

An Abstract of the Thesis of

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Title: The Identification of Beauty Culture Skills for Alberta High Schools.

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This study identified the skills necessary to successfully complete the beauty culture program of Alberta. The (Alberta) beauty culture teachers (N=40) were surveyed, with their responses being used to assess the perceived skills.

The instrument, a 41 item survey, was established through the use of a Delphi panel to establish content validity. The reliability was calculated by using the Hoyt-Stunkard analysis of variance technique. The instrument's reliability showed a +0.95 level of internal consistency.

The means for the items ranged from a high of 5.85 (an affective skill) to a low of 4.12 (a cognitive skill). All items indicated a need to retain the existing beauty culture competencies.

The items were divided into three taxonomies; namely, cognitive, affective, and psychomotor. This was done to inform the respondent of the nature of the tasks. All three of the affective skills ranked in the highest frequency group, with two of the items being placed in the first and second spot.

R-mode factor analysis was used to group the items into clusters according to the respondents' ratings on the six-point scale. With the initial loading set at 0.50, only one task was found to be spurious. Seventeen clusters (factors) were produced and were spread across affective, cognitive, and psychomotor skill areas.

Skills involving manipulative procedures varied in importance levels. Technologically advanced methods of achieving cosmetology outcomes were not considered as important as the learning of basic tasks. This indicated a need to teach only the basics in preparation for completion of the beauty culture program in Alberta.

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The accomplishment of a goal or a pursuit of a dream is similar to running a race. There are many skills that need to be developed and practiced. The achievement of this pursuit, for me, has been analogous to a decathlon, there were numerous hurdles, hoops and feats I needed to experience. But I have learned and developed new skills from this venture. However in reflection, I am cognizant of those who helped me as I have achieved this goal, and would like to acknowledge them.

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The Identification of Beauty Culture Skills for Alberta High Schools

Chapter I

Introduction

Background of the Problem

In 1990, a new beauty culture laboratory was being established within an Alberta school district. To expedite the process of equipment selection for the facility, a list was procured under the direction of the Alberta Department of Education. The list came from the last district within the province to have developed a beauty culture laboratory. The time interval between the equipping of the two sites was approximately ten years.

Considering technological advancements during the last decade in the field of cosmetology, and the fields of science and technology in general, one would have expected the curriculum and the needed equipment to have differed somewhat over a ten year period of time. However, little change had taken place in the types of equipment used, and the curriculum has not been updated. As beauty culture competencies have always been manipulative in nature, one might ask if recent technological advancements need to be considered for the Alberta beauty culture program.

Statement of the Problem

The primary goal of this study was to determine the essential skills necessary for mastering the objectives of the beauty culture curriculum. This

study utilized high school beauty culture instructors in Alberta as the population from which data were collected. Beauty culture is a vocational education program, provided in some Alberta high schools, that teaches the skills of cosmetology in preparation for apprenticing and obtaining a beautician's license.

The list of essential skills that are identified from this study serve as a guideline for establishing prescribed curriculum changes in scope and sequence.

The objectives of this study were as follows:

1. to establish skills needed for beauty culture graduates
 - a. collect and compile skills needed to complete the beauty culture program in Alberta
 - b. create a list of skills using a Delphi panel to clarify needed items
2. to identify those skills which beauty culture instructors feel are important to the beauty culture curriculum
 - a. determine skills through a summated rating scale survey given to a sample of beauty culture instructors
 - b. analyze survey responses to determine clusters of needed tasks and their importance to the curriculum.

The following questions were addressed in this study:

1. What are the skills needed to complete the Alberta beauty culture program?
2. What skills form the primary focus in beauty culture -- manipulative, cognitive, or affective?

Definition of Terms

The following terms are used in the methodology of this study; concise definitions are provided for standardization and clarity.

Beauty Culture is a program offered within the Alberta school system, teaching individuals the skills necessary to become a cosmetologist.

Delphi Technique is a method which originated in the early 1950's by Olaf Helmer and his associates at the RAND Corporation (Jantsch, 1972). The primary goal of the method is to find a reliable consensus among experts. The process ends when consensus is reached.

Factor is an identified dimension, unity, or cluster (Kerlinger, 1973; Kim & Mueller 1978).

Factor analysis is a statistical technique for taking the items appearing on a test(s) and determining mathematically which should be grouped together. The group is then called a factor. It is used as an instrument that assesses multiple items, and through the mathematical procedures a single score is derived (Nie, Bent, & Hull, 1970; Cunningham, 1986).

Factor loading is the degree to which a task relates to a factor (Kerlinger, 1973).

Factor matrix is a table that graphically displays the relationships between the task, or attitudes and underlying factors (Kerlinger, 1973).

Factorially complex is when a test contains more than one factor or cluster (Kerlinger, 1973)..

Factorially pure means the test only measures one factor or cluster (Kerlinger, 1973).

Orthogonal is a rotation that emphasizes the differences of factors or their independence (Cunningham, 1986).

Oblique is a rotation that emphasizes internal consistency or their correlation of factors (Cunningham, 1986).

Skill is synonymous with task and competency; where skill/competency is the ability to perform a given task (Stamps, 1980; Chuaratanaphong, 1984).

Spurious loading is where the task does not meet the set qualification for membership with any of the clusters, but has the highest loading on one cluster (Courtney, 1990).

