

ATTITUDE OF CANADIAN DENTAL HYGIENISTS
TOWARD MANDATORY CONTINUING EDUCATION

by

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ABSTRACT

Although mandatory continuing education is an important issue for health professionals, little research has been conducted concerning attitudes toward it. In particular, there are few investigations concerning attitude toward mandatory continuing education and possible social or demographic antecedents.

This study reports the results of a survey of Canadian dental hygienists designed to determine the extent to which attitude toward mandatory continuing education is uni- or multidimensional. A second purpose was to examine demographic correlates of attitude toward mandatory continuing education.

A Likert-type scale was devised to measure attitudes toward mandatory continuing education. It was found that the attitude is multidimensional, the first three underlying factors being, Professional Enhancement, Voluntariness, and Program Currentness. Together these three factors account for 52 per cent of the variance in attitude toward mandatory continuing education.

Demographic variables and one psychological dimension, Conservatism, were examined to determine their influence on attitude toward mandatory continuing education and on Professional Enhancement, Voluntariness, and Program Currentness. Some statistically significant relationships were found.

Overall attitude toward mandatory continuing education was correlated positively with the following variables: miles from the nearest dental hygiene school; CDHA membership; the number of professional meetings attended in the past twelve months; offices held in professional associations; per cent of employed years worked full time; the number of continuing education programs attended in the past twelve months; and living where continuing education is mandatory for dentists and hygienists.

Professional Enhancement scores correlated positively with the same variables and "attendance at a discussion of the issues concerning mandatory continuing education". Professional Enhancement scores were negatively correlated with the size of the community lived in.

Voluntariness correlated negatively with all of the variables showing positive correlations for overall favorableness toward mandatory continuing education.

Program Currentness was positively correlated with years since graduation, number of years spent in full time teaching, number of children, age, and locus of program of graduation, and negatively with CDHA membership and living where continuing education is mandatory for dentists.

Although statistically significant, these correlations were generally low. A stepwise multiple regression showed that few variables account for more than one per cent of the variance in overall attitude, Professional Enhancement, Voluntariness, or Program Currentness scores.

It was concluded that attitudes of Canadian dental hygienists toward mandatory continuing education are multidimensional and that no independent variable examined was an influential determinant of either overall attitude or its three principal underlying dimensions. Attitude toward mandatory continuing education was not predicted by variables one would expect to underly such attitudes. Alternatively the issue of mandatory continuing education is so new that the effects of these variables have not yet manifested themselves.

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Chapter 1

In relation to the health professions, continuing education is described as that occurring after basic preparation for practice is completed, and which has a bearing on the delivery of services to the public. The education may be for credit or non-credit, formal or informal, planned or incidental, self- or other -directed (Stuart, 1975).

The practice of many health professionals is limited to those who are registered, certified, or licensed by governments or their agents. Avoiding obsolescence is regarded as a prime responsibility of the health professional; continuing education is essential to avoid obsolescence. Presumably all members of health professions need continuing education.

In recent years there has been an increasing trend for members of health professions to provide proof of participation in a specified amount and type of continuing education to maintain credentials necessary for practice. The issue of mandatory continuing education is therefore one of considerable current interest and the subject of journal articles, surveys, editorials, conferences, and legislation.

A wide range of attitudes concerning mandatory continuing education ranging from strong opposition, ambivalence, to strong approval appears to exist. There are, however, few research studies dealing directly with attitudes toward mandatory continuing education. In particular, there are no reports in the literature on possible demographic or other antecedents of attitudes toward mandatory continuing education, or whether that attitude contains more than one dimension.

Mandatory continuing education entails commitments of large sums of money, educational resources, increased administration and record keeping, difficult decisions concerning who will prescribe the amount and type of education required, difficulties for many individuals in conforming to requirements, and a basic change in the philosophy of the voluntary nature of continuing education for health professionals. In view of these significant implications, it is surprising that research concerning the determinants of attitude toward mandatory continuing education has not been undertaken. If such determinants can be ascertained, understanding of this controversial, sometimes emotional issue will be enhanced.

Objectives of the Study

This study was designed to investigate the following questions:

1. Is attitude toward mandatory continuing education in a group of Canadian dental hygienists unidimensional or multidimensional? Does it reflect a single general predisposition, or are there several underlying factors?
2. To what extent is attitude toward mandatory continuing education influenced by demographic and other factors, such as: remoteness from dental hygiene education centres; years since graduation; program of graduation; increased educational achievement; involvement in professional dental hygiene organisations; career participation; participation in continuing education; involvement with mandatory continuing education; age; marital status; sex; size of community of residence; number of children; and general conservatism?

Hypotheses to be Examined

Because of the lack of reported research concerning attitudes toward mandatory continuing education, this research was largely inductive. A panel of twenty hygienists was asked to assist by describing factors that they felt had influenced their own attitudes toward mandatory continuing education. Several additional factors were chosen on an a priori basis, including demographic variables and one personality characteristic: conservatism. Conservatism was chosen because it was thought likely to be a personality characteristic of influence in attitude toward mandatory continuing education, since it has been linked with conformity, intolerance of ambiguity and authoritarianism (Hicks, 1974). Also, a relatively simple scale to measure conservatism is available (Wilson, 1973).

Most of the variables suggested by the panel or selected by the investigator were used to formulate the following seven hypotheses.

Hypothesis One

Dental hygienists "remote" (in terms of living farther from dental hygiene and dental schools and having graduated long ago) will be less favorably disposed toward mandatory continuing education than hygienists who live close to dental hygiene and dental schools and have graduated recently.

Hypothesis Two

Dental hygienists with "high" levels of educational achievement will be more favorably disposed toward mandatory continuing education than those with "low" levels of educational achievement.

Hypothesis Three

Dental hygienists actively involved with professional organisations will be more favorably disposed to mandatory continuing education than hygienists less actively involved.

Hypothesis Four

Dental hygienists who have participated more actively in a career in dental hygiene will be more favorably disposed to mandatory continuing education than hygienists with less participation in a dental hygiene career.

Hypothesis Five

Dental hygienists with higher levels of participation in continuing education will have a more favorable attitude toward mandatory continuing education than hygienists with lower continuing education participation levels.

Hypothesis Six

Dental hygienists who have considered the issues surrounding mandatory continuing education and have had experience with it will be more favorably disposed toward mandatory continuing education than hygienists who have not considered the issues or had experience with it.

Hypothesis Seven

Conservative dental hygienists will be more likely to favor mandatory continuing education than "liberal" hygienists.

Chapter 2

Review of the Literature

Continuing Education for Health Professionals

Although continuing education is widely accepted as desirable, the premise that it is an effective mechanism to ensure competence is not fully supported by research. Houle (1976) reported a link between continuing education and competence but earlier studies (eg. Lewis, 1970, Shaeffer et al, 1970) failed to establish any relationship.

Participation in continuing education courses varies widely within any health profession. A study of nurses in the United States by Kubat (1975) revealed that most had not attended any continuing education activities. In a review of the literature on continuing education in dentistry, Nakamoto and Verner (1972) found that in the United States only fifteen to 25 per cent of dentists regularly attend continuing education courses.

Earliest reports of continuing education courses specifically designed for dental hygienists appear in the literature in the early 1940's (ADHA 1941). Kline (1975) studied participation patterns in continuing education of dental hygienists in British Columbia. She found that

68.7 per cent of hygienists had attended continuing education courses over a three year period, March 1971 to March 1974. She also found participation to be unrelated to age, marital status, number of children, year of graduation, level of education attained, or employment status. Graduates of dental hygiene programs in the United States participated more in continuing education programs than Canadian graduates ($p < .02$). The socio-economic variables examined had little influence on participation patterns of British Columbia dental hygienists.

In a survey of 2020 Michigan dental hygienists, Malvitz and Judge (1976) found that 21 per cent had never participated in a continuing education activity, and an additional thirteen per cent had not done so in more than three years. Participation rates were higher for hygienists who belonged to the Michigan Dental Hygienists' Association, worked full time, and had education beyond the diploma level.

The fact not all health professionals participate in continuing education is one of the chief reasons given in support of mandatory continuing education. It is argued that if education is necessary to ensure competence, it is essential that all professionals participate.

The Issue of Mandatory Continuing Education

Neylan (1974), in a literature review on maintaining the competence of health professionals, summarized the arguments for and against mandatory continuing education.

Arguments in favor include:

1. Public funding of health services requires quality control over these services.
2. Participation rates in voluntary continuing education are low.
3. Mandatory continuing education will improve the public image of the professions.
4. If continuing education is mandatory, it will help secure public funds for continuing education (similar to undergraduate and graduate education funding).
5. Mandatory continuing education will facilitate self-regulation within the professions.
6. Participation in professional associations will increase if continuing education is mandatory.

Arguments against mandatory continuing education include:

1. Policing requirements will be costly.
2. There is no evidence that mandatory continuing education has a positive impact on care.
3. Access to current information for health professionals is greatly improved.
4. Adults cannot be coerced into learning.
5. Coercion may induce a rebellious attitude mitigating against learning.
6. Compulsion does not generate self-direction.
7. motivation to learn, or a sense of accountability.
7. Coercion is an infringement of civil rights.
8. It is difficult to "prescribe" education for health professionals because of differences in roles, settings, and clientele.
9. Accreditation mechanisms for continuing education are underdeveloped.
10. Mandatory continuing education will generate dependency on institutions rather than a desired emphasis on self-directed learning.

In spite of the controversy, mandatory continuing education has been increasing in the 1970s; it is anticipated that the trend will continue (Pearlman 1974, Derbyshire 1976). Health personnel are more likely than those in other types of occupations to require continuing education and, within the health occupations, longer established professions are more likely to espouse mandatory continuing education. Many emerging groups of health workers, however, also seek mandatory continuing education (Derbyshire 1976).

