46
Organize/revise a filing system		105	1	12	24	172	4	11	26	51	0	3	0				
		74	1	8	17	81	2	5	12	94	0	6	0				
		2	0	4	20	5	0	4	17	8	0	3	0				
		8	0	15	77	19	0	15	65	73	0	27	0				
		58	6	17	67	28	2	6	68	32	4	4	14	59	5	40	64
		39	4	11	45	27	2	6	65	59	7	7	26	35	3	24	38
Prepare certificate/affidavit for third party		127	2	10	3	198	5	7	3	54	0	0	0				
		89	1	7	2	93	2	3	1	100	0	0	0				
		15	2	7	2	16	2	6	2	11	0	0	0				
		58	8	27	8	62	8	23	8	100	0	0	0				
		108	3	10	27	82	4	5	13	49	0	1	4	98	9	25	36
		73	2	7	18	79	4	5	13	91	0	2	7	58	5	15	21
Direct storage/issue/safeguarding of security items		101	12	14	15	179	5	9	20	48	4	0	2				
		71	8	10	11	84	2	4	9	89	7	0	4				
		5	2	7	12	8	1	5	12	7	2	0	2				
		19	8	27	46	31	4	19	46	64	18	0	18				
		78	7	15	48	61	3	4	36	28	0	4	22	84	18	21	45
		53	5	10	32	59	3	4	35	52	0	7	41	50	11	13	27

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Coordinate patient treatment plan with other departments/agencies/specialists	[1]FRE	102	12	19	9	134	16	35	28	54	0	0	0				
	PCT	72	8	13	6	63	8	16	13	100	0	0	0				
	[2]FRE	4	4	11	7	1	2	6	17	11	0	0	0				
	PCT	15	15	42	27	4	8	23	65	100	0	0	0				
	[3]FRE	68	17	27	36	35	3	34	32	42	1	7	4	89	11	35	33
	PCT	46	11	18	24	34	3	33	31	78	2	13	7	53	7	21	20
Prepare invoice/voucher for payment of funds		110	2	8	22	186	1	1	25	51	0	0	3				
		77	1	6	15	87	0	0	12	94	0	0	6				
		6	0	3	17	10	1	1	14	8	0	0	3				
		23	0	12	65	38	4	4	54	73	0	0	27				
		69	5	17	57	56	2	5	41	38	3	3	10	77	7	25	59
		47	3	11	39	54	2	5	39	70	6	6	19	46	4	15	35
Complete report form for government agency/public health/AMA, etc.		110	2	14	16	181	9	10	13	51	2	0	1				
		77	1	10	11	85	4	5	6	94	4	0	2				
		6	1	6	13	8	5	4	9	9	1	0	1				
		23	4	23	50	31	19	15	35	82	9	0	9				
		84	6	14	44	50	6	13	35	36	0	6	12	72	18	22	56
		57	4	9	30	48	6	13	34	67	0	11	22	43	11	13	33
Review and approve staff payroll (time and salary)		121	3	9	9	198	2	3	10	53	0	0	1				
		85	2	6	6	93	1	1	5	98	0	0	2				
		11	1	6	8	17	0	2	7	10	0	0	1				
		42	4	23	31	65	0	8	27	91	0	0	9				
		103	4	16	25	78	1	8	17	37	2	4	11	102	7	23	36
		70	3	11	17	75	1	8	16	69	4	7	20	61	4	14	21
File items into individual patient record		79	2	5	56	102	1	5	105	53	0	0	1				
		56	1	4	39	48	0	2	49	98	0	0	2				
		0	0	0	26	0	0	0	26	10	0	0	1				
		0	0	0	100	0	0	0	100	91	0	0	9				
		24	1	8	115	13	0	2	89	33	2	5	14	41	1	17	109
		16	1	5	78	13	0	2	86	61	4	9	26	24	1	10	65
Explain consent form/obtain patient's signature/sign as witness to signature		90	8	10	34	110	4	15	84	52	0	0	2				
		63	6	7	24	52	2	7	39	96	0	0	4				
		1	2	4	19	0	0	0	26	9	0	0	2				
		4	8	15	73	0	0	0	100	82	0	0	18				
		67	6	12	63	22	2	4	76	44	1	3	6	58	4	21	85
		45	4	8	43	21	2	4	73	81	2	6	11	35	2	13	51

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Operate audiovisual equipment, e.g., projector, recorder, etc.	[1]FRE	113	1	7	21	147	8	10	48	46	1	4	3				
	PCT	80	1	5	15	69	4	5	23	85	2	7	6				
	[2]FRE	8	0	3	15	0	1	3	22	5	0	3	3				
	PCT	31	0	12	58	0	4	12	85	45	0	27	27				
	[3]FRE	61	1	8	78	6	3	6	89	20	0	0	34	66	2	18	82
	PCT	41	1	5	53	6	3	6	86	37	0	0	63	39	1	11	49
Update inventory of precious metals		111	2	11	18	194	3	3	13	36	6	2	10				
		78	1	8	13	91	1	1	6	67	11	4	19				
		4	1	8	13	14	1	1	10	1	2	1	7				
		15	4	31	50	54	4	4	38	9	18	9	64				
		87	4	16	41	83	1	5	15	18	0	3	33	109	7	18	34
		59	3	11	28	80	1	5	14	33	0	6	61	65	4	11	20
Update a file of paid and unpaid invoices		105	2	6	29	181	5	4	23	52	0	1	1				
		74	1	4	20	85	2	2	11	96	0	2	2				
		6	0	1	19	10	1	2	13	9	0	1	1				
		23	0	4	73	38	4	8	50	82	0	9	9				
		63	4	16	65	53	1	11	39	40	2	2	10	72	3	19	74
		43	3	11	44	51	1	11	38	74	4	4	19	43	2	11	44
Prepare collection notice		108	3	8	23	190	2	7	14	53	1	0	0				
		76	2	6	16	89	1	3	7	98	2	0	0				
		6	0	5	15	13	0	3	10	10	1	0	0				
		23	0	19	58	50	0	12	38	91	9	0	0				
		74	5	12	57	68	1	4	31	45	1	2	6	74	4	26	64
		50	3	8	39	65	1	4	30	83	2	4	11	44	2	15	38
Issue/collect film badge or other radiation detector		100	5	9	28	170	4	6	33	52	1	1	0				
		70	4	6	20	80	2	3	15	96	2	2	0				
		2	1	3	20	5	1	0	20	9	1	1	0				
		8	4	12	77	19	4	0	77	82	9	9	0				
		93	4	7	44	61	1	5	37	40	1	6	7	107	5	19	37
		63	3	5	30	59	1	5	36	74	2	11	13	64	3	11	22
Take dictation (not doctor's orders)		134	0	2	6	206	1	1	5	54	0	0	0				
		94	0	1	4	97	0	0	2	100	0	0	0				
		19	0	2	5	19	1	1	5	11	0	0	0				
		73	0	8	19	73	4	4	19	100	0	0	0				
		109	3	10	26	96	0	1	7	52	0	0	2	105	9	16	38
		74	2	7	18	92	0	1	7	96	0	0	4	63	5	10	23

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Compile/update mailing list	[1]FRE	113	0	7	22	179	3	6	25	53	0	1	0				
	PCT	80	0	5	15	84	1	3	12	98	0	2	0				
	[2]FRE	7	0	2	17	9	2	1	14	10	0	1	0				
	PCT	27	0	8	65	35	8	4	54	91	0	9	0				
	[3]FRE	76	4	11	57	57	0	2	45	39	1	3	11	76	2	25	65
	PCT	51	3	7	39	55	0	2	43	72	2	6	20	45	1	15	39
Verify/approve invoice for payment		112	3	6	21	188	2	6	17	51	0	2	1				
		79	2	4	15	88	1	3	8	94	0	4	2				
		7	2	1	16	12	0	2	12	8	0	2	1				
		27	8	4	62	46	0	8	46	73	0	18	9				
		75	3	9	61	54	0	8	42	42	1	2	9	79	3	18	68
		51	2	6	41	52	0	8	40	78	2	4	17	47	2	11	40
† Screen and process patient on arrival for appropriate disposition including urgency of priority		64	9	5	15	109	16	18	20	46	0	0	0				
		69	10	5	16	67	10	11	12	100	0	0	0				
		68	13	12	55	36	6	17	45	41	2	8	3	71	15	34	48
		46	9	8	37	35	6	16	43	76	4	15	6	42	9	20	29
† Schedule patient appointment		50	2	6	35	72	1	7	83	44	1	0	1				
		54	2	6	38	44	1	4	51	96	2	0	2				
		24	3	9	112	9	0	4	91	32	2	2	18	42	3	16	107
		16	2	6	76	9	0	4	88	59	4	4	33	25	2	10	64
† Operate business machine		78	0	4	11	145	2	3	13	43	0	1	2				
		84	0	4	12	89	1	2	8	94	0	2	4				
		49	1	8	90	39	1	9	55	32	3	4	15	66	4	14	84
		33	1	5	61	38	1	9	53	59	6	7	28	39	2	8	50
† Update inventory of drugs/precious metals		62	4	9	18	142	2	7	12	38	4	2	2				
		67	4	10	19	87	1	4	7	83	9	4	4				
		71	2	14	61	68	5	11	20	25	1	4	24	83	6	31	48
		48	1	9	41	65	5	11	19	46	2	7	44	49	4	18	29

TABLE E-1 (continued)

CATEGORY 1 BUSINESS AND OFFICE MANAGEMENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
T Set up recall system	[1]FRE	63	3	7	20	100	2	8	53	45	1	0	0				
	PCT	68	3	8	22	61	1	5	33	98	2	0	0				
	[2]FRE																
	PCT																
	[3]FRE	55	7	13	73	24	0	4	76	40	0	8	6	53	8	25	82
	PCT	37	5	9	49	23	0	4	73	74	0	15	11	32	5	15	49

TABLE E-2

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Check and maintain instruments for working condition	[1]FRE	64	4	14	60	73	3	17	120	25	5	7	17				
	PCT	45	3	10	42	34	1	8	56	46	9	13	31				
	[2]FRE	0	0	0	26	0	0	0	26	1	0	0	10				
	PCT	0	0	0	100	0	0	0	100	9	0	0	91				
	[3]FRE	18	1	13	116	8	0	2	94	15	0	3	36	33	3	20	112
	PCT	12	1	9	78	8	0	2	90	28	0	6	67	20	2	12	67
Clean x-ray processing equipment		70	5	6	61	129	3	3	78	52	0	1	1				
		49	4	4	43	61	1	1	37	96	0	2	2				
		0	0	2	24	0	0	1	25	9	0	0	1				
		0	0	8	92	0	0	4	96	82	0	9	9				
		35	3	5	105	15	1	6	82	36	0	3	15	49	2	8	109
		24	2	3	71	14	1	6	79	67	0	6	28	29	1	5	65
Clean dental operatory after conclusion of procedures		67	2	3	70	74	2	6	131	52	0	1	1				
		47	1	2	49	35	1	3	62	96	0	2	2				
		0	0	0	26	0	0	0	26	9	0	1	1				
		0	0	0	100	0	0	0	100	82	0	9	9				
		21	0	3	124	7	0	0	97	33	1	2	18	35	0	7	126
		14	0	2	84	7	0	0	93	61	2	4	33	21	0	4	75
Wash/clean nontreatment area		76	9	10	47	133	2	4	74	52	0	1	1				
		54	6	7	33	62	1	2	35	96	0	2	2				
		1	1	1	23	0	0	0	26	9	0	0	1				
		4	4	4	88	0	0	0	100	82	0	9	9				
		42	8	11	87	37	1	2	64	38	3	2	11	56	6	20	86
		28	5	7	59	36	1	2	62	70	6	4	20	33	4	12	51
Clean cassettes/other x-ray film holders		81	6	4	51	133	2	4	74	54	0	0	0				
		57	4	3	36	62	1	2	35	100	0	0	0				
		1	0	0	25	0	0	2	24	11	0	0	0				
		4	0	0	96	0	0	8	92	100	0	0	0				
		49	1	3	95	28	2	3	71	37	1	4	12	49	1	16	102
		33	1	2	64	27	2	3	68	69	2	7	22	29	1	10	61
Store supplies/equipment/laundry		69	7	8	58	141	2	5	65	40	3	2	9				
		49	5	6	41	66	1	2	31	74	6	4	17				
		1	0	1	24	2	0	0	24	3	0	0	8				
		4	0	4	92	8	0	0	92	27	0	0	73				
		20	4	8	116	21	0	3	80	19	0	4	31	44	2	10	112
		14	3	5	78	20	0	3	77	35	0	7	57	26	1	6	67

TABLE F-2 (continued)

CATEGORY 2 HOUSEKEEPING: CLINICAL AND GENERAL		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Inspect all areas and rooms for cleanliness/ temperature/adequate supplies/safety	[1]FRE	73	4	11	54	122	3	13	75	44	3	1	6				
	PCT	51	3	8	38	57	1	6	35	81	6	2	11				
	[2]FRE	1	0	0	25	0	0	2	24	5	1	1	4				
	PCT	4	0	0	96	0	0	8	92	45	9	9	36				
	[3]FRE	24	3	12	109	29	0	5	70	24	2	6	22	42	4	22	100
	PCT	16	2	8	74	28	0	5	67	44	4	11	41	25	2	13	60
† Break down/sterilize instruments for post operative cleaning		42	2	4	45	77	1	2	83	46	0	0	0				
		45	2	4	48	47	1	1	51	100	0	0	0				
		29	2	6	111	15	1	3	85	35	2	6	11	41	0	13	114
		20	1	4	75	14	1	3	82	65	4	11	20	24	0	8	68
† Do minor repair/adjustment on clinical equipment		59	7	12	15	110	7	6	40	39	1	3	3				
		63	8	13	16	67	4	4	25	85	2	6	6				
		50	11	25	62	20	3	14	67	24	2	9	19	72	14	34	48
		34	7	17	42	19	3	13	64	44	4	17	35	43	8	20	29
† Prepare/maintain solutions in x-ray dark room		45	6	7	35	96	2	5	60	45	0	1	0				
		48	6	8	38	59	1	3	37	98	0	2	0				
		37	2	4	105	19	0	5	80	35	1	5	13	47	2	10	109
		25	1	3	71	18	0	5	77	65	2	9	24	28	1	6	65

TABLE E-3

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 3 PATIENT CARE: RECORDS — DENTAL, MEDICAL		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Obtain patient's chief complaint/present problem	[1]FRE	69	8	21	44	62	8	17	126	54	0	0	0				
	PCT	49	6	15	31	29	4	8	59	100	0	0	0				
	[2]FRE	0	0	5	21	0	1	0	25	11	0	0	0				
	PCT	0	0	19	81	0	4	0	96	100	0	0	0				
	[3]FRE	23	4	18	103	9	0	3	92	34	0	10	10	46	12	32	78
	PCT	16	3	12	70	9	0	3	88	63	0	19	19	27	7	19	46
Record progress/therapy note on patient record		74	12	22	34	83	8	23	99	53	0	0	1				
		52	8	15	24	39	4	11	46	[illegible]	0	0	2				
		1	0	4	21	0	0	1	25	1[illegible]	0	0	1				
		4	0	15	81	0	0	4	96	91	0	0	9				
		38	15	26	69	18	2	5	79	38	1	8	7	49	16	39	64
		26	10	18	47	17	2	5	76	70	2	15	13	29	10	23	38
Obtain patient's psychosocial history, e.g., alcohol, sex, family situation, etc.		100	5	7	30	97	10	12	94	53	0	1	0				
		70	4	5	21	46	5	6	44	98	0	2	0				
		3	1	3	19	0	0	1	25	10	0	1	0				
		12	4	12	73	0	0	4	96	91	0	9	0				
		61	10	16	61	25	0	7	72	41	3	4	6	82	9	27	50
		41	7	11	41	24	0	7	69	76	6	7	11	49	5	16	30
Obtain history of family illnesses		78	11	12	41	71	6	17	119	53	0	0	1				
		55	8	8	29	33	3	8	56	98	0	0	2				
		0	1	3	22	0	0	1	25	10	0	0	1				
		0	4	12	85	0	0	4	96	91	0	0	9				
		52	14	15	67	15	0	7	82	38	1	10	5	62	6	34	66
		35	9	10	45	14	0	7	79	70	2	19	9	37	4	20	39
Record results of peridontal examination		90	3	19	30	80	4	16	113	53	0	0	1				
		63	2	13	21	38	2	8	53	98	0	0	2				
		3	0	3	20	0	0	1	25	10	0	0	1				
		12	0	12	77	0	0	4	96	91	0	0	9				
		65	21	13	49	15	0	4	85	43	2	5	4	59	14	31	64
		44	14	9	33	14	0	4	82	80	4	9	7	35	8	18	38
Obtain patient's history of medication use		78	8	16	40	68	5	15	125	53	0	0	1				
		55	6	11	28	32	2	7	59	98	0	0	2				
		0	2	4	20	0	0	1	25	10	0	0	1				
		0	8	15	77	0	0	4	96	91	0	0	9				
		44	11	16	77	6	1	4	93	40	1	6	7	64	14	31	59
		30	7	11	52	6	1	4	89	74	2	11	13	38	8	18	35

TABLE E- 3 (continued)

CATEGORY 3 PATIENT CARE: RECORDS -- DENTAL, MEDICAL		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Make up chart for new patient	[1]FRE	80	3	8	51	78	4	11	120	54	0	0	0				
	PCT	56	2	6	36	37	2	5	56	100	0	0	0				
	[2]FRE	0	0	1	25	0	0	0	26	11	0	0	0				
	PCT	0	0	4	96	0	0	0	100	100	0	0	0				
	[3]FRE	29	3	9	107	16	0	2	86	36	1	6	11	42	1	18	107
	PCT	20	2	6	72	15	0	2	83	67	2	11	20	25	1	11	64
† Obtain history of past/present medical/dental history		41	12	9	31	43	4	16	100	44	1	0	1				
		44	13	10	33	26	2	10	61	96	2	0	2				
		43	12	15	78	6	0	5	93	36	0	4	14	53	9	26	80
		29	8	10	53	6	0	5	89	67	0	7	26	32	5	15	48
† Record oral conditions		39	9	20	25	47	2	19	95	45	0	1	0				
		42	10	22	27	29	1	12	58	98	0	2	0				
		47	17	25	59	5	1	5	93	38	1	7	8	51	15	38	64
		32	11	17	40	5	1	5	89	70	2	13	15	30	9	23	38

TABLE E-4

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3], OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY		TAUGHT/PERFORMED IN DENTAL ASSISTING				TAUGHT/PERFORMED IN DENTAL HYGIENE				TAUGHT/PERFORMED IN DENTAL LAB. TECH.				DELEGATED BY DENTIST			
		N^1=142; N^2=26; N^3=148				N^1=213; N^2=26; N^3=104				N^1=54; N^2=11; N^3=54				N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Identify extra-oral habits affecting occlusion	[1]FRE		8	6	1	114	15	28	56	51	0	3	0				
	PCT	89	6	4	1	54	7	13	26	94	0	6	0				
	[2]FRE	15	4	6	1	1	1	2	22	8	0	3	0				
	PCT	58	15	23	4	4	4	8	85	73	0	27	0				
	[3]FRE	110	20	8	10	31	5	20	48	41	6	5	2	124	15	10	19
	PCT	74	14	5	7	30	5	19	46	76	11	9	4	74	9	6	11
Perform periodontal examination		122	14	3	3	83	5	23	102	53	1	0	0				
		86	10	2	2	39	2	11	48	98	2	0	0				
		11	9	3	3	0	0	3	23	10	1	0	0				
		42	35	12	12	0	0	12	88	91	9	0	0				
		104	34	7	3	12	5	8	79	45	5	1	3	115	15	16	22
		70	23	5	2	12	5	8	76	83	9	2	6	68	9	10	13
Make tracing from lateral headplate		135	1	4	2	209	1	2	1	54	0	0	0				
		95	1	3	1	98	0	1	0	100	0	0	0				
		20	1	3	2	22	1	2	1	11	0	0	0				
		77	4	12	8	85	4	8	4	100	0	0	0				
		130	3	5	10	96	5	1	2	48	4	2	0	147	4	10	7
		88	2	3	7	92	5	1	2	89	7	4	0	88	2	6	4
† Observe oral conditions and chart		51	15	12	15	47	5	19	92	45	0	1	0				
		55	16	13	16	29	3	12	56	98	0	2	0				
		61	18	27	42	4	0	6	94	39	3	5	7	83	11	30	44
		41	12	18	28	4	0	6	90	72	6	9	13	49	7	18	26
† Make special notations/inform doctor of unusual conditions		43	12	13	25	44	6	18	95	43	1	1	1				
		46	13	14	27	27	4	11	58	94	2	2	2				
		38	7	32	71	5	1	2	96	32	4	4	14	54	13	38	63
		26	5	22	48	5	1	2	92	59	7	7	26	32	8	23	38

TABLE E-4 (continued)

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAYS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
† Examine head/neck by inspection/palpation (not neurological)	^{1}FRE	80	5	8	0	60	11	16	76	46	0	0	0				
	PCT	86	5	9	0	37	7	10	47	100	0	0	0				
	^{2}FRE																
	PCT																
	^{3}FRE	124	15	6	3	22	3	8	71	49	3	1	1	126	8	12	22
	PCT	84	10	4	2	21	3	8	68	91	6	2	2	75	5	7	13
† Perform skin test, e.g., TB, histo, etc. (not to include reading)		89	3	1	0	161	1	0	1	46	0	0	0				
		96	3	1	0	99	1	0	1	100	0	0	0				
		143	2	1	2	101	1	1	1	50	1	1	2	150	8	9	1
		97	1	1	1	97	1	1	1	93	2	2	4	89	5	5	1
Examine teeth for plaque index		89	7	10	36	80	2	5	126	53	0	1	0				
		63	5	7	25	38	1	2	59	98	0	2	0				
		3	1	1	21	0	0	0	26	10	0	1	0				
		12	4	4	81	0	0	0	100	91	0	9	0				
		63	13	10	62	14	1	0	89	42	1	7	4	65	3	27	73
		43	9	7	42	13	1	0	86	78	2	13	7	39	2	16	43
Observe and report symptoms of acute physical distress		78	12	21	31	88	18	33	74	52	1	1	0				
		55	8	15	22	41	8	15	35	96	2	2	0				
		1	0	7	18	0	0	0	26	9	1	1	0				
		4	0	27	69	0	0	0	100	82	9	9	0				
		49	14	23	62	21	5	14	64	37	4	5	8	60	20	33	55
		33	9	16	42	20	5	13	62	69	7	9	15	36	12	20	33
Examine peripheral pulses and veins		117	7	13	5	163	8	11	31	53	0	1	0				
		82	5	9	4	77	4	5	15	98	0	2	0				
		11	3	7	5	6	2	3	15	10	0	1	0				
		42	12	27	19	23	8	12	58	91	0	9	0				
		124	11	5	8	67	5	8	24	46	5	2	1	116	14	19	19
		84	7	3	5	64	5	8	23	85	9	4	2	69	8	11	11
Take full mouth x-ray		65	6	10	61	96	2	10	105	53	0	1	0				
		46	4	7	43	45	1	5	49	98	0	2	0				
		0	0	0	26	0	0	0	26	10	0	1	0				
		0	0	0	100	0	0	0	100	91	0	9	0				
		34	2	10	102	2	2	1	99	32	2	4	16	39	2	19	108
		23	1	7	69	2	2	1	95	59	4	7	30	23	1	11	64

TABLE E-4 (continued)

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare requisition for diagnostic procedures, e.g., lab	[1] FRE	105	13	13	11	170	7	20	16	53	0	1	0				
	PCT	74	9	9	8	80	3	9	8	98	0	2	0				
	[2] FRE	3	4	10	9	7	0	7	12	10	0	1	0				
	PCT	12	15	38	35	27	0	27	46	91	0	9	0				
	[3] FRE	83	8	25	32	59	6	16	23	39	2	8	5	89	15	31	33
	PCT	56	5	17	22	57	6	15	22	72	4	15	9	53	9	18	20
Obtain blood specimen by venipuncture		137	2	1	2	204	5	1	3	54	0	0	0				
		96	1	1	1	96	2	0	1	100	0	0	0				
		21	2	1	2	20	2	1	3	11	0	0	0				
		81	8	4	8	77	8	4	12	100	0	0	0				
		145	3	0	0	97	6	1	0	42	3	3	6	153	4	6	5
		98	2	0	0	93	6	1	0	78	6	6	11	91	2	4	3
Perform intraoral dental examination on child		107	14	11	10	77	8	21	107	54	0	0	0				
		75	10	8	7	36	4	10	50	100	0	0	0				
		6	6	7	7	0	0	1	25	11	0	0	0				
		23	23	27	27	0	0	4	96	100	0	0	0				
		85	27	20	16	5	2	12	85	43	3	5	3	103	15	19	31
		57	18	14	11	5	2	12	82	80	6	9	6	61	9	11	18
Perform indirect laryngoscopy, i.e. with mirror		136	5	0	1	194	4	3	12	54	0	0	0				
		96	4	0	1	91	2	1	6	100	0	0	0				
		20	5	0	1	18	1	1	6	11	0	0	0				
		77	19	0	4	69	4	4	23	100	0	0	0				
		144	4	0	0	88	7	2	7	51	0	2	1	160	2	3	3
		97	3	0	0	85	7	2	7	94	0	4	2	95	1	2	2
Examine sinuses, e.g., pressure, transillumination		139	3	0	0	195	1	9	8	54	0	0	0				
		98	2	0	0	92	0	4	4	100	0	0	0				
		23	3	0	0	16	1	5	4	11	0	0	0				
		88	12	0	0	62	4	19	15	100	0	0	0				
		132	10	3	3	82	4	6	12	53	1	0	0	156	1	5	6
		89	7	2	2	79	4	6	12	98	2	0	0	93	1	3	4
Take x-ray of mandible		84	8	10	40	120	10	15	68	54	0	0	0				
		59	6	7	28	56	5	7	32	100	0	0	0				
		1	0	5	20	0	1	0	25	11	0	0	0				
		4	0	19	77	0	4	0	96	100	0	0	0				
		55	9	13	71	30	9	9	56	36	1	7	10	58	10	24	76
		37	6	9	48	29	9	9	54	67	2	13	19	35	6	14	45

TABLE E-4 (continued)

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Take x-ray of sinus/skull	^{1}FRE	105	5	18	14	171	7	17	18	54	0	0	0				
	PCT	74	4	13	10	80	3	8	8	100	0	0	0				
	^{2}FRE	3	1	11	11	3	4	6	13	11	0	0	0				
	PCT	12	4	42	42	12	15	23	50	100	0	0	0				
	^{3}FRE	81	9	11	4	65	4	8	27	40	3	4	7	99	8	23	38
	PCT	55	6	7	3	63	4	8	26	74	6	7	13	59	5	14	23
Perform intraoral dental examination on adult		102	12	16	12	64	13	28	108	54	0	0	0				
		72	8	11	8	30	6	13	51	100	0	0	0				
		4	4	7	11	0	0	0	26	11	0	0	0				
		15	15	27	42	0	0	0	100	100	0	0	0				
		78	32	21	17	3	1	14	86	37	3	8	6	98	16	24	30
		53	22	14	11	3	1	13	83	69	6	15	11	58	10	14	18
Make preliminary oral examination for orthodontic		127	13	2	0	164	14	22	13	54	0	0	0				
		89	9	1	0	77	7	10	6	100	0	0	0				
		13	11	2	0	6	3	8	9	11	0	0	0				
		50	42	8	0	23	12	31	35	100	0	0	0				
		127	13	5	3	65	8	18	13	50	1	2	1	137	13	6	12
		86	9	3	2	63	8	17	13	93	2	4	2	82	8	4	7
Conduct re-examination, retention supervision		134	4	2	2	182	7	16	8	52	1	1	0				
		94	3	1	1	85	3	8	4	96	2	2	0				
		18	4	2	2	9	5	6	6	9	1	1	0				
		69	15	8	8	35	19	23	23	82	9	9	0				
		123	16	7	2	85	4	11	4	43	2	6	3	132	14	13	9
		83	11	5	1	82	4	11	4	80	4	11	6	79	8	8	5
Take bite wing x-ray		71	6	9	56	97	5	5	106	53	0	1	0				
		50	4	6	39	46	2	2	50	98	0	2	0				
		0	0	0	26	0	0	0	26	10	0	1	0				
		0	0	0	100	0	0	0	100	91	0	9	0				
		30	3	6	109	2	3	1	98	32	1	4	17	32	6	20	110
		20	2	4	74	2	3	1	94	59	2	7	31	19	4	12	65
Take skin/mucosal scrape specimen from patient		122	7	9	4	151	6	25	31	54	0	0	0				
		86	5	6	3	71	3	12	15	100	0	0	0				
		12	4	7	3	4	3	3	16	11	0	0	0				
		46	15	27	12	15	12	12	62	100	0	0	0				
		130	11	2	5	58	9	11	26	50	2	1	1	132	18	8	10
		88	7	1	3	56	9	11	25	93	4	2	2	79	11	5	6

TABLE E-4 (continued)

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Examine mouth for periodontal index	^{1}FRE	121	6	8	7	83	7	19	104	54	0	0	0				
	PCT	85	4	6	5	39	3	9	49	100	0	0	0				
	^{2}FRE	12	2	5	7	0	0	0	26	11	0	0	0				
	PCT	46	8	19	27	0	0	0	100	100	0	0	0				
	^{3}FRE	106	22	11	9	21	2	6	75	49	2	2	1	98	18	21	31
	PCT	72	15	7	6	20	2	6	72	91	4	4	2	58	11	13	18
Perform vitamin C test		132	2	3	5	188	2	5	18	54	0	0	0				
		93	1	2	4	88	1	2	8	100	0	0	0				
		19	0	3	4	12	1	3	10	11	0	0	0				
		73	0	12	15	46	4	12	38	100	0	0	0				
		135	2	2	9	83	2	0	19	53	0	0	1	131	5	7	25
		91	1	1	6	80	2	0	18	98	0	0	2	78	3	4	15
Examine skin		121	6	9	6	104	6	27	76	54	0	0	0				
		85	4	6	4	49	3	13	36	100	0	0	0				
		12	1	9	4	1	0	1	24	11	0	0	0				
		46	4	35	15	4	0	4	92	100	0	0	0				
		104	19	10	15	15	2	15	72	46	2	2	4	113	16	10	29
		70	13	7	10	14	2	14	69	85	4	4	7	67	10	6	17
Conduct re-examination/orthodontic recall		128	5	4	5	185	3	11	14	54	0	0	0				
		90	4	3	4	87	1	5	7	100	0	0	0				
		12	5	4	5	10	0	6	10	11	0	0	0				
		46	19	15	19	38	0	23	38	100	0	0	0				
		111	15	6	16	81	1	6	16	51	1	2	0	141	4	8	15
		75	10	4	11	78	1	6	15	94	2	4	0	84	2	5	9
Take periapical x-ray		70	8	7	57	92	3	5	113	53	0	0	1				
		49	6	5	40	43	1	2	53	98	0	0	2				
		0	0	0	26	0	0	0	26	10	0	0	1				
		0	0	0	100	0	0	0	100	91	0	0	9				
		25	5	6	112	3	2	3	96	32	1	6	15	31	2	22	113
		17	3	4	76	3	2	3	92	59	2	11	28	18	1	13	67
Take panoramic x-ray		99	12	11	20	155	8	11	39	54	0	0	0				
		70	8	8	14	73	4	5	18	100	0	0	0				
		5	4	5	12	5	2	4	15	11	0	0	0				
		19	15	19	46	19	8	15	58	100	0	0	0				
		79	3	10	56	45	7	3	49	43	5	4	2	84	3	22	59
		53	2	7	38	43	7	3	47	80	9	7	4	50	2	13	35

TABLE E-4 (continued)

CATEGORY 4 PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Take/prepare oral cytologic smear	[1]FRE	122	9	4	7	152	8	12	41	54	0	0	0				
	PCT	86	6	3	5	71	4	6	19	100	0	0	0				
	[2]FRE	9	8	4	5	6	1	2	17	11	0	0	0				
	PCT	35	31	15	19	23	4	8	65	100	0	0	0				
	[3]FRE	134	6	2	6	57	12	7	28	50	3	1	0	134	16	7	11
	PCT	91	4	1	4	55	12	7	27	93	6	2	0	80	10	4	7
Take x-ray of TM joint		108	5	13	16	184	8	8	13	54	0	0	0				
		76	4	9	11	86	4	4	6	100	0	0	0				
		5	2	7	12	7	5	4	10	11	0	0	0				
		19	8	27	46	27	19	15	38	100	0	0	0				
		86	7	15	40	72	3	8	21	47	3	3	1	108	14	17	29
		58	5	10	27	69	3	8	20	87	6	6	2	64	8	10	17
Examine throat, mouth, and pharynx		107	19	8	8	78	9	26	100	54	0	0	0				
		75	13	6	6	37	4	12	47	100	0	0	0				
		9	6	6	5	1	0	1	24	11	0	0	0				
		35	23	23	19	4	0	4	92	100	0	0	0				
		109	20	10	9	14	2	5	83	44	5	2	3	108	17	20	23
		74	14	7	6	13	2	5	80	81	9	4	6	64	10	12	14
Obtain blood specimen by skin puncture (finger, ear, heel)		133	2	6	1	199	3	3	8	54	0	0	0				
		94	1	4	1	93	1	1	4	100	0	0	0				
		18	2	5	1	16	2	1	7	11	0	0	0				
		69	8	19	4	62	8	4	27	100	0	0	0				
		136	2	3	7	93	2	2	7	40	1	5	8	151	5	7	5
		92	1	2	5	89	2	2	7	74	2	9	15	90	3	4	3
Palpate parotid/submaxillary/sublingual gland		123	12	6	1	100	4	22	87	54	0	0	0				
		87	8	4	1	47	2	10	41	100	0	0	0				
		13	7	5	1	1	0	3	22	11	0	0	0				
		50	27	19	4	4	0	12	85	100	0	0	0				
		130	14	3	1	30	0	6	68	50	1	2	1	121	11	15	21
		88	9	2	1	29	0	6	65	93	2	4	2	72	7	9	13
Receive and preserve biopsy specimen		121	7	5	9	185	9	5	14	54	0	0	0				
		85	5	4	6	87	4	2	7	100	0	0	0				
		11	3	4	8	10	1	3	12	11	0	0	0				
		42	12	15	31	38	4	12	46	100	0	0	0				
		111	10	12	15	80	7	3	14	48	3	1	2	104	21	25	18
		75	7	8	10	77	7	3	13	89	6	2	4	62	13	15	11

TABLE E-4 (continued)

CATEGORY 4
PATIENT CARE: EXAMINATIONS -- INCLUDING DIAGNOSTIC TESTS AND X-RAY

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Select/arrange x-rays for viewing	^{1}FRE	64	6	3	69	80	1	4	128	54	0	0	0				
	PCT	45	4	2	49	38	0	2	60	100	0	0	0				
	^{2}FRE	0	0	0	26	0	0	0	26	11	0	0	0				
	PCT	0	0	0	100	0	0	0	100	100	0	0	0				
	^{3}FRE	24	2	10	112	4	1	1	98	35	1	4	14	35	0	15	118
	PCT	16	1	7	76	4	1	1	94	65	2	7	26	21	0	9	70
Perform carie susceptibility test, e.g., Snyder test		116	5	7	14	135	10	13	55	54	0	0	0				
		82	4	5	10	63	5	6	26	100	0	0	0				
		8	3	5	10	2	2	1	21	11	0	0	0				
		31	12	19	38	8	8	4	81	100	0	0	0				
		125	6	6	11	49	5	10	40	51	1	1	1	113	16	19	20
		84	4	4	7	47	5	10	38	94	2	2	2	67	10	11	12
Take occlusal x-ray		81	9	7	45	128	10	11	64	52	1	1	0				
		57	6	5	32	60	5	5	30	96	2	2	0				
		1	1	0	24	1	1	0	24	9	1	1	0				
		4	4	0	92	4	4	0	92	82	9	9	0				
		51	10	20	67	33	2	9	60	35	4	5	10	66	9	27	66
		34	7	14	45	32	2	9	58	65	7	9	19	39	5	16	39
Position patient for dental x-ray		71	1	6	64	96	1	2	114	53	0	1	0				
		50	1	4	45	45	0	1	54	98	0	2	0				
		0	0	0	26	0	0	0	26	10	0	1	0				
		0	0	0	100	0	0	0	100	91	0	9	0				
		26	2	6	114	2	1	0	101	32	3	3	16	37	0	17	114
		18	1	4	77	2	1	0	97	59	6	6	30	22	0	10	68