Rationale of the Study

The beauty culture curriculum was first introduced into the Alberta Program of Studies in the early 1970's. At that time it acted as a feasible vocational education option for the female high school population. The beauty culture facilities were designed to replicate the workplace (Prosser & Allen, 1925); and curricula were developed to fit into the regular school program. There has neither been an update in the curriculum content, nor a change in the facility and equipment recommendations, during the last decade within Alberta.

With the expansion of technology, new beauty culture equipment is being designed to replace many manual functions, and job requirements are changing (Florida State Board of Community Colleges and Division of Vocational Adult and Community Education, 1988). However, the manual skills learned in beauty culture still comprise a major portion of the present curriculum. This study examined the skills needed to facilitate students' mastery of the beauty culture program.

The fashion industry is cyclical (Leerhsen, 1985), and hairstyles come and go to complement the changing fashions. As a result the techniques to cut and style hair are basically alike and follow the same procedures (Dalton, 1985; Rubinstein, 1982, 1980, 1981; Franco, et al. 1980). The names change, however, to meet the trendy jargon of the period. Many basic beauty culture skills are still relevant and will continue to be so in the future. However,

technological advancements require a further review of both basic and technologically advanced skills.

There is very little literature that focuses directly on the beauty culture curricula; thus, related studies must be used. The beauty culture references used in this study are the available educational resources that are being used at the present time (Government of Alberta, 1984; Davidson County Metropolitan Public Schools, 1984; Gregory & Benson, 1985; Henrico County Public Schools, 1985).

In many instances in the past, facilities were first designed, and then curricula were developed to utilize the facilities. Recent articles show this trend to be reversing. Starkel (1989), Kuskie (1989), and Budke & Slekow (1986) believe the developmental process of curriculum design has precedence over the facility.

The facility cost dilemma (Hug, 1989; Graves, 1983) is another issue influencing all vocational education disciplines. With the rising cost of equipment, it is often impossible for vocational education programs to "replicate the environment" as prescribed by Prosser and Allen (1925). The literature provides alternative methods to use or innovative ways to gain access to expensive, but necessary equipment (Bryant, 1984; Harris & Byer, 1989).

It is anticipated that this study will be beneficial to educators, administrators, department personnel, and students interested in the field of beauty culture. It provides the classroom instructor with additional insights to the skills necessary to complete the objectives of the beauty culture curriculum. The study provides the Alberta Department of Education with a medium to evaluate the present scope and sequence of the existing program. Administrators and department personnel can benefit from the data collected in their role as facility planners for the future in designing laboratories that complement the curriculum.

The students, our greatest natural resource, can feel confident that their vocational education experiences are current, relevant, and progressive.

Chapter II

Review of Related Literature

After a careful review of the literature, it was apparent that minimal citations could be found that added to the body of knowledge regarding beauty culture. For this reason, the review of related literature is presented in three different sections. Much of what follows has been determined through the researcher's six years of beauty culture experience and knowledge of the profession. Other beauty culture instructors have reviewed Chapters I and II and have validated its contents (Riggan, 1992; Russell, 1992). The first section of this chapter provides a brief overview of the beauty culture program of Alberta and discusses studies that have been done in beauty culture. The second body describes the current thrust in planning facilities and implementing curricula in related vocational education disciplines. The third section of literature relates to the techniques used in carrying out the methodology of this study.

Beauty Culture Program

The beauty culture program of Alberta was designed to provide an additional vocational education option with prospects of gainful employment upon completion of high school. When it was introduced into the Alberta Program of Studies in the early 1970's, it complemented the existing curricula and provided students with vocational training while completing their high school diploma.

In Alberta, the necessary prerequisites in becoming a licensed cosmetologist, commonly referred to as a beautician, entails four segments. The

four segments are: instructional time, theory examination, apprenticeship period, and final practical examination.

There are three approaches one can take to obtain the instructional time. An individual must log 1400 hours of instruction from a (private) beauty school or accumulate beauty culture credits from a high school. Within the high school setting there is a 55 credit program. When a student completes the 55 credits they can then register with the apprenticeship board. Within about four weeks from completing the high school program he/she is scheduled for the second year theory exam. As a third option students earn 35 credits in high school, then they are allowed to write the first year theory exam, and must take a ten week course at an approved private school before being allowed to write the second year theory exam.

The apprenticeship time and the practical examination are the same for both approaches. Fourteen hundred hours of apprenticing must be logged before the individual can then take the practical component of the government examination.

To date, there have only been a few completed studies which focused primarily on beauty culture. The major thrust of the literature has been in the areas of curriculum development and competency-based skills.

Davidson County Metropolitan Public Schools (1984) and Gregory & Benson (1985) present guidelines for establishing a beauty culture curriculum. In their studies the scope and sequence of the content were outlined, identifying the breakdown of competencies within each scheduled block of time.

In 1985, Henrico County Public Schools conducted a task analysis to validate the essential tasks in beauty culture. This study provided educators with an inventory of skills that needed to be mastered in order to become competent cosmetologists in Virginia. A suggested scope and sequence were provided.

More recent studies have not focused on the manipulative skills or the sequence of the content but rather on the integration of vocational education subjects with other disciplines (Jacob, 1989; Roger, 1990). The beauty culture program is joining other disciplines in using an interdisciplinary approach. As an example is that a deeper understanding of chemical components appears to be necessary (Roger, 1990). The numerous new products on the market require practitioners to be able to analytically determine the effectiveness of the products to best serve their clientele. Thus, the integration of the sciences, as with other disciplines, is a necessary component for the beauty culture program.