Dentistry has tended to lead the trend toward mandatory continuing education (Strother and Swinford 1975). At present, three provinces and seven states in the United States require continuing education for dentists. Twenty-eight additional states have the matter under consideration. Of these, five plan to institute mandatory continuing education within three years (ADA 1978).

Ten states have continuing education requirements for relicensure of dental hygienists (ADA 1979). In Canada, British Columbia instituted mandatory continuing education for dental hygienists in January 1979 (BCDHA, 1979). In Saskatchewan, Nova Scotia, and Manitoba, the question is under review.

In light of the increasing trend toward mandatory continuing education which must reflect a favorable attitude toward it, an understanding of the acquisition and structure of attitudes is pertinent.

Acquisition and Structure of Attitudes

In 1935, Allport defined an attitude as

"...a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's responses to all objects and situations with which it is related."

Katz (1960) defined attitude as

"...the predisposition of an individual to evaluate some symbol or object or aspect of his world in a favorable or unfavorable manner."

Triandis (1971) proposed the following definition:

"An attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social situations."

Allport stresses the effect of experience in developing attitudes. Katz introduces the concept of attitude being evaluative in nature. The Triandis definition links attitude with the feelings of the individual in saying that emotion is an integral part of attitude. Although there is some difference in the definitions, there is agreement that attitudes predispose individuals to act toward objects or situations.

Acquisition of Attitudes

Attitudes appear to be learned. Halloran (1970) reported that attitudes are developed, organised, and changed through the experiences of the individual, and that these processes follow standard principles of learning. He cites three main sources of attitude formation: direct experiences with objects and situations; personality development; and explicit and implicit learning from others. Included in the latter is the influence of group affiliation, there being a tendency for the individual to reflect the attitudes and norms of the group with whom he identifies. Reagan and Fazio (1977) suggest that direct behavioral experiences produce attitudes which are more clearly and stably maintained than those formed through more indirect means.

Triandis (1971) states that attitudes can be learned by both classical and operant conditioning. The former occurs when some reinforcing event is associated with a non-reinforcing event, and the latter when a response of the individual is followed by a reinforcing event. In other words, an attitude object may be linked with a rewarding situation (classical conditioning), or a specific type of behavior may be followed by reinforcement, producing attitudes which justify the behavior (operant conditioning).

Staats (1967) showed that attitudinal stimuli are conditioned stimuli that through classical conditioning come to elicit emotional responses. Higher order conditioning is the basis for generalized attitudinal responses. Similarly, operant conditioning of attitudes results from reinforcers such as respect, acclaim, social and personal attention, contingent upon some behaviours but not others. Application of higher order conditioning to attitude formation was also observed by Kanekar (1976), who found that if a model exhibited positive or negative emotional behavior in the context of a particular situation, the relevant emotion was also produced in the observer.

Rhine (1967) linked the acquisition of attitude with concept formation. He describes a concept as a psychological mechanism representing a set of stimulus patterns, and an attitude as being a concept with an evaluative dimension. The essential condition for concept formation is the association between a common response and a variety of stimuli. This common response represents a common mediating process. Mediating processes are more discriminating and less overt the more mature and intelligent the organism or individual is. Verbal mediators are the most significant and these in turn become stimuli for second order concepts. An attitude results when at least one of the first order concepts is an evaluative reaction.

Structure of Attitudes

Triandis (1971) describes attitudes as having three basic components: cognitive or belief elements which describe and perceive the object; an affective component, or core feeling of liking or disliking; and a behavioral component, a tendency to act or behave in a particular way. There is evidence (Rosenberg 1956, Woodmansee and Cook 1967) that the cognitive, affective, and behavioral components are highly integrated. Triandis (1971) proposes that the three components are distinct, and should be measured separately. If, however, the attitudes under investigation are very specific, factor analysis will reveal dimensions that represent mixtures of the three components.

Eysenck (1960) argued that there are two dimensions to political attitude: radicalism-conservatism, and toughmindedness-tendermindedness. In a study of Canadian political attitudes, Singh (1977) found two factors corresponding closely to these dimensions. In a similar vein, Triandis (1971) related political attitudes to two orthogonally related dimensions: concern for collectivity/concern for the individual, and belief in scientific basis for change/belief in change from charismatic leadership.

Comrey and Newmeyer (1965) in a study of the attitudinal dimension of radicalism/conservatism found five separate factors: religious attitude; punitive attitude; nationalism; welfare state attitude; and racial tolerance. Relatively independent attitude dimensions were also found in a study of attitudes toward human fertility (Gaughran et al 1976).

Attitudes do not exist as separate isolated entities but are seen to overlap, integrate, and generally exist in a state of homeostasis in an individual (Halloran 1970). Rokeach (1960, 1968) stated that attitudes are best understood as relating to broad belief systems, such as open mindedness - close mindedness. Similarly, Wilson (1973) and his colleagues argued that most, if not all social attitudes are underlain by a general conservatism factor. Their work resulted in a simple scale measuring the conservatism/liberalism. This general factor is manifested in correlations amongst different attitude areas and concerns a resistance to change, and a tendency to prefer safe, traditional, and conventional forms of institutions and behavior. Hicks (1974) found conservatism to correlate with a tendency to conform, intolerance of ambiguity, and authoritarianism.

Attitudes Toward Mandatory Continuing Education

Research concerning attitude toward mandatory continuing education appears to be limited to surveys on the question of being "for or against" and to questions concerning format and topics (Bauer and Bush 1978, Cafferata et al 1975, Keevil and Cartwright 1976, 1978).

Snyder and Schalgemeir (1973) related background characteristics of Michigan dentists with participation rates in continuing education activities in a jurisdiction where continuing education was voluntary. Kline (1975) did the same for dental hygienists in British Columbia.

No reports could be found which relate background characteristics of individuals to their attitudes toward mandatory continuing education.

Chapter 3

Instrument Development and Method

Operationalization of the Dependent Variable

In order to measure the dependent variable, attitude toward mandatory continuing education, a Mandatory Continuing Education Scale, a Likert type scale consisting of thirteen items, was constructed. For each item a seven-point scale: strongly disagree, moderately disagree, mildly disagree, neutral, mildly agree, moderately agree, and strongly agree, was used. Thirteen items were constructed to measure differences in attitude toward and anticipated results of mandatory continuing education (in different circumstances). The thirteen item scale is shown in Part One, Appendix A.

Values of one to seven were assigned to responses to each of the thirteen items of the MCE Scale. These values correspond to the responses strongly disagree, moderately disagree, mildly disagree, neutral, mildly agree, moderately agree, and strongly agree. The values of seven to one were assigned to the responses of the six items (numbers 2, 4, 5, 7, 10, and 11) where reverse

scoring was used. The MCE Score for each respondent was derived by summing over scores for responses to each of the thirteen items.

The items of the scale include such statements as:

1. Continuing education should be mandatory for all hygienists.

2. Dental hygienists who teach in dental auxiliary programs should be exempt from mandatory continuing education requirements.

In order to reveal the principal dimensions underlying attitude toward mandatory continuing education a factor analysis of scores for the thirteen items of the scale was performed. The first three resulting factor scores were subsequently treated as dependent variables.

Operationalization of the Independent Variables

Because of the lack of previous research into determinants of attitudes toward mandatory continuing education, this research was essentially inductive in nature. It was surmised that the attitude toward mandatory continuing education would be influenced by several types of variables, such as level of education, distance from dental hygiene education centres, years since graduation, and involvement with professional dental hygiene organisations.

Because these assumptions were largely intuitively derived by the investigator, it was decided to enlist the assistance of twenty dental hygienists from across Canada. Twelve were employed in clinical practice, three in auxiliary education, and three in public health, while two were not currently active in their profession. A preliminary request explained the nature of the research and asked panel members to list all factors they thought had been influential in determining their attitude toward mandatory continuing education. In addition, the panel was asked to rank a series of seven offices and positions in professional provincial and national associations indicating a graduation from "less involvement" to "more involvement." All twenty panel members responded. These responses, together with some a priori selections of the investigator, were used to select and operationalize the independent variables as follows:

Hypothesis One: Remoteness from dental hygiene education

1. Miles distant from nearest dental hygiene education program
2. Miles distant from nearest faculty of dentistry
3. Years since graduation

Hypothesis Two: Educational achievement

1. A scale was constructed indicating the following levels of education achieved: diploma in dental hygiene; diploma plus additional credit courses toward a degree; diploma plus bachelors degree; diploma plus masters degree.

Hypothesis Three: Involvement in professional associations

1. Membership in the Canadian Dental Hygienists' Association, (CDHA).
2. Attendance at association meetings for the past twelve months.
3. Attendance at national conventions for the past five years.
4. Offices held in provincial and national associations.

The following scale resulted from the ranking of the twenty member panel of seven offices or positions in order of increasing involvement:

- a. provincial committee member
- b. national committee member
- c. provincial committee chairman
- d. provincial executive member
- e. national committee chairman
- f. CDHA Board member
- g. CDHA executive member

Hypothesis Four: Career participation

1. Years worked as a dental hygienist
2. Per cent of those years worked full time
3. Current employment as a dental hygienist
4. Experience teaching full or part time in dental auxiliary education.

Hypothesis Five: Participation in continuing education

1. Number of continuing education activities attended in the past twelve months
2. Presentation of continuing education programs

Hypothesis Six: Consideration of the issues and experience with mandatory continuing education

1. Attendance at a meeting or discussion about mandatory continuing education
2. Existence of mandatory continuing education for hygienists in that jurisdiction
3. Existence of mandatory continuing education for dentists in that jurisdiction

Hypothesis Seven: Conservatism

1. The Conservatism Scale developed by Wilson et. al. (1973) was used to operationalize conservatism. This scale, unidentified so as not to influence responses, was included as Part III of the questionnaire (See Appendix A).