TABLE E-5

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 5 PATIENT CARE: ANALYSIS, TREATMENT PLANNING, AND CONSULTATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Confer with nonmedical personnel (teacher, employer) on patient's condition	[1]FRE	120	4	6	12	110	8	22	73	52	0	0	2				
	PCT	85	3	4	8	52	4	10	34	96	0	0	4				
	[2]FRE	10	4	4	8	1	0	1	24	9	0	0	2				
	PCT	38	15	15	31	4	0	4	92	82	0	0	18				
	[3]FRE	103	9	16	20	39	1	6	58	41	2	5	6	96	13	18	41
	PCT	70	6	11	14	38	1	6	56	76	4	9	11	57	8	11	24
Interpret routine (non-contrast) x-ray		112	14	6	10	105	19	33	56	54	0	0	0				
		79	10	4	7	49	9	15	26	100	0	0	0				
		7	6	4	9	1	2	3	20	11	0	0	0				
		27	23	15	35	4	8	12	77	100	0	0	0				
		95	20	16	17	26	8	25	45	42	2	9	1	115	12	17	24
		64	14	11	11	25	8	24	43	78	4	17	2	68	7	10	14
† Make diagnoses, prepare treatment plan (not for plaque control or preventive oral care)		83	8	0	2	120	21	9	13	46	0	0	0				
		93	6	0	1	74	13	6	8	100	0	0	0				
		109	23	10	6	70	10	11	13	48	3	3	0	140	6	8	14
		74	16	7	4	67	10	11	13	89	6	6	0	83	4	5	8
† Develop treatment plan		83	6	2	2	95	18	17	33	46	0	0	0				
		89	6	2	2	58	11	10	20	100	0	0	0				
		96	17	18	17	43	10	20	31	45	3	5	1	140	6	6	16
		65	11	12	11	41	10	19	30	83	6	9	2	83	4	4	10
† Read skin test, e.g., hypersensitivity		86	2	4	1	158	1	0	4	46	0	0	0				
		92	2	4	1	98	0	0	2	100	0	0	0				
		138	5	1	4	97	2	0	5	51	0	2	1	148	9	7	4
		93	3	1	3	93	2	0	5	94	0	4	2	88	5	4	2

TABLE E-5 (continued)

CATEGORY 5 PATIENT CARE: ANALYSIS, TREATMENT PLANNING, AND CONSULTATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
† Provide care in patient's home/nursing home	[1]FRE	87	1	2	3	117	3	15	28	46	0	0	0				
	PCT	94	1	2	3	72	2	9	17	100	0	0	0				
	[2]FRE																
	PCT																
	[3]FRE	117	9	7	15	56	2	8	38	53	0	1	0	136	2	14	16
	PCT	79	6	5	10	54	2	8	37	98	0	2	0	81	1	8	10
† Make diagnoses, prepare treatment plan for plaque control or preventive oral care		71	4	8	10	66	5	13	79	46	0	0	0				
		76	4	9	11	40	3	8	48	100	0	0	0				
		87	13	17	31	17	3	8	76	48	2	2	2	94	8	22	44
		59	9	11	21	16	3	8	73	89	4	4	4	56	5	13	26
Use and evaluate new equipment/material (user-trial)		88	16	24	14	124	12	37	40	37	5	9	3				
		62	11	17	10	58	6	17	19	69	9	17	6				
		3	2	13	8	2	3	4	17	2	1	6	2				
		12	8	50	31	8	12	15	65	18	9	55	18				
		31	34	26	45	19	0	27	58	13	1	8	32	77	33	40	18
		21	23	26	30	18	0	26	56	24	2	15	59	46	20	24	11
Determine arch length from x-ray		121	9	4	8	193	9	8	3	54	0	0	0				
		85	6	3	6	91	4	4	1	100	0	0	0				
		11	6	3	6	13	4	6	3	11	0	0	0				
		42	23	12	23	50	15	23	12	100	0	0	0				
		126	6	5	11	86	8	4	6	47	1	4	2	140	13	4	11
		85	4	3	7	83	8	4	6	87	2	7	4	83	8	2	7
Check orthodontic appliance for conformity to specifications		133	5	4	0	208	2	3	0	46	2	5	1				
		94	4	3	0	98	1	1	0	85	4	9	2				
		18	5	3	0	22	1	3	0	4	1	5	1				
		69	19	12	0	85	4	12	0	36	9	45	9				
		122	6	13	7	97	4	3	0	35	2	9	8	143	9	9	7
		82	4	9	5	93	4	3	0	65	4	17	15	85	5	5	4
Recommend drug therapy based on prescriber's diagnosis		131	6	4	1	173	15	19	6	54	0	0	0				
		92	4	3	1	81	7	9	3	100	0	0	0				
		17	4	4	1	8	4	9	5	11	0	0	0				
		65	15	15	4	31	15	35	19	100	0	0	0				
		132	7	7	2	69	12	18	5	52	0	1	1	140	9	2	17
		89	5	5	1	66	12	17	5	96	0	2	2	83	5	1	10
Survey cast for partial denture design		135	5	1	1	207	3	1	2	21	13	4	16				
		95	4	1	1	97	1	0	1	39	24	7	30				
		20	4	1	1	21	2	1	2	1	2	0	8				
		77	15	4	4	81	8	4	8	9	18	0	73				
		139	4	1	4	97	1	2	4	9	0	6	39	147	5	3	13
		94	3	1	3	93	1	2	4	17	0	11	72	88	3	2	8

TABLE E- 5 (continued)

CATEGORY 5 PATIENT CARE: ANALYSIS, TREATMENT PLANNING, AND CONSULTATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Inspect dental case/model for acceptance	[1]FRE	115	5	12	10	173	6	14	20	17	9	11	17				
	PCT	81	4	8	7	81	3	7	9	31	17	20	31				
	[2]FRE	8	2	9	7	7	2	4	13	0	1	2	8				
	PCT	31	8	35	27	27	8	15	50	0	9	18	73				
	[3]FRE	86	18	15	29	71	4	7	22	10	0	4	40	103	9	26	30
	PCT	58	12	10	20	68	4	7	21	19	0	7	74	61	5	15	18
Analyze cephalometric tracing, downs/reidel analysis		138	1	3	0	205	4	4	0	54	0	0	0				
		97	1	2	0	96	2	2	0	100	0	0	0				
		22	1	3	0	19	3	4	0	11	0	0	0				
		85	4	12	0	73	12	15	0	100	0	0	0				
		131	9	2	6	95	6	2	1	53	0	1	0	155	3	6	4
		89	6	1	4	91	6	2	1	98	0	2	0	92	2	4	2
Review radiation exposure report		112	8	7	15	170	8	14	21	54	0	0	0				
		79	6	5	11	80	4	7	10	100	0	0	0				
		6	3	4	13	8	4	0	14	11	0	0	0				
		23	12	15	50	31	15	0	54	100	0	0	0				
		110	13	7	18	61	6	8	29	44	1	8	1	119	14	12	23
		74	9	5	12	59	6	8	28	81	2	15	2	71	8	7	14
Consult with physician/surgeon on constructing dental appliance		133	6	1	2	198	3	7	5	37	7	4	6				
		94	4	1	1	93	1	3	2	69	13	7	11				
		19	4	1	2	14	2	6	4	3	2	3	3				
		73	15	4	8	54	8	23	15	27	18	27	27				
		132	8	2	6	88	4	5	7	21	1	8	24	141	8	7	12
		89	5	1	4	85	4	5	7	39	2	15	44	84	5	4	7
Determine tooth space requirements from x-ray		136	3	2	1	188	9	10	6	54	0	0	0				
		96	2	1	1	88	4	5	3	100	0	0	0				
		21	2	2	1	11	3	6	6	11	0	0	0				
		81	8	8	4	42	12	23	23	100	0	0	0				
		131	11	5	1	78	9	5	12	48	3	2	1	138	7	15	8
		89	7	3	1	75	9	5	12	89	6	4	2	82	4	9	5
Plan/adapt diet for patient (not order)		110	6	4	22	104	8	16	85	54	0	0	0				
		77	4	3	15	49	4	8	40	100	0	0	0				
		4	3	2	17	0	0	2	24	11	0	0	0				
		15	12	8	65	0	0	8	92	100	0	0	0				
		92	10	17	29	28	2	9	65	51	2	1	0	110	11	23	24
		62	7	11	20	27	2	9	63	94	4	2	0	65	7	14	14
Consult and review patient's medical/dental record		85	10	20	27	70	10	22	111	53	0	1	0				
		60	7	14	19	33	5	10	52	98	0	2	0				
		2	1	6	17	0	0	0	26	10	0	1	0				
		8	4	23	65	0	0	0	100	91	0	9	0				
		52	20	30	46	12	0	8	84	36	6	7	5	77	23	29	39
		35	14	20	31	12	0	8	81	67	11	13	9	46	14	17	23

TABLE E-5 (continued)

CATEGORY 5 PATIENT CARE: ANALYSIS, TREATMENT PLANNING, AND CONSULTATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare/revise standing medical/dental order/policy	[1]FRE	115	5	15	7	169	11	14	19	52	1	1	0				
	PCT	81	4	11	5	79	5	7	9	96	2	2	0				
	[2]FRE	8	3	8	7	7	1	5	13	9	1	1	0				
	PCT	31	12	31	27	27	4	19	50	82	9	9	0				
	[3]FRE	79	15	29	25	55	7	14	28	39	4	6	5	96	19	20	33
	PCT	53	10	20	17	53	7	13	27	72	7	11	9	57	11	12	20
Write/dictate medical/dental report/correspondence, e.g. physical exam, history, finding		102	5	19	16	129	6	23	55	52	6	1	1				
		72	4	13	11	61	3	11	26	96	0	2	2				
		3	1	11	11	1	0	4	21	9	0	1	1				
		12	4	42	42	4	0	15	81	82	0	9	9				
		72	10	19	47	31	4	11	58	39	3	7	5	85	12	24	47
		49	7	13	32	30	4	11	56	72	6	13	9	51	7	14	28
Design removable partial denture		138	3	1	0	212	1	0	0	24	3	6	16				
		97	2	1	0	100	0	0	0	44	15	11	30				
		22	3	1	0	25	1	0	0	0	1	1	9				
		85	12	4	0	96	4	0	0	0	9	9	82				
		141	6	1	0	99	4	0	1	11	1	7	35	156	1	3	8
		95	4	1	0	95	4	0	1	20	2	13	65	93	1	2	5
Answer patient inquiry regarding nonprescription drugs		103	12	17	10	137	8	23	45	54	0	0	0				
		73	8	12	7	64	4	11	21	100	0	0	0				
		5	5	7	9	2	0	4	20	11	0	0	0				
		19	19	27	35	8	0	15	77	100	0	0	0				
		65	15	31	37	29	5	24	46	47	1	4	2	95	15	26	32
		44	10	21	25	28	5	23	44	87	2	7	4	57	9	15	19

TABLE E-6

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 6 PATIENT CARE: PREVENTIVE AND PATIENT EDUCATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Give instructions to patient on bridge care	[1]FRE	81	5	11	45	91	2	6	114	52	0	2	0				
	PCT	57	4	8	32	43	1	3	54	96	0	4	0				
	[2]FRE	0	1	1	24	0	0	0	26	9	0	2	0				
	PCT	0	4	4	92	0	0	0	100	82	0	18	0				
	[3]FRE	51	8	18	71	15	0	2	87	37	2	9	6	69	5	28	66
	PCT	34	5	12	48	14	0	2	84	69	4	17	11	41	3	17	39
Provide patient with dental health education materials		65	4	14	59	68	1	4	140	53	0	0	1				
		46	3	10	42	32	0	2	66	98	0	0	2				
		0	0	1	25	0	0	0	26	10	0	0	1				
		0	0	4	96	0	0	0	100	91	0	0	9				
		39	3	15	91	4	0	0	100	39	3	3	9	44	0	30	94
		26	2	10	61	4	0	0	96	72	6	6	17	26	0	18	56
Give oral habit therapy		113	8	6	15	147	11	23	32	54	0	0	0				
		80	6	4	11	69	5	11	15	100	0	0	0				
		7	4	3	12	0	1	5	20	11	0	0	0				
		27	15	12	46	0	4	19	77	100	0	0	0				
		92	11	11	34	54	4	17	29	48	4	1	1	105	9	22	32
		62	7	7	23	52	4	16	28	89	7	2	2	63	5	13	19
Educate patient in periodontic care		83	10	17	32	75	4	11	123	53	0	1	0				
		58	7	12	23	35	2	5	58	98	0	2	0				
		0	4	5	17	0	0	0	26	10	0	1	0				
		0	15	19	65	0	0	0	100	91	0	9	0				
		59	12	28	49	6	0	5	93	43	4	2	5	59	7	43	59
		40	8	19	33	6	0	5	89	80	7	4	9	35	4	26	35
Apply disclosing solution to the teeth to identify plaque		72	7	9	54	69	2	3	139	54	0	0	0				
		51	5	6	38	32	1	1	65	100	0	0	0				
		1	2	1	22	0	0	0	26	11	0	0	0				
		4	8	4	85	0	0	0	100	100	0	0	0				
		50	7	14	77	3	0	1	100	37	1	4	12	46	7	24	91
		34	5	9	52	3	0	1	96	69	2	7	22	27	4	14	54

TABLE E-6 (continued)

CATEGORY 6 PATIENT CARE: PREVENTIVE AND PATIENT EDUCATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Apply fluoride to teeth using ionizing device	[1]FRE	122	8	2	10	152	7	5	49	54	0	0	0				
	PCT	86	6	1	7	71	3	2	23	100	0	0	0				
	[2]FRE	9	6	2	9	2	2	0	22	11	0	0	0				
	PCT	35	23	8	35	8	8	0	85	100	0	0	0				
	[3]FRE	105	10	13	20	55	2	4	43	53	1	0	0	119	8	13	28
	PCT	71	7	9	14	53	2	4	41	98	2	0	0	71	5	8	17
Apply fluoride gel to teeth using tray technique		106	6	8	22	82	2	4	125	54	0	0	0				
		75	4	6	15	38	1	2	59	100	0	0	0				
		8	3	3	12	0	0	1	25	11	0	0	0				
		31	12	12	46	0	0	4	96	100	0	0	0				
		73	3	12	60	14	0	0	90	50	2	1	1	61	8	33	66
		49	2	8	41	13	0	0	87	93	4	2	2	36	5	20	39
Examine brushing effectiveness; indicate deficient areas to patient		76	5	12	49	67	3	2	141	52	2	0	0				
		54	4	8	35	31	1	1	66	96	4	0	0				
		1	0	3	22	0	0	0	26	9	2	0	0				
		4	0	12	85	0	0	0	100	82	18	0	0				
		44	6	20	78	4	0	0	100	40	2	5	7	50	8	20	90
		30	4	14	53	4	0	0	96	74	4	9	13	30	5	12	54
Present/explain diet analysis form to patient		98	4	17	23	112	7	6	88	54	0	0	0				
		69	3	12	16	53	3	3	41	100	0	0	0				
		3	1	6	16	1	0	1	24	11	0	0	0				
		12	4	23	62	4	0	4	92	100	0	0	0				
		83	8	17	40	29	2	8	65	50	1	2	1	83	13	33	39
		56	5	11	27	28	2	8	63	93	2	4	2	49	8	20	23
Use ultrasonic device to remove calculus		114	9	5	14	83	2	6	122	49	0	0	5				
		80	6	4	10	39	1	3	57	91	0	0	9				
		8	6	2	10	0	0	0	26	6	0	0	5				
		31	23	8	38	0	0	0	100	55	0	0	45				
		93	25	6	24	5	0	3	96	35	4	4	11	88	11	20	49
		63	17	4	16	5	0	3	92	65	7	7	20	52	7	12	29
Remove supragingival calculus		112	15	5	10	76	2	1	134	54	0	0	0				
		79	11	4	7	36	1	0	63	100	0	0	0				
		14	5	1	6	0	0	0	26	11	0	0	0				
		54	19	4	23	0	0	0	100	100	0	0	0				
		97	24	10	17	2	0	0	102	38	0	5	11	76	9	27	56
		66	16	7	11	2	0	0	98	70	0	9	20	45	5	16	33
Clean interproximal surfaces of teeth with dental floss or tape		67	5	9	61	66	1	5	141	52	1	0	1				
		47	4	6	43	31	0	2	66	96	2	0	2				
		0	0	2	24	0	0	0	26	9	1	0	1				
		0	0	8	92	0	0	0	100	82	9	0	9				
		35	3	11	99	4	0	0	100	32	4	1	17	46	5	16	101
		24	2	7	67	4	0	0	96	59	7	2	31	27	3	10	60

TABLE E- 6 (continued)

CATEGORY 6 PATIENT CARE: PREVENTIVE AND PATIENT EDUCATION		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Apply fluoride to teeth by isolation with cotton rolls	[1]FRE	88	11	10	33	77	4	4	128	54	0	0	0				
	PCT	62	8	7	23	36	2	2	60	100	0	0	0				
	[2]FRE	6	1	1	18	0	0	0	26	11	0	0	0				
	PCT	23	4	4	69	0	0	0	100	100	0	0	0				
	[3]FRE	60	8	17	63	7	0	0	97	46	0	2	6	50	5	23	90
	PCT	41	5	11	43	7	0	0	93	85	0	4	11	30	3	14	54
Give physiotherapy instruction for TMJ difficulty		133	5	4	0	183	8	15	7	54	0	0	0				
		94	4	3	0	86	4	7	3	100	0	0	0				
		17	5	4	0	8	5	6	7	11	0	0	0				
		65	19	15	0	31	19	23	27	100	0	0	0				
		127	11	7	3	80	4	8	12	49	3	2	0	136	13	9	10
		86	7	5	2	77	4	8	12	91	6	4	0	81	8	5	6
Remove subgingival calculus		126	6	1	9	74	2	4	133	54	0	0	0				
		89	4	1	6	35	1	2	62	100	0	0	0				
		16	4	0	6	0	0	0	26	11	0	0	0				
		62	15	0	23	0	0	0	100	100	0	0	0				
		102	31	3	12	3	0	0	101	39	1	3	11	91	7	22	48
		69	21	2	8	3	0	0	97	72	2	6	20	54	4	13	29
Perform oral prophylaxis		104	13	6	19	70	2	5	136	53	0	1	0				
		73	9	4	13	33	1	2	64	98	0	2	0				
		7	8	1	10	0	0	0	26	10	0	1	0				
		27	31	4	38	0	0	0	100	91	0	9	0				
		64	21	18	45	3	0	1	100	36	0	8	10	59	10	27	72
		43	14	12	30	3	0	1	96	67	0	15	19	35	6	16	43
† Teach proper brushing technique to patient		42	3	7	41	51	2	4	106	45	0	0	1				
		45	3	8	44	31	1	2	65	98	0	0	2				
		36	2	14	96	4	0	0	100	35	3	2	14	42	6	15	105
		24	1	9	65	4	0	0	96	65	6	4	26	25	4	9	63
† Teach patient care of removable appliances		54	8	11	20	69	3	6	85	42	3	1	0				
		58	9	12	22	42	2	4	52	92	6	2	0				
		52	9	18	69	14	0	3	87	34	2	7	11	67	9	38	54
		35	6	12	47	13	0	3	84	63	4	13	20	40	5	23	32

TABLE E-6 (continued)

CATEGORY 6 PATIENT CARE: PREVENTIVE AND PATIENT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
† Teach flossing technique to patient	^{1}FRE	41	4	8	40	55	2	2	104	45	0	1	0				
	PCT	44	4	9	43	34	1	1	64	98	0	2	0				
	^{2}FRE																
	PCT																
	^{3}FRE	39	6	7	96	4	0	0	100	38	1	7	8	47	5	17	99
	PCT	26	4	5	65	4	0	0	96	70	2	13	15	28	3	10	50
† Explain etiology of caries		48	4	7	34	55	2	5	101	45	0	1	0				
		52	4	8	37	34	1	3	62	98	0	2	0				
		71	9	15	53	5	1	1	97	43	1	5	5	63	7	16	82
		48	6	10	36	5	1	1	93	80	2	9	9	38	4	10	49
† Explain etiology of periodontal disease		47	7	7	32	54	2	6	101	44	1	1	0				
		51	8	8	34	33	1	4	62	96	2	2	0				
		74	10	16	48	7	1	3	93	44	3	1	6	59	8	20	81
		50	7	11	32	7	1	3	89	81	6	2	11	35	5	12	48

TABLE E-7

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 7 PATIENT CARE: PREPARATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Enlarge root canal chemically	[1]FRE	133	9	0	0	211	1	1	0	54	0	0	0				
	PCT	94	6	0	0	99	0	0	0	100	0	0	0				
	[2]FRE	18	8	0	0	24	1	1	0	11	0	0	0				
	PCT	69	31	0	0	92	4	4	0	100	0	0	0				
	[3]FRE	119	22	6	1	97	4	2	1	54	0	0	0	154	6	2	6
	PCT	80	15	4	1	93	4	2	1	100	0	0	0	92	4	1	4
Prepare tooth with pins for reatoration with filling material		135	6	1	0	198	5	5	5	54	0	0	0				
		95	4	1	0	93	2	2	2	100	0	0	0				
		19	6	1	0	22	1	0	3	11	0	0	0				
		73	23	4	0	85	4	0	12	100	0	0	0				
		114	31	3	0	91	9	3	1	53	1	0	0	147	7	2	12
		77	21	2	0	88	9	3	1	98	2	0	0	88	4	1	7
Prepare tooth for post		132	9	1	0	210	0	2	1	54	0	0	0				
		93	6	1	0	99	0	1	0	100	0	0	0				
		16	9	1	0	23	0	2	1	11	0	0	0				
		62	35	4	0	88	0	8	4	100	0	0	0				
		116	29	2	1	97	5	1	1	53	1	0	0	148	6	4	10
		78	20	1	1	93	5	1	1	98	2	0	0	88	4	2	6
Excavate dental carie using conventional handpiece		129	11	1	1	189	9	4	11	54	0	0	0				
		91	8	1	1	89	4	2	5	100	0	0	0				
		14	10	1	1	17	4	1	4	11	0	0	0				
		54	38	4	4	65	15	4	15	100	0	0	0				
		114	27	5	2	93	7	3	1	47	2	3	2	140	7	5	16
		77	18	3	1	89	7	3	1	87	4	6	4	83	4	3	10
Condition tissue bearing areas for denture patient		133	6	3	0	204	3	1	5	53	1	0	0				
		94	4	2	0	96	1	0	2	98	2	0	0				
		20	4	2	0	19	3	0	4	10	1	0	0				
		77	15	8	0	73	12	0	15	91	9	0	0				
		125	12	7	4	95	5	1	3	39	7	2	6	142	8	5	13
		84	8	5	3	91	5	1	3	72	13	4	11	85	5	3	8

TABLE E-7 (continued)

CATEGORY 7 PATIENT CARE: PREPARATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare tooth for cast restoration, e.g. full crown, jacket, etc.	[1]FRE	131	10	1	0	211	2	0	0	54	0	0	0				
	PCT	92	7	1	0	99	1	0	0	100	0	0	0				
	[2]FRE	15	10	1	0	24	2	0	0	11	0	0	0				
	PCT	58	38	4	0	92	8	0	0	100	0	0	0				
	[3]FRE	112	32	3	1	95	8	0	1	51	2	1	0	151	5	1	11
	PCT	76	22	2	1	91	8	0	1	94	4	2	0	90	3	1	7
Prepare rest/reshape teeth for partial denture		135	7	0	0	210	3	0	0	50	1	2	1				
		95	5	0	0	99	1	0	0	93	2	4	2				
		19	7	0	0	24	2	0	0	7	1	2	1				
		73	27	0	0	92	8	0	0	64	9	18	9				
		119	25	4	0	96	7	0	1	46	4	1	3	150	5	2	11
		80	17	3	0	92	7	0	1	85	7	2	6	89	3	1	7
Measure root canal		120	18	4	0	204	3	5	1	54	0	0	0				
		85	13	3	0	96	1	2	0	100	0	0	0				
		10	12	4	0	17	3	5	1	11	0	0	0				
		38	46	15	0	65	12	19	4	100	0	0	0				
		89	32	19	8	92	5	4	3	48	5	1	0	130	14	10	14
		60	22	13	5	88	5	4	3	89	9	2	0	77	8	6	8
Perform root canal therapy/open canal/extirpate pulpectomy		132	10	0	0	211	2	0	0	54	0	0	0				
		93	7	0	0	99	1	0	0	100	0	0	0				
		16	10	0	0	24	2	0	0	11	0	0	0				
		62	38	0	0	92	8	0	0	100	0	0	0				
		105	40	2	1	92	8	3	1	50	4	0	0	148	7	1	12
		71	27	1	1	88	8	3	1	93	7	0	0	88	4	1	7
Instrument root canal		130	10	1	1	210	3	0	0	54	0	0	0				
		92	7	1	1	99	1	0	0	100	0	0	0				
		16	8	1	1	23	3	0	0	11	0	0	0				
		62	31	4	4	88	12	0	0	100	0	0	0				
		100	34	7	7	91	9	0	4	52	2	0	0	143	11	2	12
		68	23	5	5	88	9	0	4	96	4	0	0	85	7	1	7
Prepare tooth for drainage via root canal		128	12	1	1	210	3	0	0	53	1	0	0				
		90	8	1	1	99	1	0	0	98	2	0	0				
		13	11	1	1	23	3	0	0	10	1	0	0				
		50	42	4	4	88	12	0	0	91	9	0	0				
		108	35	3	2	93	8	1	2	50	3	0	1	146	9	2	11
		73	24	2	1	89	8	1	2	93	6	0	2	87	5	1	7

TABLE E-7 (continued)

CATEGORY 7 PATIENT CARE: PREPARATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Excavate dental carie using high-speed handpiece	[1]FRE	126	13	1	2	193	5	2	13	54	0	0	0				
	PCT	89	9	1	1	91	2	1	6	100	0	0	0				
	[2]FRE	12	11	1	2	18	2	1	5	11	0	0	0				
	PCT	46	42	4	8	69	8	4	19	100	0	0	0				
	[3]FRE	114	27	3	4	92	5	3	4	51	2	0	1	143	6	2	17
	PCT	77	18	2	3	88	5	3	4	94	4	0	2	85	4	1	10
Excavate carie using hand instrument		120	16	3	3	186	9	5	13	54	0	0	0				
		85	11	2	2	87	4	2	6	100	0	0	0				
		12	10	1	3	16	4	2	4	11	0	0	0				
		46	38	4	12	62	15	8	15	100	0	0	0				
		102	34	8	4	84	7	7	6	44	5	2	3	125	16	10	17
		69	23	5	3	81	7	7	6	81	9	4	6	74	10	6	10

TABLE E-8

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Ventilate patient - pressure-volume respirator	[1]FRE	117	9	11	5	166	4	14	29	52	1	1	0				
	PCT	82	6	8	4	78	2	7	14	96	2	2	0				
	[2]FRE	10	5	6	5	5	3	4	14	9	1	1	0				
	PCT	38	19	23	19	19	12	15	54	82	9	9	0				
	[3]FRE	120	13	12	3	72	3	8	21	49	2	3	0	121	14	18	15
	PCT	81	9	8	2	69	3	8	20	91	4	6	0	72	8	11	9
Write prescription using own signature		138	2	1	1	210	1	0	2	53	0	0	1				
		97	1	1	1	99	0	0	1	98	0	0	2				
		22	2	1	1	23	1	0	2	10	0	0	1				
		85	8	4	4	88	4	0	8	91	0	0	9				
		144	2	1	1	103	0	0	1	47	0	1	6	152	1	1	14
		97	1	1	1	99	0	0	1	87	0	2	11	90	1	1	8
Issue filled prescription		121	8	4	9	181	3	12	17	51	1	0	2				
		85	6	3	6	85	1	6	8	94	2	0	4				
		12	4	2	8	7	2	5	12	8	1	0	2				
		46	15	8	31	27	8	19	46	73	9	0	18				
		110	9	6	23	84	2	7	11	43	1	3	7	114	5	13	36
		74	6	4	16	81	2	7	11	80	2	6	13	68	3	8	21
Administer oral medication		118	9	8	7	153	10	18	32	54	0	0	0				
		83	6	6	5	72	5	8	15	100	0	0	0				
		11	4	5	6	1	1	8	16	11	0	0	0				
		42	15	19	23	4	4	31	62	100	0	0	0				
		75	35	18	20	43	11	15	35	41	5	5	3	100	13	27	28
		51	24	12	14	41	11	14	34	76	9	9	6	60	8	16	17
Administer nitrous oxide analgesia		131	7	4	0	187	9	11	6	54	0	0	0				
		92	5	3	0	88	4	5	3	100	0	0	0				
		16	6	4	0	16	5	3	2	11	0	0	0				
		62	23	15	0	62	19	12	8	100	0	0	0				
		100	23	13	12	65	10	11	18	47	4	3	0	132	15	13	8
		68	16	9	8	63	10	11	17	87	7	6	0	79	9	8	5

TABLE E-6 (continued)

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform accupuncture	^{1}FRE	142	0	0	0	213	0	0	0	54	0	0	0				
	PCT	100	0	0	0	100	0	0	0	100	0	0	0				
	^{2}FRE	26	0	0	0	26	0	0	0	11	0	0	0				
	PCT	100	0	0	0	100	0	0	0	100	0	0	0				
	^{3}FRE	147	1	0	0	104	0	0	0	54	0	0	0	168	0	0	0
	PCT	99	1	0	0	100	0	0	0	100	0	0	0	100	0	0	0
Dispense nonprescription (over the counter) drug		119	7	5	11	145	9	18	41	54	0	0	0				
		84	5	4	8	68	4	8	19	100	0	0	0				
		11	4	3	8	3	0	2	21	11	0	0	0				
		42	15	12	31	12	0	8	81	100	0	0	0				
		84	14	16	34	49	1	14	40	41	1	7	5	93	22	18	35
		57	9	11	23	47	1	13	38	76	2	13	9	55	13	11	21
Administer medicine intravenously		137	4	0	1	209	3	1	0	54	0	0	0				
		96	3	0	1	98	1	0	0	100	0	0	0				
		22	3	0	1	22	3	1	0	11	0	0	0				
		85	12	0	4	85	12	4	0	100	0	0	0				
		132	10	5	1	102	2	0	0	47	2	4	1	160	3	3	2
		89	7	3	1	98	2	0	0	87	4	7	2	95	2	2	1
Administer local/tissue infiltration anesthesia		128	11	1	2	152	12	11	38	54	0	0	0				
		90	8	1	1	71	6	5	18	100	0	0	0				
		15	8	1	2	10	3	0	13	11	0	0	0				
		58	31	4	8	38	12	0	50	100	0	0	0				
		116	26	3	3	59	13	6	26	44	5	4	1	133	9	4	22
		78	18	2	2	57	13	6	25	81	9	7	2	79	5	2	13
Desensitize hypersensitive teeth		114	12	9	7	96	7	14	96	54	0	0	0				
		80	8	6	5	45	3	7	45	100	0	0	0				
		11	6	3	6	0	1	1	24	11	0	0	0				
		42	23	12	23	0	4	4	92	100	0	0	0				
		86	30	12	20	17	3	5	79	48	4	2	0	95	17	22	34
		58	20	8	14	16	3	5	76	89	7	4	0	57	10	13	20
Give intramuscular injection (IM)		136	4	2	0	201	5	5	2	53	0	0	1				
		96	3	1	0	94	2	2	1	98	0	0	2				
		21	3	2	0	18	1	5	2	10	0	0	1				
		81	12	8	0	69	4	19	8	91	0	0	9				
		125	13	5	5	90	4	3	7	39	2	4	9	149	5	5	9
		84	9	3	3	87	4	3	7	72	4	7	17	89	3	3	5

TABLE E-8 (continued)

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Administer block anesthesia to patient	[1]FRE	131	10	0	1	157	10	10	36	54	0	0	0				
	PCT	92	7	0	1	74	5	5	17	100	0	0	0				
	[2]FRE	16	9	0	1	10	4	0	12	11	0	0	0				
	PCT	62	35	0	4	38	15	0	46	100	0	0	0				
	[3]FRE	117	27	1	3	72	8	4	20	50	3	0	1	135	10	3	20
	PCT	79	18	1	2	69	8	4	19	93	6	0	2	80	6	2	12
Ventilate patient - ambubag-rebreathing bag		108	11	16	7	158	6	15	34	54	0	0	0				
		76	8	11	5	74	3	7	16	100	0	0	0				
		8	4	8	6	7	1	3	15	11	0	0	0				
		31	15	31	23	27	4	12	58	100	0	0	0				
		110	19	8	11	56	5	17	26	47	5	2	0	103	23	23	19
		74	13	5	7	54	5	16	25	87	9	4	0	61	14	14	11
Ventilate patient - mouth to mouth, etc.		89	13	12	28	137	12	14	50	51	2	1	0				
		63	9	8	20	64	6	7	23	94	4	2	0				
		2	2	5	17	2	3	1	20	10	0	1	0				
		8	8	19	65	8	12	4	77	91	0	9	0				
		97	16	11	24	54	8	10	32	46	3	2	3	85	29	28	26
		66	11	7	16	52	8	10	31	85	6	4	6	51	17	17	15
Administer topical anesthetic		84	17	8	33	88	9	7	109	54	0	0	0				
		59	12	6	23	41	4	3	51	100	0	0	0				
		1	6	2	17	0	0	1	25	11	0	0	0				
		4	23	8	65	0	0	4	96	100	0	0	0				
		53	22	14	59	17	3	7	77	39	2	5	8	61	17	22	68
		36	15	9	40	16	3	7	74	72	4	9	15	36	10	13	40
Write prescription for prescriber's signature		104	11	13	14	173	6	18	16	51	0	2	1				
		73	8	9	10	81	3	8	8	94	0	4	2				
		5	2	5	14	5	2	7	12	9	0	0	1				
		19	8	19	54	19	8	27	46	82	0	9	9				
		81	15	22	30	68	7	15	14	38	1	8	7	102	13	22	31
		55	10	15	20	65	7	14	13	70	2	15	13	61	8	13	18
Administer intravenous anesthetic		136	5	1	0	202	8	2	1	54	0	0	0				
		96	4	1	0	95	4	1	0	100	0	0	0				
		21	4	1	0	17	6	2	1	11	0	0	0				
		81	15	4	0	65	23	8	4	100	0	0	0				
		135	12	1	0	93	8	2	1	49	2	3	0	159	4	3	2
		91	8	1	0	89	8	2	1	91	4	6	0	95	2	2	1

TABLE E-8 (continued)

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Desensitize eroded areas of teeth	^{1}FRE	112	15	10	5	101	8	15	89	54	0	0	0				
	PCT	79	11	7	4	47	4	7	42	100	0	0	0				
	^{2}FRE	8	8	5	5	0	1	0	25	11	0	0	0				
	PCT	31	31	19	19	0	4	0	96	100	0	0	0				
	^{3}FRE	84	27	18	19	18	2	3	81	44	2	5	3	94	16	20	38
	PCT	57	18	12	13	17	2	3	78	81	4	9	6	56	10	12	23
Regulate I-V flow		137	4	1	0	205	4	3	1	54	0	0	0				
		96	3	1	0	96	2	1	0	100	0	0	0				
		21	4	1	0	19	3	3	1	11	0	0	0				
		18	15	4	0	73	12	12	4	100	0	0	0				
		139	7	1	1	94	5	3	2	43	4	4	3	150	10	4	4
		94	5	1	1	90	5	3	2	80	7	7	6	89	6	2	2
Check and sign previously written prescription		137	2	3	0	203	2	4	4	48	1	2	3				
		96	1	2	0	95	1	2	2	89	2	4	6				
		21	2	3	0	17	2	3	4	7	0	1	3				
		81	8	12	0	65	8	12	15	64	0	9	27				
		130	6	6	6	94	3	3	4	43	1	2	8	140	7	5	16
		88	4	4	4	90	3	3	4	80	2	4	15	83	4	3	10
Store narcotics/controlled drugs/precious metals		98	9	12	23	187	7	4	15	41	3	2	8				
		69	6	8	16	88	3	2	7	76	6	4	15				
		5	3	2	16	9	3	2	12	4	0	1	6				
		19	12	8	62	35	12	8	46	36	0	9	55				
		62	3	13	70	58	1	17	28	20	0	6	28	83	10	28	47
		42	2	9	47	56	1	16	27	37	0	11	52	49	6	17	28
Perform cardiac resuscitation		103	13	13	13	147	18	20	28	54	0	0	0				
		73	9	9	9	69	8	9	13	100	0	0	0				
		6	5	6	9	3	4	6	13	11	0	0	0				
		23	19	23	35	12	15	23	50	100	0	0	0				
		122	13	9	4	58	10	15	21	49	3	0	2	103	30	23	12
		82	9	6	3	56	10	14	20	91	6	0	4	61	18	14	7
Check/count narcotics/controlled drugs		105	6	16	15	189	4	10	10	54	0	0	0				
		74	4	11	11	89	2	5	5	100	0	0	0				
		5	1	9	11	11	2	6	7	11	0	0	0				
		19	4	35	42	42	8	23	27	100	0	0	0				
		82	6	14	46	77	3	6	18	40	0	4	10	116	5	19	28
		55	4	9	31	74	3	6	17	74	0	7	19	69	3	11	17