Beauty culture utilizes the three educational domains -- affective (Krathwohl, Bloom, & Masia, 1956), cognitive (Bloom, Engelhart, Frust, Hill, & Krathwohl, 1956), and psychomotor (Harrow, 1972). The affective skills are timeless; they encompass skills involving attitude, ethics, and feelings (Krathwohl, Bloom, & Masia, 1956). Hence, they are referred to as "people skills", and are not as dependent upon changes in industry as the psychomotor and cognitive skills. The psychomotor skills are the physical, hands-on or manipulative tasks which are performed (Harrow, 1972). The manipulative skills remain relatively constant, but technological advancements change the setting and the ease with which one may achieve the desired outcome. The cognitive skills are influenced greatly by the skills taught within the psychomotor domain (Woolfolk, 1990). The knowledge base and rationale for the successful mastery of hands-on skills are crucial elements in integrating other disciplines (i.e. chemistry, biology, and mathematics), and showing relevance for the related curricula (Jacob, 1989). Figure 1 illustrates how the domains are inter-relating within the beauty culture curriculum (Murphy, 1992). The matrix reflects, in part, the Alberta government's requirements for successful mastery of the beautician trade (see Appendix H).

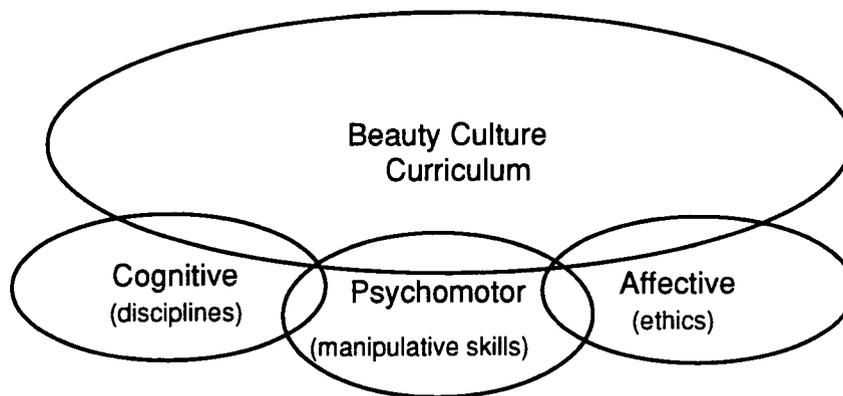


Figure 1 - Inter-relation of Beauty Culture and The Three Domains

Emphasis has been placed on the psychomotor skills within the beauty culture program. The cognitive skills have been included, to a degree, but not as a separate component. A recent study (Pucel, Jensrud, & Damme, 1990) found that by adding affective components to existing programs, individuals' marketable skills increase.

Both the Government of Alberta (1984) beauty culture curriculum and the Henrico County Public Schools (1985) inventory of tasks reflect basic manipulative skills. There is little indication of teaching skills that involve new technological devices; for example, the use of permanent waving machines.

The beauty culture curriculum of Alberta (Government of Alberta, 1984) has been primarily designed to be manipulative in nature. The outlined objectives have, in the past, served as the basis for the tasks to be mastered and the sequence to be followed. The Henrico County Public Schools (1985) detailed

inventory of tasks is similar to the Alberta curriculum. The sequence, however, varies slightly from Alberta's program of studies.

Curriculum Trends

The word "curriculum" is derived from the Latin word "*currere*", meaning a "racecourse". In the past it was referred to as a prescribed plan to follow in order to complete schooling. However, today there are two basic ways in which the word "curriculum" is used. The first use is a plan outlining a learner's education; whereas, the second use is a given field of study (Zais, 1976). This study focuses on the establishment of the outlined plan and the components needed to revise such a plan.

At present, there are numerous interpretations branching from the single Latin definition of curriculum. There is no one, single definition in existence. Schubert (1986) compares curriculum to a "wide angle lens" -- being "an interdependent network of subdivisions". However, most curricularists agree that there are necessary elements needed in a curriculum. A curriculum should be designed to include the following: 1) aims, goals, intents, or objectives; 2) subject matter; 3) learning activities; and 4) evaluation (Zais, 1976; Schubert, 1986). The organizational pattern of the content is the prominent design feature of any curriculum (Zais, 1976).

A written plan or curriculum should not be static but should be revised on an ongoing basis (Sanders & Chism, 1985). This is especially true in the vocational education setting, since old solutions may no longer work and different training, outcomes, and methods evolve over time. Thus, curriculum developers need to decide if curricula need to be improved or changed (Zais, 1976).

Curriculum reform is influenced by politics, economics and values of home, school and community forces (Schubert, 1986; Thompson & Cooley, 1984). There are several areas which curriculum planners need to explore when revising a curriculum. An examination of the goals of education, and the methods to achieve these goals, are necessary elements of curriculum revision (Sanders & Chism, 1985). A look into the future to predict skills of ten to 20 years from now ensures that impending needs will be addressed (Thompson & Cooley, 1984). In addition, the facilities must meet the needs of the prescribed curriculum change (Niece, 1988). Curriculum planners also need to wrestle with the addition and deletion of content in a curriculum (Jacob, 1989).

Content selection can be derived from eight sources. Those sources are: 1) societal needs, 2) survival, 3) disciplinary structure, 4) utility, 5) publisher decision, 6) politics, 7) learner interest, and 8) democratic action (Schubert, 1986). Within the discipline of beauty culture, the content is primarily selected on the basis of utility. The content of the beauty culture curriculum includes those skills necessary to become proficient in the trade. Thus, content selection is based on those skills students need in order to meet the requirements to become a licensed cosmetologist.