Additional demographic variables

Because of the inductive nature of the research, some additional demographic variables were included in the questionnaire. While it was felt these variables might have some influence on attitude toward mandatory continuing education, they were not included for hypothesis testing purposes.

These variables were:

1. Sex
2. Marital Status
3. Number of Children
4. Single parent status
5. Age
6. Field of employment
7. Program of graduation in dental hygiene
8. Size of community of residence

Variables were organised into a questionnaire which was pretested by the twenty member panel before being finalised. The final questionnaire appears as Appendix A.

Method

Subjects and design

Data for the "main" study were obtained from a survey of dental hygienists licensed to practice in Canada. The list of hygienists from which the sample was drawn was obtained from the Canadian Dental Hygienists' Association, and included all hygienists registered to practice in the ten provinces of Canada in 1978. Both members and non-members of the Canadian Dental Hygienists' Association were included: 1638 were members of CDHA and 1498 were non-members, for a total of 3136.

The sample was derived by dividing the list into members and non-members, and selecting every sixth name on each list, giving a sample size of 522. Questionnaires were numbered to allow for a follow-up of non-respondents. Five hundred and twenty-two questionnaires accompanied by a covering letter shown in Appendix B were mailed on January 5, 1979. Twenty-three questionnaires were returned by the post office as being undeliverable because of incorrect addresses, leaving a sample population of 499. By February 15th, 1979, 231 responses had been received. On that date a follow-up postcard was sent to non-respondents as a reminder. An additional 73 questionnaires were received after February 15th for a total response of 304 or 60.8 per cent.

Chapter 4

Results

This study was designed to ascertain the extent to which certain variables influence the attitude of a group of Canadian dental hygienists toward mandatory continuing education. Another question concerned the extent to which attitudes of hygienists toward mandatory continuing education are unidimensional or composed of several distinct underlying factors.

The results of the investigation are reported as follows: There is an initial description of the characteristics of the respondents. This is followed by the MCE Score and the factor structure of the MCE Score. Next, results pertaining to the seven hypotheses stated in Chapter 1 are presented. This is followed by regression analyses where the MCE Score was the dependent variable.

Characteristics of the respondents

Three hundred and four of the 499 hygienists surveyed responded, giving a response rate of 61 per cent. As expected, respondents were almost all female (96.7 per cent), and young, the average age being 27.5 years (S.D. = 5.5).

The average respondent had graduated six years ago and worked as a dental hygienist for five years. Twenty-nine per cent graduated from community college based programs, and 71 per cent from university based programs. Eighty per cent were employed as hygienists at the time of the survey.

Most respondents (70 per cent) were members of CDHA, although 73 per cent had never held any provincial or national office in dental hygiene organisations. The response rate for CDHA members (78 per cent) was more than twice as high than for non-members (36 per cent).

Most respondents (74 per cent) lived in jurisdictions where continuing education is not mandatory for dental hygienists. Only 18 per cent have ever attended a discussion or meeting on the topic of mandatory continuing education.

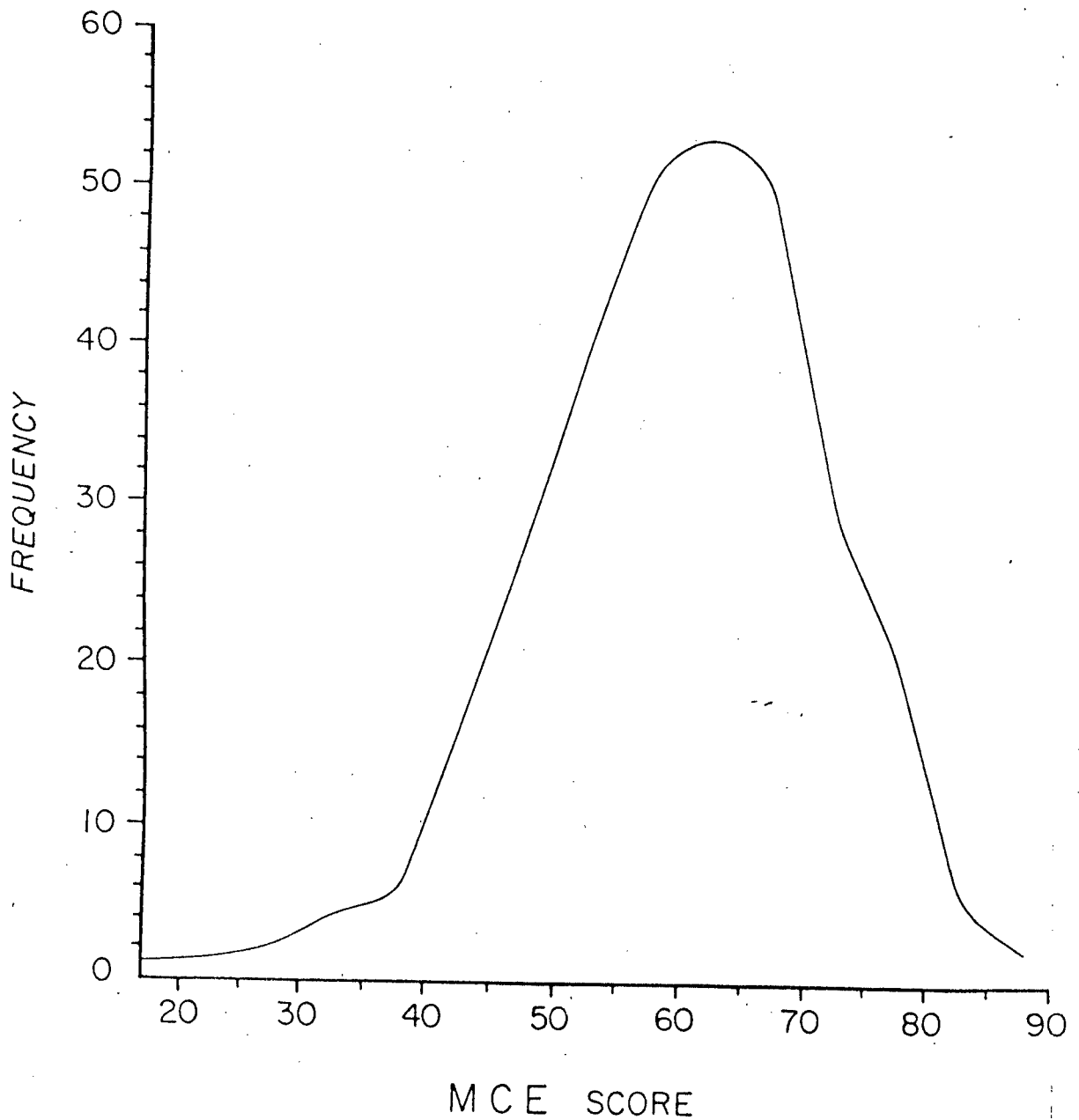
The average number of continuing education programs attended in the preceding twelve months was 2.3, but 28 per cent reported not having attended any continuing education programs during that period.

Fifteen per cent of the respondents have taught in dental auxiliary training programs, on either a full- or part-time basis.

Figure 1 shows the frequency distribution of the MCE Scores.

Figure 1.

Frequency Distribution of MCE Scores



The average MCE Score was 61 (S.D. = 11). The score indicates the average respondent to be mildly in favour of mandatory continuing education. The low standard deviation indicates a fair degree of agreement among respondents.

Factor structure of the MCE Scale

In order to reveal the principal dimensions underlying attitude toward mandatory continuing education, the thirteen MCE item scores were factor analysed with orthogonal rotation. The first three factors accounted for 32.7 per cent, 10.7 per cent and 8.7 per cent of the total variance in MCE Scores respectively. The next five factors each accounted for five per cent or more of the variance, and the remaining five factors ranged between 2.7 per cent and 4.2 per cent in their ability to account for the MCE variance. The first three factors, accounting for 52 per cent of the variance were then retained, interpreted and used in subsequent analyses.

Table 1 shows the item-whole correlations of the thirteen items of the MCE Scale, and their loadings with the first three factors identified by Varimax rotation.

Table 1

Item-whole Correlations and Orthogonally Rotated Factor
Loadings for the MCE Scale

Scale Item	Item-whole Correlation MCE	Varimax Factor I	Rotated Factor II	Factor Matrix Factor III
1	.75	.58*	-.52*	.19
2	-.31	.14	.19	.79*
3	.66	.73*	-.23	-.14
4	-.54	-.19	.65*	.19
5	-.46	-.04	.67*	-.08
6	-.02	.41*	.12	.22
7	-.36	-.17	-.09	.70*
8	.62	.75*	-.17	-.05
9	.62	.66*	-.11	-.31
10	-.74	-.51*	.60*	.11
11	-.47	-.14	.60*	-.01
12	.48	.63*	.12	.10
13	.62	.70*	.26	.05
Variance accounted for		32.7%	10.7%	8.7%
Cumulative Variance		32.7%	43.4%	52.1%

* Loadings $> .40$

With one exception (Item 6) all items of the scale show reasonable correlations (from .31 to .75) with the MCE Score. This means that all items but one tended to measure what the score as a whole measured. The high loading items and their loadings for each of the three principal factors identified by Varimax rotation are shown in Table 2.