TABLE E-8 (continued)

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=140				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Administer topical medication, e.g. ointment salve	[1]FRE	82	15	19	26	88	10	22	93	52	1	0	1				
	PCT	58	11	13	18	41	5	10	44	96	2	0	2				
	[2]FRE	0	4	7	15	0	0	1	25	9	1	0	1				
	PCT	0	15	27	58	0	0	4	96	82	9	0	9				
	[3]FRE	51	19	19	59	18	2	10	74	37	3	5	9	55	19	28	66
	PCT	34	13	13	40	17	2	10	71	69	6	9	17	33	11	17	39
Start I-V therapy via needle (not intracath, etc.)		139	2	1	0	210	2	1	0	54	0	0	0				
		98	1	1	0	99	1	0	0	100	0	0	0				
		23	2	1	0	23	2	1	0	11	0	0	0				
		88	8	4	0	88	8	4	0	100	0	0	0				
		137	6	3	2	102	1	1	0	51	1	2	0	156	5	2	5
		93	4	2	1	98	1	1	0	94	2	4	0	93	3	1	3
Discontinue I-V therapy/clysis		139	1	2	0	209	1	3	0	54	0	0	0				
		98	1	1	0	98	0	1	0	100	0	0	0				
		23	1	2	0	22	1	3	0	11	0	0	0				
		88	4	8	0	85	4	12	0	100	0	0	0				
		138	3	6	1	101	2	0	1	52	1	1	0	159	2	5	2
		93	2	4	1	97	2	0	1	96	2	2	0	95	1	3	1
Mix chemical solution/pharmaceutical		116	3	12	11	186	2	5	20	52	1	0	1				
		82	2	8	8	87	1	2	9	96	2	0	2				
		8	2	8	8	9	1	3	13	9	1	0	1				
		31	8	31	31	35	4	12	50	82	9	0	9				
		106	14	7	21	70	4	3	27	44	2	2	6	110	13	17	28
		72	9	5	14	67	4	3	26	81	4	4	11	65	8	10	17
Hypnotize patient		141	1	0	0	213	0	0	0	54	0	0	0				
		99	1	0	0	100	0	0	0	100	0	0	0				
		25	1	0	0	26	0	0	0	11	0	0	0				
		96	4	0	0	100	0	0	0	100	0	0	0				
		145	2	1	0	103	1	0	0	53	1	0	0	161	2	0	5
		98	1	1	0	99	1	0	0	98	2	0	0	96	1	0	3
Use standard references, e.g. PDR, technical manuals		88	12	15	27	123	4	8	78	30	3	6	15				
		62	8	11	19	58	2	4	37	56	6	11	28				
		3	1	3	19	3	0	1	22	3	0	1	7				
		22	4	12	73	12	0	4	85	27	0	9	64				
		79	11	15	43	22	2	3	77	25	0	3	26	89	18	23	38
		53	7	10	29	21	2	3	74	46	0	6	48	53	11	14	29

TABLE E-8 (continued)

CATEGORY 8 PATIENT CARE: ANESTHESIA AND MEDICATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Give subcutaneous injection (SQ)	^{1}FRE	135	4	2	1	197	8	4	4	54	0	0	0				
	PCT	95	3	1	1	92	4	2	2	100	0	0	0				
	^{2}FRE	21	2	2	1	16	3	4	3	11	0	0	0				
	PCT	81	8	8	4	62	12	15	12	100	0	0	0				
	^{3}FRE	131	13	1	3	93	4	1	6	43	2	5	4	146	10	5	7
	PCT	89	9	1	2	89	4	1	6	80	4	9	7	87	6	3	4
Give oxygen therapy, i.e. cannula/catheter/mask		110	11	9	12	161	15	15	22	54	0	0	0				
		77	8	6	8	76	7	7	10	100	0	0	0				
		8	3	6	9	4	4	8	10	11	0	0	0				
		31	12	23	35	15	15	31	38	100	0	0	0				
		101	21	15	11	64	8	7	25	46	2	4	2	100	27	23	18
		68	14	10	7	62	8	7	24	85	4	7	4	60	16	14	11

TABLE E-9

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform indirect skeletal fixation of fracture	[1]FRE	138	2	2	0	210	2	0	1	54	0	0	0				
	PCT	97	1	1	0	99	1	0	0	100	0	0	0				
	[2]FRE	23	1	2	0	24	1	0	1	11	0	0	0				
	PCT	88	4	8	0	92	4	0	4	100	0	0	0				
	[3]FRE	143	3	1	1	100	2	1	1	46	6	0	2	160	0	4	4
	PCT	97	2	1	1	96	2	1	1	85	11	0	4	95	0	2	2
Perform apicoectomy		134	8	0	0	213	0	0	0	54	0	0	0				
		94	6	0	0	100	0	0	0	100	0	0	0				
		18	8	0	0	26	0	0	0	11	0	0	0				
		69	31	0	0	100	0	0	0	100	0	0	0				
		116	30	2	0	95	8	0	1	53	1	0	0	148	9	1	10
		78	20	1	0	91	8	0	1	98	2	0	0	88	5	1	6
Perform tooth transplantation		138	4	0	0	211	1	0	1	54	0	0	0				
		97	3	0	0	99	0	0	0	100	0	0	0				
		22	4	0	0	24	1	0	1	11	0	0	0				
		85	15	0	0	92	4	0	4	100	0	0	0				
		136	12	0	0	101	2	0	1	53	1	0	0	160	2	3	3
		92	8	0	0	97	2	0	1	98	2	0	0	95	1	2	2
Scrub/gown/glove for surgery/sterile procedure		98	14	9	21	162	7	11	33	54	0	0	0				
		69	10	6	15	76	3	5	15	100	0	0	0				
		2	2	5	17	5	1	3	17	11	0	0	0				
		8	8	19	65	19	4	12	65	100	0	0	0				
		79	5	15	49	51	9	7	37	35	1	6	12	96	14	17	41
		53	3	10	33	49	9	7	36	65	2	11	22	57	8	10	24
Perform aerial extraction, routine		135	7	0	0	211	1	1	0	54	0	0	0				
		95	5	0	0	99	0	0	0	100	0	0	0				
		19	7	0	0	24	1	1	0	11	0	0	0				
		73	27	0	0	92	4	4	0	100	0	0	0				
		116	27	5	0	97	5	1	1	50	4	0	0	148	5	3	12
		78	18	3	0	93	5	1	1	93	7	0	0	88	3	2	7

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Aspirate bone marrow	[1]FRE	132	3	3	4	204	2	2	5	54	0	0	0				
	PCT	93	2	2	3	96	1	1	2	100	0	0	0				
	[2]FRE	18	1	3	4	18	2	1	5	11	0	0	0				
	PCT	69	4	12	15	69	8	4	19	100	0	0	0				
	[3]FRE	119	15	3	11	87	7	1	9	51	1	0	2	156	5	2	5
	PCT	80	10	2	7	84	7	1	9	94	2	0	4	93	3	1	3
Recover root from bony tissue		134	7	0	1	208	3	2	0	54	0	0	0				
		94	5	0	1	98	1	1	0	100	0	0	0				
		18	7	0	1	21	3	2	0	11	0	0	0				
		69	27	0	4	81	12	8	0	100	0	0	0				
		108	33	3	4	89	12	2	1	48	2	4	0	145	9	2	12
		73	22	2	3	86	12	2	1	89	4	7	0	86	5	1	7
Remove sutures/skin clips		99	15	17	11	161	10	18	24	53	0	1	0				
		70	11	12	8	76	5	8	11	98	0	2	0				
		4	7	7	8	6	6	3	14	10	0	1	0				
		15	27	27	31	23	12	12	54	91	0	9	0				
		60	20	23	45	30	8	22	44	40	3	4	7	75	19	29	45
		41	14	16	30	29	8	21	42	74	6	7	13	45	11	17	27
Perform tooth hemisection		140	2	0	0	212	1	0	0	54	0	0	0				
		99	1	0	0	100	0	0	0	100	0	0	0				
		24	2	0	0	25	1	0	0	11	0	0	0				
		92	8	0	0	96	4	0	0	100	0	0	0				
		131	15	2	0	98	5	0	1	52	2	0	0	153	9	1	5
		89	10	1	0	94	5	0	1	96	4	0	0	91	5	1	3
Perform direct dental fixation of fracture		139	3	0	0	211	1	1	0	54	0	0	0				
		98	2	0	0	99	0	0	0	100	0	0	0				
		23	3	0	0	24	1	1	0	11	0	0	0				
		88	12	0	0	92	4	4	0	100	0	0	0				
		136	10	2	0	101	3	0	0	50	4	0	0	159	2	2	5
		92	7	1	0	97	3	0	0	93	7	0	0	95	1	1	3
Perform gingivectomy		133	8	1	0	206	2	2	3	54	0	0	0				
		94	6	1	0	97	1	1	1	100	0	0	0				
		17	8	1	0	22	2	0	2	11	0	0	0				
		65	31	4	0	85	8	0	8	100	0	0	0				
		114	32	1	1	90	9	4	1	49	4	1	0	143	12	5	8
		77	22	1	1	87	9	4	1	91	7	2	0	85	7	3	5

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Insert endotracheal tube	[1]FRE	136	4	2	0	198	9	5	1	54	0	0	0				
	PCT	96	3	1	0	93	4	2	0	100	0	0	0				
	[2]FRE	20	4	2	0	14	6	5	1	11	0	0	0				
	PCT	77	15	8	0	54	23	19	4	100	0	0	0				
	[3]FRE	138	5	3	2	96	3	4	1	51	2	1	0	153	7	6	2
	PCT	93	3	2	1	92	3	4	1	94	4	2	0	91	4	4	1
Apply periodontal pack		102	18	13	9	149	9	20	35	54	0	0	0				
		72	13	9	6	70	4	9	16	100	0	0	0				
		7	8	6	5	6	2	2	16	11	0	0	0				
		27	31	23	19	23	8	8	62	100	0	0	0				
		81	22	23	22	38	14	15	37	46	5	1	2	97	26	25	20
		55	15	16	15	37	13	14	36	85	9	2	4	58	15	15	12
Aspirate cyst		120	10	5	7	198	6	6	3	54	0	0	0				
		85	7	4	5	93	3	3	1	100	0	0	0				
		12	6	3	5	16	3	4	3	11	0	0	0				
		46	23	12	19	62	12	15	12	100	0	0	0				
		91	12	11	34	83	7	6	8	48	3	1	2	130	16	9	13
		61	8	7	23	80	7	6	8	89	6	2	4	77	10	5	8
Recover tooth/root from antrum		135	7	0	0	212	1	0	0	54	0	0	0				
		95	5	0	0	100	0	0	0	100	0	0	0				
		19	7	0	0	25	1	0	0	11	0	0	0				
		73	27	0	0	96	4	0	0	100	0	0	0				
		125	20	2	1	98	6	0	0	48	6	0	0	155	7	0	6
		84	14	1	1	94	6	0	0	89	11	0	0	92	4	0	4
Recover root from soft tissue		130	8	3	1	207	2	2	2	54	0	0	0				
		92	6	2	1	97	1	1	1	100	0	0	0				
		15	7	3	1	21	1	2	2	11	0	0	0				
		58	27	12	4	81	4	8	8	100	0	0	0				
		100	39	4	5	82	8	4	10	48	3	3	0	138	15	1	14
		68	26	3	3	79	8	4	10	89	6	6	0	82	9	1	8
Perform indirect dental fixation of fracture		137	4	1	0	212	1	0	0	54	0	0	0				
		96	3	1	0	100	0	0	0	100	0	0	0				
		22	3	1	0	25	1	0	0	11	0	0	0				
		85	12	4	0	96	4	0	0	100	0	0	0				
		140	5	1	2	99	5	0	0	44	6	2	2	156	3	3	6
		95	3	1	1	95	5	0	0	81	11	4	4	93	2	2	4

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform endosseous implant	[1]FRE	139	3	0	0	212	1	0	0	54	0	0	0				
	PCT	98	2	0	0	100	0	0	0	100	0	0	0				
	[2]FRE	23	3	0	0	25	1	0	0	11	0	0	0				
	PCT	88	12	0	0	96	4	0	0	100	0	0	0				
	[3]FRE	146	2	0	0	102	2	0	0	52	2	0	0	163	1	1	3
	PCT	99	1	0	0	98	2	0	0	96	4	0	0	97	1	1	2
Clean/debride wound/cut (not abrasion or burn)		116	8	11	7	174	8	11	20	54	0	0	0				
		82	6	8	5	82	4	5	9	100	0	0	0				
		9	4	7	6	8	3	4	11	11	0	0	0				
		35	15	27	23	31	12	15	42	100	0	0	0				
		91	20	11	26	52	5	16	31	39	1	6	8	116	18	16	18
		61	14	7	18	50	5	15	30	72	2	11	15	69	11	10	11
Perform cauterization with hyphercater/dessicator		134	8	0	0	211	1	0	1	54	0	0	0				
		94	6	0	0	99	0	0	0	100	0	0	0				
		18	8	0	0	24	1	0	1	11	0	0	0				
		69	31	0	0	92	4	0	4	100	0	0	0				
		132	12	3	1	97	4	1	2	53	1	0	0	151	10	0	7
		89	8	2	1	93	4	1	2	98	2	0	0	90	6	0	4
Control bleeding by direct pressure only		90	9	19	24	140	10	16	47	51	1	1	1				
		63	6	13	17	66	5	8	22	94	2	2	2				
		1	3	4	18	1	1	1	23	8	1	1	1				
		4	12	15	69	4	4	4	88	73	9	9	9				
		74	16	12	46	35	1	11	57	36	2	3	13	85	13	21	49
		50	11	8	31	34	1	11	55	67	4	6	24	51	8	13	29
Perform osseous graft		139	3	0	0	213	0	0	0	54	0	0	0				
		98	2	0	0	100	0	0	0	100	0	0	0				
		23	3	0	0	26	0	0	0	11	0	0	0				
		88	12	0	0	100	0	0	0	100	0	0	0				
		141	7	0	0	100	4	0	0	54	0	0	0	160	4	2	2
		95	5	0	0	96	4	0	0	100	0	0	0	95	2	1	1
Control bleeding by ligation of vessel		134	6	2	0	207	3	1	2	53	1	0	0				
		94	4	1	0	97	1	0	1	98	2	0	0				
		21	4	1	0	20	3	1	2	10	1	0	0				
		81	15	4	0	77	12	4	8	91	9	0	0				
		139	5	2	2	97	3	3	1	49	3	1	1	156	4	3	5
		94	3	1	1	93	3	3	1	91	6	2	2	93	2	2	3

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Do cutdown (venous or arterial)	[1]FRE	141	1	0	0	209	1	2	1	54	0	0	0				
	PCT	99	1	0	0	98	0	1	0	100	0	0	0				
	[2]FRE	25	1	0	0	23	1	1	1	11	0	0	0				
	PCT	96	4	0	0	88	4	4	4	100	0	0	0				
	[3]FRE	145	1	0	2	102	0	1	1	52	2	0	0	159	2	3	4
	PCT	98	1	0	1	98	0	1	1	96	4	0	0	95	1	2	2
Check and remove periodontal pack		97	18	16	11	147	8	23	35	54	0	0	0				
		68	13	11	8	69	4	11	16	100	0	0	0				
		6	7	5	8	4	1	5	16	11	0	0	0				
		23	27	19	31	15	4	19	62	100	0	0	0				
		84	19	19	26	39	5	17	43	45	5	2	2	85	18	31	34
		57	13	13	18	38	5	16	41	83	9	4	4	51	11	18	20
Control bleeding by tourniquet		116	2	10	14	173	10	15	15	49	2	2	1				
		82	1	7	10	81	5	7	7	91	4	4	2				
		7	2	7	10	6	2	8	10	9	0	1	1				
		27	8	27	38	23	8	31	38	82	0	9	9				
		126	7	5	10	76	6	9	13	34	1	3	16	123	16	11	18
		85	5	3	7	73	6	9	13	63	2	6	30	73	10	7	11
Perform periodontal tissue graft		136	6	0	0	212	1	0	0	54	0	0	0				
		96	4	0	0	100	0	0	0	100	0	0	0				
		20	6	0	0	25	1	0	0	11	0	0	0				
		77	23	0	0	96	4	0	0	100	0	0	0				
		128	19	1	0	98	6	0	0	53	1	0	0	158	6	0	4
		86	13	1	0	94	6	0	0	98	2	0	0	94	4	0	2
Perform alveolectomy		133	8	0	1	213	0	0	0	54	0	0	0				
		94	6	0	1	100	0	0	0	100	0	0	0				
		17	8	0	1	26	0	0	0	11	0	0	0				
		65	31	0	4	100	0	0	0	100	0	0	0				
		118	28	1	1	97	6	0	1	50	4	0	0	146	12	0	10
		80	19	1	1	93	6	0	1	93	7	0	0	87	7	0	6
Perform pulpotomy		132	9	1	0	208	4	0	1	53	1	0	0				
		93	6	1	0	98	2	0	0	98	2	0	0				
		17	8	1	0	23	2	0	1	10	1	0	0				
		65	31	4	0	88	8	0	4	91	9	0	0				
		108	38	2	0	94	7	1	2	50	3	0	1	146	8	2	12
		73	26	1	0	90	7	1	2	93	6	0	2	87	5	1	7

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Suture wound/incision (Place sutures)	[1]FRE	119	17	6	0	195	9	6	3	54	0	0	0				
	PCT	84	12	4	0	92	4	3	1	100	0	0	0				
	[2]FRE	13	9	4	0	12	6	6	2	11	0	0	0				
	PCT	50	35	15	0	46	23	23	8	100	0	0	0				
	[3]FRE	102	33	11	2	81	15	5	3	45	2	1	6	139	12	3	14
	PCT	69	22	7	1	78	14	5	3	83	4	2	11	83	7	2	8
Perform gingivoplasty		138	4	0	0	206	2	3	2	54	0	0	0				
		97	3	0	0	97	1	1	1	100	0	0	0				
		22	4	0	0	23	1	1	1	11	0	0	0				
		85	15	0	0	88	4	4	4	100	0	0	0				
		129	16	2	1	89	9	3	3	52	2	0	0	151	5	1	11
		87	11	1	1	86	9	3	3	96	4	0	0	90	3	1	7
Perform surgical exposure of impacted or unerupted tooth		134	4	1	3	212	1	0	0	54	0	0	0				
		94	3	1	2	100	0	0	0	100	0	0	0				
		19	4	0	3	25	1	0	0	11	0	0	0				
		73	15	0	12	96	4	0	0	100	0	0	0				
		121	20	5	2	94	8	0	2	51	1	2	0	151	4	2	11
		82	14	3	1	90	8	0	2	54	2	4	0	90	2	1	7
Perform tracheotomy/tracheostomy		133	7	1	1	193	17	2	0	54	0	0	0				
		94	5	1	1	91	8	1	0	100	0	0	0				
		20	4	1	1	14	9	2	1	11	0	0	0				
		77	15	4	4	54	35	8	4	100	0	0	0				
		141	6	1	0	100	4	0	0	52	1	0	1	155	8	2	3
		95	4	1	0	96	4	0	0	96	2	0	2	92	5	1	2
Establish/maintain airway by using endotracheal tube		123	14	3	2	187	14	3	9	53	1	0	0				
		87	10	2	1	88	7	1	4	98	2	0	0				
		12	9	3	2	11	7	1	7	10	1	0	0				
		46	35	12	8	42	27	4	27	91	9	0	0				
		133	6	7	2	82	12	6	4	51	2	1	0	147	14	4	3
		90	4	5	1	79	12	6	4	94	4	2	0	88	8	2	2
Place periodontal pack		100	18	15	9	152	6	27	28	54	0	0	0				
		70	13	11	6	71	3	13	13	100	0	0	0				
		5	10	4	7	6	1	6	13	11	0	0	0				
		19	38	15	27	23	4	23	50	100	0	0	0				
		81	24	19	24	43	7	19	35	47	5	1	1	93	22	31	22
		55	16	13	16	41	7	18	34	87	9	2	2	55	13	18	13

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform direct skeletal fixation of fracture	[1]FRE	139	3	0	0	213	0	0	0	51	1	1	1				
	PCT	98	2	0	0	100	0	0	0	94	2	2	2				
	[2]FRE	23	3	0	0	26	0	0	0	8	1	1	1				
	PCT	88	12	0	0	100	0	0	0	73	9	9	9				
	[3]FRE	142	6	0	0	102	1	0	1	46	5	2	1	162	2	2	2
	PCT	96	4	0	0	98	1	0	1	85	9	4	2	96	1	1	1
Retract gingiva by radiosurgery		134	6	2	0	210	1	1	1	51	1	0	2				
		94	4	1	0	99	0	0	0	94	2	0	4				
		20	4	2	0	23	1	1	1	9	1	0	1				
		77	15	8	0	88	4	4	4	82	9	0	9				
		134	11	2	1	101	2	0	1	53	0	0	1	156	7	2	3
		91	7	1	1	97	2	0	1	98	0	0	2	93	4	1	2
Perform gingival curettage		127	11	1	3	128	11	20	54	53	1	0	0				
		89	8	1	2	60	5	9	25	98	2	0	0				
		14	8	1	3	1	3	3	19	10	1	0	0				
		54	31	4	12	4	12	12	73	91	9	0	0				
		105	34	5	4	35	4	14	51	48	2	2	2	117	11	13	27
		71	23	3	3	34	4	13	49	89	4	4	4	70	7	8	16
Remove cyst or mucocele		135	7	0	0	212	1	0	0	54	0	0	0				
		95	5	0	0	100	0	0	0	100	0	0	0				
		19	7	0	0	25	1	0	0	11	0	0	0				
		73	27	0	0	96	4	0	0	100	0	0	0				
		126	20	2	0	96	7	0	1	49	5	0	0	151	8	3	6
		85	14	1	0	92	7	0	1	91	9	0	0	90	5	2	4
Perform frenectomy		134	8	0	0	212	0	0	1	54	0	0	0				
		94	6	0	0	100	0	0	0	100	0	0	0				
		19	7	0	0	25	0	0	1	11	0	0	0				
		73	27	0	0	96	0	0	4	100	0	0	0				
		122	25	0	1	96	7	0	1	51	3	0	0	149	11	0	8
		82	17	0	1	92	7	0	1	94	6	0	0	89	7	0	5
Perform osseous surgery, includes flap entry and surgery		137	5	0	0	210	1	1	1	54	0	0	0				
		96	4	0	0	99	0	0	0	100	0	0	0				
		21	5	0	0	24	0	1	1	11	0	0	0				
		81	19	0	0	92	0	4	4	100	0	0	0				
		112	33	1	2	96	8	0	0	48	6	0	0	145	10	2	11
		76	22	1	1	92	8	0	0	89	11	0	0	86	6	1	7

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform serial extraction, arch change	[1]FRE	133	9	0	0	210	3	0	0	54	0	0	0				
	PCT	94	6	0	0	99	1	0	0	100	0	0	0				
	[2]FRE	18	8	0	0	23	3	0	0	11	0	0	0				
	PCT	69	31	0	0	88	12	0	0	100	0	0	0				
	[3]FRE	125	22	0	1	97	6	0	1	53	1	0	0	150	8	0	10
	PCT	84	15	0	1	93	6	0	1	98	2	0	0	89	5	0	6
Incise and drain abscess		132	10	0	0	206	5	1	1	52	1	1	0				
		93	7	0	0	97	2	0	0	96	2	2	0				
		16	10	0	0	20	4	1	1	9	1	1	0				
		62	38	0	0	77	15	4	4	82	9	9	0				
		111	33	3	1	84	11	6	3	47	4	2	1	141	13	3	11
		75	22	2	1	81	11	6	3	87	7	4	2	84	8	2	7
Perform cauterization chemically, e.g. silver nitrate		137	5	0	0	206	3	3	1	53	1	0	0				
		96	4	0	0	97	1	1	0	98	2	0	0				
		21	5	0	0	20	3	2	1	10	1	0	0				
		81	19	0	0	77	12	8	4	91	9	0	0				
		130	12	3	3	87	5	7	5	46	4	3	1	152	5	1	10
		88	8	2	2	84	5	7	5	85	7	6	2	90	3	1	6
Surgically reposition tooth		136	6	0	0	212	1	0	0	54	0	0	0				
		96	4	0	0	100	0	0	0	100	0	0	0				
		20	6	0	0	25	1	0	0	11	0	0	0				
		77	23	0	0	96	4	0	0	100	0	0	0				
		134	14	0	0	101	3	0	0	53	1	0	0	159	6	2	1
		91	9	0	0	97	3	0	0	98	2	0	0	95	4	1	1
Treat postoperative dental hemorrhage		108	20	11	3	176	15	13	9	54	0	0	0				
		76	14	8	2	83	7	6	4	100	0	0	0				
		5	12	6	3	5	7	6	8	11	0	0	0				
		19	46	23	12	19	27	23	31	100	0	0	0				
		93	30	13	12	67	10	15	12	41	2	8	3	110	25	16	17
		63	20	9	8	64	10	14	12	76	4	15	6	65	15	10	10
Perform tooth implantation		136	6	0	0	213	0	0	0	53	0	1	0				
		96	4	0	0	100	0	0	0	98	0	2	0				
		20	6	0	0	26	0	0	0	10	0	1	0				
		77	23	0	0	100	0	0	0	91	0	9	0				
		136	11	1	0	100	4	0	0	51	1	0	2	161	3	0	4
		92	7	1	0	96	4	0	0	94	2	0	4	96	2	0	2

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform pulp cap	[1]FRE	116	16	7	3	190	13	2	8	54	0	0	0				
	PCT	82	11	5	2	89	6	1	4	100	0	0	0				
	[2]FRE	10	10	3	3	17	6	0	3	11	0	0	0				
	PCT	38	38	12	12	65	23	0	12	100	0	0	0				
	[3]FRE	97	37	9	5	88	7	3	6	51	1	1	1	137	8	9	14
	PCT	66	25	6	3	85	7	3	6	94	2	2	2	82	5	5	8
Perform flap for surgical extraction		132	10	0	0	211	2	0	0	54	0	0	0				
		93	7	0	0	99	1	0	0	100	0	0	0				
		16	10	0	0	24	2	0	0	11	0	0	0				
		62	38	0	0	92	8	0	0	100	0	0	0				
		114	29	3	2	93	9	1	1	51	3	0	0	143	12	1	12
		77	20	2	1	89	9	1	1	94	6	0	0	85	7	1	7
Perform alveoplasty		133	9	0	0	212	0	0	1	54	0	0	0				
		94	6	0	0	100	0	0	0	100	0	0	0				
		18	8	0	0	25	0	0	1	11	0	0	0				
		69	31	0	0	96	0	0	4	100	0	0	0				
		119	26	2	1	98	5	0	1	53	1	0	0	147	10	1	10
		80	18	1	1	94	5	0	1	98	2	0	0	88	6	1	6
Remove medication from dry socket		110	15	9	8	187	5	11	10	54	0	0	0				
		77	11	6	6	88	2	5	5	100	0	0	0				
		9	6	4	7	9	3	6	8	11	0	0	0				
		35	23	15	27	35	12	23	31	100	0	0	0				
		82	26	16	24	60	7	17	20	41	3	6	4	95	18	25	30
		55	18	11	16	58	7	16	19	76	6	11	7	57	11	15	18
Apply coagulant or administer hemostatic		114	17	8	3	178	10	13	12	54	0	0	0				
		80	12	6	2	84	5	6	6	100	0	0	0				
		9	10	4	3	8	2	8	8	11	0	0	0				
		35	38	15	12	31	8	31	31	100	0	0	0				
		90	26	15	17	67	12	14	11	47	1	5	1	98	20	27	23
		61	18	10	11	64	12	13	11	87	2	9	2	58	12	16	14
Close oral antral fistula		138	4	0	0	212	1	0	0	53	1	0	0				
		97	3	0	0	100	0	0	0	98	2	0	0				
		22	4	0	0	25	1	0	0	10	1	0	0				
		85	15	0	0	96	4	0	0	91	9	0	0				
		136	12	0	0	102	2	0	0	52	2	0	0	154	8	2	4
		92	8	0	0	98	2	0	0	96	4	0	0	92	5	1	2

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform surgical extraction, full bony impaction	[1]FRE	134	8	0	0	212	1	0	0	54	0	0	0				
	PCT	94	6	0	0	100	0	0	0	100	0	0	0				
	[2]FRE	18	8	0	0	25	1	0	0	11	0	0	0				
	PCT	69	31	0	0	96	4	0	0	100	0	0	0				
	[3]FRE	111	33	2	2	95	7	1	1	49	4	1	0	147	8	1	12
	PCT	75	22	1	1	91	7	1	1	91	7	2	0	88	5	1	7
Perform tooth replantation		137	5	0	0	212	1	0	0	54	0	0	0				
		96	4	0	0	100	0	0	0	100	0	0	0				
		21	5	0	0	25	1	0	0	11	0	0	0				
		81	19	0	0	96	4	0	0	100	0	0	0				
		134	14	0	0	100	4	0	0	52	2	0	0	158	4	0	6
		91	9	0	0	96	4	0	0	96	4	0	0	94	2	0	4
Set TMJ dislocation		133	7	1	1	197	7	6	3	53	0	1	0				
		94	5	1	1	92	3	3	1	98	0	2	0				
		18	6	1	1	16	5	3	2	10	0	1	0				
		69	23	4	4	62	19	12	8	91	0	9	0				
		138	10	0	0	91	5	3	5	49	4	0	1	147	11	4	6
		93	7	0	0	88	5	3	5	91	7	0	2	88	7	2	4
Retract oral tissues in surgical procedure		83	11	12	36	154	9	10	40	54	0	0	0				
		58	8	8	25	72	4	5	19	100	0	0	0				
		1	2	1	22	4	2	1	19	11	0	0	0				
		4	8	4	85	15	8	4	73	100	0	0	0				
		8	10	11	69	26	6	13	59	40	5	4	5	53	14	24	77
		39	7	7	47	25	6	13	57	74	9	7	9	32	8	14	46
Perform cauterization with bougie		139	3	0	0	213	0	0	0	54	0	0	0				
		98	2	0	0	100	0	0	0	100	0	0	0				
		23	3	0	0	26	0	0	0	11	0	0	0				
		88	12	0	0	100	0	0	0	100	0	0	0				
		144	4	0	0	103	1	0	0	53	1	0	0	162	3	0	3
		97	3	0	0	99	1	0	0	98	2	0	0	96	2	0	2
Perform periodontal scaling/root planing		124	11	3	4	92	3	13	105	54	0	0	0				
		87	8	2	3	43	1	6	49	100	0	0	0				
		13	9	0	4	0	0	1	25	11	0	0	0				
		50	35	0	15	0	0	4	96	100	0	0	0				
		110	29	5	4	17	1	3	83	48	3	2	1	103	10	19	36
		74	20	3	3	16	1	3	80	89	6	4	2	61	6	11	21

TABLE E-9 (continued)

CATEGORY 9 PATIENT CARE: SURGERY AND SURGICALLY RELATED		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Establish/maintain airway using needle into trachea	[1]FRE	132	8	1	1	189	10	8	6	54	0	0	0				
	PCT	93	6	1	1	89	5	4	3	100	0	0	0				
	[2]FRE	18	6	1	1	12	6	5	3	11	0	0	0				
	PCT	69	23	4	4	46	23	19	12	100	0	0	0				
	[3]FRE	139	9	0	0	96	4	2	2	53	1	0	0	150	9	6	3
	PCT	94	6	0	0	92	4	2	2	98	2	0	0	89	5	4	2
Perform biopsy		137	5	0	0	207	5	0	1	54	0	0	0				
		96	4	0	0	97	2	0	0	100	0	0	0				
		21	5	0	0	21	4	0	1	11	0	0	0				
		81	19	0	0	81	15	0	4	100	0	0	0				
		130	18	0	0	94	9	0	1	50	4	0	0	148	10	0	10
		88	12	0	0	90	9	0	1	93	7	0	0	88	6	0	6
Perform simple extraction of tooth		133	8	1	0	209	3	0	1	54	0	0	0				
		94	6	1	0	98	1	0	0	100	0	0	0				
		17	8	1	0	23	2	0	1	11	0	0	0				
		65	31	4	0	88	8	0	4	100	0	0	0				
		98	40	6	4	89	9	2	4	47	5	2	0	146	9	0	13
		66	27	4	3	86	9	2	4	87	9	4	0	87	5	0	8
Perform apical curettage		133	9	0	0	196	4	5	8	54	0	0	0				
		94	6	0	0	92	2	2	4	100	0	0	0				
		17	9	0	0	14	3	3	6	11	0	0	0				
		65	35	0	0	54	12	12	23	100	0	0	0				
		115	32	0	1	83	10	3	8	50	4	0	0	144	9	1	14
		78	22	0	1	80	10	3	8	93	7	0	0	86	5	1	8

TABLE E-10

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 10 PATIENT CARE: IMPRESSIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare copper band for single tooth impression	[1]FRE	103	19	5	15	202	4	3	4	45	4	2	3				
	PCT	73	13	4	11	95	2	1	2	83	7	4	6				
	[2]FRE	6	8	2	10	17	3	2	4	3	4	4	2				
	PCT	23	31	8	38	65	12	8	15	27	36	18	18				
	[3]FRE	91	23	13	21	88	6	2	8	35	5	7	9	130	16	7	15
	PCT	61	16	9	14	85	6	2	8	61	9	13	17	77	10	4	9
Border mold/muscle trim custom tray		105	5	12	20	191	5	5	12	45	1	2	6				
		74	4	8	14	90	2	2	6	83	2	4	11				
		4	4	4	14	11	4	2	9	4	1	0	6				
		15	15	15	54	42	15	8	35	36	9	0	55				
		95	10	8	35	81	4	5	14	35	5	3	11	145	7	5	11
		64	7	5	24	78	4	5	13	65	9	6	20	86	4	3	7
Select shade and mold for crown/bridge		102	20	6	14	201	4	3	5	33	7	6	8				
		72	14	4	10	94	2	1	2	61	13	11	15				
		4	7	4	11	17	2	3	4	1	1	2	7				
		15	27	15	42	65	8	12	15	9	9	18	64				
		64	33	28	23	75	9	13	7	18	1	11	24	107	19	22	20
		43	22	19	16	72	9	13	7	33	2	20	44	64	11	13	12
Coat teeth using syringe (hydrocolloid/silicone)		99	14	16	13	187	9	5	12	54	0	0	0				
		70	10	11	9	88	4	2	6	100	0	0	0				
		4	2	10	10	9	5	3	9	11	0	0	0				
		15	8	38	38	35	19	12	35	100	0	0	0				
		90	29	15	14	72	14	5	13	43	4	4	3	122	12	17	17
		61	20	10	9	69	13	5	13	80	7	7	6	73	7	10	10
Select/try-in tray for impression		64	13	20	45	123	5	10	75	49	1	2	2				
		45	9	14	32	58	2	5	35	91	2	4	4				
		1	1	2	22	3	0	0	23	7	0	2	2				
		4	4	8	85	12	0	0	88	64	0	18	18				
		31	10	22	85	31	3	9	61	32	2	8	12	63	15	29	61
		21	7	15	57	30	3	9	59	59	4	15	22	38	9	17	36