Over the years, there have been three divergent approaches of dispensing the content within a curriculum. The three emphases have been: 1) subject matter; 2) learning activities; and 3) learning experiences (Zais, 1976; Schubert, 1986; TIES, 1991). The Alberta cosmetology training is divided into two segments -- practical operations and theory, with the emphasis being placed toward the learning activities approach. If sequencing of psychomotor skills and cognitive content are integrated, the approach could be considered a learning experience, as defined by Schubert (1986), where experiences are transferred from cognitive content to skill outcomes.

The changing technology and the complex job market are influencing how curricularists develop new plans. The old mechanistic approach, in the memorization of application rules, can no longer meet today's educational challenges (Sanders & Chism, 1985). To enhance the relevance of the school curricula, additional emphasis must be placed on integrating disciplines (vocational education, sciences, English, social studies, etc.) and workplace basics. Workplace basics used in this context consists of affective conditions which are present in the workplace. This can be done through a variety of interdisciplinary approaches (Schubert, 1986; Jacob, 1989), while making a conscious effort to include activities from all three educational domains (Woolfolk, 1990).

The traditional format to bring about curriculum change in vocational education was by analyzing the tasks within a given occupation. The breaking down of sequential steps for teaching and evaluating curriculum content has led to a natural way of developing competency-based curriculum (Sanders & Chism, 1985). With careful analysis of competencies it helps determine the most appropriate program and method(s) of instructional delivery.

Recent educational trends are changing the focus of vocational education. In the early history of vocational education, the leaders of the day advocated using an environment that replicated the workplace (Prosser & Allen, 1925) and a complementing curriculum. The continued advancement of technology and reduction of available funding have had major impacts on the replication of such learning environments. Program revisions have made educators evaluate and redesign curricula (Kuskie, 1989; Starkel, 1989) and then develop new implementation plans (Land, 1991) that are not as fiscally dependent as in the past. With the many changes coming about today, it is crucial that curriculum

developers examine the numerous elements that make up the curriculum framework.

Methodological Techniques

There are numerous methods that could have been used to collect and analyze data for the present research. To achieve the outlined objectives of this study, the Delphi method and factor analysis were utilized. They are among the most commonly used and highly acceptable procedures (Courtney, 1991). The following is an overview of these techniques is provided as follows:

Delphi Technique

The Delphi technique originated in the early 1950's by Olaf Helmer and his associates at the RAND Corporation (Jantsch, 1972). It was first used as a systematic method for eliciting expert opinions on future defense needs (Borg & Gall, 1983). Since then, the technique has been used whenever a consensus is needed from knowledgeable people within a given field (Helmer, 1983).

In a brief summary, Weaver (1971) stated three primary uses for the Delphi technique within the field of education. They are:

- a) a method for studying the process of thinking about the future,
- b) a pedagogical tool or teaching tool which forces people to think about the future in a more complex way than they ordinarily would, and
- c) a planning tool which may aid in probing priorities held by members and constituencies of an organization. (p. 271)

There are many advantages of using the Delphi technique. The directness and simplicity make it a desirable method to validate the content. The ease of administration and its relatively low cost make its use well-suited to educational research. The process itself requires a minimal time length (Courtney, 1990) in comparison to other validation techniques.

There is, however, one major disadvantage of the approach. Although the time frame to conduct the Delphi is relatively short, there is a heavy demand on the respondent's time. Respondents need to be motivated and feel that the study is worthwhile in order to follow the procedure through to completion (Borg & Gall, 1983).

The panel size can vary from eight to 25 experts (Courtney, 1988). However, Samahito's (1984) study it was found that only six knowledgeable experts within a given field were needed to reach a valid consensus.

There are six basic steps which need to be followed to complete the Delphi procedure.

Step 1. Select a panel of experts to act as Delphi members (usually six to 25 individuals).

Step 2. The roles are explained to the participants with the individual members never meeting each other in a face-to-face session. The initial list of possible items is presented to the panel with instructions to read each item and decide whether the item should be retained, rejected or retained with modification. If modification is needed, the member makes specific changes in the item.

Step 3. The intermediary (the researcher) gathers the response data from the panel members.

Step 4. The second round of the process is removing the retained items and modifying those items that were indicated during the first round.

Step 5. The revised items are then sent back to the individual panel members with instructions to rate them in accordance with some criteria (i.e., importance level). This is generally formatted with a summated rating scale.

Step 6. Iteration continues until consensus is reached. Consensus is complete when the panel meets the previously determined criterion which had been established by the intermediary (Courtney, 1988).

Three critical components should be addressed to ensure continuation for success. As was mentioned earlier, minimal time is required; however, the rule of thumb is 45 days. Thus, adequate planning time should be allotted. The participants' writing skills should be emphasized, since the method of communication is done in script. The third component is the participant's performance on the job or within the occupation being studied. The response quality is influenced by the interest and commitment of the panel (Delbecq, Van DeVen, & Gustafson, 1975).

The Delphi technique has been used in educational research for many years and has proved to be beneficial. It has been a valuable tool in predicting the future, and in validating content to be used in surveying a given population.

Factor Analysis

The most distinctive characteristic of factor analysis is the data reduction capacity (Nie, Bent, & Hull, 1970). This feature enables a lengthy list of items to be categorized into smaller segments. Within the smaller segments, shared traits are identified. The analysis of these traits enables researchers to statistically determine the importance and the commonality of each item.