TABLE 2.
High Loading Items by Factor Upon Which They Load

ITEM	
<u>Factor I: Professional Enhancement</u>	
	<u>Loading</u>
1. Continuing Education should be mandatory for all dental hygienists.	.58
3. Prestige of Dental Hygiene will grow under a system of mandatory continuing education.	.73
6. Under a system of mandatory continuing education, serving on a provincial or national dental hygiene association executive should qualify as a form of continuing education.	.41
8. Mandatory continuing education will increase competence in dental hygiene practice.	.74
9. Mandatory continuing education for dental hygienists should be written into legislation, not just in bylaws governing dental hygiene practice.	.66
10. Learning is an internal, voluntary process, therefore, mandatory continuing education is wrong in principle.	-.51
13. If continuing education were mandatory, dental hygienists would appreciate their career more.	.70
<u>Factor II: Voluntariness</u>	
1. Continuing education should be mandatory for all dental hygienists.	-.52
4. Continuing education should not be mandatory for hygienists living in remote areas.	.65
5. Continuing education should be mandatory only if employers would be required to give time off with pay for continuing education.	.67
11. Dental hygienists generally participate in enough continuing education to meet their need to remain abreast of developments.	.60
10. Learning is an internal, voluntary process, therefore mandatory continuing education is wrong in principle.	.60
<u>Factor III: Program Currentness</u>	
2. Dental Hygienists who teach in dental auxiliary programs should be exempt from mandatory continuing education requirements.	.79
7. Dental Hygienists who have graduated within three years should be exempt from mandatory continuing education requirements.	.71

The general meaning of each of the three principal dimensions underlying attitude toward mandatory continuing education seems to be discernible.

For Factor I, the three highest loading items indicate a belief that mandatory continuing education will increase the prestige, competence, and appreciation of dental hygiene as a profession. High scoring respondents on this factor believe that requirements for mandatory continuing education should be introduced in legislation, and that continuing education should be mandatory for all hygienists. They reject the premise that learning is an internal, voluntary process and therefore mandatory continuing education is wrong in principle. These hygienists also tend to feel that serving as an officer in professional organisations should qualify as a form of continuing education. Collectively, these seven items indicate a belief that mandatory continuing education can be a strong tool to promote the growth and development of dental hygiene as a profession. This factor was labelled Professional Enhancement. Professional Enhancement score accounts for 32.7 per cent in the variance of MCE Score. Since the profession of dental hygiene is of fairly recent establishment in Canada and is growing at a rapid rate, the fact that Professional Enhancement is the

most important factor in accounting for MCE Score variance is significant. As dental hygienists increasingly perceive themselves as part of an emerging professional group, their attitude toward mandatory continuing education is likely to be increasingly influenced by their desire to enhance the prestige and competence of their profession.

High loading items for Factor II were exemption from mandatory continuing education requirements for hygienists living in remote areas, a belief that hygienists already participate in enough continuing education to meet their needs, requirement for time off with pay if continuing education were to be mandatory, and a belief that learning is an internal voluntary process. There was a negative relationship between Factor II scores and the statement that continuing education should be mandatory for all dental hygienists. These items relate to a belief that continuing education should be a voluntary activity. Factor II was labelled as "Voluntariness".

Voluntariness accounted for 10.7 per cent of variance in MCE Scores. The fact that Professional Enhancement and Voluntariness are the two strongest underlying dimensions of attitude toward mandatory continuing education exposes a possible source of ambivalence on the issue: a hygienist might believe philosophically that continuing education should be voluntary, yet also perceive it to be a potentially powerful mechanism for the development and growth of the profession.

There were two items loading highly on Factor III. They were a belief in exemption from mandatory continuing education requirements for dental auxiliary educators, and also for hygienists who had graduated within three years. Hygienists with high scores for this factor obviously believe that dental hygiene education programs are up to date in their content, and producing graduates whose competence is assured for at least a three year period. Factor III accounted for 8.7 per cent of the variance in MCE Score, and was given the label Program Currentness.

The first three orthogonal factors account for 52.1 per cent of the variance in MCE Scores. This fact, and the identification of eight other minor factors suggest that attitudes toward mandatory continuing education as measured by this scale appear to contain several separate components represented by groups of items on the scale.

Testing the Hypotheses

The seven hypotheses were tested by examining relationships between MCE Scores and scores for Professional Enhancement, Voluntariness, and Program Currentness, and independent variables appropriate for each hypothesis. The results are summarized in Tables 3 to 9. The relationships are shown as correlations for interval data and dichotomous data, and as analyses of variance for nominal data.

Hypothesis One: Dental hygienists who are "remote" in terms of living farther from dental hygiene and dental schools and having graduated longer ago will be less favorably disposed toward mandatory continuing education than hygienists who live closer and have graduated more recently.

The variables chosen to operationalize "remoteness" were miles from nearest dental hygiene school, miles from nearest dental school, and years since graduation. The relationship of these variables to MCE Score, Professional Enhancement, Voluntariness, and Program Currentness is shown in Table 3.

Table 3

Relationships Between MCE Scores, Professional Enhancement, Voluntariness, Program Currentness and "Remoteness" Variables

Independent Variable	MCE	Correlation		
		Professional Enhancement	Voluntariness	Program Currentness
Miles from dental hygiene school	.13*	.16**	-.13*	-.06
Miles from dental faculty	.01	-.02	-.02	.00
Years since graduation	-.01	-.06	-.04	.12*

n=304 *p < .05, **p < .01, ***p < .001

Post-high school education required for dental hygienists in Canada is two, or in some provinces three years, leading to a diploma or certificate.

It was expected that the longer the time lapse from this basic preparation for practice, the less favorable would be the attitude to mandatory continuing education. Similarly, because of difficulties of access to major sources of continuing education, those living farther from schools of dental hygiene and faculties of dentistry were expected to be less in favor of mandatory continuing education than those living near the facilities.

Distance from the nearest faculty of dentistry showed no significant correlation with MCE Scores or any of the scores for the three principal underlying factors.

Distance from the nearest school of dental hygiene was correlated positively with MCE Score ($p < .05$). This means hygienists living farther from a school of dental hygiene were more in favour of mandatory continuing education, contrary to expectations. This variable was also significantly correlated with the score for Professional Enhancement (Factor I) ($p < .01$), indicating that hygienists farther from dental hygiene schools were more likely to perceive that mandatory continuing education would increase professional

status and competence. Correlations with Voluntariness (Factor II) are negative ($p < .05$); hygienists living farther from a school of dental hygiene are less likely to endorse "voluntariness" in continuing education than those living nearby.

"Years since graduation" did not correlate with MCE Score, Professional Enhancement or Voluntariness, but was significantly associated with Program Currentness, a belief in the currentness of dental hygiene education ($p < .05$). In other words, the longer the time since a hygienist had graduated, the more likely she was to believe in the currentness of knowledge of dental hygiene educators and recent graduates.

The correlations noted, even though statistically significant, were low, and even more important, in a direction opposite to that predicted by the hypothesis. Hypothesis One was thus rejected.

Hypothesis Two: Dental hygienists with "high" levels of educational achievement will be more favorably disposed toward mandatory continuing education than those with "low" levels of educational achievement.

Table 4 shows correlations between level of education achieved and MCE Score and scores for Professional Enhancement, Voluntariness, and Program Currentness.

Table 4

Relationship Between MCE Score, Professional Enhancement, Voluntariness, Program Currentness and Educational Achievement

Independent Variable	MCE	Correlation		
		Professional Enhancement	Voluntariness	Program Currentness
Level of education received	.04	.01	-.08	-.02

n=304 *p < .05, **p < .01, ***p < .001

It was supposed that increased educational achievement would predispose hygienists to consider additional education to be of importance to hygienists, and therefore that it should be mandatory.

The results showed no significant correlation between increased educational achievement and MCE Score, or any of the three principal dimensions of attitude toward MCE. Attitude toward mandatory continuing education is independent of the amount of formal education completed by Canadian dental hygienists. The hypothesis must be rejected.

Hypothesis Three: Dental hygienists actively involved with professional organisations will be more favorably disposed to mandatory continuing education than hygienists less actively involved.

The variables chosen to operationalize involvement with professional organisations were CDHA membership, number of association meetings attended in the last twelve months, number of national conventions attended in the last five years, and a scale of offices in provincial and national organisations. The relationship of these variables to MCE Score, Professional Enhancement, Voluntariness, and Program Currentness is shown in Table 5.

Table 5

Relationship Between MCE Score, Professional Enhancement, Voluntariness, Program Currentness, and Involvement with Professional Associations

Independent Variable	Correlation			
	MCE	Professional Enhancement	Voluntariness	Program Currentness
CDHA membership	.19***	.14*	-.16**	.21***
Meetings attended in last 12 months	.13*	.12*	-.13*	-.07
National conventions attended last 5 years	.01	-.01	.02	.01
Offices held, prov. or national association	.14*	.13*	-.14*	-.10

n = 304 *p < .05, **p < .01, ***p < .001

It was expected that hygienists more involved with the activities of their professional associations would be more in favour of mandatory continuing education than less involved hygienists. Moreover, it was expected that the higher the office held, according to the scale described in Chapter 3, the more in favour of mandatory continuing education the hygienist would be.

CDHA membership, attendance at professional meetings in the past twelve months, and scores on the "office held" scale did show significant positive correlations with MCE Scores ($p < .001$, $.05$, and $.05$, respectively). These three variables were also significantly and positively correlated with Professional Enhancement, as defined by Factor I ($p < .05$ in each case). These three variables were all negatively correlated with Factor II, or Voluntariness in continuing education ($p < .05$).

CDHA members differed from non members in being more likely to believe that recent graduates and teachers should not be exempt from MCE requirements (Factor III, Program Currentness, $p < .001$).

There was no significant correlation between MCE Score, Professional Enhancement, Voluntariness, or Program Currentness, and the number of national conventions attended in the last five years. This variable was considered to be a less

important measure of professional organisation involvement than the other three, because attendance at national meetings is influenced by cost of travel, getting time off work, and suchlike.

The results depicted in Table 5 support the hypothesis that increased involvement in professional organisations will increase favorableness toward mandatory continuing education, and the hypothesis is accepted.