TABLE E-10 (continued)

CATEGORY 10 PATIENT CARE: IMPRESSIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
† Smear impression material on teeth	^{1}FRE	53	3	10	27	99	2	1	61	44	1	1	0				
	PCT	57	3	11	29	61	1	1	37	96	2	2	0				
	^{2}FRE																
	PCT																
	^{3}FRE	70	7	11	60	33	1	4	66	39	4	4	7	95	13	18	42
	PCT	47	5	7	41	32	1	4	63	72	7	7	13	57	8	11	25
† Remove impression from patient's mouth		45	7	5	34	78	2	3	80	44	1	1	0				
		48	8	5	37	48	1	2	49	96	2	2	0				
		37	8	15	88	15	4	4	81	34	3	6	11	73	15	16	64
		25	5	10	59	14	4	4	78	63	6	11	20	43	9	10	38
Select teeth for removable prosthetic appliance		117	8	14	3	206	3	1	3	12	16	8	18				
		82	6	10	2	97	1	0	1	22	30	15	33				
		8	3	12	3	21	2	0	3	0	0	1	10				
		31	12	46	12	81	8	0	12	0	0	9	91				
		100	17	18	13	78	14	4	8	8	0	3	43	124	13	16	15
		68	11	12	9	75	13	4	8	15	0	6	80	74	8	10	9
Take impression for denture reline		113	14	7	8	199	3	4	7	53	0	1	0				
		80	10	5	6	93	1	2	3	98	0	2	0				
		7	5	6	8	16	1	3	6	10	0	1	0				
		27	19	23	31	62	4	12	23	91	0	9	0				
		87	31	18	12	83	4	3	14	36	4	6	8	136	13	4	15
		59	21	12	8	80	4	3	13	67	7	11	15	81	8	2	9
Adjust occlusal rim on patient and obtain measurements		131	8	1	2	207	3	1	2	49	2	3	0				
		92	6	1	1	97	1	0	1	91	4	6	0				
		16	7	1	2	20	3	1	2	6	2	3	0				
		62	27	4	8	77	12	4	8	55	18	27	0				
		126	16	4	2	99	4	0	1	39	4	3	8	152	4	1	11
		85	11	3	1	95	4	0	1	72	7	6	15	90	2	1	7
Take bite registration		115	11	8	8	177	7	12	17	52	0	1	1				
		81	8	6	6	83	3	6	8	96	0	2	2				
		8	4	7	7	9	2	4	11	9	0	1	1				
		31	15	27	27	35	8	15	42	82	0	9	9				
		74	27	20	27	62	13	9	20	38	2	5	9	124	17	13	14
		50	18	14	18	60	13	9	19	70	4	9	17	74	10	8	8

TABLE E-10 (continued)

CATEGORY 10 PATIENT CARE: IMPRESSIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Hold impression in patient's mouth	^{1}FRE	71	12	18	41	103	7	8	95	51	1	0	2				
	PCT	50	8	13	29	48	3	4	45	94	2	0	4				
	^{2}FRE	0	1	5	20	1	0	0	25	9	0	0	2				
	PCT	0	4	19	77	4	0	0	96	82	0	0	18				
	^{3}FRE	30	9	21	88	15	6	11	72	32	2	6	14	49	13	32	74
	PCT	20	6	14	59	14	6	11	69	59	4	11	26	29	8	19	44
Insert tray for final impression		95	16	11	20	147	10	5	51	54	0	0	0				
		67	11	8	14	69	5	2	24	100	0	0	0				
		5	6	2	13	4	1	1	20	11	0	0	0				
		19	23	8	50	15	4	4	77	100	0	0	0				
		63	20	23	42	54	7	7	36	36	6	2	10	104	14	16	34
		43	14	16	28	52	7	7	35	67	11	4	19	62	8	10	20
Construct custom impression tray		73	10	14	45	177	8	9	19	9	4	10	31				
		51	7	10	32	83	4	4	9	17	7	19	57				
		0	0	1	25	10	2	2	12	0	0	0	11				
		0	0	4	96	38	8	8	46	0	0	0	100				
		54	2	17	75	66	7	11	20	10	0	2	42	72	14	25	57
		36	1	11	51	63	7	11	19	19	0	4	78	43	8	15	34
Take copper band impression		111	16	5	10	205	1	5	2	51	1	0	2				
		78	11	4	7	96	0	2	1	94	2	0	4				
		7	9	1	9	18	1	5	2	8	1	0	2				
		27	35	4	35	69	4	19	8	73	9	0	18				
		96	30	9	13	92	8	3	1	41	4	6	3	141	13	5	9
		65	20	6	9	58	8	3	1	76	7	11	6	84	8	3	5

TABLE E-11

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Fabricate wrought metal framework	[1]FRE	138	2	1	1	211	2	0	0	30	5	10	9				
	PCT	97	1	1	1	99	1	0	0	56	9	19	17				
	[2]FRE	22	2	1	1	24	2	0	0	1	1	3	6				
	PCT	85	8	4	4	92	8	0	0	9	9	27	55				
	[3]FRE	139	3	5	1	102	1	0	1	13	0	5	36	143	1	6	18
	PCT	94	2	3	1	98	1	0	1	24	0	9	67	85	1	4	11
Solder contact on crown		135	4	2	1	207	2	4	0	21	4	7	22				
		95	3	1	1	97	1	2	0	39	7	13	41				
		19	4	2	1	20	2	4	0	0	0	2	9				
		73	15	8	4	77	8	15	0	0	0	18	82				
		124	8	8	8	91	7	4	2	7	0	1	46	137	8	7	16
		84	5	5	5	88	7	4	2	13	0	2	85	82	5	4	10
Wax-up framework for partial denture		136	4	1	1	208	2	2	1	13	8	10	23				
		96	3	1	1	98	1	1	0	24	15	19	43				
		21	3	1	1	21	2	2	1	0	0	1	10				
		81	12	4	4	81	8	8	4	0	0	9	91				
		131	6	6	5	93	7	3	1	10	1	3	40	133	2	12	21
		89	4	4	3	89	7	3	1	19	2	6	74	79	1	7	13
Construct palatal relief		139	2	0	1	210	2	0	1	20	4	15	15				
		98	1	0	1	99	1	0	0	37	7	28	28				
		23	2	0	1	23	2	0	1	0	0	2	9				
		88	8	0	4	88	8	0	4	0	0	18	82				
		131	11	4	2	99	4	0	1	10	0	7	37	136	6	9	17
		89	7	3	1	95	4	0	1	19	0	13	69	81	4	5	10
Pour final impressions to produce master cast		69	10	16	47	137	4	15	57	4	3	6	41				
		49	7	11	33	64	2	7	27	7	6	11	76				
		0	0	3	23	2	1	1	22	0	0	0	11				
		0	0	12	88	8	4	4	85	0	0	0	100				
		44	2	13	89	37	4	9	54	6	0	0	48	55	5	30	78
		30	1	9	60	36	4	9	52	11	0	0	89	33	3	18	46

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Replace broken facing	[1]FRE	119	6	11	6	194	9	6	4	25	4	9	16				
	PCT	84	4	8	4	91	4	3	2	46	7	17	30				
	[2]FRE	10	3	7	6	13	5	4	4	0	0	1	10				
	PCT	38	12	27	23	50	19	15	15	0	0	9	91				
	[3]FRE	96	25	13	14	73	8	16	7	8	1	6	39	118	13	20	17
	PCT	65	17	9	9	70	8	15	7	15	2	11	72	70	8	12	10
Construct dental splint, provisional		129	4	5	4	205	5	1	2	37	3	9	5				
		91	3	4	3	96	2	0	1	69	6	17	9				
		17	3	4	2	19	5	0	2	1	0	5	5				
		65	12	15	8	73	19	0	8	9	0	45	45				
		126	16	2	4	97	3	2	2	15	5	9	25	129	12	11	16
		85	11	1	3	92	3	2	2	28	9	17	46	77	7	7	10
Pickle casting		108	5	7	22	187	3	4	19	11	3	5	35				
		76	4	5	15	88	1	2	9	20	6	9	65				
		4	3	3	16	11	1	2	12	0	0	0	11				
		15	12	12	62	42	4	8	46	0	0	0	100				
		98	4	9	37	75	7	5	17	7	0	0	47	99	4	14	51
		66	3	6	25	72	7	5	16	13	0	0	87	59	2	8	30
Solder bridge		132	4	5	1	207	3	1	2	18	7	6	23				
		93	3	4	1	97	1	0	1	33	13	11	43				
		19	2	4	1	20	3	1	2	0	0	0	11				
		73	8	15	4	77	12	4	8	0	0	0	100				
		133	9	0	6	96	2	2	4	7	1	1	45	132	4	9	23
		90	6	0	4	92	2	2	4	13	2	2	83	79	2	5	14
Wax-up/flask process acrylic facing/crown/bridge		131	1	7	3	206	4	2	1	18	6	8	22				
		92	1	5	2	97	2	1	0	33	11	15	41				
		17	1	5	3	20	3	2	1	1	0	0	10				
		65	4	19	12	77	12	8	4	9	0	0	91				
		128	6	6	8	95	5	2	2	7	0	0	47	135	2	9	22
		86	4	4	5	91	5	2	2	13	0	0	87	80	1	5	13
Weld/solder orthodontic band		126	3	8	5	206	3	3	1	41	5	4	4				
		89	2	6	4	97	1	1	0	76	9	7	7				
		14	2	2	5	20	2	3	1	3	2	3	3				
		54	8	19	19	77	8	12	4	27	18	27	27				
		116	7	5	20	95	3	4	2	17	0	8	29	129	10	13	16
		78	5	3	14	91	3	4	2	31	0	15	54	77	6	8	10

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Finish and polish metallic framework	[1]FRE	122	6	7	7	198	2	10	3	11	7	8	28				
	PCT	86	4	5	5	93	1	5	1	20	13	15	52				
	[2]FRE	12	3	4	7	14	1	8	3	0	0	0	11				
	PCT	46	12	15	27	54	4	31	12	0	0	0	100				
	[3]FRE	109	15	10	14	85	3	10	6	7	0	0	47	120	6	14	28
	PCT	74	10	7	9	82	3	10	6	13	0	0	87	71	4	8	17
Construct temporary removable partial denture		123	7	6	6	207	5	1	0	16	8	11	19				
		87	5	4	4	97	2	0	0	30	15	20	35				
		12	3	5	6	20	5	1	0	0	0	1	10				
		46	12	19	23	77	19	4	0	0	0	9	91				
		126	9	7	6	97	4	1	2	9	0	2	43	118	13	15	22
		85	6	5	4	93	4	1	2	17	0	4	80	70	8	9	13
Fabricate orthodontic appliance, e.g. hawley		126	6	3	7	208	3	0	2	40	5	2	7				
		89	4	2	5	98	1	0	1	74	9	4	13				
		16	3	1	6	21	3	0	2	3	2	1	5				
		62	12	4	23	81	12	0	8	27	18	9	45				
		123	8	3	14	100	2	1	1	13	1	6	34	122	9	19	18
		83	5	2	9	96	2	1	1	24	2	11	63	73	5	11	11
Set up teeth in balanced occlusion for complete denture		135	3	2	2	209	2	1	1	13	13	10	18				
		95	2	1	1	98	1	0	0	24	24	19	33				
		20	2	2	2	22	2	1	1	0	0	2	9				
		77	8	8	8	85	8	4	4	0	0	18	82				
		137	6	1	4	94	4	4	2	8	0	1	45	134	3	7	24
		93	4	1	3	90	4	4	2	15	0	2	83	80	2	4	14
Fit preformed orthodontic band, indirect		129	4	4	5	207	4	1	1	49	2	2	1				
		91	3	3	4	97	2	0	0	91	4	4	2				
		16	2	3	5	20	4	1	1	6	2	2	1				
		62	8	12	19	77	15	4	4	55	18	18	9				
		119	13	7	9	98	1	3	2	36	2	9	7	139	10	9	10
		80	9	5	6	94	1	3	2	67	4	17	13	83	6	5	6
Dehydrate refractory cast		134	1	1	6	211	0	0	2	18	3	9	24				
		94	1	1	4	99	0	0	1	33	6	17	44				
		18	1	1	6	24	0	0	2	0	0	1	10				
		69	4	4	23	92	0	0	8	0	0	9	91				
		140	5	0	3	102	0	0	2	15	0	1	38	144	4	6	14
		95	3	0	2	98	0	0	2	28	0	2	70	86	2	4	8

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Construct bite raiser	[1]FRE	136	2	2	2	209	1	2	1	30	7	8	9				
	PCT	96	1	1	1	98	0	1	0	56	13	15	17				
	[2]FRE	20	2	2	2	22	1	2	1	1	0	2	8				
	PCT	77	8	8	8	85	4	8	4	9	0	18	73				
	[3]FRE	125	9	1	13	99	2	1	2	10	1	6	37	134	10	9	15
	PCT	84	6	1	9	95	2	1	2	19	2	11	69	80	6	5	9
Flask/pack/cure/deflask denture or partial reline/repair/duplicate		135	4	1	2	209	3	0	1	10	6	12	26				
		95	3	1	1	98	1	0	0	19	11	22	48				
		19	4	1	2	23	2	0	1	0	0	1	10				
		73	15	4	8	88	8	0	4	0	0	9	91				
		134	6	3	5	98	2	0	4	10	0	2	42	138	1	5	24
		91	4	2	3	94	2	0	4	19	0	4	78	82	1	3	14
Fabricate artificial teeth for characterized denture		140	0	0	2	212	0	0	1	28	8	7	11				
		99	0	0	1	100	0	0	0	52	15	13	20				
		24	0	0	2	25	0	0	1	1	1	2	7				
		92	0	0	8	96	0	0	4	9	9	18	64				
		141	3	1	3	102	1	0	2	17	0	2	35	146	5	6	11
		95	2	1	2	97	1	0	2	31	0	4	65	87	3	4	7
Soap model		102	1	3	36	167	0	1	45	30	3	5	16				
		72	1	2	25	78	0	0	21	56	6	9	30				
		3	0	0	23	8	0	0	18	0	0	1	10				
		12	0	0	88	31	0	0	69	0	0	9	91				
		95	1	1	51	70	0	2	32	18	0	2	34	95	2	10	61
		64	1	1	34	67	0	2	31	33	0	4	63	57	1	6	36
Construct broken stress/precision attachment bridge		141	0	0	1	212	0	0	1	34	7	6	7				
		99	0	0	1	100	0	0	0	63	13	11	13				
		25	0	0	1	25	0	0	1	0	3	3	5				
		96	0	0	4	96	0	0	4	0	27	27	45				
		134	13	1	0	98	5	0	1	17	2	5	30	146	5	3	14
		91	9	1	0	94	5	0	1	31	4	9	56	87	3	2	8
Fit orthodontic band, indirect		131	4	3	4	209	2	2	0	47	5	1	1				
		92	3	2	3	98	1	1	0	87	9	2	2				
		15	4	3	4	22	2	2	0	5	4	1	1				
		58	15	12	15	85	8	8	0	45	36	9	9				
		121	11	6	10	101	0	1	2	36	2	6	10	147	6	7	8
		82	7	4	7	97	0	1	2	67	4	11	19	88	4	4	5

TABLE E-11 (continued)

CATEGORY 11
PATIENT CARE: DENTAL LABORATORY WORK

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Tripod/mark master cast	[1]FRE	136	3	0	3	210	1	0	2	18	6	6	24				
	PCT	96	2	0	2	99	0	0	1	33	11	11	44				
	[2]FRE	20	3	0	3	23	1	0	2	0	0	2	9				
	PCT	77	12	0	12	88	4	0	8	0	0	18	82				
	[3]FRE	138	4	1	5	101	1	0	2	11	0	4	39	144	7	5	12
	PCT	93	3	1	3	97	1	0	2	20	0	7	72	86	4	3	7
Fabricate surgical template		134	3	2	3	212	0	0	1	25	6	10	13				
		94	2	1	2	100	0	0	0	46	11	19	24				
		19	3	1	3	25	0	0	1	1	0	1	9				
		73	12	4	12	96	0	0	4	9	0	9	82				
		139	1	5	3	103	0	0	1	14	0	2	38	128	10	9	21
		94	1	3	2	99	0	0	1	26	0	4	70	76	6	5	13
Make amalgam die, ditch and trim		132	3	2	5	207	4	0	2	37	6	4	7				
		93	2	1	4	97	2	0	1	69	11	7	13				
		17	3	2	4	21	3	0	2	3	1	1	6				
		65	12	8	15	81	12	0	8	27	9	9	55				
		127	11	4	6	92	1	4	7	19	2	4	29	140	7	8	13
		86	7	3	4	88	1	4	7	35	4	7	54	83	4	5	8
Trim dental cast		72	8	7	55	144	2	6	61	7	3	6	38				
		51	6	5	39	68	1	3	29	13	6	11	70				
		0	0	1	25	2	0	3	21	0	0	0	11				
		0	0	4	96	8	0	12	81	0	0	0	100				
		63	4	11	70	45	3	6	50	8	0	0	46	53	9	20	86
		43	3	7	47	43	3	6	48	15	0	0	85	32	5	12	51
Bake and finish porcelain restoration		139	1	1	1	208	0	4	1	36	4	4	10				
		98	1	1	1	98	0	2	0	67	7	7	19				
		23	1	1	1	22	0	3	1	1	2	0	8				
		88	4	4	4	85	0	12	4	9	18	0	73				
		139	7	0	2	101	2	0	1	20	3	5	26	138	4	9	17
		94	5	0	1	97	2	0	1	37	6	9	48	82	2	5	10
Polish and finish partial denture framework		132	5	3	2	202	4	4	3	14	7	11	22				
		93	4	2	1	95	2	2	1	26	13	20	41				
		17	4	3	2	16	4	3	3	0	0	1	10				
		65	15	12	8	62	15	12	12	0	0	9	91				
		135	4	4	5	93	4	5	2	10	1	1	42	135	5	5	23
		91	3	3	3	89	4	5	2	19	2	2	78	80	3	3	14

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Pour refractory cast	[1]FRE	125	3	4	10	206	0	2	5	12	5	10	27				
	PCT	88	2	3	7	97	0	1	2	22	9	19	50				
	[2]FRE	13	2	2	9	20	0	2	4	0	0	0	11				
	PCT	50	8	8	35	77	0	8	15	0	0	0	100				
	[3]FRE	130	3	4	11	99	2	0	3	9	0	1	44	126	2	11	29
	PCT	88	2	3	7	95	2	0	3	17	0	2	81	75	1	7	17
Flask/pack/cure/deflask complete/partial denture		139	0	1	2	210	1	1	1	12	5	9	28				
		98	0	1	1	99	0	0	0	22	9	17	52				
		23	0	1	2	24	0	1	1	0	0	0	11				
		88	0	4	8	92	0	4	4	0	0	0	100				
		137	3	4	4	100	1	2	1	10	0	0	44	137	0	7	24
		93	2	3	3	96	1	2	1	19	0	0	81	82	0	4	14
Mount final cast to adjustable articulator		123	8	6	5	200	4	1	8	7	4	11	32				
		87	6	4	4	94	2	0	4	13	7	20	59				
		13	3	5	5	18	4	0	4	0	0	1	10				
		50	12	19	19	69	15	0	15	0	0	9	91				
		110	11	8	19	96	2	0	6	6	0	1	47	122	9	18	19
		74	7	5	13	92	2	0	6	11	0	2	87	73	5	11	11
Prepare die from cast		114	6	5	17	208	0	1	4	15	12	6	21				
		80	4	4	12	98	0	0	2	28	22	11	39				
		9	1	2	14	21	0	1	4	0	0	1	10				
		35	4	8	54	81	0	4	15	0	0	9	91				
		118	4	8	18	90	4	1	9	11	0	2	41	125	7	12	24
		80	3	5	12	87	4	1	9	20	0	4	76	74	4	7	14
Prepare cast for altered cast impression		129	7	1	5	207	2	1	3	28	6	6	14				
		91	5	1	4	97	1	0	1	52	11	11	26				
		16	4	1	5	21	2	1	2	0	1	1	9				
		62	15	4	19	81	8	4	8	0	9	9	82				
		129	10	0	9	98	3	1	2	19	1	4	30	143	6	6	13
		87	7	0	6	94	3	1	2	35	2	7	56	85	4	4	8
Trim/wax-dip refractory cast of removable partial denture		137	2	0	3	211	0	0	2	13	4	11	26				
		96	1	0	2	99	0	0	1	24	7	20	48				
		21	2	0	3	24	0	0	2	0	0	0	11				
		81	8	0	12	92	0	0	8	0	0	0	100				
		138	5	4	1	102	0	1	1	11	1	1	41	142	5	5	16
		93	3	3	1	98	0	1	1	20	2	2	76	85	3	3	10

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Prepare/apply/characterize porcelain restoration	[1]FRE	132	7	3	0	204	3	1	5	38	5	3	8				
	PCT	93	5	2	0	96	1	0	2	70	9	6	15				
	[2]FRE	17	6	3	0	18	2	1	5	1	2	3	5				
	PCT	65	23	12	0	69	8	4	19	9	18	27	45				
	[3]FRE	118	25	2	3	92	3	2	7	28	2	5	19	141	11	8	8
	PCT	80	17	1	2	88	3	2	7	52	4	9	35	84	7	5	5
Pour cast from preliminary impression		62	12	8	60	126	4	7	76	11	3	7	33				
		44	8	6	42	59	2	3	36	20	6	13	61				
		0	0	0	26	3	0	1	22	0	0	0	11				
		0	0	0	100	12	0	4	85	0	0	0	100				
		46	3	9	90	32	5	6	61	9	0	2	43	41	6	21	100
		31	2	6	61	31	5	6	59	17	0	4	80	24	4	13	60
Construct patient remount matrix		131	5	2	4	206	0	1	6	39	3	2	10				
		92	4	1	3	97	0	0	3	72	6	4	19				
		15	5	2	4	19	0	1	6	3	1	1	6				
		58	19	8	15	73	0	4	23	27	9	9	55				
		121	11	6	10	97	0	1	6	28	2	4	20	144	7	9	8
		82	7	4	7	93	0	1	6	52	4	7	37	86	4	5	5
Construct dental splint, plastic		133	2	1	6	209	2	0	2	31	8	3	12				
		94	1	1	4	98	1	0	1	57	15	6	22				
		18	1	1	6	22	2	0	2	0	0	2	9				
		69	4	4	23	85	8	0	8	0	0	18	82				
		133	9	0	6	98	4	0	2	14	2	5	33	130	12	4	22
		90	6	0	4	94	4	0	2	26	4	9	61	77	7	2	13
Make habit control device		137	1	2	2	208	3	1	1	43	3	5	3				
		96	1	1	1	98	1	0	0	80	6	9	6				
		21	1	2	2	22	2	1	1	1	2	5	3				
		81	4	8	8	85	8	4	4	9	18	45	27				
		127	10	6	5	97	3	2	2	34	2	4	14	140	11	5	12
		86	7	4	3	93	3	2	2	63	4	7	26	83	7	3	7
Make trial baseplate/bite rim for partial denture		99	0	9	24	203	1	6	3	16	4	14	20				
		70	7	6	17	95	0	3	1	30	7	26	37				
		3	3	5	15	18	0	5	3	0	0	0	11				
		12	12	19	58	69	0	19	12	0	0	0	100				
		87	9	14	38	89	3	6	6	10	0	1	43	111	8	14	35
		59	6	9	26	86	3	6	6	19	0	2	80	66	5	8	21

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Make periodontal appliance	[1]FRE	133	5	4	0	206	2	4	1	49	3	1	1				
	PCT	94	4	3	0	97	1	2	0	91	6	2	2				
	[2]FRE	19	3	4	0	21	2	2	1	6	3	1	1				
	PCT	73	12	15	0	81	8	8	4	55	27	9	9				
	[3]FRE	128	11	4	5	97	2	3	2	32	5	6	11	140	12	4	12
	PCT	86	7	3	3	93	2	3	2	59	9	11	20	83	7	2	7
Fabricate periodontic appliance		135	4	3	0	209	2	1	1	44	4	2	4				
		95	3	2	0	98	1	0	0	81	7	4	7				
		20	3	3	0	22	2	1	1	4	2	1	4				
		77	12	12	0	85	8	4	4	36	18	9	36				
		138	7	1	2	100	1	3	0	28	3	6	17	137	8	11	12
		93	5	1	1	96	1	3	0	52	6	11	31	82	5	7	7
Invest/burn out/cast framework for partial denture		135	3	1	3	204	7	0	2	14	8	12	20				
		95	2	1	2	96	3	0	1	26	15	22	37				
		20	2	1	3	17	7	0	2	0	0	1	10				
		77	8	4	12	65	27	0	8	0	0	9	91				
		133	4	5	6	93	6	4	1	8	0	1	45	132	3	9	24
		90	3	3	4	89	6	4	1	15	0	2	83	79	2	5	14
Make coping		136	2	2	2	209	1	1	2	25	4	6	19				
		96	1	1	1	98	0	0	1	46	7	11	35				
		21	2	1	2	22	1	1	2	0	0	2	9				
		81	8	4	8	85	4	4	8	0	0	18	82				
		132	6	0	10	98	3	1	2	14	1	3	36	140	9	6	13
		89	4	0	7	94	3	1	2	26	2	6	67	83	5	4	8
Duplicate master cast		98	7	11	26	191	2	9	11	7	7	12	28				
		69	5	8	18	90	1	4	5	13	13	22	52				
		4	1	1	20	12	0	6	8	0	0	1	10				
		15	4	4	77	46	0	23	31	0	0	9	91				
		88	4	11	45	87	2	5	10	7	0	1	46	106	4	16	42
		59	3	7	30	84	2	5	10	13	0	2	85	63	2	10	25
Prepare necessary ingredients for dental casting		102	5	11	24	186	5	9	13	10	8	9	27				
		72	4	8	17	87	2	4	6	19	15	17	50				
		0	1	4	21	13	1	4	8	0	0	0	11				
		0	4	15	81	50	4	15	31	0	0	0	100				
		90	9	10	39	72	7	9	16	9	0	0	45	114	7	13	34
		61	6	7	26	69	7	9	15	17	0	0	83	68	4	8	20

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Sandblast gold appliance	[1]FRE	132	3	3	4	204	2	2	5	19	5	4	26				
	PCT	93	2	2	3	96	1	1	2	35	9	7	48				
	[2]FRE	19	1	2	4	20	2	1	3	1	0	0	10				
	PCT	73	4	8	15	77	8	4	12	9	0	0	91				
	[3]FRE	127	4	7	10	90	1	3	10	7	0	0	47	129	4	10	25
	PCT	86	3	5	7	87	1	3	10	13	0	0	87	77	2	6	15
Transfer design from master cast to refractory cast		137	0	1	4	212	0	0	1	13	10	11	20				
		96	0	1	3	100	0	0	0	24	19	20	37				
		21	0	1	4	25	0	0	1	0	0	1	10				
		81	0	4	15	96	0	0	4	0	0	9	91				
		139	2	2	5	100	3	0	1	9	0	3	42	136	3	9	20
		94	1	1	3	96	3	0	1	17	0	6	78	81	2	5	12
Sandblast partial denture framework casting		136	2	2	2	207	3	1	2	13	4	8	29				
		96	1	1	1	97	1	0	1	24	7	15	54				
		20	2	2	2	21	3	0	2	0	0	0	11				
		77	8	8	8	81	12	0	8	0	0	0	100				
		136	3	4	5	96	2	2	4	9	0	1	44	132	4	9	23
		92	2	3	3	92	2	2	4	17	0	2	81	79	2	5	14
Reset teeth for complete/partial denture		137	3	0	2	209	1	1	2	14	10	12	18				
		96	2	0	1	98	0	0	1	26	19	22	33				
		21	3	0	2	22	1	1	2	0	0	2	9				
		81	12	0	8	85	4	4	8	0	0	18	82				
		134	8	3	3	96	4	2	2	11	0	2	41	136	4	5	23
		91	5	2	2	92	4	2	2	20	0	4	76	81	2	3	14
Wax-up/shape/contour removable appliance for try-in/final processing		137	1	3	1	210	2	0	1	10	10	13	21				
		96	1	2	1	99	1	0	0	19	19	24	39				
		21	1	3	1	23	2	0	1	0	0	1	10				
		81	4	12	4	88	8	0	4	0	0	9	91				
		133	7	6	2	98	3	2	1	10	0	1	43	133	5	7	23
		90	5	4	1	94	3	2	1	19	0	2	80	79	3	4	14
Process acrylic facing on bridge		134	4	0	4	210	2	0	1	17	13	3	21				
		94	3	0	3	99	1	0	0	31	24	6	39				
		18	4	0	4	23	2	0	1	0	0	1	10				
		69	15	0	15	88	8	0	4	0	0	9	91				
		130	10	3	5	99	2	1	2	8	0	1	45	132	6	8	22
		88	7	2	3	95	2	1	2	15	0	2	83	79	4	5	13

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Inveat wax pattern of partial denture	[1]FRE	130	4	2	6	201	7	4	1	14	4	9	27				
	PCT	92	3	1	4	94	3	2	0	26	7	17	50				
	[2]FRE	16	2	2	6	15	6	4	1	0	0	0	11				
	PCT	62	8	8	23	58	23	15	4	0	0	0	100				
	[3]FRE	130	6	5	7	97	1	4	2	11	0	0	43	128	4	13	23
	PCT	88	4	3	5	93	1	4	2	20	0	0	80	76	2	8	14
Make orthodontic space maintainer/retainer		127	5	7	3	207	2	4	0	35	7	4	8				
		89	4	5	2	97	1	2	0	65	13	7	15				
		17	3	3	3	21	1	4	0	2	2	1	6				
		65	12	12	12	81	4	15	0	18	18	9	55				
		116	14	4	14	98	4	1	1	16	3	8	27	131	4	11	22
		78	9	3	9	94	4	1	1	30	6	15	50	78	2	7	13
Cast crown/bridge/inlay in gold		108	6	7	21	188	8	9	8	15	9	7	23				
		76	4	5	15	88	4	4	4	28	17	13	43				
		7	1	2	16	14	4	4	4	0	0	0	11				
		27	4	8	62	54	15	15	15	0	0	0	100				
		105	7	8	28	80	5	5	14	8	0	1	45	118	7	9	34
		71	5	5	19	77	5	5	13	15	0	2	83	70	4	5	20
Solder chrome cobalt casting		138	1	2	1	211	1	0	1	28	5	5	16				
		97	1	1	1	99	0	0	0	52	9	9	30				
		22	1	2	1	24	1	0	1	0	0	1	10				
		85	4	8	4	92	4	0	4	0	0	9	91				
		145	2	0	1	102	0	1	1	11	1	4	38	146	4	5	13
		98	1	0	1	98	0	1	1	20	2	7	70	87	2	3	8
Remount complete denture for occlusal adjustment		133	2	2	5	211	1	0	1	16	5	10	23				
		94	1	1	4	99	0	0	0	30	9	19	43				
		19	1	1	5	24	1	0	1	0	0	0	11				
		73	4	4	19	92	4	0	4	0	0	0	100				
		136	5	2	5	99	2	1	2	9	0	0	45	130	6	15	17
		92	3	1	3	95	2	1	2	17	0	0	83	77	4	9	10
Put post dam on master cast		130	3	5	4	208	0	0	5	18	11	5	20				
		92	2	4	3	98	0	0	2	33	20	9	37				
		19	1	3	3	24	0	0	2	0	0	1	10				
		73	4	12	12	92	0	0	8	0	0	9	91				
		130	6	7	5	97	1	2	4	13	0	4	37	139	9	5	15
		88	4	5	3	93	1	2	4	24	0	7	69	83	5	3	9

TABLE E-11 (continued)

CATEGORY 11
PATIENT CARE: DENTAL LABORATORY WORK

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Bead and box final impression	[1]FRE	98	4	7	33	187	2	10	14	9	3	10	32				
	PCT	69	3	5	23	88	1	5	7	17	6	19	59				
	[2]FRE	3	1	2	20	12	1	4	9	0	0	0	11				
	PCT	12	4	8	77	46	4	15	35	0	0	0	100				
	[3]FRE	86	4	15	43	79	2	12	11	9	0	0	45	99	8	19	42
	PCT	58	3	10	29	76	2	12	11	17	0	0	83	59	5	11	25
Carve and restore anatomical landmarks on dental restoration		99	16	17	10	143	16	20	34	23	7	5	19				
		70	11	12	7	67	8	9	16	43	13	9	35				
		6	6	7	7	3	1	7	15	0	0	1	10				
		23	23	27	27	12	4	27	58	0	0	9	91				
		98	20	14	16	46	12	14	32	18	1	3	32	106	10	24	28
		66	14	9	11	44	12	13	31	33	2	6	59	63	6	14	17
Make coping transfer		134	4	1	3	210	1	0	2	40	3	4	7				
		94	3	1	2	99	0	0	1	74	6	7	13				
		20	2	1	3	23	1	0	2	2	1	3	5				
		77	8	4	12	88	4	0	8	18	9	27	45				
		133	3	3	9	98	2	1	3	28	1	4	21	141	10	5	12
		90	2	2	6	94	2	1	3	52	2	7	39	84	6	3	7
Make arch wire		129	5	6	2	209	0	2	2	43	3	2	6				
		91	4	4	1	98	0	1	1	80	6	4	11				
		16	3	5	2	22	0	2	2	4	2	0	5				
		62	12	19	8	85	0	8	8	36	18	0	45				
		120	8	5	15	99	2	0	3	28	3	7	16	137	6	12	13
		81	5	3	10	95	2	0	3	52	6	13	30	82	4	7	8
Make temporary removable bite raiser		134	4	2	2	211	1	1	0	32	8	5	9				
		94	3	1	1	99	0	0	0	59	15	9	17				
		19	3	2	2	24	1	1	0	0	2	2	7				
		73	12	8	8	92	4	4	0	0	18	18	64				
		118	16	5	9	99	1	2	2	9	2	5	38	130	12	8	18
		80	11	3	6	95	1	2	2	17	4	9	70	77	7	5	11
Set up artificial teeth on removable partial denture framework		134	5	1	2	208	2	1	2	12	8	13	21				
		94	4	1	1	98	1	0	1	22	15	24	39				
		20	3	1	2	22	1	1	2	0	0	1	10				
		77	12	4	8	85	4	4	8	0	0	9	91				
		133	8	4	3	98	4	1	1	8	0	0	46	131	5	9	23
		90	5	3	2	94	4	1	1	15	0	0	85	78	3	5	14

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Design post dam	^{1}FRE	133	4	2	3	205	1	2	5	23	7	9	15				
	PCT	94	3	1	2	96	0	1	2	43	13	17	28				
	^{2}FRE	18	4	1	3	20	1	1	4	0	1	0	10				
	PCT	69	15	4	12	77	4	4	15	0	9	0	91				
	^{3}FRE	137	6	2	3	96	2	0	6	13	2	6	33	139	8	5	16
	PCT	93	4	1	2	92	2	0	6	24	4	11	61	83	5	3	10
Make baseplate and occlusal rim for complete denture		95	12	11	24	200	6	2	5	8	3	14	29				
		67	8	8	17	94	3	1	2	15	6	26	54				
		2	4	4	16	16	4	1	5	0	0	0	11				
		8	15	15	62	62	15	4	19	0	0	0	100				
		96	7	17	28	69	5	2	8	8	0	1	45	105	7	17	39
		65	5	11	19	86	5	2	8	15	0	2	83	63	4	10	23
Make soldering index		136	4	1	1	208	3	1	1	15	9	7	23				
		96	3	1	1	98	1	0	0	28	17	13	43				
		20	4	1	1	21	3	1	1	0	0	0	11				
		77	15	4	4	81	12	4	4	0	0	0	100				
		142	2	0	4	102	1	0	1	8	0	1	45	144	5	4	15
		96	1	0	3	98	1	0	1	15	0	2	83	86	3	2	9
Disassemble bridge		134	4	2	2	208	4	0	1	32	3	5	14				
		94	3	1	1	98	2	0	0	59	6	9	26				
		19	3	2	2	21	4	0	1	0	0	3	8				
		73	12	8	8	81	15	0	4	0	0	27	73				
		130	12	3	3	100	3	0	1	19	0	5	30	142	8	3	15
		88	8	2	2	96	3	0	1	35	0	9	56	85	5	2	9
Characterize denture base material		131	1	3	7	204	3	1	5	19	8	12	15				
		92	1	2	5	96	1	0	2	35	15	22	28				
		17	0	3	6	19	2	1	4	0	0	3	8				
		65	0	12	23	73	8	4	15	0	0	27	73				
		129	8	5	6	93	5	1	5	9	0	3	42	141	6	4	17
		87	5	3	4	89	5	1	5	17	0	6	78	84	4	2	10
Prepare orthodontic retainer		131	3	5	3	207	3	2	1	38	6	4	6				
		92	2	4	2	97	1	1	0	70	11	7	11				
		18	2	3	3	20	3	2	1	2	2	3	4				
		69	8	12	12	77	12	8	4	18	18	27	36				
		121	8	4	15	101	1	2	0	22	1	13	18	138	8	9	13
		82	5	3	10	97	1	2	0	41	2	24	33	82	5	5	8