In 1904, Spearman revolutionized the history of testing mental processes by introducing his two-factor theory. He believed that all tests involving the process of cognition had at least one common element. Factor analysis has provided researchers with a means by which like variables can be clustered into categories (Guilford, 1954). Numerous variables can be empirically reduced into

a few factors. This makes factor analysis one of the most frequently used techniques in multivariate research (Borg & Gall, 1983).

Factor analysis can be derived from any type of data scale. This statistical method indicates whether traits are unidimensional or multidimensional in character. Most curriculum task lists have been shown to be multidimensional. Thus, construct validity, the most advanced empirical form, can be defined using factor analysis (Courtney, 1990) since the tasks are identified and categorized (Gronlund & Linn, 1990) .

The most common applications for factor analysis are divided into three areas of focus. These areas are: 1) exploratory uses, which explore and detect patterns of variables; 2) confirmatory uses, which test the hypothesis of related factors; and 3) measuring devices, that construct indices for later research. The application of this multivariate analysis technique is bound only by the imagination of the researcher. The most common use, however, is for exploring and detecting patterns (Nie, Bent, & Hull, 1970).

According to Nie, Bent, and Hull (1970), there are three customary steps in the factor analysis process. The three steps are: prepare correlation matrix, extract initial factor(s) and rotate axes into terminal clusters.

The preparation of the correlation matrix is constructed by listing all the variables (correlated coefficients) on both horizontal and vertical columns. The calculation of the relevant variables can be done by association of units or attributes. The R mode factor analysis relates to calculations which focus on the correlation of variables (characteristics, attitudes, traits, or the clustering of items). The Q mode factor analysis focuses on the association of units (objects, students, communities, or the clustering of respondents). A general standard to follow when using the R mode technique is a sampling rate of ten responses per item (Courtney, 1990).

An extraction of initial factors is conducted to determine if variables can be combined to reduce the number of factors (Nie, Bent, & Hull 1970). Kerlinger's (1973) text lists many methods that can be used for analyzing a correlation matrix, (i.e., principal factors, centroid, diagonal, maximum likelihood, and correlation). He believes that within the second step, two questions need to be addressed. These questions are:

- 1) How many underlying variables or factors are there?
- 2) What are the factors? (p. 660)

The second question is the most difficult question to answer but neither question is ever finally answered in actual factor analytic research. This was especially true in the early investigations of a field. The number of factors can change in subsequent investigations using the same list (Kerlinger, 1973).

Whichever method is selected, there are two ways to define the data. They are: 1) a defined mathematical transformation called principal component analysis, and 2) inferred factors which is called classical, or common, factor analysis.

When the initial factors are derived, statistical calculations can be done to determine if the factors are interrelated. Regardless of the method used to extract factors, there is usually at least one factor that is independent of the others. The major option within this final step is whether to choose the orthogonal or the oblique rotation method (Nie, Bent, & Hull, 1970). Orthogonal factors are independent, while the oblique factors may be dependent on one or more variables.

Factor analysis is capable of giving a quantitative dimension to social science studies. It can also identify individual differences using quantitative descriptions (Davidson, 1983).

The factor analysis technique is an important educational research tool, but must be used carefully. Although its exploratory uses are only bound by the researcher's imagination, the factors need to be selected and interpreted with care.

When Spearman introduced the factor analysis method of reducing data into categorized compartments, he made a significant contribution to psychological and social science research (Courtney, 1988). And, with modern technology, the statistical computations have been made manageable with the aid of computer programs, making factor analysis a desirable method of analyzing data for quantitative research.

Chapter III

Methodology

This research was a descriptive study investigating the skills assessed as necessary tasks to the Alberta Beauty Culture curriculum. The empirical data were derived from a questionnaire administered to a population of beauty culture instructors within the province of Alberta.

Dependent Variable

The dependent variable in this study was a judgmentally assigned score provided by the sample members. There were three segments to the instrument (cognitive, affective, and psychomotor). A summated rating scale was used to collect respondent scores regarding their judgments about beauty culture tasks. The values assigned to each task for numerical representation were:

- 1 - Unimportant
- 2 - Little Importance
- 3 - Somewhat Important
- 4 - Important
- 5 - Very Important
- 6 - Extremely Important

The six point scale was used in preference over a five point scale for two reasons. A six point scale does not give the respondent the option of marking the middle, making them make choose in favor or against the item, in varying degrees. The second reason for a six point scale is that the six points gives more variance (Courtney, 1990).

Preparation of the Instrument

The instrument's items were developed with the assistance of a Delphi panel to ensure content validity. The panel was selected from members of Alberta's Department of Education, Cosmetology Licensing Board, and veteran beauticians and instructors. The panel consisted of six members, a number which has been considered adequate for such studies (Samahito, 1984). The names of Delphi panel members and their job titles are shown in Appendix A.