Hypothesis Four: Dental hygienists who have participated more actively in a career in dental hygiene will be more favorably disposed to mandatory continuing education than hygienists with less participation in a career in dental hygiene.

The variables chosen to operationalize participation in a career in dental hygiene were: years worked as a dental hygienist; per cent of employed years worked full time; current employment as a dental hygienist; hours of work per week if currently employed; teaching experience; years of full time teaching; and years of part time teaching. The relationship of these variables to MCE Score, Professional Enhancement, Voluntariness, and Program Currentness are shown in Table 6.

Table 6

Relationship Between MCE Score, Professional Enhancement,
Voluntariness, Program Currentness, and Career Participation

Independent Variable	Correlation			
	MCE	Professional Enhancement	Voluntariness	Program Currentness
Years worked as a dental hygienist	— -.03	-.06	-.01	.05
Per cent employed years worked full time	.12*	.14*	-.12*	— -.03
Current employment in dental hygiene	— -.03	-.06	.11	-.08
Hours of work per week	.02	— -.01	.04	— -.09
Teaching experience	.06	.06	-.08	.01
Years full time teaching	.04	-.04	.00	.14*
Years part time teaching	.05	-.01	.05	— -.05

n = 304 *p < .05, **p < .01, ***p < .001

Significant relationships were found between the variable "per cent of employed years worked full time" and MCE Score, Professional Enhancement, and Voluntariness. These correlations were positive for MCE Score and Professional Enhancement and negative for Voluntariness, all denoting increased favorableness toward mandatory continuing education, a belief that mandatory continuing education will enhance the prestige and competence of dental hygiene, and a decrease in the belief of voluntarism in continuing education, with an increase in the portion of employed years being full time. These correlations were all significant at the .05 level. Factor III, Program Currentness in dental hygiene education, correlated with number of years full time teaching at the .05 level. The remaining variables failed to show any significant correlation with any of the four scores examined, however, and the weight of the data leads to the rejection of the hypothesis.

Hypothesis Five: Dental hygienists with higher levels of participation in continuing education will be more favorably disposed toward mandatory continuing education than hygienists with lower continuing education participation levels.

Increased participation in continuing education was operationalized by two variables: the number of continuing education programs attended during the past twelve months, and whether or not the respondent had ever presented a continuing education program. The correlations of these two variables with MCE Score, Professional Enhancement, Voluntariness, and Program Currentness appear in Table 7.

Table 7

Relationship Between MCE Score, Professional Enhancement, Voluntariness, Program Currentness, and Variables for Participation in Continuing Education

Independent Variables	Correlation			
	MCE	Professional Enhancement	Voluntariness	Program Currentness
Continuing education programs attended in last 12 months	.16**	.13*	-.17**	-.08
Presented a continuing education program	.02	-.03	-.06	-.02

n = 304 *p < .05, **p < .01, ***p < .001

It was anticipated that the more continuing education programs a hygienist attended the more likely she was to feel that all hygienists should attend such programs, and that it should be mandatory for hygienists to attend.

The correlations indicate that the number of continuing education programs attended in the past twelve months is associated with increase in overall favorableness toward mandatory continuing education ($p < .01$), a belief that it increases status and competence for the profession ($p < .05$), and less belief in the voluntariness of continuing education ($p < .01$). The number of programs attended was not related to Program Currentness, the belief that recent graduates and teachers should be exempt from mandatory continuing education requirements.

There was no correlation between presenting a continuing education program and scores for Professional Enhancement, Voluntariness, and Program Currentness or for MCE Score. It should be noted, however, that only 25 hygienists, or 8.3 per cent of the total respondents reported having presented such a program.

The data tend to support the hypothesis that increased participation in continuing education increases favorableness toward mandatory continuing education, and the hypothesis is accepted.

Hypothesis Six: Understanding the issues and involvement with mandatory continuing education will increase favorableness toward mandatory continuing education.

The variables used to test this hypothesis were attendance at a meeting or discussion on the topic of mandatory continuing education, residence in a jurisdiction where continuing education is mandatory for hygienists, and residence in a jurisdiction where it is mandatory for dentists.

Table 8 shows the correlations of these variables with MCE Score and with scores on Professional Enhancement, Voluntariness, and Program Currentness.

Table 8

Relationship Between MCE Score, Professional Enhancement, Voluntariness, Program Currentness and Variables for Understanding of and Involvement with Mandatory Continuing Education

Independent Variable	MCE	Correlation		
		Professional Enhancement	Voluntariness	Program Currentness
Attended meeting or discussion on topic	.09	.18**	-.11	.01
Living where cont. ed. is mandatory for hygienists	.15**	.15**	-.21***	-.04
Living where cont. ed. is mandatory for dentists	.19***	.16**	-.17**	-.14*

n = 304 *p < .05, **p < .01, ***p < .001

It was supposed that the existence of mandatory continuing education in the jurisdiction, for dental hygienists or for dentists, would predispose hygienists to be more in favor of mandatory continuing education, because it would represent a decision of leaders of the professions. Sanctioning of the principle by leaders would provide a model, and induce a like attitude in group members, as Kanekar (1976) suggested. It might also provide rewards of social approval from leaders to hygienists also professing to be in favor of mandatory continuing education, resulting in operant conditioning as described by Staats (1967), and Rhine (1967).

Attendance at a meeting or discussion on the topic of mandatory continuing education did not increase overall MCE Score, nor did it influence scores for Voluntariness and Program Currentness. But hygienists who had attended discussions did perceive mandatory continuing education to enhance professional status and competence more than hygienists who had not attended such a meeting. (Factor I, $p < .01$).

Residing in a jurisdiction where continuing education is mandatory for hygienists and where it is mandatory for dentists both significantly influence attitudes toward

mandatory continuing education. Significant positive correlations exist between MCE Score and mandatory dental hygiene continuing education ($p < .01$), and mandatory dental continuing education ($p < .001$).

Scores for Professional Enhancement also show significant positive correlations with these two variables ($p < .01$ in each case), meaning that hygienists who live where there is mandatory continuing education for hygienists or dentists were more likely to see it as enhancing the prestige and competence of dental hygiene than did hygienists living in other areas. Correlations between these two variables and voluntariness were negative ($p < .001$ and $p < .01$ respectively). Hygienists living where continuing education is mandatory for hygienists or dentists were thus less likely to profess support for voluntary continuing education than hygienists living elsewhere.

Hygienists living in jurisdictions with mandatory continuing education for dentists were more likely to deny exemption from mandatory continuing education requirements for recent graduates and teachers (Factor III) than were hygienists living in other areas. This particular differentiation of attitudes did not hold true for hygienists living/not living in a jurisdiction with mandated continuing education for hygienists.

At the time of the survey (January 1979), British Columbia was the only province requiring continuing education for hygienists, and the regulation had only come into force that same month. The differences in attitude for this variable, therefore, reflect a response to the decision to implement mandatory continuing education rather than actual experience with the requirement.

Where they exist, mandatory continuing education requirements for dentists are of longer standing. Differences in scores for hygienists living in these areas probably mean that hygienists perceive the system to work well for the dental profession. It may also represent modelling, as noted earlier, by a professional group with greater status and power.

This hypothesis attempted to deal with two aspects: understanding of the issue, and involvement with mandatory continuing education. The data on the first aspect tend to be ambiguous, but on the second the relationships are evident. The hypothesis therefore should be accepted in a modified form: Dental hygienists who have had experience with mandatory continuing education will be more favorably disposed toward it than hygienists who have not had experience with it.

Hypothesis Seven: Dental hygienists who are more conservative in outlook will be more likely to favor mandatory continuing education than less conservative hygienists.

The variable used to operationalize conservative outlook was the Conservatism Scale devised by Wilson et al (1973). As shown in Table 9, scores on this scale did not correlate with any of the factor scores or with the MCE score.

Table 9

Relationship Between MCE Score, Professional Enhancement, Voluntariness, and Program Currentness and Conservatism Score

Independent Variable	Correlation			
	MCE	Professional Enhancement	Voluntariness	Program Currentness
Score on conservatism scale	.04	.03	-.06	.04

n = 304 *p < .05, **p < .01, ***p < .001

It may be that the trait of conservatism actually influences both for and against favorableness toward mandatory continuing education. If, as found by Hicks (1974), conservatism correlates with authoritarianism, it would tend to support favorableness toward mandatory continuing education. On the other hand, conservatism also correlates with resistance to change (Wilson, 1973). Since implementation of mandatory continuing education in most areas would represent a change, more conservative hygienists might not be in favor. Thus conservatism and attitudes toward mandatory continuing education may lie in an orthogonal relationship to each other.

In any case, the hypothesis that hygienists who are more conservative in outlook will be more likely to favor mandatory continuing education was not supported. The hypothesis was rejected.

Additional demographic variables

In addition to the variables used to test the seven hypotheses, eight additional demographic variables were examined to determine their relationship, if any, to the MCE Score, Professional Enhancement, Voluntariness, and Program Currentness. The results are presented in Table 10.

Table 10

Relationship Between MCE Score, Professional Enhancement, Voluntariness,
Program Currentness and the Demographic Variables

Independent Variable	Correlation r (dichotomous interval data)				Analysis of Variance (F ratio) (nominal data)			
	MCE	Professional Enhancement	Voluntariness	Program Currentness	MCE	Professional Enhancement	Voluntariness	Program Currentness
sex	#	#	#	#	x	x	x	x
marital status	x	x	x	x	1.67	1.61	1.39	1.55
number of children	-.07	-.08	.01	.15**	x	x	x	x
single parent status	#	#	#	#	x	x	x	x
age	.06	-.08	-.01	.15**	x	x	x	x
field of employment	x	x	x	x	.80	.99	1.32	1.60
locus of program	.02	.02	-.07	.12*	x	x	x	x
size of community	-.09	-.12*	.09	.05	x	x	x	x

n = 304 * p < .05, ** p < .01, *** p < .001

= cell numbers insufficient to conduct valid analysis

x = type of analysis not applicable

Cell numbers for two of the variables, sex, and single parent status, were insufficient to conduct a valid analysis.