TABLE B-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Remove teeth from metal framework	[1]FRE	133	3	4	2	208	0	3	2	20	9	7	18				
	PCT	94	2	3	1	98	0	1	1	37	17	13	33				
	[2]FRE	19	2	3	2	21	0	3	2	0	1	0	10				
	PCT	73	8	12	8	81	0	12	8	0	9	0	91				
	[3]FRE	129	8	3	8	99	2	1	2	11	0	1	42	127	4	15	22
	PCT	87	5	2	5	95	2	1	2	20	0	2	78	76	2	9	13
Make temporary bridge/splint		111	14	10	7	210	1	1	1	27	9	5	13				
		78	10	7	5	99	0	0	0	50	17	9	24				
		9	6	5	6	23	1	1	1	0	1	2	8				
		35	23	19	23	88	4	4	4	0	9	18	73				
		102	23	11	12	95	5	2	2	15	0	4	35	123	13	12	20
		69	16	7	8	91	5	2	2	28	0	7	65	73	8	7	12
Duplicate complete denture		136	1	1	4	212	0	0	1	25	6	7	16				
		96	1	1	3	100	0	0	0	46	11	13	30				
		20	1	1	4	25	0	0	1	0	0	3	8				
		77	4	4	15	96	0	0	4	0	0	27	73				
		128	12	4	4	100	1	0	3	11	1	3	39	137	4	7	20
		86	8	3	3	96	1	0	3	20	2	6	72	82	2	4	12
Add teeth to complete/partial denture		134	3	0	5	212	0	0	1	18	10	8	18				
		94	2	0	4	100	0	0	0	33	19	15	33				
		19	2	0	5	25	0	0	1	0	0	2	9				
		73	8	0	19	96	0	0	4	0	0	18	82				
		126	15	3	4	99	4	0	1	9	0	2	43	132	6	9	21
		85	10	2	3	95	4	0	1	17	0	4	80	79	4	5	13
Construct copper plated die and trim		133	5	0	4	210	1	1	1	39	8	5	2				
		94	4	0	3	99	0	0	0	72	15	9	4				
		18	4	0	4	23	1	1	1	4	2	3	2				
		69	15	0	15	88	4	4	4	36	18	27	18				
		137	5	0	6	101	1	0	2	22	2	4	26	145	5	5	13
		93	3	0	4	97	1	0	2	41	4	7	48	86	3	3	8
Construct cleft palate splint/removable expansion appliance		140	1	1	0	211	0	1	1	42	7	3	2				
		99	1	1	0	99	0	0	0	78	13	6	4				
		24	1	1	0	24	0	1	1	4	3	3	1				
		92	4	4	0	92	0	4	4	36	27	27	9				
		138	7	1	2	102	2	0	0	20	3	8	23	150	5	11	2
		93	5	1	1	98	2	0	0	37	6	15	43	89	3	7	1

TABLE E-11 (continued)

CATEGORY 11 PATIENT CARE: DENTAL LABORATORY WORK		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Make tooth guidance appliance	[1]FRE	139	0	2	1	209	1	2	1	42	4	4	4				
	PCT	98	0	1	1	98	0	1	0	78	7	7	7				
	[2]FRE	23	0	2	1	22	1	2	1	3	2	3	3				
	PCT	88	0	8	4	85	4	8	4	27	18	27	27				
	[3]FRE	131	9	4	4	98	4	0	2	24	3	8	19	149	5	4	10
	PCT	89	6	3	3	94	4	0	2	44	6	15	35	89	3	2	6
Replace broken clasp with new clasp		138	1	2	1	211	0	2	0	24	10	8	12				
		97	1	1	1	99	0	1	0	44	19	15	22				
		22	1	2	1	24	0	2	0	0	1	3	7				
		85	4	8	4	92	0	8	0	0	9	27	64				
		126	14	3	5	98	4	0	2	10	0	4	40	141	4	4	19
		85	9	2	3	94	4	0	2	19	0	7	74	84	2	2	11
Prepare matrix for repairs		121	0	7	14	196	6	3	8	27	4	6	17				
		85	0	5	10	92	3	1	4	50	7	11	31				
		11	0	3	12	16	2	2	6	1	1	0	9				
		42	0	12	46	62	8	8	23	9	9	0	82				
		104	9	8	27	92	2	3	7	20	1	3	30	120	7	15	26
		70	6	5	18	88	2	3	7	37	2	6	56	71	4	9	15
Grind in tube teeth/facing		141	0	0	1	212	0	0	1	22	14	1	17				
		99	0	0	1	100	0	0	0	41	26	2	31				
		25	0	0	1	25	0	0	1	1	0	1	9				
		96	0	0	4	96	0	0	4	9	0	9	82				
		136	9	1	2	103	0	0	1	11	0	2	41	138	8	5	17
		92	6	1	1	99	0	0	1	20	0	4	76	82	5	3	10
Inveat bridge for solderirg		136	2	2	2	207	5	0	1	17	7	9	21				
		96	1	1	1	97	2	0	0	31	13	17	39				
		20	2	2	2	20	5	0	1	0	0	1	10				
		77	8	8	8	77	19	0	4	0	0	9	91				
		137	4	3	4	96	1	3	4	8	0	1	45	139	2	4	23
		93	3	2	3	92	1	3	4	15	0	2	83	83	1	2	14
Repair complete/partiel danture, e.g. replace one or more teeth		128	5	0	9	211	1	0	1	12	6	9	27				
		90	4	0	6	99	0	0	0	22	11	17	50				
		14	4	0	8	24	1	0	1	0	0	1	10				
		54	15	0	31	92	4	0	4	0	0	9	91				
		113	17	7	11	91	6	2	5	9	0	2	43	120	11	15	22
		76	11	5	7	88	6	2	5	17	0	4	80	71	7	9	13

TABLE E-12

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Finish and polish gold foil restoration	[1]FRE	124	15	1	2	197	2	4	10	50	1	1	2				
	PCT	87	11	1	1	92	1	2	5	93	2	2	4				
	[2]FRE	11	12	1	2	16	1	1	18	7	1	1	2				
	PCT	42	46	4	8	62	4	4	31	64	9	9	18				
	[3]FRE	119	22	3	4	85	2	6	11	44	2	4	4	145	5	5	13
	PCT	80	15	2	3	82	2	6	11	81	4	7	7	86	3	3	8
Try-in full denture with teeth set in wax		125	12	4	1	209	2	2	0	49	4	0	1				
		88	8	3	1	98	1	1	0	91	7	0	2				
		11	10	4	1	22	2	2	0	7	3	0	1				
		42	38	15	4	85	8	8	0	64	27	0	9				
		105	28	10	5	93	8	2	1	34	6	6	8	143	8	5	12
		71	19	7	3	89	8	2	1	63	11	11	15	85	5	3	7
Insert tooth guidance appliance		134	4	4	0	206	3	3	1	53	1	0	0				
		94	3	3	0	97	1	1	0	98	2	0	0				
		18	4	4	0	19	3	3	1	10	1	0	0				
		69	15	15	0	73	12	12	4	91	9	0	0				
		114	20	8	6	98	3	2	1	47	4	3	0	143	11	4	10
		77	14	5	4	94	3	2	1	87	7	6	0	85	7	2	6
Try-in cast restoration		123	13	3	3	204	5	1	3	52	1	1	0				
		87	9	2	2	96	2	0	1	96	2	2	0				
		11	10	2	3	18	4	1	3	9	1	1	0				
		42	38	8	12	69	15	4	12	82	9	9	0				
		102	24	12	10	92	4	5	3	39	7	5	3	139	13	2	14
		69	16	8	7	88	4	5	3	72	13	9	6	83	8	1	8
Curette/irrigate/pack dry socket		118	14	7	3	197	5	6	5	54	0	0	0				
		83	10	5	2	92	2	3	2	100	0	0	0				
		9	9	5	3	14	4	4	4	11	0	0	0				
		35	35	19	12	54	15	15	15	100	0	0	0				
		91	34	12	11	76	8	13	7	45	4	2	3	112	20	15	21
		61	23	8	7	73	8	13	7	83	7	4	6	67	12	9	13

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform retrofilling	[1]FRE	137	4	1	0	210	1	1	1	54	0	0	0				
	PCT	96	3	1	0	99	0	0	0	100	0	0	0				
	[2]FRE	22	3	1	0	23	1	1	1	11	0	0	0				
	PCT	85	12	4	0	88	4	4	4	100	0	0	0				
	[3]FRE	133	13	2	0	101	0	1	2	53	0	1	0	155	5	1	7
	PCT	90	9	1	0	97	0	1	2	98	0	2	0	92	3	1	4
Fill root canal		133	9	0	0	209	4	0	0	54	0	0	0				
		94	6	0	0	98	2	0	0	100	0	0	0				
		18	8	0	0	22	4	0	0	11	0	0	0				
		69	31	0	0	85	15	0	0	100	0	0	0				
		102	39	6	1	92	8	3	1	51	2	1	0	145	9	1	13
		69	26	4	1	88	8	3	1	94	4	2	0	86	5	1	8
Condense amalgam restoration		95	20	9	18	148	12	10	43	54	0	0	0				
		67	14	6	13	69	6	5	20	100	0	0	0				
		4	5	4	13	7	1	3	15	11	0	0	0				
		15	19	15	50	27	4	12	58	100	0	0	0				
		73	39	19	17	46	17	12	29	46	4	2	2	107	19	16	26
		49	26	13	11	44	16	12	28	85	7	4	4	64	11	10	15
Fit preformed orthodontic band, direct		133	4	4	1	208	2	3	0	53	1	0	0				
		94	3	3	1	98	1	1	0	98	2	0	0				
		18	3	4	1	22	1	3	0	10	1	0	0				
		69	12	15	4	85	4	12	0	91	9	0	0				
		124	9	6	9	102	0	1	1	49	4	1	0	151	5	4	8
		84	6	4	6	98	0	1	1	91	7	2	0	90	3	2	5
Finish silicate/acrylic/plastic restoration		103	15	11	13	154	12	12	35	43	0	1	10				
		73	11	8	9	72	6	6	16	80	0	2	19				
		8	6	3	9	4	5	3	14	4	0	1	16				
		31	23	12	35	15	19	12	54	36	0	9	55				
		92	32	12	12	64	10	12	18	42	3	1	9	115	13	13	27
		62	22	8	8	62	10	12	17	78	6	2	15	68	8	8	16
Change pulp dressing after therapy		124	14	2	2	203	4	1	5	54	0	0	0				
		87	10	1	1	95	2	0	2	100	0	0	0				
		15	9	0	2	18	3	0	5	11	0	0	0				
		58	35	0	8	69	12	0	19	100	0	0	0				
		106	30	6	6	92	4	1	7	50	2	2	0	138	12	5	13
		72	20	4	4	88	4	1	7	93	4	4	0	82	7	3	8

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Insert temporary sedative filling in carious tooth	[1]FRE	97	23	12	10	161	12	14	26	54	0	0	0				
	PCT	68	16	8	7	76	6	7	12	100	0	0	0				
	[2]FRE	4	11	2	9	7	4	5	10	11	0	0	0				
	PCT	15	42	8	35	27	15	19	38	100	0	0	0				
	[3]FRE	75	37	21	15	53	9	9	33	41	4	2	7	105	19	15	29
	PCT	51	25	14	10	51	9	9	32	76	7	4	13	63	11	9	17
Insert relined denture		128	9	2	3	203	1	4	5	54	0	0	0				
		90	6	1	2	95	0	2	2	100	0	0	0				
		13	8	2	3	18	1	2	5	11	0	0	0				
		50	31	8	12	69	4	8	19	100	0	0	0				
		97	27	11	13	86	5	6	7	36	4	7	7	137	7	7	17
		66	18	7	9	83	5	6	7	67	7	13	13	82	4	4	10
† Grind crown		75	11	4	3	152	4	3	4	21	8	4	13				
		81	12	4	3	93	2	2	2	46	17	9	28				
		104	23	10	11	94	1	2	7	14	1	2	37	142	6	6	14
		70	16	7	7	90	1	2	7	26	2	4	69	85	4	4	8
† Polish crown		63	13	9	8	123	2	3	35	17	5	7	17				
		68	14	10	9	75	1	2	21	37	11	15	37				
		81	22	18	27	48	2	8	46	12	0	1	41	116	10	10	32
		55	15	12	18	46	2	8	44	22	0	2	76	69	6	6	19
† Remove temporary crown/jacket/bridge		72	8	7	6	147	5	7	4	43	1	2	0				
		77	9	8	6	90	3	4	2	94	2	4	0				
		68	21	22	37	74	8	8	14	41	3	4	6	111	17	16	24
		46	14	15	25	71	8	8	13	76	6	7	11	66	10	10	14
Place gold foil		119	13	5	5	202	6	3	2	54	0	0	0				
		84	9	4	4	95	3	1	1	100	0	0	0				
		11	6	5	4	18	5	2	1	11	0	0	0				
		42	23	19	15	69	19	8	4	100	0	0	0				
		100	22	9	17	93	5	3	3	44	6	2	2	142	7	6	13
		68	15	6	11	89	5	3	3	81	11	4	4	85	4	4	8

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Apply temporary splint to fractured teeth	[1]FRE	134	7	1	0	207	4	2	0	53	1	0	0				
	PCT	94	5	1	0	97	2	1	0	98	2	0	0				
	[2]FRE	18	7	1	0	21	3	2	0	10	1	0	0				
	PCT	69	27	4	0	81	12	8	0	91	9	0	0				
	[3]FRE	118	24	2	4	96	4	3	1	46	5	2	1	138	16	6	8
	PCT	80	16	1	3	92	4	3	1	85	9	4	2	82	10	4	5
Insert silicate/acrylic/plastic restoration		99	18	11	14	162	13	8	30	54	0	0	0				
		70	13	8	10	76	6	4	14	100	0	0	0				
		7	6	4	9	9	3	2	12	11	0	0	0				
		27	23	15	35	35	12	8	46	100	0	0	0				
		83	43	10	12	68	11	8	17	46	4	2	2	110	19	17	22
		56	29	7	8	65	11	8	16	85	7	4	4	65	11	10	13
Try-in complete immediate denture set in wax		129	11	0	2	209	0	0	4	52	1	1	0				
		91	8	0	1	98	0	0	2	96	2	2	0				
		15	9	0	2	22	0	0	4	9	1	1	0				
		58	35	0	8	85	0	0	15	82	9	9	0				
		109	27	7	5	92	6	2	4	39	6	4	5	146	10	1	11
		74	18	5	3	88	6	2	4	72	11	7	9	87	6	1	7
Place arch wire		134	5	2	1	210	1	2	0	52	1	1	0				
		94	4	1	1	99	0	1	0	96	2	2	0				
		18	5	2	1	23	1	2	0	9	1	1	0				
		69	19	8	4	88	4	8	0	82	9	9	0				
		114	17	6	11	100	2	1	1	45	8	0	1	145	7	9	7
		77	11	4	7	96	2	1	1	83	15	0	2	86	4	5	4
Try-in partial denture with teeth set in wax		129	10	1	2	211	0	1	1	50	3	0	1				
		91	7	1	1	99	0	0	0	93	6	0	2				
		14	9	1	2	24	0	1	1	7	3	0	1				
		54	35	4	8	92	0	4	4	64	27	0	9				
		114	18	11	5	94	7	2	1	36	7	3	8	145	11	1	11
		77	12	7	3	90	7	2	1	67	13	6	15	86	7	1	7
Insert fixed space maintainer		127	11	3	1	206	3	3	1	53	1	0	0				
		89	8	2	1	97	1	1	0	98	2	0	0				
		12	10	3	1	20	2	3	1	10	1	0	0				
		46	38	12	4	77	8	12	4	91	9	0	0				
		103	27	15	3	95	3	3	3	45	6	1	2	139	13	4	12
		70	18	10	2	91	3	3	3	83	11	2	4	83	8	2	7

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Install fixed orthodontic appliance	[1]FRE	133	6	3	0	211	1	1	0	53	1	0	0				
	PCT	94	4	2	0	99	0	0	0	98	2	0	0				
	[2]FRE	17	6	3	0	24	1	1	0	10	1	0	0				
	PCT	65	23	12	0	92	4	4	0	91	9	0	0				
	[3]FRE	119	17	7	5	101	0	2	1	49	4	1	0	155	3	4	6
	PCT	80	11	5	3	97	0	2	1	91	7	2	0	92	2	2	4
Install removable orthodontic appliance		132	5	5	0	208	1	3	1	53	1	0	0				
		93	4	4	0	98	0	1	0	98	2	0	0				
		16	5	5	0	21	1	3	1	10	1	0	0				
		62	19	19	0	81	4	12	4	91	9	0	0				
		111	16	7	14	95	2	4	3	49	3	2	0	141	10	9	8
		75	11	5	9	91	2	4	3	91	6	4	0	84	6	5	5
Remove temporary/sedative filling		104	22	7	9	168	10	14	21	53	1	0	0				
		73	15	5	6	79	5	7	10	98	2	0	0				
		7	7	5	7	7	1	6	12	10	1	0	0				
		27	27	19	27	27	4	23	46	91	9	0	0				
		81	24	16	27	59	5	7	33	43	2	6	3	103	22	20	23
		55	16	11	18	57	5	7	32	80	4	11	6	61	13	12	14
Make temporary acrylic resin jacket crown		106	12	14	10	207	2	3	1	27	5	8	14				
		75	8	10	7	97	1	1	0	50	9	15	26				
		8	3	5	10	21	1	3	1	0	0	3	8				
		31	12	19	38	81	4	12	4	0	0	27	73				
		86	25	15	19	92	6	2	4	11	0	2	41	115	14	15	24
		60	17	10	13	88	6	2	4	20	0	4	76	68	8	9	14
Insert removable space maintainer		125	10	5	2	201	1	3	8	52	2	0	0				
		88	7	4	1	94	0	1	4	96	4	0	0				
		12	7	5	2	15	1	3	7	9	2	0	0				
		46	27	19	8	58	4	12	27	82	18	0	0				
		100	25	9	14	83	6	6	9	46	5	3	0	131	17	7	13
		68	17	6	9	80	6	6	9	85	9	6	0	78	10	4	8
Polish and finish amalgam restoration		93	15	18	16	114	6	14	79	54	0	0	0				
		65	11	13	11	54	3	7	37	100	0	0	0				
		3	5	7	11	2	0	2	22	11	0	0	0				
		12	19	27	42	8	0	8	85	100	0	0	0				
		83	26	15	24	24	5	11	64	44	4	4	2	107	9	14	38
		56	18	10	16	23	5	11	62	81	7	7	4	64	5	8	23

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Fit fixed orthodontic appliance	[1]FRE	136	5	1	0	211	0	2	0	53	1	0	0				
	PCT	96	4	1	0	99	0	1	0	98	2	0	0				
	[2]FRE	20	5	1	0	24	0	2	0	10	1	0	0				
	PCT	77	19	4	0	92	0	8	0	91	9	0	0				
	[3]FRE	124	11	9	4	101	2	1	0	47	5	2	0	156	2	5	5
	PCT	84	7	6	3	97	2	1	0	87	9	4	0	93	1	3	3
Insert temporary cement		97	9	16	20	149	8	13	43	54	0	0	0				
		68	6	11	14	70	4	6	20	100	0	0	0				
		5	3	4	14	6	1	4	15	11	0	0	0				
		19	12	15	54	23	4	15	58	100	0	0	0				
		61	16	21	50	46	5	7	46	40	5	2	7	89	14	21	44
		41	11	14	34	44	5	7	44	74	9	4	13	53	8	13	26
Carve amalgam restoration		96	20	13	13	143	14	18	38	54	0	0	0				
		68	14	9	9	67	7	8	18	100	0	0	0				
		6	6	4	10	3	3	4	16	11	0	0	0				
		23	23	15	38	12	12	15	62	100	0	0	0				
		90	25	21	12	53	11	13	27	48	3	1	2	116	9	17	26
		61	17	14	8	51	11	13	26	89	6	2	4	69	5	10	15
Place amalgam in cavity preparation		87	19	15	21	143	17	17	36	53	0	0	1				
		61	13	11	15	67	8	8	17	98	0	0	2				
		5	3	4	14	4	4	3	15	10	0	0	1				
		19	12	15	54	15	15	12	58	91	0	0	9				
		69	23	18	38	46	15	13	30	44	2	6	2	92	19	24	33
		47	16	12	26	44	14	13	29	81	4	11	4	55	11	14	20
Try-in fixed bridge/splint		119	16	5	2	207	3	3	0	52	0	2	0				
		84	11	4	1	97	1	1	0	96	0	4	0				
		8	12	4	2	20	3	3	0	9	0	2	0				
		31	46	15	8	77	12	12	0	82	0	18	0				
		97	28	13	10	92	4	7	1	40	6	6	2	138	12	6	12
		66	19	9	7	88	4	7	1	74	11	11	4	82	7	4	7
Insert temporary crown, e.g., plastic, aluminum		99	17	17	9	177	6	18	12	53	0	1	0				
		70	12	12	6	83	3	8	6	98	0	2	0				
		5	9	5	7	11	1	6	8	10	0	1	0				
		19	35	19	27	42	4	23	31	91	0	9	0				
		67	19	27	35	59	13	16	16	40	5	8	1	97	17	21	33
		45	13	18	24	57	13	15	15	74	9	15	2	58	10	13	20

TABLE E-12 (continued)

CATEGORY 12
PATIENT CARE: INSERTIONS AND RESTORATIONS

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Mallet gold foil	[1]FRE	111	7	12	12	192	8	6	7	52	1	0	1				
	PCT	78	5	8	8	90	4	3	3	96	2	0	2				
	[2]FRE	8	2	7	9	13	5	3	5	9	1	0	1				
	PCT	31	8	27	35	50	19	12	19	82	9	0	9				
	[3]FRE	103	11	6	28	75	13	7	9	44	3	4	3	126	5	11	26
	PCT	70	7	4	19	72	13	7	9	81	6	7	6	75	3	7	15
Condense gold foil		124	11	6	1	199	6	6	2	52	0	2	0				
		87	8	4	1	93	3	3	1	96	0	4	0				
		13	7	5	1	17	3	4	2	9	0	2	0				
		50	27	19	4	65	12	15	8	82	0	18	0				
		117	17	8	6	86	11	3	4	41	4	3	6	148	3	5	12
		79	11	5	4	83	11	3	4	76	7	6	11	88	2	3	7
Apply pit/fissure sealant		117	10	12	3	152	8	14	39	54	0	0	0				
		82	7	8	2	71	4	7	18	100	0	0	0				
		10	7	7	2	5	2	3	16	11	0	0	0				
		38	27	27	8	19	8	12	62	100	0	0	0				
		106	18	11	13	59	6	10	29	50	2	2	0	113	16	24	15
		72	12	7	9	57	6	10	28	93	4	4	0	67	10	14	9
Remove overhanging margin of filling		113	20	6	3	124	10	22	57	54	0	0	0				
		80	14	4	2	58	5	10	27	100	0	0	0				
		10	11	2	3	3	1	3	19	11	0	0	0				
		38	42	8	12	12	4	12	73	100	0	0	0				
		100	30	12	6	26	4	15	59	47	3	3	1	110	21	14	23
		68	20	8	4	25	4	14	57	87	6	6	2	65	13	8	14
Insert/cement cast restoration		111	21	7	3	194	9	6	4	52	2	0	0				
		78	15	5	2	91	4	3	2	96	4	0	0				
		8	9	6	3	13	4	6	3	9	2	0	0				
		31	35	23	12	50	15	23	12	82	18	0	0				
		89	33	13	13	84	5	6	9	43	7	3	1	133	21	2	12
		60	22	9	9	81	5	6	9	80	13	6	2	79	13	1	7
Place provisional splint, extracoronal		131	5	2	4	206	1	4	2	52	0	2	0				
		92	4	1	3	97	0	2	1	96	0	4	0				
		20	4	1	1	23	2	1	0	11	0	0	0				
		77	15	4	4	88	8	4	0	100	0	0	0				
		121	10	2	5	97	4	2	1	44	5	4	1	132	11	10	15
		89	7	1	3	93	4	2	1	81	9	7	2	79	7	6	9

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Fit removable orthodontic appliance	[1]FRE	129	9	4	0	205	6	2	0	48	4	1	1				
	PCT	91	6	3	0	96	3	1	0	89	7	2	2				
	[2]FRE	17	5	4	0	20	4	2	0	7	2	1	1				
	PCT	65	19	15	0	77	15	8	0	64	18	9	9				
	[3]FRE	111	20	10	7	92	7	2	3	40	6	6	2	134	14	8	12
	PCT	75	14	7	5	88	7	2	3	74	11	11	4	80	8	5	7
Insert habit control device		130	6	4	2	194	8	8	3	51	1	1	1				
		92	4	3	1	91	4	4	1	94	2	2	2				
		17	5	2	2	12	5	7	2	8	1	1	1				
		65	19	8	8	46	19	27	8	73	9	9	9				
		119	11	12	6	87	7	5	5	49	2	1	2	137	8	13	10
		80	7	8	4	84	7	5	5	91	4	2	4	82	5	8	6
Try-in partial framework		132	4	6	0	208	2	2	1	47	4	1	2				
		93	3	4	0	98	1	1	0	87	7	2	4				
		17	3	6	0	21	2	2	1	6	2	1	2				
		65	12	23	0	81	8	8	4	55	18	9	18				
		107	28	10	3	97	2	4	1	31	5	8	10	142	7	5	14
		72	19	7	2	93	2	4	1	57	9	15	19	85	4	3	8
Install head gear		132	4	4	2	208	3	1	1	54	0	0	0				
		93	3	3	1	98	1	0	0	100	0	0	0				
		17	4	3	2	21	3	1	1	11	0	0	0				
		65	15	12	8	81	12	4	4	100	0	0	0				
		127	2	9	10	101	0	0	3	51	3	0	0	148	4	10	6
		86	1	6	7	97	0	0	3	94	6	0	0	88	2	6	4
Insert temporary bridge		104	16	13	9	199	6	6	2	53	1	0	0				
		73	11	9	6	93	3	3	1	98	2	0	0				
		7	7	5	7	17	3	4	2	10	1	0	0				
		27	27	19	27	65	12	15	8	91	9	0	0				
		83	17	22	26	83	7	7	7	41	5	5	3	107	19	19	23
		56	11	15	18	80	7	7	7	76	9	9	6	64	11	11	14
Place provisional splint, intracoronal		136	4	1	1	209	3	1	0	54	0	0	0				
		96	3	1	1	98	1	0	0	100	0	0	0				
		20	4	1	1	23	2	1	0	11	0	0	0				
		77	15	4	4	88	8	4	0	100	0	0	0				
		142	4	1	1	99	4	0	1	49	3	2	0	154	5	7	2
		96	3	1	1	95	4	0	1	91	6	4	0	92	3	4	1

TABLE E-12 (continued)

CATEGORY 12 PATIENT CARE: INSERTIONS AND RESTORATIONS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Cement preformed orthodontic band	[1]FRE	126	7	3	6	199	3	8	3	53	1	0	0				
	PCT	89	5	2	4	93	1	4	1	98	2	0	0				
	[2]FRE	13	6	2	5	17	1	5	3	10	1	0	0				
	PCT	50	23	8	19	65	4	19	12	91	9	0	0				
	[3]FRE	110	11	8	19	90	5	2	7	50	3	1	0	133	8	10	17
	PCT	74	7	5	13	87	5	2	7	93	6	2	0	79	5	6	10
† Prepare silicate/acrylic/plastic restoration		56	4	12	21	115	11	5	32	40	1	2	3				
		60	4	13	23	71	7	3	20	87	2	4	7				
		77	14	10	47	57	7	4	36	38	3	4	9	109	7	9	43
		52	9	7	32	55	7	4	35	70	6	7	17	65	4	5	26

TABLE E-13

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 13 PATIENT CARE: ADJUSTMENTS AND REPAIRS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform head gear adjustment	[1]FRE	133	5	3	1	209	2	2	0	54	0	0	0				
	PCT	94	4	2	1	98	1	1	0	100	0	0	0				
	[2]FRE	18	4	3	1	22	2	2	0	11	0	0	0				
	PCT	69	15	12	4	85	8	8	0	100	0	0	0				
	[3]FRE	124	4	10	10	97	1	2	4	48	5	1	0	155	2	8	3
	PCT	84	3	7	7	93	1	2	4	89	9	2	0	92	1	5	2
Adjust fixed orthodontic appliance		133	5	4	0	205	3	4	1	49	3	1	1				
		94	4	3	0	96	1	2	0	91	6	2	2				
		18	4	4	0	19	2	4	1	7	2	1	1				
		69	15	15	0	73	8	15	4	64	18	9	9				
		123	8	7	10	96	5	3	0	43	2	6	3	151	5	6	6
		83	5	5	7	92	5	3	0	80	4	11	6	90	3	4	4
Adjust provisional dental splint		136	4	1	1	204	5	1	3	51	2	0	1				
		96	3	1	1	96	2	0	1	94	4	0	2				
		20	4	1	1	21	2	0	3	10	0	0	1				
		77	15	4	4	81	8	0	12	91	0	0	9				
		131	6	5	6	93	6	3	2	39	4	6	5	140	7	6	15
		89	4	3	4	89	6	3	2	72	7	11	9	83	4	4	9
Perform full banded adjustment, routine		137	4	1	0	211	1	1	0	53	1	0	0				
		96	3	1	0	99	0	0	0	98	2	0	0				
		24	4	1	0	24	1	1	0	10	1	0	0				
		81	15	4	0	92	4	4	0	91	9	0	0				
		129	8	4	7	101	2	1	0	51	2	1	0	154	3	9	2
		87	5	3	5	97	2	1	0	94	4	2	0	92	2	5	1
Adjust wrought gold clasp and bar		136	5	0	1	211	0	1	1	32	6	4	12				
		96	4	0	1	99	0	0	0	59	11	7	22				
		20	5	0	1	24	0	1	1	1	1	1	8				
		77	19	0	4	92	0	4	4	9	9	9	73				
		131	9	6	2	99	2	2	1	17	0	6	31	140	10	3	15
		89	6	4	1	95	2	2	1	31	0	11	57	83	6	2	9

TABLE E-13 (continued)

CATEGORY 13 PATIENT CARE: ADJUSTMENTS AND REPAIRS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform retention, routine	^{1}FRE	137	5	0	0	205	3	3	2	52	0	2	0				
	PCT	96	4	0	0	96	1	1	1	96	0	4	0				
	^{2}FRE	21	5	0	0	21	2	1	2	10	0	1	0				
	PCT	81	19	0	0	81	8	4	8	91	0	9	1				
	^{3}FRE	134	11	2	1	100	3	0	1	51	0	0	3	155	3	0	10
	PCT	91	7	1	1	96	3	0	1	94	0	0	6	92	2	0	6
Adjust fixed bridge/splint		132	10	0	0	210	3	0	0	50	1	2	1				
		93	7	0	0	99	1	0	0	93	2	4	2				
		16	10	0	0	23	3	0	0	7	1	2	1				
		62	38	0	0	88	12	0	0	64	9	18	9				
		121	15	7	5	94	9	0	1	36	6	5	7	140	10	7	11
		82	10	5	3	90	9	0	1	67	11	9	13	83	6	4	7
Smooth/polish restoration		89	17	16	20	106	4	13	90	36	3	3	12				
		63	12	11	14	50	2	6	42	67	6	6	22				
		3	6	4	13	0	0	1	25	2	0	2	7				
		12	23	15	50	0	0	4	96	18	0	18	64				
		72	25	17	34	17	4	8	75	33	0	6	15	85	18	17	48
		49	17	11	23	16	4	8	72	61	0	11	28	51	11	10	29
Perform full banded adjustment, e.g. arch change		136	4	2	0	208	2	2	1	53	1	0	0				
		96	3	1	0	98	1	1	0	98	2	0	0				
		21	3	2	0	22	1	2	1	10	1	0	0				
		81	12	8	0	85	4	8	4	91	9	0	0				
		128	9	4	7	101	2	0	1	49	3	1	1	155	2	6	5
		86	6	3	5	97	2	0	1	91	6	2	2	92	1	4	3
Perform occlusal equilibration		131	9	2	0	201	9	1	2	46	1	3	4				
		92	6	1	0	94	4	0	1	85	2	6	7				
		16	8	2	0	17	6	1	2	5	0	2	4				
		62	31	8	0	65	23	4	8	45	0	18	36				
		105	37	5	1	91	8	1	4	36	3	3	12	145	9	4	10
		71	25	3	1	88	8	1	4	67	6	6	22	86	5	2	6
Repair complete/partial denture (no teeth damaged)		125	3	4	10	204	5	2	2	9	5	13	27				
		88	2	3	7	96	2	1	1	17	9	24	50				
		14	2	3	7	19	4	1	2	0	0	1	10				
		54	8	12	27	73	15	4	8	0	0	9	91				
		112	11	10	15	89	8	2	5	10	0	1	43	119	8	17	24
		76	7	7	10	86	8	2	5	19	0	2	80	71	5	10	14

TABLE E-13 (continued)

CATEGORY 13 PATIENT CARE: ADJUSTMENTS AND REPAIRS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Perform retention supervision	^{1}FRE	139	2	1	0	204	0	5	4	54	0	0	0				
	PCT	98	1	1	0	96	0	2	2	100	0	0	0				
	^{2}FRE	23	2	1	0	18	0	4	4	11	0	0	0				
	PCT	88	8	4	0	69	0	15	15	100	0	0	0				
	^{3}FRE	130	6	10	2	100	0	2	2	49	3	2	0	149	4	5	10
	PCT	88	4	7	1	96	0	2	2	91	6	4	0	89	2	3	6
Adjust preformed orthodontic band		133	3	5	1	207	2	4	0	49	3	2	0				
		94	2	4	1	97	1	2	0	91	6	4	0				
		18	2	5	1	21	1	4	0	7	2	2	0				
		69	8	19	4	81	4	15	0	64	18	18	0				
		119	13	6	10	101	1	1	1	42	5	4	3	146	10	3	9
		80	9	4	7	97	1	1	1	78	9	7	6	87	6	2	5
Remove orthodontic appliance/band		129	7	4	2	207	2	1	3	52	1	1	0				
		91	5	3	1	97	1	0	1	96	2	2	0				
		16	5	3	2	21	1	1	3	9	1	1	0				
		62	19	12	8	81	4	4	12	82	9	9	0				
		110	12	9	17	93	5	2	4	47	4	2	1	130	14	10	14
		74	8	6	11	89	5	2	4	87	7	4	2	77	8	6	8
Clean/polish removable appliance		98	2	8	34	95	7	9	102	13	4	11	26				
		69	1	6	24	45	3	4	48	24	7	20	48				
		1	0	3	22	0	0	1	25	0	0	1	10				
		4	0	12	85	0	0	4	96	0	0	9	91				
		47	11	21	69	15	3	2	84	8	0	2	44	76	6	23	63
		32	7	14	47	14	3	2	81	15	0	4	81	45	4	14	38
Perform emergency orthodontic repair		133	3	4	2	205	4	2	2	46	6	1	1				
		94	2	3	1	96	2	1	1	85	11	2	2				
		18	3	3	2	18	4	2	2	4	5	1	1				
		69	12	12	8	69	15	8	8	36	45	9	9				
		112	15	5	16	96	1	2	5	38	3	5	8	136	10	13	9
		76	10	3	11	92	1	2	5	70	6	9	15	81	6	8	5
Adjust tooth guidance appliance		138	2	2	0	208	2	3	0	47	2	4	1				
		97	1	1	0	98	1	1	0	87	4	7	2				
		22	2	2	0	21	2	3	0	4	2	4	1				
		85	8	8	0	81	8	12	0	36	18	36	9				
		120	19	6	3	93	5	3	3	40	7	3	4	145	10	5	8
		81	13	4	2	89	5	3	3	74	13	6	7	86	6	3	5