The initial step in the Delphi process was to request that the panel members react to 89 items that had been generated for review. The items were placed into three educational domains -- psychomotor, affective, and cognitive. In some cases, items were placed into two of the domains, since the descriptors could be interpreted differently. For example, the first task (see Appendix B) was "participate in organized classroom management". This item could be psychomotor, since it requires *perceptual abilities* (Harrow, 1972). It could also be affective in nature, as the individual must *respond* (Krathwohl, Bloom, & Masia, 1956) to the class organization (Woolfolk, 1990). The first round of the Delphi process used the following scale:

- 1) Retain
- 2) Reject
- 3) Retain with the following modifications:

The tasks came from a compilation of the Henrico County Public Schools (1985) study and the Alberta Program of Studies (Government of Alberta, 1978). The combined list is shown in Appendix B. The initial stage only went through two rounds, since the tasks were standard cosmetology requirements. During the first round the panel members were asked to not only revise the items, but

were instructed to check the location of the tasks according to the appropriate domain. On the third round, with the rejected items deleted and the revisions made to the retained but modified items, the panel determined the importance level of each item using the following scale:

<u>unimportant</u>	<u>little</u> <u>importance</u>	<u>somewhat</u> <u>important</u>	<u>important</u>	<u>very</u> <u>important</u>	<u>extremely</u> <u>important</u>
1	2	3	4	5	6

A pre-determined standard of 4.5 was set for item inclusion, with any task falling below that being deleted from the list of items. The resulting instrument, containing 41 task statements, was sent to the schools within Alberta which had beauty culture programs. The beauty culture instructors were asked to complete the questionnaire, that is displayed in Appendix C. The completed survey and the matrix of the questionnaire are shown in Appendix D.

Reliability

The Hoyt-Stunkard (ANOVA) technique was employed to establish the internal consistency reliability of the scale responses. The ANOVA layout for this procedure's calculation is basically a two-way fixed analysis of variance design model and is illustrated as follows:

Source of Variation	df	SS	MS	r
Respondents Residual (error)				
Total				

The following formula was applied in calculating the reliability coefficient.

$$r = \frac{\text{MS individual} - \text{MS error}}{\text{MS individual}}$$

Where: MS is individual respondent variance,
and, MS error is residual variance.

The Population

The population used in this study consisted of the beauty culture teachers within the Alberta Education System. Presently there are a total of 44 programs in operation, with 56 instructors. The entire beauty culture population was used as the sample in order to increase the estimated reliability (Courtney, 1990), and to add credibility to the inferential aspects of the research. The survey return rate was 71%.

Collection of Data

The data were collected through the use of a mailed questionnaire. To increase speedy returns and unnecessary follow-up letters, a stamped, self-addressed envelope was included with a cover letter and the questionnaire. The questionnaires were coded for identification and for follow-up purposes. Goldenrod colored paper (Warwick & Lininger, 1975) and a loony (a Canadian one-dollar coin) were used as incentives for returning questionnaires before the given deadline.

Statistical Design

As previously mentioned, the goal of this study was to determine the essential tasks necessary for mastering beauty culture curriculum objectives. There was an interest in determining how needed tasks were clustered in order

to establish a basis for course planning and development. Task mean scores were used to determine the importance of each task to the curriculum.

Factor analysis was utilized for clustering tasks. This clustering feature is considered to be critical to curriculum development (Courtney, 1991). The mathematical model for factor analysis is:

$$V_t = V_{co} + V_{sp} + V_e$$

Where :

V_t is the total variance

V_{co} is the variance that two or more measures share in common.

V_{sp} is specific variance, and

V_e is error variance

The Varimax rotation was used for this analysis. In the past and for similar studies, this method has been shown to be the best fit in obtaining high factor loadings. Such loadings are critical in making clear distinctions between high and low factor loadings (Kachigan, 1982).

CHAPTER IV

The Findings

The findings were derived from utilizing methods of analysis of variance and factor analysis. These procedures provided an indication of internal consistency reliability for the collected data and for the clustering of tasks. Task mean scores were inspected for assessing the relative importance of the items and the curriculum. The overall summary of the descriptive statistics is found in Table 1.

Table 1
Summary of Variables

Descriptive Measure	Overall Task Statistics
Mean	5.185
Variance	1.013
Standard deviation	1.007
Standard error of the mean	0.025

In using the results, Table 2 provides the frequency of the means and the pattern of the task responses. The task numbers are placed beside their corresponding mean ranges. Appendix E provides the respondent mean scores and standard errors.

Table 2
Mean Range, Frequency, and Tasks

Mean Range	Frequency	Task Number
5.50 >	10	4, 5, 6, 7, 17, 18, 30, 31, 32, 37
5.0-5.49	15	3, 13, 14, 16, 19, 20, 21, 23, 24, 25, 26, 35, 36, 38, 39
4.5-4.99	14	1, 2, 8, 9, 11, 12, 15, 22, 27, 28, 29, 33, 34, 40
< 4.50	2	10, 41

Reliability of the Instrument

The Hoyt-Stunkard procedure was used to assess the internal consistency reliability of the scale. The reliability coefficient of the instrument was determined to be +.95; which indicates the 40 respondents were consistent in their reactions to the 41 items. Table 3 provides the data for computing the scale's reliability coefficient.

Table 3
The Reliability Coefficient for the Instrument

Source of Variation	Degrees of Freedom	Mean Square	r
Respondent	39	13.364	.9465
Residual	1610	.714	
Total	1649		

Results of the Factor Analysis

R-mode factor analysis was used to group the 41 items into clusters according to the respondents' ratings on the six-point scale.

The initial minimum factor loading was set at .50. By using only loadings greater than $\pm .50$, the factors may be considered high enough to be grouped with a specific cluster (Courtney, 1990). A total of 40 of the 41 tasks in the study met the established criterion with loadings of .50 or higher. There was one spurious cognitive task, which had a loading of less than .50. Appendix G provides an overview of the 17 factors generated.

The titles for the clusters were arbitrarily assigned for each factor. It is assumed the titles are indicative of the kinds of tasks present in each cluster.

Affective Skills

The Delphi panel identified three affective skills. The factor loadings ranged from a low of +.922 to a high of +.945. Table 4 shows the task statements, means, and factor loadings for the affective items.