For the remaining variables, there were no significant levels of correlation or analysis of variance with MCE Score and Voluntariness.

Professional Enhancement showed negative correlation with size of community, indicating that the larger the community of residence, the less likely hygienists were to link MCE with an increase in professional prestige and competence.

Program Currentness correlated significantly with three variables. There was a positive correlation with age ($p < .01$). A positive correlation was also found with number of children ($p < .01$) and locus of program of graduation ($p < .05$), graduates from university based programs being more likely to score highly on Program Currentness than graduates of community college based programs. Program Currentness did not correlate with marital status, field of employment, or size of community of residence.

From these results, it is apparent that these additional demographic variables do not appreciably influence attitude toward MCE.

Regression Analysis

The apparent absence of powerful relationships between the three components of MCE Scores and the independent variables, coupled with the inductive nature of the investigation, led to a decision to undertake a stepwise multiple regression analysis to determine which independent variables predict attitude toward mandatory continuing education as operationalized by MCE Score, Professional Enhancement, Voluntariness, and Program Currentness. The results are reported in Tables 11, 12, 13 and 14 respectively.

Table 11
Summary of Regression Equation
Effects of Independent Variables on MCE Score

Variable (in order of entry)	Multiple R	Cumulative ² R	Simple r	Beta
Cont. ed. mandatory for dentists	.19	.035	.19	.10
CDHA membership	.25	.065	.19	.15
Miles from nearest dental hygiene school	.28	.081	.13	.14
Per cent of employed years worked full time	.31	.095	.14	.11
Attendance at professional meetings, last 12 months	.33	.107	.13	.10

Only five variables entered the regression equation for MCE Score. Together, these explain only 10.7 per cent

of the variance. The most powerful predictors of MCE Scores are mandatory continuing education for dentists (3.5 per cent), and membership in CDHA (3 per cent). Three additional variables, distance from the nearest school of dental hygiene, per cent of employed years worked full time, and number of professional meetings attended in the past twelve months, each account for slightly more than one per cent of the variance. It can be seen from these results that none of the variables account for a substantial variance in MCE Scores.

Persons most likely to score highly on the MCE Scale live in a jurisdiction where continuing education is mandatory for dentists, are members of CDHA, live farther from the nearest school of dental hygiene than "low scorers", have worked a greater proportion of their employed years on a full time basis, and have attended more professional association meetings in the past twelve months than have "low scorers".

Attitude toward mandatory continuing education has been shown to be multidimensional in nature. It is not surprising therefore that an examination of regression equations for the three principal factors reveals predictor variables different from MCE Score.

Table 12

Summary of Regression Equation
Effects of Independent Variables on Professional Enhancement

Variable (in order of entry)	Multiple R	Cumulative R^2 R	Simple r	Beta
Attended meeting on topic	.18	.034	.18	.10
Per cent of employed years worked full time	.24	.058	.16	.10
Miles from nearest dent. hyg. school	.29	.083	.17	.19
Cont. ed. mandatory for dentists	.32	.100	.16	.09
Miles from nearest faculty of dentistry	.34	.114	-.03	-.15
Attendance at professional meetings, last 12 months	.36	.127	.12	.09

Six independent variables account for more than 1 per cent of the variance in Professional Enhancement score (Factor I) which links mandatory continuing education with increased status and competence for the dental hygiene profession. The most influential of these six variables was

attendance at a meeting or discussion on the issue, and it accounted for 3.4 per cent of the variance in Factor I scores. Other variables explaining more than one per cent of the variance were, in descending order, percentage of employed years worked full time, distance from nearest dental hygiene school, living in a jurisdiction where continuing education is mandatory for dentists, distance from the nearest faculty of dentistry, and the number of professional meetings attended in the past twelve months. In comparison with hygienists showing low scores for Professional Enhancement, high scorers exhibited the following characteristics: they had attended a meeting or discussion on the topic of mandatory continuing education; had spent more of their employed years working full time; lived farther from a school of dental hygiene; were more likely to live in an area where continuing education is mandatory for dentists; lived closer to a faculty of dentistry; and had attended more professional meetings over the past twelve months, than low scorers.

As was true for the MCE Score, the variables identified as having the best predictive power are not strong predictors. The six variables which each explain one per cent or more

of the variance in Professional Enhancement scores together only account for 12.7 per cent of the total variance.

Table 13

Summary of Regression Equation
Effects of Independent Variables on Voluntariness

Variable (in order of entry)	Multiple R	Cumulative ² R	Simple r	Beta
Cont. ed. mandatory for dental hygienists	.21	.044	-.21	-.19
Attendance at cont. ed. programs, last 12 months	.27	.074	-.81	-.19
Size of community	.30	.089	.10	.11
CDHA membership	.33	.107	-.16	-.13
Current employment as dental hygienist	.35	.121	.11	.10
Per cent of employed years worked full time	.36	.131	-.13	-.08
Taught in dental auxiliary program	.37	.140	-.08	-.09

Seven independent variables accounted for one per cent or more of the variance in Voluntariness; together they accounted for fourteen per cent of the variance. Living in a jurisdiction where continuing education is mandatory for dental hygienists was the most powerful predictor, accounting for 4.4 per cent of the variance. An additional 3 per cent of variance was accounted for by the number of continuing education programs attended in the last twelve months. Size of community, membership in CDHA, current employment as a dental hygienist, per cent of employed years worked full time, and teaching experience in a dental auxiliary program were the other variables.

Hygienists who scored high on Voluntariness were, in comparison with low scorers, living in an area where continuing education is not mandatory, attended fewer continuing education programs in the past twelve months, lived in a larger community, were not members of CDHA, were currently employed as dental hygienists, had worked fewer of their employed years on a full time basis, and have not taught in a dental auxiliary program.

Four independent variables had predictive power of one per cent or better for scores on Program Currentness, which advocates exemption from mandatory continuing education requirements for teachers and recent graduates. A summary table for the regression equation for Program Currentness is presented in Table 14.

Table 14

Summary of Regression Equation
Effects of Independent Variables on Program Currentness

Variable (in order of entry)	Multiple R	Cumulative R^2	Simple r	Beta
CDHA membership	.21	.042	-.21	-.18
- Years teaching full time	.25	.062	.14	.15
Graduated from university program	.28	.077	.12	.16
Cont. ed. mandatory for dentists	.31	.096	-.15	-.13

Membership in CDHA had the most predictive power, accounting for 4.2 per cent of the variance. Three other variables accounted for between one and two per cent of the variance each. These are years spent full time teaching, graduation from a university based dental hygiene program, and living in a jurisdiction with mandatory continuing education for dentists.

In relation to respondents who had low Factor III scores, those believing in Program Currentness were less likely to be members of CDHA, if they had teaching experience they had spent fewer years in full time teaching, had more likely graduated from a university-based dental hygiene program than a community college program, and were less likely to live in a jurisdiction where continuing education is mandatory for dentists. However, together these four variables accounted for no more than 9.6 per cent of the variance in Factor III.

It is noteworthy that no variable proved to be a very strong predictor for Professional Enhancement, Voluntariness, or Program Currentness. Even when all variables contributing one per cent or more to score variance are added together, the highest amount of variance that could be explained did not exceed 14 per cent (in Voluntariness). This result is not surprising when it is remembered that even when correlations with independent variables and scores were statistically significant, they were fairly low.

It is evident from the data analysis that not only are attitudes toward mandatory continuing education multidimensional but that social and demographic variables expected on an a priori basis to be strong predictors of the attitude toward mandatory continuing education are not strong predictors, either of the overall attitude or of the three most prominent dimensions underlying attitudes toward mandatory continuing education.

Chapter 5

Conclusions

The following conclusions are drawn from the data generated by this survey:

Attitudes toward mandatory continuing education among Canadian dental hygienists are multidimensional. The first three factors (after orthogonal rotation) seem to lend themselves to the following labels: Factor I, Professional Enhancement. This factor accounted for 32.7 per cent of MCE Score variance. Factor II, Voluntariness in continuing education. Factor II accounted for 10.7 per cent of the variance. Factor III, Program Currentness. Factor III accounted for 8.7 per cent of variance in MCE Scores.

The mean MCE Score indicates that respondents were slightly in favor of mandatory continuing education. The standard deviation was low, meaning that there was not a wide variation in total scores.

The results show that attitude to mandatory continuing education was not strongly associated with social and demographic variables, but the following variables have some

influence: distance from the nearest school of dental hygiene; CDHA membership; number of professional meetings attended in the past twelve months; level of office held in provincial and national associations; per cent of employed years worked full time; number of continuing education programs attended in the past twelve months; residence in a jurisdiction where continuing education is mandatory for dentists; residence in a jurisdiction where continuing education is mandatory for dental hygienists; and locus of program of graduation in dental hygiene.

Approximately ten per cent of the variance in attitude toward mandatory continuing education can be accounted for by the five independent variables, each explaining one per cent or more of the MCE variance. These variables are: living in a jurisdiction where continuing education is mandatory for dentists; membership in CDHA; distance from the nearest school of dental hygiene; per cent of employed years worked full time; and the number of professional meetings attended in the past twelve months.

Six variables, each having a predictive power of one per cent or better, accounted for 12.7 per cent of the variance in Professional Enhancement as defined by Factor I.

The variables were: attendance at a discussion on the issue; per cent of employed years worked full time; distance from the nearest school of dental hygiene; living where continuing education is mandatory for dentists; distance from the nearest faculty of dentistry; and the number of professional meetings attended in the past twelve months.