TABLE E-13 (continued)

CATEGORY 13 PATIENT CARE: ADJUSTMENTS AND REPAIRS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Adjust partial framework	[1]FRE	139	1	1	1	211	0	1	1	30	4	9	11				
	PCT	98	1	1	1	99	0	0	0	56	7	17	20				
	[2]FRE	23	1	1	1	24	0	1	1	0	1	2	8				
	PCT	88	4	4	4	92	0	4	4	0	9	18	73				
	[3]FRE	121	17	5	5	97	4	2	1	16	2	9	27	144	9	3	12
	PCT	82	11	3	3	93	4	2	1	30	4	17	50	86	5	2	7
Insert/remove complete/partial denture		117	10	10	5	177	3	5	28	49	1	3	1				
		82	7	7	4	83	1	2	13	91	2	6	2				
		6	7	8	5	10	0	0	16	6	1	3	1				
		23	27	31	19	38	0	0	62	55	9	27	9				
		90	21	13	24	60	3	4	37	36	3	7	8	115	12	16	25
		61	14	9	16	58	3	4	36	67	6	13	15	68	7	10	15
Apply temporary sedative crown to fractured tooth		113	17	8	4	189	7	8	9	54	0	0	0				
		80	12	6	3	89	3	4	4	100	0	0	0				
		9	9	4	4	13	3	4	6	11	0	0	0				
		35	35	15	15	50	12	15	23	100	0	0	0				
		88	33	14	13	83	4	6	11	45	3	3	3	113	24	10	21
		59	22	9	9	80	4	6	11	83	6	6	6	67	14	6	13
Adjust space maintainer		134	6	1	1	205	4	3	1	46	2	2	4				
		94	4	1	1	96	2	1	0	85	4	4	7				
		18	6	1	1	20	3	2	1	5	2	1	3				
		69	23	4	4	77	12	8	4	45	18	9	27				
		118	17	7	6	93	5	3	3	40	5	4	5	136	14	8	10
		80	11	5	4	89	5	3	3	74	9	7	9	81	8	5	6
Fit temporary bridge/splint		120	13	6	3	205	3	1	4	54	0	0	0				
		85	9	4	2	96	1	0	2	100	0	0	0				
		12	8	4	2	18	3	1	4	11	0	0	0				
		46	31	15	8	69	12	4	15	100	0	0	0				
		91	28	14	15	94	5	2	3	41	8	4	1	120	17	19	12
		61	19	9	10	90	5	2	3	76	15	7	2	71	10	11	7
Perform selective grinding of denture		133	3	4	2	205	3	4	1	15	12	8	19				
		94	2	3	1	96	1	2	0	28	22	15	35				
		18	2	4	2	18	3	4	1	0	1	1	9				
		69	8	15	8	69	12	15	4	0	9	9	82				
		115	18	6	9	94	7	2	1	10	0	2	42	131	10	10	17
		78	12	4	6	90	7	2	1	19	0	4	78	78	6	6	10

TABLE E-13 (continued)

CATEGORY 13 PATIENT CARE: ADJUSTMENT AND REPAIRS		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Remove habit control device	[1]FRE	131	4	7	0	199	4	2	8	54	0	0	0				
	PCT	92	3	5	0	93	2	1	4	100	0	0	0				
	[2]FRE	17	2	7	0	16	3	2	5	11	0	0	0				
	PCT	65	8	27	0	62	12	8	19	100	0	0	0				
	[3]FRE	112	13	11	12	85	1	3	15	48	3	3	0	134	9	10	15
	PCT	76	9	7	8	82	1	3	14	89	6	6	0	80	5	6	9
Insert cement base into excavated cavity		92	16	19	15	157	12	9	35	54	0	0	0				
		65	11	13	11	74	6	4	16	100	0	0	0				
		3	7	4	12	6	5	3	12	11	0	0	0				
		12	27	15	46	23	19	12	46	100	0	0	0				
		74	29	19	26	57	9	8	30	47	4	1	2	105	18	14	31
		50	20	13	18	55	9	8	29	87	7	2	4	63	11	8	18
Make occlusal adjustment/selective grinding on natural teeth		129	11	2	0	201	11	0	1	49	3	1	1				
		91	8	1	0	94	5	0	0	91	6	2	2				
		15	9	2	0	19	6	0	1	7	2	1	1				
		58	35	8	0	73	23	0	4	64	18	9	9				
		102	38	2	6	95	5	3	1	44	5	2	3	142	8	7	11
		69	26	1	4	91	5	3	1	81	9	4	6	85	5	4	7
Insert pulp cap into excavated cavity		114	14	9	5	180	13	10	10	54	0	0	0				
		80	10	6	4	85	6	5	5	100	0	0	0				
		8	10	4	4	11	6	2	7	11	0	0	0				
		31	38	15	15	42	23	8	27	100	0	0	0				
		83	39	17	9	85	6	6	7	49	3	2	0	128	10	11	19
		56	26	11	6	82	6	6	7	91	6	4	0	76	6	7	11
Adjust removable orthodontic appliance		134	3	5	0	208	0	4	1	47	2	4	1				
		94	2	4	0	98	0	2	0	87	4	7	2				
		18	3	5	0	22	0	3	1	5	1	4	1				
		69	12	19	0	85	0	12	4	45	9	36	9				
		116	19	7	6	97	3	2	2	39	6	2	7	146	8	7	7
		78	13	5	4	93	3	2	2	72	11	4	13	87	5	4	4
Bend wire for clasp		134	2	3	3	208	1	1	3	25	5	7	17				
		94	1	2	2	98	0	0	1	46	9	13	31				
		19	2	2	3	21	1	1	3	0	0	3	8				
		73	8	8	12	81	4	4	12	0	0	27	73				
		117	13	4	14	92	2	6	4	11	1	4	38	134	7	6	21
		79	9	3	9	88	2	6	4	20	2	7	70	80	4	4	13

TABLE E-13 (continued)

CATEGORY 13
PATIENT CARE: ADJUSTMENTS AND REPAIRS

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Adjust habit control device	[1]FRE	140	0	2	0	208	2	3	0	52	2	0	0				
	PCT	99	0	1	0	98	1	1	0	96	4	0	0				
	[2]FRE	24	0	2	0	21	2	3	0	9	2	0	0				
	PCT	92	0	8	0	81	8	12	0	82	18	0	0				
	[3]FRE	124	16	4	4	99	1	1	3	47	6	1	0	155	6	2	5
	PCT	84	11	3	3	95	1	1	3	87	11	2	0	92	4	1	3
Remove tooth guidance appliance		136	2	4	0	206	1	3	3	53	1	0	0				
		96	1	3	0	97	0	1	1	98	2	0	0				
		20	2	4	0	19	1	3	3	10	1	0	0				
		77	8	15	0	73	4	12	12	91	9	0	0				
		113	16	7	12	97	2	1	4	48	3	2	1	138	11	9	10
		76	11	5	8	93	2	1	4	89	6	4	2	82	7	5	6
Remove fixed space maintainer		133	5	4	0	206	1	5	1	53	1	0	0				
		94	4	3	0	97	0	2	0	98	2	0	0				
		17	5	4	0	19	1	5	1	10	1	0	0				
		65	19	15	0	73	4	19	4	91	9	0	0				
		110	23	7	8	92	6	3	3	47	5	2	0	136	9	8	15
		74	16	5	5	88	6	3	3	87	9	4	0	81	5	5	9
Reduce sharp edges of fractured tooth		119	13	6	4	176	15	10	12	41	3	4	6				
		84	9	4	3	83	7	5	6	76	6	7	11				
		10	9	3	4	9	7	4	6	3	0	3	5				
		38	35	12	15	35	27	15	23	27	0	27	45				
		90	40	11	7	61	12	9	22	31	3	6	14	118	15	13	22
		61	27	7	5	59	12	9	21	57	6	11	26	70	9	8	13

TABLE E-14

RESPONSIBILITY (COMPETENCY) LEVEL TO WHICH DENTAL TASKS (1) ARE TAUGHT BY FACULTY MEMBERS IN AUXILIARY PROGRAMS[1], (2) ARE TAUGHT AS INDICATED BY FACULTY PROFILES FOR EACH AUXILIARY PROGRAM[2], AND (3) ARE BEING (a) PERFORMED BY FACULTY AND PRECEPTORS WHO ARE AUXILIARIES[3] OR (b) DELEGATED TO AUXILIARIES BY FACULTY AND PRECEPTORS WHO ARE DENTISTS[3]

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Heat/prepare gutta percha for temporary stopping	^{1}FRE	92	10	8	32	188	6	4	15	53	1	0	0				
	PCT	65	7	6	23	88	3	2	7	98	2	0	0				
	^{2}FRE	2	5	1	18	13	1	1	11	10	1	0	0				
	PCT	8	19	4	69	50	4	4	42	91	9	0	0				
	^{3}FRE	76	20	14	38	68	7	8	21	40	2	7	5	94	13	16	45
	PCT	51	14	9	26	65	7	8	20	74	4	13	9	56	8	10	27
Place wedge		38	17	14	23	142	12	12	47	54	0	0	0				
		62	12	10	16	67	6	6	22	100	0	0	0				
		2	5	6	13	6	1	3	16	11	0	0	0				
		8	19	23	50	23	4	12	62	100	0	0	0				
		76	23	22	27	56	7	4	37	44	5	3	2	89	26	16	37
		51	16	15	18	54	7	4	36	81	9	6	4	53	15	10	22
Pass and receive instruments at chairside		70	5	11	56	136	7	11	59	52	1	1	0				
		49	4	8	39	64	3	5	28	96	2	2	0				
		1	0	0	25	4	2	1	19	9	1	1	0				
		4	0	0	96	15	8	4	73	82	9	9	0				
		23	6	10	109	13	5	12	74	33	3	5	13	40	8	13	107
		16	4	7	74	13	5	12	71	61	6	9	24	24	5	8	64
Evacuate oral cavity during restorative procedure		75	3	6	58	144	7	7	55	54	0	0	0				
		53	2	4	41	68	3	3	26	100	0	0	0				
		1	0	0	25	4	2	1	19	11	0	0	0				
		4	0	0	96	15	8	4	73	100	0	0	0				
		57	7	4	80	21	6	9	68	36	5	5	8	54	6	15	93
		39	5	3	54	20	6	9	65	67	9	9	15	32	4	9	55
Apply air to keep cavity preparation dry		72	1	13	56	143	6	6	58	53	0	0	1				
		51	1	9	39	67	3	3	27	98	0	0	2				
		0	0	2	24	3	0	1	22	10	0	0	1				
		0	0	8	92	12	0	4	85	91	0	0	9				
		43	6	5	94	18	6	6	74	34	5	2	13	53	4	18	93
		29	4	3	64	17	6	6	71	63	9	4	24	32	2	11	55

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Obtain equipment/medications/instruments P.R.N. for personnel performing sterile procedure	[1]FRE	90	8	16	28	147	4	12	50	53	0	1	0				
	PCT	63	6	11	20	69	2	6	23	98	0	2	0				
	[2]FRE	0	1	5	20	2	1	2	21	10	0	1	0				
	PCT	0	4	19	77	8	4	8	81	91	0	9	0				
	[3]FRE	49	7	16	76	32	2	14	56	39	5	4	6	67	9	30	62
	PCT	33	5	11	51	31	2	13	54	72	9	7	11	40	5	18	37
Set up unit bracket table with dental instrument/material		65	1	8	68	90	1	10	112	53	0	1	0				
		46	1	6	48	42	0	5	53	98	0	2	0				
		0	0	0	26	0	0	0	26	10	0	1	0				
		0	0	0	100	0	0	0	100	91	0	9	0				
		25	3	7	113	9	2	3	90	33	1	6	14	39	1	10	118
		17	2	5	76	9	2	3	87	61	2	11	26	23	1	6	70
† Operate phase microscope		72	3	9	9	115	5	7	36	46	0	0	0				
		77	3	10	10	71	3	4	22	100	0	0	0				
		119	7	8	14	40	3	11	50	46	0	2	6	112	5	16	35
		80	5	5	9	38	3	11	48	85	0	4	11	67	3	10	21
Prepare patient for injection		72	7	9	54	131	5	11	66	54	0	0	0				
		51	5	6	38	62	2	5	31	100	0	0	0				
		0	2	2	22	4	0	2	20	11	0	0	0				
		0	8	8	85	15	0	8	77	100	0	0	0				
		42	9	17	80	21	3	11	69	37	3	6	8	55	14	19	80
		28	6	11	54	20	3	11	66	69	6	11	15	33	8	11	48
Remove provisional splint, extracoronal		137	3	0	2	206	3	2	2	53	1	0	0				
		96	2	0	1	97	1	1	1	98	2	0	0				
		21	3	0	2	29	3	2	2	10	1	0	0				
		81	12	0	8	73	12	8	8	91	9	0	0				
		135	8	1	4	98	1	2	3	47	2	1	4	136	15	6	11
		91	5	1	3	94	1	2	3	87	4	2	7	81	9	4	7
Prepare sterile tray for injection/minor surgery		76	4	5	57	143	5	11	54	54	0	0	0				
		54	3	4	40	67	2	5	25	100	0	0	0				
		0	0	0	26	6	0	1	19	11	0	0	0				
		0	0	0	100	23	0	4	73	100	0	0	0				
		46	5	5	92	30	2	8	64	35	2	7	10	56	2	20	90
		31	3	3	62	29	2	8	62	65	4	13	19	33	1	12	54

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Load/unload film cassettes	[1]FRE	85	6	2	49	148	3	6	56	53	0	0	1				
	PCT	50	4	1	35	69	1	3	26	98	0	0	2				
	[2]FRE	1	0	0	25	3	0	1	22	10	0	0	1				
	PCT	4	0	0	96	12	0	4	85	91	0	0	9				
	[3]FRE	54	3	5	86	34	2	3	65	33	0	3	18	64	4	12	88
	PCT	36	2	3	58	33	2	3	63	61	0	6	33	38	2	7	52
Prepare premixed base, e.g. dycal, cavitec		61	1	8	72	151	4	9	49	52	1	0	1				
		43	1	6	51	71	2	4	23	96	2	0	2				
		0	0	0	26	4	0	4	18	10	0	0	1				
		0	0	0	100	15	0	15	69	91	0	0	9				
		43	5	9	91	38	7	7	52	35	3	5	11	53	5	16	94
		29	3	6	61	37	7	7	50	65	6	9	20	32	3	10	56
Mount small x-ray (dental/etc.)		65	6	2	69	96	1	2	114	53	0	0	1				
		46	4	1	49	45	0	1	54	98	0	0	2				
		0	0	0	26	0	0	0	26	10	0	0	1				
		0	0	0	100	0	0	0	100	91	0	0	9				
		28	1	6	113	6	1	2	95	34	1	4	15	35	1	10	122
		19	1	4	76	6	1	2	91	63	2	7	28	21	1	6	73
Load/pass amalgam carrier to dentist		66	1	6	69	143	6	9	55	53	0	0	1				
		46	1	4	49	67	3	4	26	98	0	0	2				
		0	0	0	26	3	1	3	19	10	0	0	1				
		0	0	0	100	12	4	12	73	91	0	0	9				
		43	3	4	98	15	4	6	79	31	4	3	16	53	6	11	98
		29	2	3	66	14	4	6	76	57	7	6	30	32	4	7	58
Exchange bur/mandrel/mounted stone/diamond in dental handpiece		61	1	7	73	120	1	5	87	24	5	2	23				
		43	1	5	51	56	0	2	41	44	9	4	43				
		0	0	0	26	1	0	1	24	0	0	0	11				
		0	0	0	100	4	0	4	92	0	0	0	100				
		21	5	12	110	17	0	3	84	15	0	0	39	39	1	25	103
		14	3	8	74	16	0	3	81	28	0	0	72	23	1	15	61
Apply varnish to prepared tooth		91	12	18	21	167	7	7	32	53	0	0	1				
		64	8	13	15	78	3	3	15	98	0	0	2				
		5	4	6	11	10	1	3	12	10	0	0	1				
		19	15	23	42	38	4	12	46	91	0	0	9				
		65	10	20	53	56	12	7	29	42	4	3	5	85	11	23	49
		44	7	14	36	54	12	7	28	78	7	6	9	51	7	14	29

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Develop x-ray film	^{1}FRE	61	2	7	72	97	2	3	111	52	0	1	1				
	PCT	43	1	5	51	46	1	1	52	96	0	2	2				
	^{2}FRE	0	0	0	26	0	0	0	26	9	0	1	1				
	PCT	0	0	0	100	0	0	0	100	82	0	9	9				
	^{3}FRE	23	0	1	124	4	2	0	98	29	2	3	20	29	0	12	127
	PCT	16	0	1	84	4	2	0	94	54	4	6	37	17	0	7	76
Remove excess cement from crowns of the teeth		94	12	13	23	134	9	9	61	50	1	2	1				
		66	8	9	16	63	4	4	29	93	2	4	2				
		5	2	4	15	4	0	1	21	7	1	2	1				
		19	8	15	58	15	0	4	81	64	9	18	9				
		39	12	25	72	21	3	2	78	39	1	6	8	70	13	32	53
		26	8	17	49	20	3	2	75	72	2	11	15	42	8	19	32
Mix zinc phosphate for dental restoration		55		10	74	134	8	10	61	49	2	2	1				
		39		7	52	63	4	5	29	91	4	4	2				
		0	0	0	26	2	0	3	21	7	2	1	1				
		0	0	0	100	8	0	12	81	64	18	9	9				
		41	2	13	92	21	4	8	71	30	1	7	16	45	9	15	99
		28	1	9	62	20	4	8	68	56	2	13	30	27	5	9	59
Apply cold to reduce swelling/relieve pain/treat burn		94	10	14	24	153	8	14	38	51	2	0	1				
		66	7	10	17	72	4	7	18	94	4	0	2				
		3	0	6	17	3	3	1	19	9	1	0	1				
		12	0	23	65	12	12	4	73	82	9	0	9				
		70	19	18	41	38	7	13	46	33	2	6	13	80	19	32	37
		47	13	12	28	37	7	13	44	61	4	11	24	48	11	19	22
Remove fluid from surgical site with sponges or auction		74	9	14	45	141	13	14	45	54	0	0	0				
		52	6	10	32	66	6	7	21	100	0	0	0				
		0	0	4	22	2	1	3	20	11	0	0	0				
		0	0	15	85	8	4	12	77	100	0	0	0				
		47	8	10	83	24	8	14	58	37	4	7	6	47	14	28	79
		32	5	7	56	23	8	13	56	69	7	13	11	28	8	17	47
Assemble/index/file x-ray films		66	5	8	63	124	2	5	82	52	0	2	0				
		46	4	6	44	58	1	2	38	96	0	4	0				
		0	0	0	26	0	0	0	26	9	0	2	0				
		0	0	0	100	0	0	0	100	82	0	18	0				
		2[illegible]	2	9	114	13	1	2	88	37	3	5	9	41	1	20	106
		1[illegible]	1	6	77	13	1	2	85	69	6	9	17	24	1	12	63

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Adapt rubber dam to more than one tooth	^{1}FRE	76	14	13	39	132	11	5	65	54	0	0	0				
	PCT	54	10	9	27	62	5	2	31	100	0	0	0				
	^{2}FRE	1	3	2	20	3	3	2	18	11	0	0	0				
	PCT	4	12	8	77	12	12	8	69	100	0	0	0				
	^{3}FRE	63	17	22	46	34	4	11	55	45	4	0	5	65	20	29	54
	PCT	43	11	15	31	33	4	11	53	83	7	0	9	39	12	17	32
Prepare setup for gold foil restoration		88	6	7	41	183	6	3	21	53	0	1	0				
		62	4	5	29	86	3	1	10	98	0	2	0				
		2	1	3	20	9	0	4	13	10	0	1	0				
		8	4	12	77	35	15	0	50	91	0	9	0				
		76	4	10	58	76	2	5	21	41	5	3	5	88	7	14	59
		51	3	7	39	73	2	5	20	76	9	6	9	52	4	8	35
Remove plaster/stone cast from impression after setting		64	8	7	63	121	2	2	88	7	3	6	38				
		45	6	5	44	57	1	1	41	13	6	11	70				
		0	0	0	26	3	0	1	22	0	0	0	11				
		0	0	0	100	12	0	4	85	0	0	0	100				
		30	1	6	111	23	2	3	76	9	0	0	45	43	4	18	103
		20	1	4	75	22	2	3	73	17	0	0	83	26	2	11	61
Gown and glove others		113	5	11	13	186	1	4	22	51	2	0	1				
		80	4	8	9	87	0	2	10	94	4	0	2				
		5	3	8	10	9	0	1	16	9	1	0	1				
		19	12	31	38	35	0	4	62	82	9	0	9				
		100	6	13	29	68	6	6	24	41	2	2	9	106	5	22	35
		68	4	9	20	65	6	6	23	76	4	4	17	63	3	13	21
Make individual surgical tray for immediate denture		112	5	7	18	201	1	3	8	19	6	14	15				
		79	4	5	13	94	0	1	4	35	11	26	28				
		7	3	2	14	19	0	1	6	1	0	1	9				
		27	12	8	54	73	0	4	23	9	0	9	82				
		90	9	9	40	87	2	4	11	12	0	2	40	118	8	12	30
		61	6	6	27	84	2	4	11	22	0	4	74	70	5	7	18
Prepare tray setup for dental procedure		71	2	7	62	131	3	11	68	52	1	1	0				
		50	1	5	44	62	1	5	32	96	2	2	0				
		0	0	1	25	2	0	2	22	9	1	1	0				
		0	0	4	96	8	0	8	85	82	9	9	0				
		27	1	5	115	26	1	5	72	33	2	3	16	51	1	14	102
		18	1	3	78	25	1	5	69	61	4	6	30	30	1	8	61

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Remove provisional splint, intracoronal	^{1}FRE	135	2	4	1	210	2	0	1	53	1	0	0				
	PCT	95	1	3	1	99	1	0	0	98	2	0	0				
	^{2}FRE	20	2	3	1	23	2	0	1	10	1	0	0				
	PCT	77	8	12	4	88	8	0	4	91	9	0	0				
	^{3}FRE	138	6	1	3	101	1	0	2	46	4	2	2	147	8	9	4
	PCT	93	4	1	2	97	1	0	2	85	7	4	4	88	5	5	2
Prepare/mix impression material		57	2	16	67	113	5	5	90	36	5	8	5				
		40	1	11	47	53	2	2	42	67	9	15	9				
		0	0	0	26	2	1	0	23	1	0	5	5				
		0	0	0	100	8	4	0	88	9	0	45	45				
		26	2	10	110	15	4	3	82	23	1	4	26	47	5	25	91
		18	1	7	74	14	4	3	79	43	2	7	48	28	3	15	54
Mix/triturate amalgam-alloy		59	3	6	74	137	7	4	65	50	0	0	4				
		42	2	4	52	64	3	2	31	93	0	0	7				
		0	0	0	26	3	1	1	21	7	0	0	4				
		0	0	0	100	12	4	4	81	64	0	0	36				
		47	1	5	95	21	8	5	70	28	1	4	21	55	4	15	94
		32	1	3	64	20	8	5	67	52	2	7	39	33	2	9	56
Prepare/drape/gown patient for examination/treatment		65	4	7	66	97	3	4	109	53	0	1	0				
		46	3	5	46	46	1	2	51	98	0	2	0				
		1	0	0	25	0	0	0	26	10	0	1	0				
		4	0	0	96	0	0	0	100	91	0	9	0				
		23	0	2	123	22	1	1	80	35	2	2	15	43	4	11	110
		16	0	1	83	21	1	1	77	65	4	4	28	26	2	7	65
Prepare non sterile tray, e.g. special examination		77	3	7	55	123	4	5	81	54	0	0	0				
		54	2	5	39	58	2	2	38	100	0	0	0				
		1	0	0	25	1	0	0	25	11	0	0	0				
		4	0	0	96	4	0	0	96	100	0	0	0				
		34	3	6	105	26	2	3	73	37	1	3	13	46	1	16	105
		23	2	4	71	25	2	3	70	69	2	6	24	27	1	10	63
Remove rubber dam		73	9	13	47	130	9	10	64	54	0	0	0				
		51	6	9	33	61	4	5	30	100	0	0	0				
		0	1	1	24	3	1	4	18	11	0	0	0				
		0	4	4	92	12	4	15	69	100	0	0	0				
		58	9	17	64	31	4	9	60	40	4	1	9	61	11	22	74
		39	6	11	43	30	4	9	58	74	7	2	17	36	7	13	44

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Take and record temperature (oral)	[1]FRE	95	5	4	38	132	4	10	67	51	1	1	1				
	PCT	67	4	3	27	62	2	5	31	94	2	2	2				
	[2]FRE	4	1	1	20	2	0	2	22	9	1	0	1				
	PCT	15	4	4	77	8	0	8	85	82	9	0	9				
	[3]FRE	66	4	9	69	35	1	0	68	33	1	0	20	68	8	18	74
	PCT	45	3	6	47	34	1	0	65	61	2	0	37	40	5	11	44
Scrub and assist with surgery/sterile procedure		79	5	20	38	146	10	9	48	54	0	0	0				
		56	4	14	27	69	5	4	23	100	0	0	0				
		0	0	2	24	2	2	0	22	11	0	0	0				
		0	0	8	92	8	8	0	85	100	0	0	0				
		47	10	11	80	29	6	12	57	38	1	4	11	66	9	27	66
		32	7	7	54	28	6	12	55	70	2	7	20	39	5	16	39
Irrigate mouth/oral cavity		68	6	15	53	92	6	7	108	53	0	1	0				
		48	4	11	37	43	3	3	51	98	0	2	0				
		0	1	3	22	0	0	0	26	10	0	1	0				
		0	4	12	85	0	0	0	100	91	0	9	0				
		33	4	15	96	11	2	2	89	35	3	4	12	39	10	25	94
		22	3	10	65	11	2	2	86	65	6	7	22	23	6	15	56
Mix acrylic resin for dental restoration		63	4	11	64	145	7	11	50	22	2	10	20				
		44	3	8	45	68	3	5	23	41	4	19	37				
		1	0	0	25	4	2	2	18	0	0	1	10				
		4	0	0	96	15	8	8	69	0	0	9	91				
		45	3	13	87	33	8	7	56	14	3	3	34	51	9	24	84
		30	2	9	59	32	8	7	54	26	6	6	63	30	5	14	50
Operate suctioning equipment		69	1	8	64	99	10	11	93	53	0	0	1				
		49	1	6	45	46	5	5	44	98	0	0	2				
		0	0	0	26	0	0	2	24	10	0	0	1				
		0	0	0	100	0	0	8	92	91	0	0	9				
		23	4	6	115	7	3	6	88	29	0	6	19	35	3	11	119
		16	3	4	78	7	3	6	85	54	0	11	35	21	2	7	71
Retract gingiva with cord		114	16	8	4	197	9	4	3	54	0	0	0				
		80	11	6	3	92	4	2	1	100	0	0	0				
		7	9	7	3	14	7	3	2	11	0	0	0				
		27	35	27	12	54	27	12	8	100	0	0	0				
		83	28	20	17	74	11	10	9	46	5	2	1	115	22	13	18
		56	19	14	11	71	11	10	9	85	9	4	2	68	13	8	11

TABLE E-14 (continued)

CATEGORY 14
PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT

		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Apply water to tooth during cavity preparation	^{1}FRE	68	8	12	54	151	7	8	47	53	0	0	1				
	PCT	48	6	8	38	71	3	4	22	98	0	0	2				
	^{2}FRE	0	0	2	24	5	2	3	16	10	0	0	1				
	PCT	0	0	8	92	19	8	12	62	91	0	0	9				
	^{3}FRE	47	4	14	83	31	8	11	54	35	3	6	10	52	9	21	86
	PCT	32	3	9	56	30	8	11	52	65	6	11	19	31	5	13	51
Remove wedge and matrix band		81	18	13	30	141	8	8	56	54	0	0	0				
		57	13	9	21	66	4	4	26	100	0	0	0				
		1	5	5	15	4	2	3	17	11	0	0	0				
		4	19	19	58	15	8	12	65	100	0	0	0				
		59	27	20	42	46	7	8	43	41	5	2	6	74	23	19	52
		40	18	14	28	44	7	8	41	76	9	4	11	44	14	11	31
Trim stone/plaster model		65	9	9	59	120	3	7	83	5	3	10	36				
		46	6	6	42	56	1	3	39	9	6	19	67				
		0	0	1	25	2	0	0	24	0	0	0	11				
		0	0	4	96	8	0	0	92	0	0	0	100				
		33	2	12	101	25	3	7	69	9	1	1	43	37	3	32	96
		22	1	8	68	24	3	7	66	17	2	2	80	22	2	19	57
Insert/remove cotton rolls		67	4	13	58	73	3	2	135	53	0	0	1				
		47	3	9	41	34	1	1	63	98	0	0	2				
		1	0	3	22	0	0	0	26	10	0	0	1				
		4	0	12	85	0	0	0	100	91	0	0	9				
		22	5	15	106	4	0	4	96	33	2	7	12	39	6	23	100
		15	3	10	72	4	0	4	92	61	4	13	22	23	4	14	60
Stabilize patient's mandible during operation		82	6	15	39	146	7	9	51	54	0	0	0				
		58	4	11	27	69	3	4	24	100	0	0	0				
		1	1	2	22	1	2	1	22	11	0	0	0				
		4	4	8	85	4	8	4	85	100	0	0	0				
		58	13	22	55	44	5	8	47	41	3	4	6	63	8	40	57
		39	9	15	37	42	5	8	45	76	6	7	11	38	5	24	34
Adapt matrix band and retainer to teeth		77	22	8	35	143	10	15	45	54	0	0	0				
		54	15	6	25	67	5	7	21	100	0	0	0				
		1	4	4	17	5	2	5	14	11	0	0	0				
		4	15	15	65	19	8	19	54	100	0	0	0				
		69	22	26	31	52	11	9	32	45	5	2	2	84	19	27	38
		47	15	18	21	50	11	9	31	83	9	4	4	50	11	16	23

TABLE E-14 (continued)

CAT PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Fill syringe (hydrocolloid/silicone/rubber)	[1]FRE	70	4	11	57	169	7	5	32	51	0	1	2				
	PCT	49	3	8	40	79	3	2	15	94	0	2	4				
	[2]FRE	0	0	2	24	9	0	2	15	9	0	0	2				
	PCT	0	0	8	92	35	0	8	58	82	0	0	18				
	[3]FRE	45	1	12	90	43	2	15	44	30	3	5	16	58	7	16	87
	PCT	30	1	8	61	41	2	14	42	56	6	9	30	35	4	10	52
Prepare set-up for local anesthetic injection		69	2	7	64	115	7	17	74	54	0	0	0				
		49	1	5	45	54	3	8	35	100	0	0	0				
		0	0	0	26	0	0	2	24	11	0	0	0				
		0	0	0	100	0	0	8	92	100	0	0	0				
		28	3	2	115	15	3	10	76	33	0	6	15	39	3	12	114
		19	2	1	78	14	3	10	73	61	0	11	28	23	2	7	68
Place rubber dam clamp on tooth		77	14	19	32	129	10	12	62	52	2	0	0				
		54	10	13	23	61	5	6	29	96	4	0	0				
		0	3	5	18	2	3	5	16	9	2	0	0				
		0	12	19	69	8	12	19	62	82	18	0	0				
		58	14	18	58	29	5	14	56	42	2	3	7	62	20	29	57
		39	9	12	39	28	5	13	54	78	4	6	13	37	12	17	34
Take blood pressure		100	6	12	24	122	5	17	69	52	0	1	1				
		70	4	8	17	57	2	8	32	96	0	2	2				
		5	1	4	16	4	1	3	18	9	0	1	1				
		19	4	15	62	15	4	12	69	82	0	9	9				
		84	14	13	37	29	4	14	57	35	1	7	11	91	13	24	40
		57	9	9	25	28	4	13	55	65	2	13	20	54	8	14	24
Place matrix band in holder		71	4	5	62	134	10	8	61	49	1	1	3				
		50	3	4	44	63	5	4	29	91	2	2	6				
		1	0	1	24	3	2	0	21	8	0	1	2				
		4	0	4	92	12	8	0	81	73	0	9	18				
		50	5	6	87	24	8	6	66	37	3	5	9	56	8	20	84
		34	3	4	59	23	8	6	63	69	6	9	17	33	5	12	50
Aspirate during oral surgery		71	7	8	56	146	7	19	41	53	0	0	1				
		50	5	6	39	69	3	9	19	98	0	0	2				
		0	1	0	25	2	1	6	17	10	0	0	1				
		0	4	0	96	8	4	23	65	91	0	0	9				
		45	6	11	86	15	8	15	66	34	2	6	12	44	11	24	89
		30	4	7	58	14	8	14	63	63	4	11	22	26	7	14	53

TABLE E-14 (continued)

CATEGORY 14 PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT		TAUGHT/PERFORMED IN DENTAL ASSISTING N^1=142; N^2=26; N^3=148				TAUGHT/PERFORMED IN DENTAL HYGIENE N^1=213; N^2=26; N^3=104				TAUGHT/PERFORMED IN DENTAL LAB. TECH. N^1=54; N^2=11; N^3=54				DELEGATED BY DENTIST N^1=NA; N^2=NA; N^3=168			
		NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4	NR-1	2	3	4
Adapt rubber dam to one tooth	[1]FRE	77	13	19	33	131	9	10	63	54	0	0	0				
	PCT	54	9	13	23	62	4	5	30	100	0	0	0				
	[2]FRE	0	4	5	17	3	2	3	18	11	0	0	0				
	PCT	0	15	19	65	12	8	12	69	100	0	0	0				
	[3]FRE	61	12	24	51	30	8	10	56	43	3	1	7	66	20	25	57
	PCT	41	8	16	34	29	8	10	54	80	6	2	13	39	12	15	34
Mix silicate cement		57	4	10	71	140	6	7	60	50	0	3	1				
		40	3	7	50	66	3	3	28	93	0	6	2				
		0	1	0	25	5	1	2	18	7	0	3	1				
		0	4	0	96	19	4	8	69	64	0	27	9				
		40	3	5	100	11	7	18	68	25	2	7	20	57	5	19	87
		27	2	3	68	11	7	17	65	46	4	13	37	34	3	11	52
Take pulse/respiration		98	8	9	27	125	6	15	67	51	2	0	1				
		69	6	6	19	59	3	7	31	94	4	0	2				
		4	2	3	17	3	1	3	19	9	1	0	1				
		15	8	12	65	12	4	12	73	82	9	0	9				
		95	13	8	32	38	4	10	52	33	3	5	13	86	16	24	42
		64	9	5	22	37	4	10	50	61	6	9	24	51	10	14	25
† Prepare skin site for minor surgery/treatment, e.g. skin prep		81	6	4	2	147	1	7	8	46	0	0	0				
		87	6	4	2	90	1	4	5	100	0	0	0				
		119	8	7	14	84	2	8	10	46	2	4	2	123	11	15	19
		80	5	5	9	81	2	8	10	85	4	7	4	73	7	9	11
† Fill tray for impression, e.g. alginate, hydrocolloid		29	7	9	48	79	4	5	75	38	5	3	0				
		31	8	10	52	48	2	3	46	83	11	6	0				
		23	3	9	113	16	4	4	80	23	2	6	23	46	9	17	96
		16	2	6	76	15	4	4	77	43	4	11	43	27	5	10	57

APPENDIX F

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS

TABLE F-1

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 1. BUSINESS AND OFFICE MANAGEMENT (37 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

H H H A A H A A A H A H H H A A A A A H H A A H H A A A A A A A H H H H A A A H A H H H H H H H H H A A
4 1 2 2 3 3 4 2 4 1 1 0 2 3 3 0 1 0 3 3 2 0 2 0 3 3 1 2 2 1 1 3 4 2 2 3 5 5 5 4 4 4 0 3 4 0 3 5 0 4 0 0
3 5 1 5 7 3 0 3 2 4 4 8 3 0 9 1 3 9 6 1 5 3 0 7 9 2 2 7 1 0 1 5 1 7 2 6 1 2 3 5 5 4 2 7 2 5 8 0 6 4 2 6