Table 4
Affective Skills

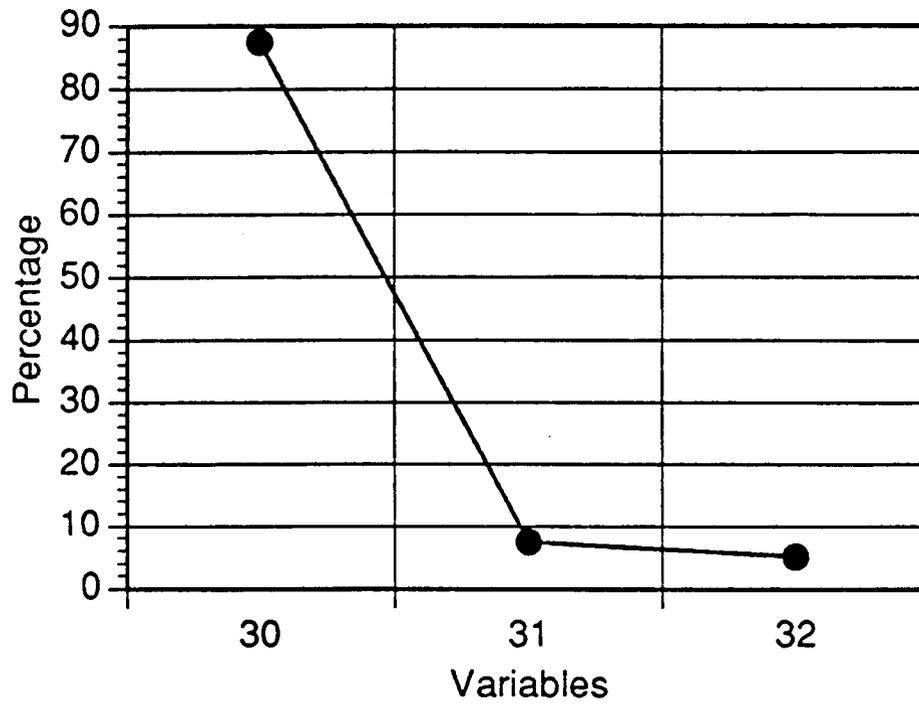
Task Number	Task Statement	\bar{X}	Vco
30.	Implement positive customer relation techniques.	5.825	.938
31.	Maintain professional code of ethics.	5.675	.945
32.	Demonstrate professional attitudes towards clients.	5.850	.922

Table 5 and Figure 2 report variance accountability for the analysis of the affective tasks.

Table 5
Percentage of Variance Accounted for in the
Analysis of Affective Factors

Tasks	Percentage	Cumulative Percentage
30	87.5	87.5
31	7.4	94.9
32	5.1	100.0

Figure 2
Affective Skills Percentages



Cognitive Skills

There were nine cognitive items. The best fit was obtained by generating six factors. The factor loadings ranged from +.709 to +.978, with one spurious loading of +.463. The arbitrarily assigned titles for the six factors are as follows:

- Factor I: Business Operations
- Factor II: Sanitation Procedures and Hair Diagnosis
- Factor III: Hair Care
- Factor IV: Face Contours
- Factor V: Personal Ethics
- Factor VI: Hair Treatment

The task means and the factor loadings are shown in Tables 6 through 12.

Factor I - Business Operations

The first factor produced three tasks with loadings exceeding .50, ranging from a low of +.732 to the high of +.882. The task statements, means, and factor loadings are found in Table 6.

Table 6
Factor I - Business Operation

Task Number	Task Statement	\bar{X}	Vco
33.	Identify and explain journeyman certification requirements	4.8	.840
34.	Identify job opportunities for qualified beauticians.	4.775	.882
41.	Explain the procedures for licensing a salon for business.	4.125	.731

The means for the first factor ranged from the high of 4.8 (Task 33 -- Identify and examine journeyman certification requirements.), to the low of 4.125 (Task 41 -- Explain the procedures for licensing a salon for business.).

Factor II - Sanitation Procedures and Hair Diagnosis

Two qualifying loadings were generated for the second factor. The highest loading was +.875 (Task 36 -- Know sterilization and sanitation procedures.) and the lowest was (Task 37 -- Select proper waving solution and rods for type of hair.) +.840. Table 7 shows the task statements, means, and factor loadings for these data.

Table 7
Factor II - Sanitation Procedures and Hair Diagnosis

Task Number	Task Statement	\bar{X}	Vco
36.	Know sterilization and sanitation procedures.	5.250	.875
37.	Select proper waving solution and rods for type of hair.	5.725	.840

The lowest mean within this factor was 5.25 (Task 36 -- Know sterilization and sanitation procedures.), and the highest mean was 5.725 (Task 37 -- Select proper waving solution and rods for type of hair.).

Factor III - Hair Care

This factor generated two loadings for tasks fitting the criterion of equaling or exceeding .50. The loadings were +.857 and \pm .709. Table 8 provides the task statements, means, and factor loadings for Factor III.

Table 8
Factor III - Hair Care

Task Number	Task Statement	\bar{X}	Vco
38.	Identify after perm haircare procedures.	5.300	.709
39.	Recognize the effect of different hair coloring products on the hair.	5.450	.857

Factor IV - Face Contours

There was one task that was generated for Factor IV. The factor loading was +.926. Table 9 identifies the task number, mean, and loading for this factor.