For Voluntariness, as defined as Factor II, seven variables contributed one per cent or more to the explanation of variance, for a total of fourteen per cent. The variables were: living where continuing education is mandatory for hygienists; the number of continuing education programs attended in the past twelve months; size of community of residence; CDHA membership; current employment as a dental hygienist; per cent of employed years worked full time; and teaching in a dental auxiliary program.

Four variables contributed one per cent or better to the explanation of variance of scores for Program Currentness as defined by Factor III. Together they accounted for 9.6 per cent of the variance. The variables were: CDHA membership; years of full time teaching; locus of program of graduation; and living where continuing education is mandatory for dentists.

Only three of the proposed seven hypotheses were supported. These were Hypothesis Three: Dental hygienists actively involved with professional organisations will be more favourably disposed to mandatory continuing education than hygienists less actively involved, Hypothesis Five: Dental hygienists with higher levels of participation in continuing education will be more favourably disposed toward mandatory continuing education, and a modified Hypothesis Six: Hygienists who have had experience with it will be more favourably disposed toward mandatory continuing education than hygienists who have not had experience with it. The remaining hypotheses, which maintained that favorableness toward mandatory continuing education would be decreased by remoteness from dental hygiene education, and increased by increased educational achievement, greater career participation and more conservative outlook were not supported by the data and had to be rejected.

The additional demographic variables of age, marital status, number of children, size of community of residence and field of employment were not related to attitude toward mandatory continuing education.

Discussion

The multidimensional nature of attitudes to mandatory continuing education is consistent with its recent emergence as an issue for health professionals. The issue is a complex one, and it is likely that attitudes have not had sufficient time to become well established. Some of the factors making up the MCE scores clearly reflect arguments for or against mandatory continuing education. For example, mandatory continuing education may be used as a tool to develop the cohesiveness and therefore the power of a professional group. It can be regarded as an instrument to enhance the prestige, competence and appreciation for the affected profession. This feeling is reflected in Professional Enhancement. Voluntariness, on the other hand, taps the conviction that continuing education for health professionals should be essentially a voluntary activity, engaged in willingly because of its intrinsic value, and if unimpeded, hygienists will voluntarily participate in as much continuing education as they need.

At present the combined result of the many dimensions of attitude toward mandatory continuing education produces a mean attitude slightly in favor of mandatory continuing education, and with little variance in scores, most scores

being fairly close to the mean. Future events and circumstances may influence these different dimensions of attitude unequally, producing a shift in overall attitude, and a change in the predictive power of one or more of the factors. The development of dental hygiene as a health profession and the influence of jurisdictions in which continuing education is mandatory could produce attitudes favoring mandatory continuing education. This shift will be enhanced by the fact that at present, leaders in the profession (as defined by the level of offices held) are more likely to favor it.

There is at the same time a small but vocal and growing group of practitioners and experts in continuing education who decry the growth of mandatory continuing education, and who have been mobilizing arguments and resources to combat the trend (Ohliger, 1979). Their efforts have met with some success to date, and if the movement continues to grow it could well influence attitudes against mandatory continuing education, at least for a significant number of health professionals. Such a phenomenon amongst Canadian dental hygienists could change the distribution of MCE scores to a bimodal distribution, as opposed to the present distribution which has most scores clustered close to a single mean. It seems more probable, however, that foreseeable influences will produce a distribution of

scores similar to that at present but with a higher mean, indicating increased favorableness toward mandatory continuing education.

The salience of different factors in the MCE Scale may change over time. This is particularly true if professional enhancement, which at present accounts for more of the MCE Score variance than any other factor, becomes an important issue for the dental hygiene profession in Canada.

Where mandatory continuing education is established in Canada, an important issue will be who is to control decisions about how much and what kind of continuing education is required. The body in which these powers is vested will have a great deal of control over hygienists. Will hygienists themselves be empowered to make these decisions, or will education be prescribed by dentists?

Examination of the effects of different independent variables reveals some social and demographic variables which influence attitude toward mandatory continuing education. These correlations, however, tended to be low, and consequently regression equations showed that the variables concerned either separately or together account

for a fairly small proportion of the variance in scores. This is to some extent an encouraging result, since it means that the issue has a better chance of being decided upon its merits rather than being greatly influenced by such variables.

The lack of either a positive or negative correlation between MCE Scores and conservatism scores is similarly significant, since it means that hygienists are not pre-disposed by their position on the psychological dimension of conservatism/liberalism to view the issue in a certain way. This may be because the issue, being a fairly recent one, is still relatively free from influences related to general psychological characteristics. It would be interesting to discover whether other identified psychological dimensions are similarly free of relationships to attitude toward mandatory continuing education.

As time passes, some variables may assume more influence on attitudes toward mandatory continuing education than they have at present. Experience with mandatory continuing education may or may not over the course of several years, be perceived as successful by those hygienists affected. If hygienists remote from dental hygiene schools find it difficult to meet continuing education requirements for licensure the present positive correlation between distance and favorableness to mandatory continuing education may be reversed. These are but two examples of the possible changes in the influence of independent variables in the future.

Future Research Possibilities

Several further questions for possible research flow from this study:

1. Will the overall attitude of Canadian dental hygienists towards mandatory continuing education change from its present "mildly in favor" position?
2. Will the multidimensional nature of the attitude evolve over time to become more unidimensional? Which of the identified independent variables will assume more predictive powers? Will new factor groupings of the MCE Scale emerge?
3. As hygienists in some provinces experience mandatory continuing education how will this affect their attitude toward it? Will it change their present perception of mandatory continuing education as a tool to increase the status of the profession and the competence of individual members?
4. Does attitude toward mandatory continuing education correlate with measures of personality dimensions other than conservatism?
5. Over time, and especially in jurisdictions where continuing education for hygienists is mandatory, will any of the social and demographic variables tested increase in their power to predict attitude toward mandatory continuing education?

6. What independent variables are significantly related to mandatory continuing education attitudes?
7. Where continuing education is mandatory, what proportion of required continuing education is directly related to ensuring competence, and how successful are these efforts?

The issue of mandatory continuing education is still a relatively new one for Canadian dental hygienists. Its ramifications have not been fully explored in most provinces, perhaps even in those provinces where hygienists are officially on record as being in favor or opposed. It is, however, an issue of great importance. Decisions and developments relating to it will have far-reaching implications for hygienists individually and collectively as a health profession.

REFERENCES

- American Dental Association. Continuing Dental Education Requirements. Chicago:American Dental Association 1978.
- American Dental Association. Dental Hygiene Licensure. Chicago:American Dental Association 1979.
- American Dental Hygienists' Association. Report of the Education Committee, 1940. Journal of the American Dental Hygienists' Association, 1941, 15(2), 86-90.
- Allport, G.W. Attitudes in Handbook of Social Psychology Ed. C. Murchison, Worcester:Clark University Press, 1935.
- British Columbia Dental Hygienists Association, BCDHA Newsletter, January 1979.
- Bauer, J.C. & Bush, R.G. Dentists' attitudes toward continuing dental education: nontopic factors of demand for courses. Journal of Dental Education, 1978, 42(11), 623-626.
- Cafferata, G.L., Goldberg, H.J.V., Roghmann, K., & Fox, R. Continuing education: attitudes, interests and experiences of practicing dentists. Journal of Dental Education, 1975, 39(12), 793-800.
- Cartwright, C.B., & Keevil, J.M. Continuing education preferences of Michigan dentists and dental hygienists. Journal of the Michigan Dental Association, 1976, 58(12), 613-618.

Comrey, A.L. & Newmeyer, J.A. Measurement of radicalism-conservatism. Journal of Social Psychology, 1965, 67, 357-369.

Derbyshire, R.C. Relicensure, mandatory continuing education, and the state regulatory agency. Proceedings: Mandatory Continuing Education, Prospects and Dilemmas for Professionals. D.E. Moore, Ed. University of Illinois, Urbana Champaign, Feb. 1976.

Eysenck, H.J. The structure of human personality. London: Methuen, 1960.

Gaughran, E., Streuning, E., Raabe, G., & Muhlin, G.A. A factor analytic study of attitudes toward human fertility. Adult Education, 1976, 26(2), 86-100.

Halloran, J.D. Attitude formation and change. Leicester University Press, 1970.

Hicks, J.M. Conservative voting and personality. Social Behavior and Personality, 1974, 2(1), 43-49.

Houle, C.O. Evidence for the effectiveness of continuing professional education and the impact of mandatory continuing education. Proceedings: Mandatory Continuing Education: Prospects and Dilemmas for Professionals. D.E. Moore, Jr., Ed. University of Illinois, Urbana, Champaign, Feb. 1976.

- Kanekar, S. Observational learning of attitudes: a behavioral analysis. European Journal of Sociological Psychology, 1976, 6(1), 5-24.
- Katz, D. The functional approach to the study of attitudes. Public Opinion Quarterly, 1960, 24, 163-204.
- Keevil, J.M. & Cartwright, C.B. Dental hygienists' preferences for continuing education experiences. Dental Hygiene, 1978, 52(3), 123-127.
- Kline, C. Participation in continuing education by employed dental hygienists in British Columbia. M.A. Thesis, Adult Education Research Centre, University of British Columbia, 1975.
- Kubat, J. Correlates of professional obsolescence: part 1 Journal of Continuing Education in Nursing, 1975, 6(6), 22-29.
- Lewis, C.E., & Hassanein, R.S. Continuing medical education- an epidemiological evaluation. New England Journal of Medicine, 1970, 28(2), 254-259.
- Malvitz, D.M. & Judge, S.P. Correlates of reported participation in continuing education. Dental Hygiene, 1976, 50(12), 543-546.

Nakamoto, J., & Verner, C. Continuing education in dentistry
a review of North Americal literature 1960-1970.