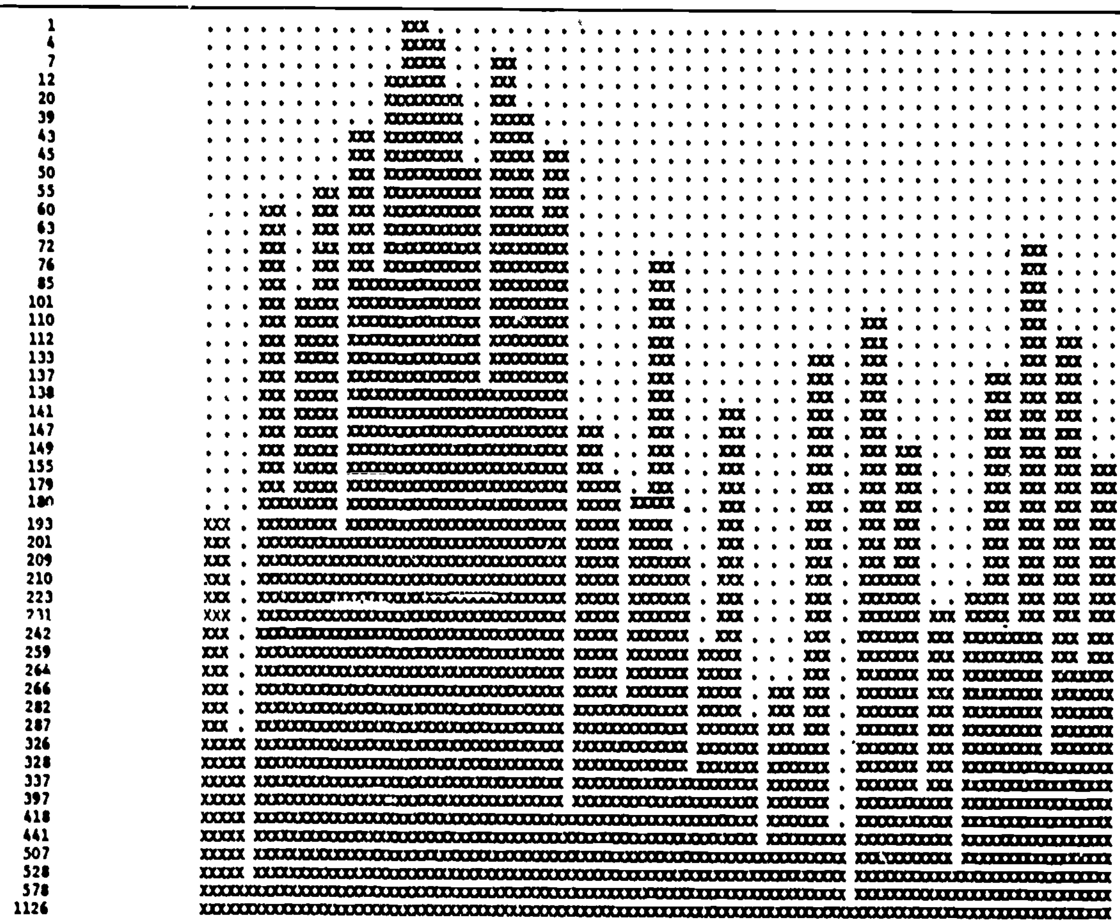
TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

1 1 2 3 1 2 3 3 2 1 1 3 3 1 2 3 1 3 3 3 3 3 3 2 3 3 1 2 3 3 5 1 1 1 3 2 4 4 4 4 4 3 1 2 3 1 1 3 4 3 3

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

3 1 2 2 1 3 2 2 1 3 1 2 2 3 1 1 1 1 1 2 2 1 1 2 2 1 1 1 1 1 1 1 2 2 3 2 2 1 1 1 1 1 2 1 2 2 3 3 2 1 1 1



[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H43 is a dental hygiene program from site 43. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (H08 with H23) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-2

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 2. HOUSEKEEPING: CLINICAL AND GENERAL (7 TASK STATEMENTS)

	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS
	PROGRAM TYPE AND SITE CODE[1]
	A A A H H H H A A A A A A H H H A A H H A H A H H A A H A H H H A H H A H A H A A A A H H H H A A H H A
	4 1 0 2 4 0 4 2 3 2 0 5 5 5 5 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 2 2 2 2 2 2 2 1 1 1 1 0 0 0 0 0 0 0 0 1 3 1
	2 1 6 2 3 2 4 7 7 1 2 3 2 1 0 5 5 4 2 1 0 9 9 8 6 6 5 3 2 1 0 7 5 5 3 3 1 0 4 4 3 2 9 8 7 6 5 3 1 5 7 0
	TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]
	2 3 3 1 1 3 4 1 1 2 3 4 4 2 1 4 4 4 2 1 3 2 2 1 3 3 5 2 3 3 1 1 3 3 3 3 2 3 1 1 1 3 3 3 3 3 3 3 3 1 1 3
SIMILARITY VALUE[4]	CERTIFICATE OR DEGREE AWARDED[3]
	1 1 1 3 3 2 1 1 1 1 1 1 1 2 3 1 1 1 2 2 2 2 1 3 2 1 1 3 1 2 3 2 2 2 2 2 2 1 3 1 1 1 1 2 2 2 2 1 1 1 1 1
0	. . XXXXX . . XXX . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX .
1	. . XXXXX XXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX .
2	. . XXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
3	. . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
38	. . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
45	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
72	XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
81	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A42 is a dental assisting program from site 42. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-3

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 3. PATIENT CARE: RECORDS--DENTAL, MEDICAL (7 TASK STATEMENTS)

```
                                         DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

                                              PROGRAM TYPE AND SITE CODE¹

              A A H A A A H A A A H H H A H H H A H A H H H A A H H H H A H H H H A H H A A A A H H H A H A A A A A A
              4 4 4 0 1 2 0 1 5 5 5 5 4 4 4 4 4 4 3 3 3 3 3 3 3 3 3 3 2 2 2 2 2 2 2 1 1 1 1 1 0 0 0 0 0 0 0 2 3 0 3 2
              4 2 4 2 0 7 5 3 3 2 1 0 5 5 3 2 1 0 9 9 8 7 6 6 5 3 1 0 7 5 5 3 2 1 0 5 4 4 2 1 9 8 7 6 6 2 1 3 2 3 7 1

                                        TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED²

              4 2 4 3 3 1 3 1 4 4 2 1 4 4 1 2 1 3 2 2 1 1 3 3 5 2 3 1 1 3 3 3 1 2 3 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 1 2
SIMILARITY
                                              CERTIFICATE OR DEGREE AWARDED³
  VALUE⁴
              1 1 1 1 1 1 2 1 1 1 2 3 1 1 3 2 2 2 2 1 3 1 2 1 1 3 2 3 2 2 2 2 3 2 1 1 3 1 1 1 1 2 2 2 1 2 1 2 1 1 1 1

    0         . . . . . . XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . . .
    1         . . . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . . .
    2         . . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX .
    4         . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX .
    7         XXX . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX .
    9         XXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX .
   12         XXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX .
   17         XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX .
   40         XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
   78         XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .
  118         XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A44 is a dental assisting program from site 44. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-4

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 4. PATIENT CARE: EXAMINATIONS—INCLUDING DIAGNOSTIC TESTS AND X-RAY (35 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

```
A A A A A A A A A A A A A A A H A A A H A H H H H A H A H H H H H H H H H H H A H H H H H H H A A A A H
3 2 0 0 2 4 1 0 3 3 2 4 4 5 2 4 5 1 0 0 1 4 0 0 3 3 0 3 4 3 2 2 1 4 2 2 3 3 1 1 2 3 5 3 4 0 3 4 0 2 1 5
5 3 2 3 1 2 2 1 6 7 7 5 4 2 5 4 3 1 6 5 0 5 2 6 9 9 7 2 1 7 1 2 5 2 3 5 1 0 4 4 7 8 1 6 3 8 3 0 9 0 3 0
```

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

```
5 3 3 3 2 2 3 3 3 1 1 4 4 4 3 4 4 3 3 3 3 4 3 3 2 2 3 3 1 1 2 1 1 2 3 3 3 1 1 1 1 1 2 3 1 3 2 3 3 3 1 1
```

CERTIFICATE OR DEGREE AWARDED[3]

```
1 2 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1 2 1 1 2 2 2 1 2 1 2 1 2 3 1 2 2 2 2 3 3 1 2 3 2 2 3 2 3 2 1 1 1 3
```

SIMILARITY VALUE[4]

```
 11  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . . .
 42  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . XXX . . . . . . .
 49  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX XXX . . . . . XXX . . . . . . .
 58  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX XXX . . . . XXXXX . . . . . . .
 61  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX XXX XXX . . XXXXX . . . . . . .
 62  . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . . . . XXX XXX XXX . . XXXXX . . . . . . .
 71  . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . . . . XXX XXX XXX XXX XXXXX . . . . . . .
 84  . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . . . XXXXX XXX XXX XXX XXXXX . . . . . . .
 91  . . XXX . . . . . . . . . . . . . . . . . . . . XXX . XXX . . . . XXXXX XXX XXX XXX XXXXX . . . . . . .
100  . . XXX . . . . . . . . . . . . . . . . . . . . XXX . XXX . . . . XXXXX XXX XXX XXX XXXXX XXX . . . . .
109  . . XXX . . XXX . . . . . . . . . . . . . . . . XXX . XXX . . . . XXXXX XXX XXX XXX XXXXX XXX . . . . .
113  . . XXX . . XXX . . . . . . . . . . . . . . XXX XXX . XXX . . . . XXXXX XXX XXX XXX XXXXX XXX . . . . .
114  . . XXX . . XXX . . . . . . . . . . . . . . XXX XXX . XXX . . . XXXXXXX XXX XXX XXX XXXXX XXX . . . . .
118  . . XXX . . XXX . . . . . . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXX XXX XXX XXXXX XXX . . . . .
122  . . XXX . XXXXX . . . . . . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXX XXX XXX XXXXX XXX . . . . .
124  . . XXX . XXXXX . . . XXX . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXX XXX XXX XXXXX XXX . . . . .
125  . . XXX . XXXXX . . . XXX . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXX XXX XXX XXXXX XXX . . XXX .
138  . . XXX . XXXXX . . . XXX . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXXXXXX XXX XXXXX XXX . . XXX .
141  . . XXX . XXXXX . XXX XXX . . . . . . . XXX XXX XXX . XXX . . . XXXXXXX XXXXXXX XXX XXXXX XXX . . XXX .
142  . . XXX . XXXXX . XXX XXX . . . . . . . XXX XXX XXX XXXXX . . . XXXXXXX XXXXXXX XXX XXXXX XXX . . XXX .
147  . . XXXXX XXXXX . XXX XXX . . . . . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXX XXX XXXXX XXX . . XXX .
152  . . XXXXX XXXXX . XXX XXX . . . . . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXX XXX XXXXX XXX XXX XXX .
155  . . XXXXX XXXXX . XXX XXX . . . . . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXX XXX XXXXXXXXX XXX XXX .
162  . . XXXXX XXXXX . XXX XXX . . XXX . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXX XXX XXXXXXXXX XXX XXX .
166  . . XXXXX XXXXX XXXXX XXX . . XXX . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXX XXX XXXXXXXXX XXX XXX .
171  . . XXXXX XXXXX XXXXX XXX . . XXX . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXXXXXX XXXXXXXXX XXX XXX .
178  . . XXXXX XXXXX XXXXX XXX XXX XXX . . . XXX XXX XXX XXXXX . XXX XXXXXXX XXXXXXXXXXX XXXXXXXXX XXX XXX .
189  . . XXXXX XXXXX XXXXX XXX XXX XXX . XXX XXX XXX XXX XXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXX .
198  . . XXXXX XXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXX .
205  XXX XXXXX XXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXX .
206  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXX .
209  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXX .
217  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXXXX XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX XXXXXXX .
227  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXX XXXXXXX XXXXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX .
248  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXXXXXXXXXX XXXXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX .
252  XXX XXXXXXXXXXX XXXXX XXX XXX XXX . XXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX .
280  XXX XXXXXXXXXXX XXXXX XXX XXX XXXXX XXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
282  XXX XXXXXXXXXXX XXXXX XXXXXXX XXXXX XXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
293  XXX XXXXXXXXXXX XXXXX XXXXXXX XXXXX XXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
297  XXXXXXXXXXXXXXX XXXXX XXXXXXX XXXXX XXX XXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
301  XXXXXXXXXXXXXXX XXXXX XXXXXXX XXXXX XXXXXXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
327  XXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
328  XXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
397  XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
514  XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
524  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
856  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A35 is a dental assisting program from site 35. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (H36 with H43) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-5

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 5. PATIENT CARE: ANALYSIS, TREATMENT PLANNING, AND CONSULTATION (18 TASK STATEMENTS)

```
                                       DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

                                          PROGRAM TYPE AND SITE CODE[1]

             H H H H A H H H A A H H H H H H H A A A H H H A H A H A H A A H H H A A A H H A A A A A A A A A A H A A A
             0 2 3 1 3 2 3 1 1 0 5 4 2 4 3 0 3 2 0 4 3 2 4 3 3 3 4 1 0 0 2 0 5 3 3 4 2 0 2 2 1 4 1 0 5 4 1 5 4 2 0 3
             8 2 0 5 6 3 1 4 4 9 0 2 5 3 3 6 8 0 1 0 6 1 5 9 9 2 1 2 5 6 3 2 1 7 5 5 7 7 7 5 3 2 0 3 2 4 1 3 4 1 2 7

                                   TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

             3 1 1 1 3 3 3 1 1 3 1 2 3 1 2 3 1 3 3 3 3 2 4 2 2 3 1 3 3 3 3 3 2 1 5 4 1 3 1 3 1 2 3 3 4 4 3 4 4 2 3 1

SIMILARITY                                CERTIFICATE OR DEGREE AWARDED[3]
 VALUE[4]
             2 3 3 1 1 2 2 3 1 1 3 2 2 3 3 2 3 1 1 2 2 2 1 1 2 1 2 1 2 1 2 2 2 1 1 1 1 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1

    3        . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
    8        . . . . . XXX XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
   10        . . . . . XXX XXX . . . . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   13        . . . . . XXX XXX . . XXX . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   15        . . XXX . XXX XXX . . XXX . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   24        . . XXX . XXX XXX . . XXX XXX . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   25        . . XXX . XXX XXX . . XXX XXX . . . . . . XXX XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   35        . . XXX XXXXX XXX . . XXX XXX . . . . . . XXX XXX . . . . . . . . . . . . . . . . . . . . . . . . . . .
   38        . . XXX XXXXX XXX . . XXX XXX . . . . XXX XXX XXX . . . . . . . . . . . . . . . . . . . XXX . . . . . .
   39        . . XXX XXXXX XXX . . XXX XXX . . . . XXX XXX XXX . XXX . . . . . . . . . . . XXX . . . XXX . . . . . .
   44        . . XXX XXXXX XXX . . XXX XXX . . . . XXX XXX XXX . XXX . . . . . . . . . XXX XXX . . . XXX . . . . . .
   45        . . XXX XXXXX XXX . . XXX XXX . . . . XXX XXX XXX . XXXXX . . . . . . . . XXX XXX . . . XXX . . . . . .
   46        . . XXX XXXXX XXX . . XXXXXXX . . . . XXX XXX XXX . XXXXX . . . . . . . . XXX XXX . . . XXX . . . . . .
   49        . . XXX XXXXX XXX . . XXXXXXX . . . . XXX XXX XXX . XXXXX . . . . . . . . XXX XXX . . . XXX . . XXX . .
   51        . XXXXX XXXXX XXX . . XXXXXXX . . . . XXX XXX XXX . XXXXX . . XXX . . . . XXX XXX . . . XXX . . XXX . .
   53        . XXXXX XXXXX XXX . . XXXXXXX . . . . XXX XXX XXXXX XXXXX . . XXX . . . . XXX XXX . . . XXX . . XXX . .
   64        . XXXXX XXXXX XXX . . XXXXXXX . . . . XXX XXX XXXXX XXXXX XXX XXX . . XXX XXX XXX . . . XXX XXX XXX . .
   65        . XXXXX XXXXX XXX . . XXXXXXX XXX . . XXX XXX XXXXX XXXXX XXX XXX . . XXX XXX XXX . . . XXX XXX XXX . .
   73        . XXXXX XXXXX XXX . . XXXXXXX XXX . . XXX XXX XXXXX XXXXX XXX XXX XXX XXX XXX XXX . . . XXX XXX XXX . .
   74        . XXXXX XXXXX XXX . . XXXXXXX XXX . . XXX XXX XXXXX XXXXX XXX XXX XXX XXX XXX XXX XXX . XXX XXX XXX . .
   75        . XXXXX XXXXX XXX . . XXXXXXX XXX XXX XXX XXX XXXXX XXXXX XXX XXX XXX XXX XXX XXX XXX . XXX XXX XXX . .
   80        . XXXXX XXXXX XXX . . XXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXX XXX XXX XXX XXX XXX XXX . XXX XXX XXX . .
   81        . XXXXX XXXXX XXX . XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXX XXX XXX XXX XXX XXX XXX . XXX XXX XXX . .
   84        . XXXXX XXXXX XXX . XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXX XXX XXX XXX XXXXXXX XXX . XXX XXX XXX . .
   95        . XXXXX XXXXX XXX . XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXX XXX XXX XXX XXXXXXX XXX XXXXX XXX XXX . .
   97        . XXXXX XXXXXXXXX . XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXX XXX XXX XXX XXXXXXX XXX XXXXX XXX XXX . .
  102        . XXXXX XXXXXXXXX . XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXX XXXXX XXX XXX . .
  103        . XXXXX XXXXXXXXXXX XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXX XXXXX XXX XXX . .
  110        . XXXXX XXXXXXXXXXX XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXX XXXXX XXX XXXXX .
  119        . XXXXX XXXXXXXXXXX XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  126        . XXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXX XXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  133        . XXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXXXXXX XXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  143        . XXXXXXXXXXXXXXXXX XXXXXXXXX XXX XXXXXXXXXXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  145        . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  150        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX XXXXXXX XXX XXX XXXXXXX XXXXXXXXX XXX XXXXX .
  158        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX XXXXXXX XXXXXXX XXXXXXX XXXXXXXXX XXX XXXXX .
  159        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXX XXXXX .
  167        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXX .
  179        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX .
  200        XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX .
  227        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX .
  230        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXX
  247        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXX
  297        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXX
  476        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H08 is a dental hygiene program from site 08. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (H14 with A14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-6

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 6. PATIENT CARE: PREVENTIVE AND PATIENT EDUCATION (16 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	H	H	H	H	H	H	H	H	H	A	H	H	H	A	H	H	H	H	A	H	H	A	A	H
0	2	0	2	0	4	1	3	2	1	2	1	3	3	0	2	4	3	1	0	2	2	2	3	3	4	5	5	4	3	1	1	0	0	0	3	3	2	4	3	4	4	0	2	3	5	1	0	4	4	5	3
2	3	3	1	6	2	1	2	5	0	7	3	5	7	9	0	0	6	2	1	2	3	7	1	6	3	0	1	2	0	4	4	8	6	7	3	9	5	5	9	4	4	2	1	8	2	5	5	1	5	3	7

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

3	3	3	2	3	2	3	3	3	3	1	1	5	1	3	3	3	3	3	3	1	3	1	3	3	1	1	2	2	1	1	1	3	3	3	2	2	3	4	2	4	4	3	2	1	4	1	3	1	4	4	1

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

1	2	1	1	1	1	2	1	2	1	1	1	1	1	1	2	1	1	1	3	2	2	2	2	3	3	2	2	3	3	1	2	2	2	3	1	2	1	2	1	1	2	2	3	1	1	2	2	1	1	1

0	. . . . . XXXXXXXXXXXX XXXXXXXXXXXX XXX XXX . . . . XXXXXX XXX . . . .
1	. . . . . XXXXXXXXXXXXXXXXXXXXXXXX XXXXXX . . . . XXXXXXXXXX . . . .
4	. . . . . XXXXXXXXXXXXXXXXXXXXXXXX XXXXXX . . XXX XXXXXXXXXX . . . .
9	. XXX . . . . . XXXXXXXXXXXXXXXXXXXXXXX XXXXXX XXX XXX XXXXXXXXXXXX . . .
10	. XXX . . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXX XXXXXXXXXXX . . .
15	. XXX . . XXX . . . . . XXX . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXX XXXXXXXXXXXX . . .
19	. XXX . . XXX . . . . XXX . XXX . . . . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXX XXXXXXXXXXXX . . .
21	. XXX . . XXX . . . . XXX . XXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXX XXXXXXXXXXX . . .
25	. XXX . . XXX . XXX . XXX . XXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXX XXXXXXXXXXXX . . .
28	. XXX . . XXX . XXX . XXX . XXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXXXXXXXXXXX . . .
32	. XXX . . XXX . XXX . XXX . XXXXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXXXXXXXXXXX . . .
37	. XXX . . XXX . XXX . XXX . XXXXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXXXXXXXXXXX . XXX
39	. XXX XXX XXX . XXX . XXX . XXXXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXXXXXXXXXXX . XXX
45	. XXX XXX XXX . XXX . XXXX XXXXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXXXXXXXXXXX . XXX
46	. XXX XXX XXX . XXX . XXXXX XXXXX XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXX . XXX
49	. XXX XXX XXX . XXX . XXXXX XXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXX . XXX
50	. XXX XXX XXXXX XXX . XXXXX XXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXX . XXX
55	. XXX XXX XXXXX XXX . XXXXX XXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX
63	. XXXXXX XXXXX XXX . XXXXX XXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
73	. XXXXXX XXXXX XXX . XXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
82	. XXXXXX XXXXXXXX . XXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
96	. XXXXXX XXXXXXXX . XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
136	XXXXXXXX XXXXXXXX . XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
145	XXXXXXXX XXXXXXXX . XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
160	XXXXXXXX XXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
197	XXXXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
241	XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
388	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A02 is a dental assisting program from site 02. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-7

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 7. PATIENT CARE: PREPARATIONS (13 TASK STATEMENTS)

	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS
	PROGRAM TYPE AND SITE CODE[1]
	H H A A A A A A A A H A A H H H H A A A A A H H H H H H H A A A H H H H H A H A A A H A A A A H H H H H
	3 1 5 5 2 0 3 1 0 2 3 3 4 0 1 3 0 0 0 4 3 1 2 0 3 2 4 0 0 1 1 2 2 2 2 3 4 4 4 3 3 4 3 2 1 2 0 4 3 4 5 5
	1 4 2 3 3 2 9 0 9 0 0 7 2 6 5 3 5 3 1 0 6 4 3 2 6 7 4 7 8 1 3 1 1 2 5 7 2 4 5 2 5 5 9 5 2 7 6 3 8 1 1 0
	TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]
	3 1 4 4 3 3 2 3 3 3 1 1 2 3 1 2 3 3 3 3 3 1 3 3 3 1 4 3 3 3 1 2 2 1 3 1 2 4 4 3 5 4 2 3 3 1 3 1 1 1 2 1
SIMILARITY	CERTIFICATE OR DEGREE AWARDED[3]
VALUE[4]	2 3 1 1 2 1 1 1 1 1 3 1 1 2 1 3 2 1 1 2 1 1 2 2 2 2 1 2 2 1 1 1 2 3 2 1 2 1 1 1 1 1 2 2 1 1 1 3 3 2 2 3
0	. . . . . XXX . . . . XXXXX . . . . XXX . . XXXXXXXXXXXXXXXXXXXXXXX . . . .
1	. . . . . XXX . . . . XXXXX . . . . XXX . . XXXXXXXXXXXXXXXXXXXXXXX XXX
4	. . . . . XXX . . . . . . XXX XXXXXXX . . . . XXX . . XXXXXXXXXXXXXXXXXXXXXXX XXX
9	. . . . . XXX . . . . . . XXX XXXXXXX . . . . XXX . . XXXXXXXXXXXXXXXXXXXXXXXXX . . XXX XXX
13	. . . . . XXX XXX . . . . XXXXXXXXXXX . . . . XXX . . XXXXXXXXXXXXXXXXXXXXXXXXX . . XXX XXX
18	. . . . . XXX XXX . . . . XXXXXXXXXXX XXXXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX . . . XXX
25	. . . . . XXXXXXX . . . . XXXXXXXXXXX XXXXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX . . . XXX
27	. . . . . XXXXXXX . . . . XXXXXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX . . . XXX
28	. . . . . XXXXXXX . . . . XXXXXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX . XXX XXX
30	. . XXX . XXXXXXX . . . . XXXXXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX . XXX XXX
36	. . XXX . XXXXXXXXX . . . XXXXXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX XXXXX XXX
40	. . XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX XXXXX XXX
41	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX . XXX XXXXX XXX
44	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX XXXXX XXXXX XXX
45	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . XXX XXXXX XXXXX XXX
63	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXX XXXXX XXXXX XXX
64	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXX XXXXX XXXXX XXX
71	XXX XXX . XXXXXXXXX . . . XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXX XXX
72	XXX XXX XXXXXXXXXXX . . . XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXX XXX
74	XXX XXX XXXXXXXXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXX XXXXXXXXXXX XXX
81	XXX XXX XXXXXXXXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXX XXX
95	XXXXXXX XXXXXXXXXXX . XXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXX XXX
98	XXXXXXX XXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXX XXX
108	XXXXXXX XXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXX
115	XXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXX
122	XXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXX
142	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXX
144	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX
157	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX
234	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H31 is a dental hygiene program from site 31. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-8

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 8. PATIENT CARE: ANESTHESIA AND MEDICATIONS (31 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

A A A A A A A A H A A H A A H H H A A A A A H A H A H H H H H H H A A H H A H H A H H A H
1 4 0 0 0 0 4 1 0 2 0 4 1 3 3 4 0 3 2 2 3 4 5 1 1 2 2 3 2 3 5 3 2 2 1 0 4 4 3 3 0 3 3 4 3 2 1 5 4 0 5 2
3 4 3 2 9 1 5 0 5 1 6 1 1 5 7 2 8 7 5 3 2 2 0 4 4 7 7 1 3 3 1 0 5 0 2 7 5 0 6 6 6 9 9 3 8 2 5 3 4 2 2 1

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

1 4 3 3 3 3 4 3 3 2 3 1 3 5 1 2 3 1 3 3 3 2 1 1 1 1 1 3 3 2 2 1 3 3 3 3 4 3 3 3 3 2 2 1 1 1 1 4 4 3 4 2

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

1 1 1 1 1 1 1 1 2 1 1 2 1 1 1 2 2 1 2 2 2 1 1 3 1 3 1 3 1 2 2 2 3 2 3 2 1 1 2 1 2 1 2 2 1 2 3 3 3 1 1 1 2 1 2

SIMILARITY VALUE[4]	
4	. . . . . XXX . . . . .
11	. . . . . XXX . . . . .
19	. . . . . XXX XXX . . . . . XXX . . . . .
38	. . . . . XXX XXX . . . . XXX . . . . XXXXX . . . . .
44	. . . . . XXX XXX . . . . XXX . . . XXXXXX . . . . .
62	. . . . . XXX . . XXX XXX . . . . XXX . . . XXXXXX . . . . .
66	. . . . . XXX . . XXX XXX . . . . XXX . . . XXXXXX . . . . . XXX .
70	. . . . . XXX . . XXX XXX . . . . XXX . . . XXXXXX . XXX . . . . . XXX .
80	. . . . . XXX . . XXX XXXXX . . . XXX . . . XXXXXX . XXX . . . . . XXX .
84	. . . . . XXX . . XXX XXXXX . . . XXX . . . XXXXXX . XXX . XXX . . . XXX .
85	. . . . XXX . . . . . XXX . . XXX XXXXX . . . XXX . . . XXX XXX . XXX . XXX . . . XXX .
94	. . . . XXX . . . . . XXX . XXX . . XXX XXXXX . . . XXX . . . XXXXXXXX XXX . XXX . . . XXX .
97	. . . . XXX . . . . . XXX . XXX . . XXX XXXXX . . . XXXXX . . XXXXXXXXX XXX . XXX . . . XXX .
104	. . . . XXX . . . . . XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX . . . XXX .
105	. . . . XXX . . . . . XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX . XXX XXX .
109	. . . . XXX . . . XXX . . . . . XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX . XXX XXX .
111	. . . . XXX . . . XXX . . . XXX XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX . XXX XXX .
115	. XXX . XXX . . . XXX . . . XXX XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX . XXX XXX .
117	. XXX . XXX . . . XXX . . . XXX XXX . XXX . . XXX XXXXX . . . XXXXX XXX XXXXXXXX XXX . XXX XXXXX XXX .
121	. XXX . XXX . . . XXX . . . XXX XXX . XXX . . XXX XXXXX . XXX XXXXX XXX XXXXXXXX XXX . XXX XXXXXXXXX .
130	. XXX . XXX . . . XXX . . . XXX XXX . XXX . . XXX XXXXX . XXX XXXXX XXX XXXXXXXX XXX XXXXX XXXXXXXX .
132	. XXX . XXX . . . XXX . . . XXX XXX XXXXX . . XXX XXXXX . XXX XXXXX XXX XXXXXXXX XXX XXXXX XXXXXXXX .
137	. XXX . XXX . . . XXX . . . XXX XXX XXXXX . . XXX XXXXX . XXX XXXXX XXX XXXXXXXXXXXX XXXXX XXXXXXXX .
140	. XXXXX XXX . . . XXX . . . XXX XXX XXXXX . . XXX XXXXX . XXX XXXXX XXX XXXXXXXXXXXX XXXXX XXXXXXXX .
146	. XXXXX XXX . . . XXX . . . XXX XXXXXXXX . XXXXX XXXXX . XXX XXXXX XXX XXXXXXXXXXXX XXXXX XXXXXXXX .
157	. XXXXX XXX . . . XXX . . . XXX XXXXXXXX . XXXXX XXXXX . XXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
160	XXXXXXX XXX . . . XXX . . . XXX XXXXXXXX . XXXXX XXXXX . XXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
161	XXXXXXX XXX XXX . XXX . . . XXX XXXXXXXX . XXXXX XXXXX . XXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
167	XXXXXXX XXX XXX . XXX XXX . XXX XXXXXXXX . XXXXX XXXXX XXXXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
169	XXXXXXX XXX XXX XXXXX XXX . XXX XXXXXXXX . XXXXX XXXXX XXXXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
191	XXXXXXX XXX XXX XXXXX XXX . XXX XXXXXXXXXX XXXXX XXXXX XXXXX XXXXXXXX XXXXXXXXXXXX XXXXX XXXXXXXX .
206	XXXXXXX XXX XXX XXXXX XXX . XXX XXXXXXXXXX XXXXX XXXXX XXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
220	XXXXXXX XXX XXX XXXXXXXX . XXX XXXXXXXXXX XXXXX XXXXX XXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
221	XXXXXXXXX XXX XXXXXXXX . XXX XXXXXXXXXX XXXXX XXXXX XXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
231	XXXXXXXXXX XXX XXXXXXXX . XXX XXXXXXXXXX XXXXXXXXXX XXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
239	XXXXXXXXXX XXX XXXXXXXX . XXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
250	XXXXXXXXXX XXX XXXXXXXX XXXXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXX XXXXXXXX .
257	XXXXXXXXXX XXX XXXXXXXX XXXXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXX .
293	XXXXXXXXXXXXXX XXXXXXXX XXXXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXX .
301	XXXXXXXXXXXXXX XXXXXXXX XXXXX XXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
307	XXXXXXXXXXXXXX XXXXXXXX XXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
324	XXXXXXXXXXXXXX XXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
353	XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
486	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX
503	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
742	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A13 is a dental assisting program from site 13. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (A36 with H36) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-9

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 9: PATIENT CARE: SURGERY AND SURGICALLY RELATED (63 TASK STATEMENTS)

```
                              DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

                                   PROGRAM TYPE AND SITE CODE[1]

             H A A A A H A H H H H A H H A H H A H H H A A A A A H H H H H A A A A A A A A A A A A A H H A H H H H H
             5 2 1 0 2 3 3 2 4 3 1 1 1 3 2 2 3 5 5 0 0 3 5 4 3 3 2 0 0 3 4 2 4 2 1 0 3 4 4 0 1 0 0 2 4 0 1 4 4 3 3 2
             0 5 0 9 0 1 9 2 3 0 5 4 4 6 7 7 9 2 1 6 5 7 3 0 5 6 3 7 8 3 2 5 5 3 2 2 2 2 4 3 3 1 6 1 1 2 1 5 4 7 8 1

                            TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

             1 3 3 3 3 3 2 1 1 1 1 1 1 3 1 1 2 4 2 3 3 1 4 3 5 3 3 3 3 2 2 3 4 3 3 3 3 2 4 3 1 3 3 2 1 3 3 4 4 1 1 2

SIMILARITY                           CERTIFICATE OR DEGREE AWARDED[3]
 VALUE[4]
             3 2 1 1 1 2 1 3 3 3 1 1 3 2 1 2 2 1 2 2 2 1 1 2 1 1 2 2 2 3 2 2 1 2 1 1 1 1 1 1 1 1 1 1 2 2 1 1 1 1 3 2

  49         . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
  85         . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXX . . . . . .
  99         . . . . . . . . . . . XXX . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . XXX . . . . . .
 109         . . . . . . . . . . . XXX . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . XXX XXX . . . . . .
 131         . . . . . . . . . . . XXX . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . XXX XXX . . XXX . .
 135         . . . . . . . . . . . XXX . . . . . . XXX XXX . . . . . . . . . . . . . . . . . . . XXX XXX . . XXX . .
 139         . . . . . . . . . . . XXX . . . . . . XXX XXX XXX . . . . . . . . . . . . . . . . . XXX XXX . . XXX . .
 143         . . . . . . . . . . . XXX . . . . . . XXX XXX XXX . . . . . . . . . . . . . . . XXX XXX XXX . . XXX . .
 154         . . . . . . . . . . . XXX . . . . . . XXX XXX XXX . . . . . XXX . . . . . . . . XXX XXX XXX . . XXX . .
 155         . . . . . . . . . . . XXX . . . XXX . XXX XXX XXX . . . . . XXX . . . . . . . . XXX XXX XXX . . XXX . .
 159         . . . XXX . . . . . . XXX . . . XXX . XXX XXX XXX . . . . . XXX . . . . . . . . XXX XXX XXX . . XXX . .
 160         . . . XXX . . . . . . XXX . XXX XXX . XXX XXX XXX . . . . . XXX . . . . . . . . XXX XXX XXX . . XXX . .
 162         . . . XXX . . . . . . XXX . XXX XXX . XXX XXX XXX . . . . . XXX . . . . . . . . XXX XXXXXXX . . XXX . .
 166         . . . XXX . . . . . . XXX . XXX XXX . XXX XXX XXX . . . . . XXX . . . . . . . XXXXX XXXXXXX . . XXX . .
 179         . . . XXX . . . . . . XXX . XXX XXXXX XXX XXX XXX . . . . . XXX . . . . . . . XXXXX XXXXXXX . . XXX . .
 185         . . XXXXX . . . . . . XXX . XXX XXXXX XXX XXX XXX . . . . . XXX . . . . . . . XXXXX XXXXXXX . . XXX . .
 187         . . XXXXX . . . . . . XXX . XXX XXXXX XXX XXXXXXX . . . . . XXX . . . . . . . XXXXX XXXXXXX . . XXX . .
 197         . . XXXXX . . . . . . XXX . XXX XXXXX XXX XXXXXXX . XXX . . XXX . . . . . . . XXXXX XXXXXXX . . XXX . .
 204         . . XXXXX . . . . . . XXX . XXX XXXXX XXX XXXXXXX . XXX . . XXX . . . . . . . XXXXX XXXXXXX . XXXXX . .
 208         . . XXXXX . . . . . . XXXXX XXX XXXXX XXX XXXXXXX . XXX . . XXX . . . . . . . XXXXX XXXXXXX . XXXXX . .
 209         . . XXXXX . . . . . . XXXXX XXX XXXXX XXX XXXXXXX . XXX . . XXX . . XXX . . . XXXXX XXXXXXX . XXXXX . .
 217         . . XXXXX . . . . . . XXXXX XXX XXXXX XXX XXXXXXX . XXX . . XXX . . XXX . . XXXXXXX XXXXXXX . XXXXX . .
 219         . . XXXXX . . . . . . XXXXX XXX XXXXX XXX XXXXXXX . XXXXX . XXX . . XXX . . XXXXXXX XXXXXXX . XXXXX . .
 226         . . XXXXX XXX . . . . XXXXX XXX XXXXX XXX XXXXXXX . XXXXX . XXX . . XXX . . XXXXXXX XXXXXXX . XXXXX . .
 235         . . XXXXX XXX . . . XXXXXXX XXX XXXXX XXX XXXXXXX . XXXXX . XXX . . XXX . . XXXXXXX XXXXXXX . XXXXX . .
 241         . . XXXXX XXX XXX . XXXXXXX XXX XXXXX XXX XXXXXXX . XXXXX . XXX . . XXX . . XXXXXXX XXXXXXX . XXXXX . .
 242         . . XXXXX XXX XXX . XXXXXXX XXX XXXXX XXX XXXXXXX . XXXXX . XXX . . XXX XXX XXXXXXX XXXXXXXXX XXXXXXX .
 258         . XXXXXXX XXX XXX . XXXXXXX XXX XXXXX XXX XXXXXXX . XXXXX   XXX . . XXX XXX XXXXXXX XXXXXXXXX XXXXXXX .
 259         . XXXXXXX XXX XXX . XXXXXXX XXX XXXXX XXX XXXXXXX . XXXXX XXXXX . . XXX XXX XXXXXXX XXXXXXXXX XXXXXXX .
 275         . XXXXXXX XXX XXX . XXXXXXX XXXXXXXXX XXX XXXXXXX . XXXXX XXXXX . . XXX XXX XXXXXXX XXXXXXXXX XXXXXXX .
 285         . XXXXXXX XXX XXX . XXXXXXX XXXXXXXXX XXX XXXXXXX . XXXXX XXXXX . . XXX XXX XXXXXXXXXXXXXXXXX XXXXXXX .
 294         . XXXXXXX XXX XXX . XXXXXXX XXXXXXXXX XXX XXXXXXX . XXXXX XXXXX . XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXX .
 298         . XXXXXXX XXX XXX . XXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXX XXXXX . XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXX .
 300         . XXXXXXX XXX XXX . XXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXX . XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXX .
 313         . XXXXXXX XXX XXX XXXXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXX . XXXXX XXX XXXXXXXXXXXXXXXXX XXXXXXX .
 338         . XXXXXXX XXX XXX XXXXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXX . XXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXX .
 355         . XXXXXXX XXXXXXX XXXXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXX . XXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXX .
 370         . XXXXXXX XXXXXXX XXXXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXX .
 372         . XXXXXXX XXXXXXX XXXXXXXXX XXXXXXXXX XXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX .
 379         . XXXXXXX XXXXXXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX .
 412         . XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX .
 417         . XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX
 453         . XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 480         . XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 543         . XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 549         XXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 590         XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 698         XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 895         XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H50 is a dental hygiene program from site 50. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (A14 with H14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-10