Adult Education Research Centre and Division of
Continuing Education in the Health Sciences, University
of British Columbia, 1972.

Neylan, M.S. Literature review: maintaining the competence
of health professionals 1970-1973. University of
British Columbia Division of Continuing Education in
the Health Sciences, 1974.

Pearlman, S. Mandated continuing education: weathervane
for the lifetime of the professional? International
Journal of Continuing Education and Training, 1974,
3(3-4), 185-191.

Reagan, D.T., & Fazio, R. On the consistency between attitudes
and behavior: look to the method of attitude formation.
Journal of Experimental Social Psychology, 1977, 13(1),
28-45.

Rhine, R.J. A concept-formation approach to attitude
acquisition. In Readings in attitude theory and
measurement, M. Fishbein, Ed. New York, London,
Sydney: John Wiley & Sons, Inc., 1967, 382-388.

Rokeach, M. The Open and Closed Mind, New York:Basic books,
1960.

- Rokeach, M. Beliefs, attitudes and values. San Francisco: Jossey-Bass, 1968.
- Rosenberg, M.T. Cognitive structure and attitude affect. Journal of Abnormal and Social Psychology, 1956, (53), 367-372.
- Schaeffer, N., Widelock, D., & May, P.S. The clinical laboratory program in New York City II: progress after five years of experience. Health Laboratory Sciences, 1979, 7, 242-255.
- Singh, A. Structure of social attitudes: a Canadian sample. Psychological Reports, 1977, 40(1), 165-166.
- Snyder, D.T. & Schalgemeir, W.L. The Michigan dentists and his continuing education: Part I Background characteristics and first findings. Journal of the Michigan Dental Association, 1973, 55, 312-316.
- Staats, A.W. An outline of an integrated learning theory of attitude formation and function. In Readings in attitude theory and measurement. M. Fishbein, Ed. New York, London, Sidney: John Wiley & Sons Inc., 1967, 373-381.
- Strother, G.B., & Swinford, D.N. Recertification and relicensure - implications for the university. National University Extension Association, Spectator, 1975, 39(19), 5-9.

Stuart, C.T. Mandatory continuing education for relicensure in nursing, and the implications for higher education. Journal of Continuing Education in Nursing, 1975, 6(5), 5-17.

Triandis, H.C. Attitude and attitude change. New York, Wiley, 1971.

Wilson, G.D., Ed. The Psychology of Conservatism. London: Academic Press, 1973.

Woodmansee, J.J., & Cook, S.W. Dimensions of verbal racial attitudes: their identification and measurements. Journal of Personality and Social Psychology, 1967, 7, 240-250.

DENTAL HYGIENE — MANDATORY CONTINUING EDUCATION

PART ONE

PLEASE INDICATE THE EXTENT OF YOUR AGREEMENT OR DISAGREEMENT BY **CIRCLING** THE APPROPRIATE RESPONSE TO THE FOLLOWING STATEMENTS. BE FRANK — THERE ARE NO "CORRECT" ANSWERS.

1. Continuing education should be mandatory for all dental hygienists.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

2. Dental hygienists who teach in dental auxiliary programs should be exempt from mandatory continuing education requirements.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

3. Prestige of Dental Hygiene will grow under a system of mandatory continuing education.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

4. Continuing education should not be mandatory for hygienists living in remote areas.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

5. Continuing education should be mandatory only if employers would be required to give time off with pay for continuing education.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

6. Under a system of mandatory continuing education, serving on a provincial or national dental hygiene association executive should qualify as a form of continuing education.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree

Please turn to Page 2.

7. Dental hygienists who have graduated within three years should be exempt from mandatory continuing education requirements.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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8. Mandatory continuing education will increase competence in dental hygiene practice.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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9. Mandatory continuing education for dental hygienists should be written into legislation, not just in by-laws governing dental hygiene practice.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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10. Learning is an internal, voluntary process, therefore mandatory continuing education is wrong in principle.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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11. Dental hygienists generally participate in enough continuing education to meet their need to remain abreast of developments.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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12. Where it has been tried out, mandatory continuing education works well.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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13. If continuing education were mandatory, dental hygienists would appreciate their career more.

strongly disagree	moderately disagree	mildly disagree	neutral	mildly agree	moderately agree	strongly agree
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PART TWO
PLEASE ANSWER EVERY QUESTION

1. What is your age? _____
2. Sex ☐ M ☐ F
3. What is your marital status?

<input type="checkbox"/> single	<input type="checkbox"/> separated
<input type="checkbox"/> married	<input type="checkbox"/> widowed
<input type="checkbox"/> divorced	<input type="checkbox"/> cohabiting with other than spouse
4. How many children do you have? _____
5. Are you a single parent? ☐ Yes ☐ No
6. Please indicate the size of the community in which you live.

<input type="checkbox"/> less than 10,000	<input type="checkbox"/> 250,000-500,000
<input type="checkbox"/> 10,000-50,999	<input type="checkbox"/> 500,000-750,000
<input type="checkbox"/> 50,000-100,000	<input type="checkbox"/> 750,000-1,000,000
<input type="checkbox"/> 100,000-250,000	<input type="checkbox"/> More than 1,000,000
7. How many miles do you live from
 - a) the nearest School of Dental Hygiene _____
 - b) the nearest Faculty of Dentistry _____
8. What program (School) in Dental Hygiene did you graduate from? _____
9. In what year did you graduate? (If a student, in what year do you expect to graduate?) _____
10. a) For how many years have you worked as a dental hygienist? _____
 b) Of those years, what percentage of the time was:

full time	_____ %
part time	_____ %
TOTAL	100 %
11. Are you now employed as a dental hygienist?

<input type="checkbox"/> No	<input type="checkbox"/> Yes
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 If yes; a) for how many hours a week _____ hrs.
 b) please check primary field of employment

<input type="checkbox"/> private practice
<input type="checkbox"/> public health
<input type="checkbox"/> clinic or hospital
<input type="checkbox"/> dental auxiliary education
<input type="checkbox"/> other (please specify) _____
12. Are you a member of C.D.H.A.?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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13. How many dental hygiene association meetings (society, provincial, or national) have you attended in the last twelve months? (Please specify a number) _____
14. How many national Dental Hygiene conventions have you attended in the last 5 years?

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
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15. Please indicate by checking the box if you have held any of the following positions:

<input type="checkbox"/> None of the positions held
<input type="checkbox"/> Provincial committee member
<input type="checkbox"/> National committee member
<input type="checkbox"/> Provincial committee chairman
<input type="checkbox"/> Provincial executive member
<input type="checkbox"/> National committee chairman
<input type="checkbox"/> C.D.H.A. Board member
<input type="checkbox"/> National Executive member
16. a) Is continuing education mandatory in your province for dental hygienists?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
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 b) Is continuing education mandatory for dentists?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
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17. Have you ever attended a presentation or discussion meeting on the topic of mandatory continuing education?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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18. How many continuing dental hygiene education programs have you attended in the last 12 months? (Include lectures, workshops, scientific sessions at conventions, study clubs, in-service programs, conferences, short courses.) (Please specify a number.) _____
19. Have you ever presented a continuing education program for dental hygienists or dental assistants?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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20. Check the level of education you have attained

<input type="checkbox"/> diploma in dental hygiene
<input type="checkbox"/> diploma in dental hygiene plus one or more additional courses credited toward a university degree
<input type="checkbox"/> diploma in dental hygiene plus baccalaureate degree
<input type="checkbox"/> diploma in dental hygiene plus masters degree
21. Have you ever taught in a dental auxiliary education program?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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 If yes:

<input type="checkbox"/> part time _____ (no. of years)
<input type="checkbox"/> full time _____ (no. of years)

PART III

WHICH OF THE FOLLOWING DO YOU FAVOUR OR BELIEVE IN?

(Circle "Yes" or "No". If absolutely uncertain, circle "?". There are no right or wrong answers; do not discuss; just give your first reaction. Answer all items.)

1	death penalty	Yes	?	No	26	computer music	Yes	?	No
2	evolution theory	Yes	?	No	27	chastity	Yes	?	No
3	school uniforms	Yes	?	No	28	fluoridation	Yes	?	No
4	striptease shows	Yes	?	No	29	royalty	Yes	?	No
5	Sabbath observance	Yes	?	No	30	women judges	Yes	?	No
6	hippies	Yes	?	No	31	conventional clothing	Yes	?	No
7	patriotism	Yes	?	No	32	teenage drivers	Yes	?	No
8	modern art	Yes	?	No	33	racial segregation	Yes	?	No
9	self-denial	Yes	?	No	34	pornography	Yes	?	No
10	working mothers	Yes	?	No	35	church authority	Yes	?	No
11	miracles	Yes	?	No	36	disarmament	Yes	?	No
12	birth control	Yes	?	No	37	censorship	Yes	?	No
13	military drill	Yes	?	No	38	white lies	Yes	?	No
14	co-education	Yes	?	No	39	corporal punishment	Yes	?	No
15	Divine law	Yes	?	No	40	mixed marriage	Yes	?	No
16	socialism	Yes	?	No	41	strict rules	Yes	?	No
17	white superiority	Yes	?	No	42	jazz	Yes	?	No
18	cousin marriage	Yes	?	No	43	straitjackets	Yes	?	No
19	moral training	Yes	?	No	44	casual living	Yes	?	No
20	suicide	Yes	?	No	45	learning Latin	Yes	?	No
20	chaperones	Yes	?	No	46	easy divorce	Yes	?	No
22	legalised abortion	Yes	?	No	47	inborn conscience	Yes	?	No
23	empire-building	Yes	?	No	48	coloured immigration	Yes	?	No
24	student pranks	Yes	?	No	49	Bible truth	Yes	?	No
25	licensing laws	Yes	?	No	50	smoking pot	Yes	?	No