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 10. PATIENT CARE: IMPRESSIONS (13 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

H H H A H A H H H H H H H A H H H H H A A H H A A A A H H A A A H H H A A A A A A A H A A A H A A H A A H
0 0 4 1 4 2 0 3 0 5 1 2 4 4 2 4 2 4 3 2 3 5 3 2 3 0 3 3 1 5 5 3 0 3 0 0 2 3 4 1 2 3 0 4 1 2 3 0 2 1 4 1
2 5 4 1 1 1 7 8 6 1 5 1 3 4 2 2 5 5 6 0 9 0 7 3 2 2 7 3 0 3 2 9 8 1 3 6 7 5 5 2 5 0 1 0 3 7 6 9 3 4 2 4

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

3 3 4 3 1 2 3 1 3 2 1 2 1 4 1 2 3 4 3 3 2 1 1 3 3 3 1 2 3 4 4 2 3 3 3 3 1 5 4 3 3 1 3 3 1 1 3 3 3 1 2 1

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

2 2 1 1 2 1 2 3 2 2 1 2 3 1 3 2 2 1 2 1 1 3 1 2 1 1 1 3 1 1 1 2 2 2 1 1 1 1 1 1 1 2 3 1 2 1 2 1 1 2 1 1 3

0 . . . . . XXX .
1 XXXX
2 . . . . . XXX XXXX
7 . . . . . XXX XXXXX
10 . . . . . XXX XXXXXX
12 . . . . . XXX . . . . . XXX . . . . . XXX XXXXXX
16 . . . . . XXX . . . . . XXX . . . . . XXX XXXXXX
18 . . . . . XXX . . . . . XXX . . . . . XXX . . . . XXX . XXX . . . . XXX . . XXXXXX
20 . . . . . XXX . . . . . XXX . . . . . XXX . . . . XXX . XXX . . . . XXX . . XXXXXX
24 . . . . . XXX . . . . . XXX . . . . . XXX . . . . XXX . XXX . . . . XXXXX . XXXXXX
28 . . . . . XXX . . . XXX XXX . . . . . XXX . . . . XXX . XXXXX . . . XXXXX . XXXXXX
29 . . . . . XXX XXX . XXX XXX . . . . . XXX . . . . XXX . XXXXX . . . XXXXX . XXXXXX
30 . . . . . XXX XXX . XXX XXX . . . . . XXX . XXX . XXX . XXXXX . . . XXXXX . XXXXXX
32 . . . . . XXX XXX . XXX XXX . XXX . . . . . XXX . XXX . XXX . XXXXX XXX . XXXXX . XXXXXX
34 . . . . . XXX XXX . XXX XXXXX XXX . . . . . XXX . XXX . XXX . XXXXX XXX . XXXXX . XXXXXX
35 . . . . . XXX . . XXX XXX . XXX XXXXX XXX . . . . . XXX . XXX . XXX . XXXXX XXX . XXXXX . XXXXXX
37 . . . . . XXX . XXXXX XXX . XXX XXXXX XXX . . . . . XXX . XXX . XXX . XXXXX XXX . XXXXX . XXXXXX
39 . . . . . XXX . XXXXX XXX . XXX XXXXX XXX . . . . . XXX . XXX . XXX . XXXXX XXX . XXXXXX XXXXXX
40 . . . . . XXX . XXXXX XXX . XXX XXXXX XXX . . . XXX . . . XXX . XXX . XXX . XXXXX XXX . XXXXXXXXXXXXXX
42 . . . . . XXX . XXXXX XXX . XXX XXXXX XXX . . . XXX . . . XXXXX XXX . XXX . XXXXX XXX . XXXXXXXXXXXXXX
45 . . . . . XXX . XXXXX XXX . XXX XXXXX XXX . . . XXX . . . XXXXX XXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
49 . . . . . XXX . XXXXX XXXXX XXX XXXXX XXX . . . XXX . . . XXXXX XXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
61 XXX . . . XXX . XXXXX XXXXX XXX XXXXX XXX . . . XXX . . . XXXXX XXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
63 XXX . . . XXX . XXXXXXXXXXX XXX XXXXX XXX . . . XXX . . . XXXXX XXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
65 XXX . . . XXX . XXXXXXXXXXX XXX XXXXX XXX . XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
71 XXX . . . XXXXX XXXXXXXXXXX XXX XXXXX XXX . XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
72 XXXXX . XXXXXXX XXXXXXXXXXX XXX XXXXX XXX . XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX . XXXXXXXXXXXXXX
76 XXXXX . XXXXXXX XXXXXXXXXXX XXX XXXXX XXX . XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX XXXXXXXXXXXXXX
80 XXXXX . XXXXXXX XXXXXXXXXXX XXX XXXXX XXXXX XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX XXXXXXXXXXXXXX
86 XXXXX . XXXXXXX XXXXXXXXXXX XXX XXXXX XXXXX XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXX XXXXXXXXXXXXXX
88 XXXXX . XXXXXXX XXXXXXXXXXX XXXXXXX XXXXX XXX XXX . . . XXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXX
93 XXXXX . XXXXXXX XXXXXXXXXXX XXXXXXX XXXXX XXX XXX . XXX XXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXX
94 XXXXX . XXXXXXX XXXXXXXXXXX XXXXXXX XXXXX XXX XXX . "XX XXXXXXXX XXXXX . XXXXX XXXXXXXXXXXXXXXXX
95 XXXXX . XXXXXXX XXXXXXXXXXX XXXXXXX XXXXX XXX XXX . AXX XXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXX
101 XXXXX . XXXXXX XXXXXXXXXX XXXXXXX XXXXX XXXXXX . XXX XXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXX
109 XXXXXXX XXXXXX XXXXXXXXXX XXXXXXX XXXXX XXXXXX . XXX XXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXX
120 XXXXXXX XXXXXX XXXXXXXXXX XXXXXXX XXXXX XXXXXX . XXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
124 XXXXXXX XXXXXX XXXXXXXXXX XXXXXXX XXXXX XXXXXX XXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
127 XXXXXXX XXXXXXXXXXXXXXXX XXXXXXX XXXXX XXXXXX XXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
130 XXXXXXX XXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXX XXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
151 XXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX XXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
185 XXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
207 XXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
230 XXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
284 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
468 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H02 is a dental hygiene program from site 02. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (A14 with A42) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-11

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 11. PATIENT CARE: DENTAL LABORATORY WORK (83 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

A	A	H	A	A	A	H	H	A	A	H	A	A	A	A	A	H	A	H	A	A	H	H	H	H	H	A	H	H	A	A	H	H	H	H	H	H	H	A	A	A	A	A
0	1	1	4	3	0	2	3	0	1	2	0	1	3	3	3	2	0	1	4	0	2	0	3	3	4	4	5	3	4	2	2	2	0	2	3	1	5	5	3	4	4	4	4	0	0	5	3	3	1	2	2
9	4	4	2	6	1	3	0	3	0	7	2	2	2	9	9	7	6	1	5	6	3	8	1	3	3	0	0	8	4	1	1	5	2	2	6	5	2	3	7	2	1	5	4	5	7	1	5	7	3	5	0

TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

3	1	1	2	3	3	3	1	3	3	1	3	3	3	2	2	1	3	3	4	3	3	3	3	2	1	3	1	1	4	2	2	3	3	1	3	1	4	4	1	2	1	4	4	3	3	2	5	1	1	3	3

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

1	1	3	1	1	1	2	3	1	1	2	1	1	1	1	2	1	2	1	1	1	2	2	2	3	3	2	3	3	1	1	2	2	2	3	2	1	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1

1	. XXX . . . . .
61	. XXX . . . . . XXX . . . . .
77	. XXX . . . . . XXX . . . . . XXX . . . . .
79	. XXX . . . . . XXX . . . . . XXX XXX . . . . .
98	. XXX . . . . . XXX XXX . . . . . XXX XXX . . . . .
125	. XXX . . . . . XXX . . . . . XXX XXX . . . . . XXX XXX . . . . .
127	. XXX . . . . . XXX . . . . . XXX XXX . . . . . XXXXX XXX . . . . .
159	. XXX . . . . . XXX . . . . . XXX XXXXX . . . . . XXXXX XXX . . . . .
175	. XXX . . . . . XXX . . . . . XXXXX XXXXX . . . . . XXXXX XXX . . . . .
176	. XXX . . . . . XXX . . . . . XXXXX XXXXX . . . . XXXXXX XXX . . . . .
202	. XXX . . . . . XXX . . . . . XXXXX XXXXX . XXX . XXXXXX XXX . . . . .
232	. XXX . . . . . XXX . . . . . XXXXXXXXXX . XXX . XXXXXX XXX . . . . .
233	. XXX . . . . . XXX XXX . . . . . XXXXXXXXXX . XXX . XXXXXX XXX . . . . .
236	. XXX . . . . . XXX XXX . . . . . XXXXXXXXXX . XXXXX XXXXXX XXX . . . . .
239	. XXX . . . . . XXX XXXXX . . . . . XXXXXXXXXX . XXXXX XXXXXX XXX . . . . .
259	. XXX . . . . . XXX XXXXX . . . . . XXXXXXXXXX . XXXXX XXXXXX XXXXX . . . . .
290	. XXX . . . . . XXX XXXXX . . . . . XXXXXXXXXXXX XXXXX XXXXXX XXXXX . . . . .
292	. XXX . . . . . XXX XXXXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXX . . . . .
309	. XXX . . . . . XXX XXXXX . . . XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXX . . . . .
322	. XXX . . . . . XXX XXXXXXX . . XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXXX . . . . .
330	. XXX . . . . . XXX XXXXXXX . . XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXXX XXX
360	. XXX . . . . . XXX XXXXXXX XXX XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXXX XXX
372	XXXXX . . . . . XXX XXXXXXX XXX XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXXX XXX
396	XXXXX . . . . . XXXXXXXXXX XXX XXX . . . . . XXXXXXXXXXXX XXXXX XXXXXXXXXXXX XXX
410	XXXXX . . . . . XXXXXXXXXX XXX XXX . . . . . XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
417	XXXXX . . . . . XXX . XXXXXXXXXX XXX XXX . . . . . XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
426	XXXXX . . . . . XXX XXXXXXXXXXX XXX XXX . . . . . XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
437	XXXXX . . . . . XXX XXXXXXXXXXXX XXX XXX . . . . . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
447	XXXXX . . . . . XXX XXXXXXXXXXXX XXX XXX . . XXX . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
482	XXXXX . . . . . XXX XXXXXXXXXXX XXX XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
511	XXXXX . . . . . XXX XXXXXXXXXXXXXXX XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
516	XXXXX . . . . XXX XXX XXXXXXXXXXXXXXX XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
518	XXXXX . . . . XXX XXX XXXXXXXXXXXXXXX XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX XXX
529	XXXXX . . . . XXX XXX XXXXXXXXXXXXXXX XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . XXXXX
533	XXXXX . . . . XXX XXX XXXXXXXXXXXXXXX XXXXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . XXXXX
575	XXXXX . . . . XXX XXXXXXXXXXXXXXXXXX XXXXX . XXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . XXXXX
576	XXXXX . . . . XXX XXXXXXXXXXXXXXXXXX XXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . . . XXXXX
584	XXXXX . . . . XXX XXXXXXXXXXXXXXXXXX XXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX XXXXX
592	XXXXX . . . . XXX XXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX XXXXX
637	XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXX XXXXX
655	XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXX
691	XXXXX . XXX . XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXX
708	XXXXX . XXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX XXXXX
742	XXXXX . XXXXX XXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
763	XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
874	XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
894	XXXXX . XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
921	XXXXXXX XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
1129	XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
1144	XXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXX
2589	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A09 is a dental assisting program from site 09. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (A14 with H14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-12

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 12. PATIENT CARE: INSERTIONS AND RESTORATIONS (45 TASK STATEMENTS)

SIMILARITY VALUE[4]	DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS
	PROGRAM TYPE AND SITE CODE[1]
	A A H H H H H H H H A H A A A H H A H A H A H H A A A H H H H H H H A A A H A H A A A A A H H A A A A A
	1 3 1 2 4 2 0 3 2 3 2 0 0 0 4 0 4 1 4 0 2 2 4 0 3 4 1 0 4 3 5 3 5 3 5 5 3 1 1 3 0 2 1 2 4 2 3 2 0 3 3 4
	3 2 5 5 1 2 7 7 7 9 3 6 6 1 4 5 4 1 5 3 1 1 2 2 5 5 2 8 3 8 1 3 0 6 3 2 7 4 4 1 9 5 0 0 0 3 0 7 2 9 6 2
	TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]
	1 3 1 3 1 1 3 1 1 2 3 3 3 3 4 3 4 3 4 3 2 2 2 3 5 4 3 3 1 1 2 2 1 3 4 4 1 1 1 3 3 3 3 3 3 3 1 1 3 2 3 2
	CERTIFICATE OR DEGREE AWARDED[3]
	1 1 1 2 2 3 2 1 2 2 2 2 1 1 1 2 1 1 1 1 2 1 2 2 1 1 1 2 3 3 2 3 3 2 1 1 1 3 1 2 1 2 1 1 2 2 3 1 1 1 1 1
18	. . . . XXX . XXX . . . .
38	. . . . . XXX . . . . XXX . XXX . . . .
54	. . . . . XXX . . . . XXXXX XXX . . . .
71	. . . . . XXX . . . . XXXXX XXX . . . . XXX . . . .
73	. . . . . XXX . . . . XXX XXXXX XXX . . . . XXX . . . .
76	. . . . . XXX . . . . XXX . . XXX XXXXX XXX . . . . XXX . . . .
109	. . . . XXXXX . . . . XXX . . XXX XXXXX XXX . . . . XXX . . . .
124	. . . . XXXXX . . . . XXX . . XXX XXXXX XXX . . . . XXX . XXX . . . .
126	. . . . XXXXX . . . . XXX . . XXXXXXXXX XXX . . . . XXX . XXX . . . .
129	. . XXX XXXXX . . . . XXX . . XXXXXXXXX XXX . . . . XXX . XXX . . . .
147	. . XXX XXXXX . . . . XXX . . XXXXXXXXX XXX . . . . XXX . . XXX . XXX . . XXX . . . .
154	. . XXX XXXXX . . . . XXX . . XXXXXXXXX XXX . . . . XXX . . XXX . XXX . . XXX . . . . . . XXX .
159	. . XXX XXXXX . . . . XXX . . XXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . . XXX . . . . . . XXX .
161	. . XXX XXXXX . . . . XXX . . XXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . . XXX . . . . XXX XXX .
167	. . XXX XXXXXXX . . . XXX . . XXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . . XXX . . . . XXX XXX .
172	. . XXX XXXXXXX . . . XXX . XXXXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . XXXXX . . . . XXX XXX .
177	. . XXX XXXXXXX XXX . XXX . XXXXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . XXXXX . . . . XXX XXX .
186	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXX . . . . XXX . . XXX . XXX . XXXXX . . . . XXX XXX .
194	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXX . . . . XXXXX . XXX . XXX . XXXXX . . . . XXX XXX .
201	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXX . . . . XXXXX . XXX . XXXXX XXXXX . . . . XXX XXX .
204	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXXXX . . . . . . XXXXX . XXX . XXXXX XXXXX . . . . XXX XXX .
205	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXXXX . . . . . . XXXXX . XXX . XXXXX XXXXX . XXX . XXX XXX .
207	. . XXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXXXX . XXX . . . XXXXX . XXX . XXXXX XXXXX . XXX . XXX XXX .
218	. XXXXX XXXXXXX XXX XXXXX . XXXXXXXXXXX XXXXXXX . XXX . . . XXXXX . XXX . XXXXX XXXXX . XXX . XXX XXX .
239	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . . XXXXX . XXX . XXXXX XXXXX . XXX . XXX XXX .
252	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . . XXXXX . XXX . XXXXX XXXXX . XXX . XXXXXXX .
257	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . XXXXXXX . XXX . XXXXX XXXXX . XXX . XXXXXXX .
285	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . XXXXXXX . XXX . XXXXX XXXXXXX XXX . XXXXXXX .
295	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . XXXXXXX . XXX . XXXXX XXXXXXX XXX . XXXXXXXXX
298	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . . XXXXXXX . XXXXX XXXXX XXXXXXX XXX . XXXXXXXXX
302	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXX XXXXXXX . XXX . XXXXXXXXX . XXXXX XXXXX XXXXXXX XXX . XXXXXXXXX
310	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXXXXXXXXXX . XXX . XXXXXXXXX . XXXXX XXXXX XXXXXXX XXX . XXXXXXXXX
331	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXXXXXXXXXX . XXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXX . XXXXXXXXX
337	. XXXXX XXXXXXX XXX XXXXXXX XXXXXXXXXXXXXXXXXXX . XXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXXXX XXXXXXXXX
344	. XXXXX XXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXX . XXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXXXX XXXXXXXXX
345	. XXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXX . XXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXXXX XXXXXXXXX
347	. XXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXXXX XXXXXXXXX
397	. XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXX XXXXX XXXXX XXXXXXX XXXXX XXXXXXXXX
427	. XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXX XXXXX XXXXXXXXXXXXX XXXXX XXXXXXXXX
477	. XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXX XXXXXXXXX
509	. XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXX XXXXXXXXX
526	. XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX
532	. XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXX
627	. XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
653	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
733	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
949	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
1222	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

[1] Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and A13 is a dental assisting program from site 13. (site code is known only by site respondents).

[2] Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3] Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4] The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-13

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 13. PATIENT CARE: ADJUSTMENTS AND REPAIRS (33 TASK STATEMENTS)

```
                              DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

                                  PROGRAM TYPE AND SITE CODE[1]

             H A H A A H A H H A A H H H H H A A A H A A A H H H A H A M A A H H A M A A A H H H H A A A A A H H A M
             5 5 5 2 1 3 3 3 3 3 4 3 2 4 2 0 0 5 3 2 4 0 3 4 2 0 1 3 3 3 2 1 4 1 2 0 0 1 2 0 2 4 4 4 0 4 0 2 3 2 1 1
             0 2 1 5 0 0 6 3 6 5 2 7 2 2 2 7 6 3 9 7 5 2 7 3 5 8 3 8 2 9 3 2 1 5 7 6 3 1 1 5 1 4 5 4 1 0 9 0 1 3 4 4

                           TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

             1 4 2 3 3 1 3 2 3 5 2 1 3 2 1 3 3 4 2 1 4 3 1 1 3 3 1 1 3 2 3 3 1 1 1 3 3 3 2 3 2 4 4 4 3 3 3 3 3 3 1 1

SIMILARITY                         CERTIFICATE OR DEGREE AWARDED[3]
  VALUE[4]
             3 1 2 2 1 3 1 3 2 1 1 1 2 2 3 2 1 1 1 2 1 1 1 3 2 2 1 3 1 2 2 1 2 1 1 2 1 1 1 2 2 1 1 1 1 2 1 1 2 2 1 3

    0        . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . XXXXX . . . . . . . . . .
    9        . . . . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . XXXXX . . . . . . . . . .
   25        . . . . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . XXXXX . . . . . . . . XXX
   26        . . . . . . . . . . . . . . XXX . . . . . . . . . . . . . . . . . . . . . . . XXXXXXX . . . . . . . XXX
   31        . . . . . . . . . . . . . . XXXXX . . . . . . . . . . . . . . . . . . . . . . XXXXXXX . . . . . . . XXX
   32        . . . . . . . . . . . . . . XXXXX . . . . . . . . . . . . XXX . . . . . . . . XXXXXXX . . . . . . . XXX
   36        . . . . . . . . . . . . . . XXXXX . . . . . . . . . . . . XXX XXX . . . . . . XXXXXXX . . . . . . . XXX
   39        . . . . . . . . . . . . . . XXXXX XXX . . . . . . . . . . XXX XXX . . . . . . XXXXXXX . . . . . . . XXX
   46        . . . . . . . . . . . . XXX XXXXX XXX . . . . . . . . . . XXX XXX . . . . . . XXXXXXX . . . . . . . XXX
   50        . . . . . . . . . . . . XXX XXXXX XXX . . . . . . . . . XXXXX XXX . . . . . XXXXXXXXX . . . . . . . XXX
   52        . . . . . . . . . . . . XXX XXXXX XXX . . . . . . . . . XXXXX XXX . . . XXX XXXXXXXXX . . . . . . . XXX
   57        . . . . . . . . . . . . XXX XXXXX XXXXX . . . . . . . . XXXXX XXX . . . XXX XXXXXXXXX . . . . . . . XXX
   73        . . . . . . . . . . . . XXX XXXXXXXXXXX . . . . . . . . XXXXX XXX . . . XXX XXXXXXXXX . . . . . . . XXX
   75        . . . . . . . . . . . . XXX XXXXXXXXXXX . . . . . . . . XXXXX XXX XXX . XXX XXXXXXXXX . . . . . . . XXX
   81        . . . . . . . . . . . . XXX XXXXXXXXXXX . . . . . . . . XXXXX XXX XXXXX XXX XXXXXXXXX . . . . . . . XXX
   90        XXX . . . . . . . . . . XXX XXXXXXXXXXX . . . . . . . . XXXXX XXX XXXXX XXX XXXXXXXXX . . . . . . . XXX
   93        XXX . . . . . . . . . . XXX XXXXXXXXXXX . . . . . . . . XXXXX XXXXXXXXX XXX XXXXXXXXX . . . . . . . XXX
  100        XXX . . . . . . . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXX XXXXXXXXX XXX XXXXXXXXX . . . . . . . XXX
  103        XXX . . . . XXX . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXX XXXXXXXXX XXX XXXXXXXXX . . . . . . . XXX
  115        XXX . . . . XXX . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXXXXXXXXXXXX XXX XXXXXXXXX . . . . . . . XXX
  117        XXX . . . . XXX . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXXXXXXXXXXXX XXX XXXXXXXXXXX . . . . . . XXX
  123        XXX . XXX . XXX . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXXXXXXXXXXXX XXX XXXXXXXXXXX . . . . . . XXX
  126        XXX . XXX . XXX . . . XXXXX XXXXXXXXXXX . XXX . . . . . XXXXXXXXXXXXXXX XXX XXXXXXXXXXX . . . . . XXXXX
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  131        XXX . XXX . XXX . . . XXXXX XXXXXXXXXXXXX XXX XXX . . . XXXXXXXXXXXXXXX XXX XXXXXXXXXXX . . . . . XXXXX
  133        XXX . XXX . XXX . . . XXXXX XXXXXXXXXXXXX XXX XXX . . . XXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . . . . . XXXXX
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  153        XXX . XXX . XXX XXX . XXXXX XXXXXXXXXXXXX XXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . . . . . XXXXX
  154        XXX . XXX . XXX XXX . XXXXX XXXXXXXXXXXXX XXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . XXX . . XXXXX
  177        XXX . XXX . XXX XXX . XXXXX XXXXXXXXXXXXXXXXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . XXX . . XXXXX
  178        XXXXX XXX . XXX XXX . XXXXX XXXXXXXXXXXXXXXXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . XXX . . XXXXX
  207        XXXXX XXX . XXX XXX . XXXXX XXXXXXXXXXXXXXXXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX . XXXXX . XXXXX
  210        XXXXX XXX . XXX XXX . XXXXX XXXXXXXXXXXXXXXXX XXX . . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXX
  213        XXXXX XXX . XXX XXX . XXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXX
  215        XXXXX XXX . XXX XXXXX XXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXX
  218        XXXXX XXX . XXX XXXXX XXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXX
  222        XXXXX XXXXX XXX XXXXX XXXXX XXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXX
  223        XXXXX XXXXX XXX XXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXX
  229        XXXXX XXXXX XXX XXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  241        XXXXX XXXXX XXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  285        XXXXX XXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  297        XXXXX XXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX . XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  334        XXXXX XXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  346        XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXX XXXXX
  353        XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
  354        XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
  484        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
  879        XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H50 is a dental hygiene program from site 50. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

TABLE F-14

HIERARCHICAL CLUSTERING SCHEME, BY CATEGORY, FOR FIFTY-TWO DENTAL AUXILIARY EDUCATION PROGRAMS:

CATEGORY 14. PATIENT CARE: CHAIRSIDE ASSISTING AND CLINICAL SUPPORT (55 TASK STATEMENTS)

DENTAL AUXILIARY PROGRAMS AND IDENTIFIERS

PROGRAM TYPE AND SITE CODE[1]

H H H H A A H A A A A H A H A A A A A A H A H A H H H A H A A A H H A H H H A A A A A H H H H A H H H H H H
0 3 4 1 2 4 0 0 2 4 1 3 3 2 2 1 4 3 3 2 2 3 4 4 3 5 5 1 3 5 5 0 3 3 0 2 1 1 3 0 0 2 0 4 3 2 1 2 0 4 4 0
6 7 2 5 5 4 8 3 3 5 0 6 7 5 0 2 2 2 6 7 7 9 3 0 0 0 1 3 9 3 2 1 1 3 9 3 4 4 5 6 2 1 7 1 8 2 1 1 2 5 4 5

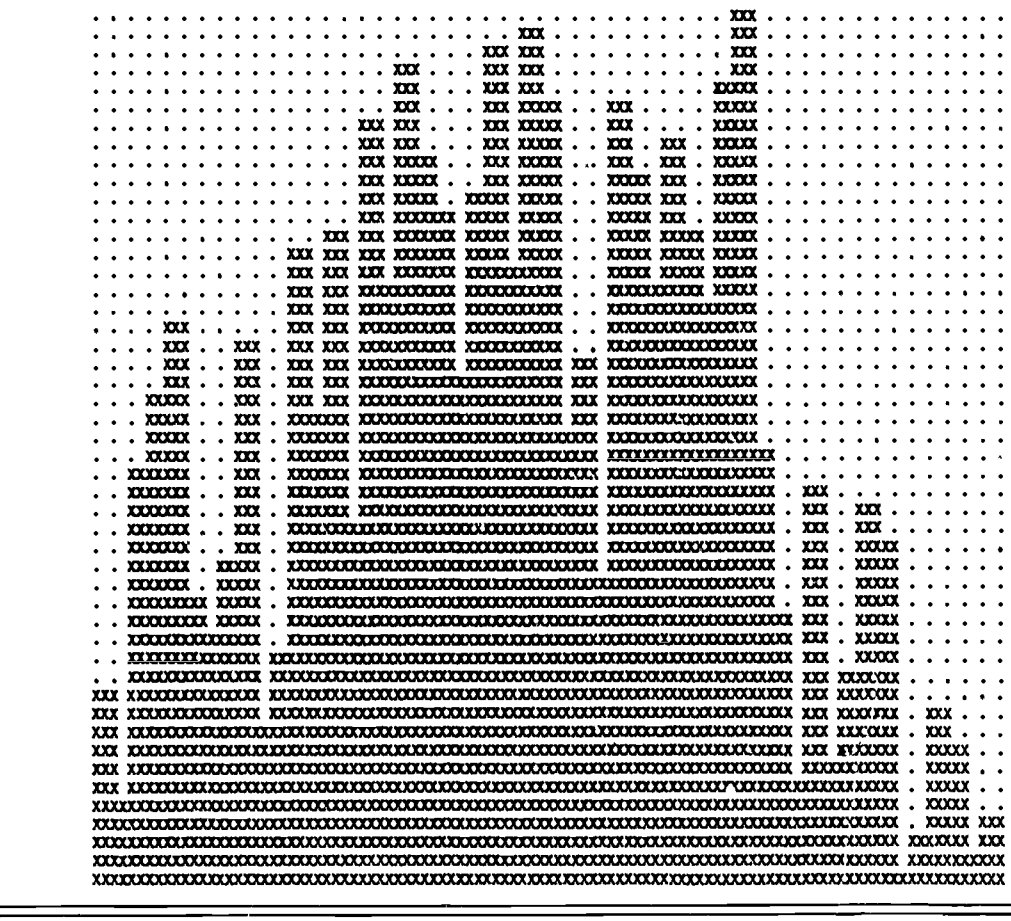
TYPE OF INSTITUTION IN WHICH PROGRAM IS LOCATED[2]

3 1 2 1 3 4 3 3 3 4 3 3 1 3 3 3 2 3 3 1 1 2 1 3 1 1 2 1 2 4 4 3 3 2 3 3 1 1 5 3 3 2 3 1 1 1 3 2 3 4 4 3

SIMILARITY VALUE[4]

CERTIFICATE OR DEGREE AWARDED[3]

2 1 2 1 2 1 2 1 2 1 1 2 1 2 1 1 1 1 1 1 2 1 3 2 3 3 2 1 2 1 1 1 2 3 1 2 3 1 1 1 1 1 2 2 3 3 1 2 2 1 1 2



[1]Dental auxiliary program and site codes: (A) dental assisting, (H) dental hygiene, and H06 is a dental hygiene program from site 06. (site code is known only by site respondents).

[2]Institutional types: (1) senior institution with a dental school, (2) senior institution without a dental school, (3) community college, (4) military, and (5) other.

[3]Certificate or degree awarded: (1) certificate of completion, (2) associate degree, (3) baccalaureate degree.

[4]The "similarity value" is a "least distance" measure of the difference between two or more of the fifty-two program's profiles. The first clustering (H14 with A14) was based on the sum of the squared differences between corresponding components of the profiles. As the similarity values increase, the relative distance increases between the as yet unclustered programs; hence, late clusterings indicate greater differences in program agreement.

APPENDIX G

LETTERS TO NONRESPONDENTS

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF EDUCATION

BUREAU OF EDUCATIONAL RESEARCH

288 EDUCATION BUILDING
URBANA, ILLINOIS 61801
AREA CODE 217 333-[illegible] 1450

Dear

Thank you for taking the time and effort to complete the Dental Auxiliaries Education Study questionnaire. We appreciate the time that you must have given up from doing other more enjoyable things in life.

In reviewing your responses, we note that you inadvertantly missed the enclosed pages. Would you please take a few minutes and complete these few questions so that your booklet is complete. A self-addressed, stamped envelope is also enclosed for your convenience in returning the pages.

Thanks again.

Sincerely,

David R. Terry
Project Director

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF EDUCATION

BUREAU OF EDUCATIONAL RESEARCH

288 EDUCATION BUILDING
URBANA, ILLINOIS 61801
AREA CODE 217 333-[redacted] 1450

Dear

May I take this opportunity to bring you up to date on the progress of the Functional Task Analysis Study being conducted in connection with the Dental Assisting Program in which you are serving as a member of the faculty. We have had a one hundred percent response from the faculty of nearly every program. We are, however, missing your response. May we encourage you to complete your Task Inventory Booklet in order that we may have a one hundred percent response for your school's program.

We appreciate the value of your time and we feel that we can assure that your time will be well spent, particularly since we will be providing a feedback evaluation report of the Dental Assisting Program. May we again sincerely solicit your cooperation in this study.

Thank you for your courtesy and time.

Sincerely,

David R. Terry
Project Director

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF EDUCATION

BUREAU OF EDUCATIONAL RESEARCH

288 EDUCATION BUILDING
URBANA, ILLINOIS 61801
AREA CODE 217 333-1450

Dear

May I take this opportunity to bring you up to date on the progress of the Functional Task Analysis Study being conducted in connection with the Dental Assisting Program in which you are serving as a member of the faculty. We have had a one hundred percent response from the faculty of nearly every program. We are, however, missing your response. May we encourage you to complete your Task Inventory Booklet in order that we may have a one hundred percent response for your school's program.

We appreciate the value of your time and we feel that we can assure that your time will be well spent, particularly since we will be providing a feedback evaluation report of the Dental Assisting Program. May we again sincerely solicit your cooperation in this study.

I have enclosed another questionnaire for your convenience in case you have misplaced the first one. If you are too pressed for time, please respond to at least the task question dealing with "level of responsibility" and let the "time" question go.

Thank you for your courtesy and time.

Sincerely,

David R. Terry
Project Director

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

COLLEGE OF EDUCATION

BUREAU OF EDUCATIONAL RESEARCH

288 EDUCATION BUILDING
URBANA ILLINOIS 61801
AREA CODE 217 333-XXXX 1450

Dear

May we extend our sincere thanks to you and your faculty for the response we received to the Functional Task Analysis Questionnaire of Dental Auxiliary Education Programs. We appreciate your time and effort in making the study a success up to this point.

We are currently in the process of analyzing the responses and, in part, we are looking at the responses to which tasks are taught in your program as reported by (1) the faculty and (2) the preceptors. In considering the manner in which we can make these findings of most value to you, we would like to ask you to consider the following possible report format.

You will recall that we asked you to respond to 560 task statements. These covered several actual or potential areas of work within a dental practice. Now, what we would like to do is to place each of the tasks into one of a select group of categories in an attempt to put related tasks together in such a way that the report of tasks taught (and not taught) will be of value to you in curriculum evaluation and development. We would like to ask you to look at the attached list of suggested categories and evaluate them as to their usefulness to you as categories into which we may place the related task statements. Please be aware that we have tried to keep the list of categories short so that you do not become taxed with an unwieldy list.

We are also enclosing a list of Task Codes which are being used by the U.C.L.A. School of Dentistry's FTA Project. The list of Task Codes is too long to be of value as a group of categories, but it did provide us with the idea of grouping tasks by type of task performed rather than by types of dental practice. You will note, for example, that we used the category "Impressions" and will group together all tasks from across all areas of dental practice where impressions are made.

We would appreciate it if you would react to our proposed categories by making notes or suggestions on our proposed category list itself. Please return your reactions in the enclosed envelope.

Thank you again. We would appreciate your reactions at your earliest convenience. If you have any questions, please call me collect.

Sincerely,

David R. Terry
Project Director