Table 9
Factor IV - Face Contours

Task Number	Task Statement	\bar{X}	Vco
40.	Analyze facial shapes and profiles.	4.925	.926

Factor V - Ethics

The factor loading for the single task in the fifth factor was +.978. The mean for this task was calculated as 5.350.

Table 10
Factor V - Ethics

Task Number	Task Statement	\bar{X}	Vco
35.	Identify personal appearance standards.	5.350	.978

Factor VI - Hair Treatment

There was only one task in the sixth factor. This was a spurious loading, since it did not meet the minimum criterion of .50, but had its largest loading on the factor.

Table 11
Factor VI - Hair Treatment

Task Number	Task Statement	\bar{X}	Vco
38.	Identify after perm haircare procedures.	5.300	.463

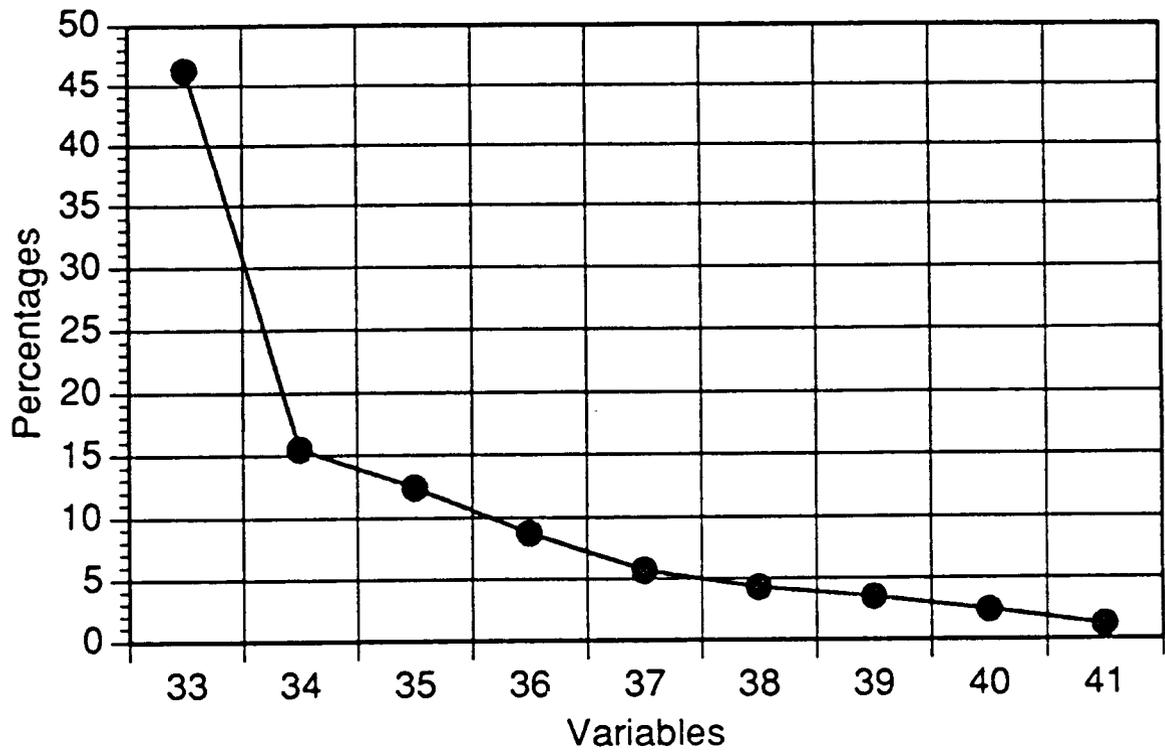
The task 38 factor loading overlapped with those in Factor III.

The percentages of accountable variance of the cognitive skills are shown in Table 12. Figure 3 shows this information graphically.

Table 12
Percentage of Variance Accounted for in the
Analysis of Cognitive Factors

Tasks	Percentage of Variance	Cumulative Percentage of Variance
33	46.3	46.3
34	15.5	61.7
35	12.4	61.7
36	8.7	74.2
37	5.7	88.6
38	4.3	92.9
39	3.5	96.4
40	2.4	98.8
41	1.2	100.0

Figure 3
Cognitive Task Percentages



Psychomotor Skills

There were 29 tasks placed in the psychomotor section. A total of ten factors were generated. Factor loadings ranged from +.553 to +.938.

The clusters were assigned titles reflecting the nature of the tasks. The ten titles are as follows:

Factor I	-	Basic Income
Factor II	-	Hair Coloring Specialties
Factor III	-	Manual Skills
Factor IV	-	Safety Procedures
Factor V	-	Cutting and Styling Hair
Factor VI	-	Reception Obligations
Factor VII	-	Shaping Hair
Factor VIII	-	Primary Tasks
Factor IX	-	Blow Drying
Factor X	-	Sterilizing Equipment

The results of the factor analysis are shown in Tables 13 through 22.

Factor 1 - Basic Income

The first factor generated six of the 29 tasks. The tasks within this cluster appear to be those tasks that generate the most income for beauticians. The factor loadings ranged from +.554 to +.803. Table 13 shows the task statements, means, and factor loadings.

Table 13
Factor I - Basic Income

Task Number	Task Statement	\bar{X}	Vco
7.	Give a layered haircut.	5.525	.554
17.	Section, block, and wrap hair on wave rods.	5.625	.797
18.	Process and neutralize the permanent wave.	5.700	.775
21.	Apply tint to virgin hair.	5.325	.782
23.	Apply a tint retouch.	5.400	.683
25.	Apply a single application color.	5.375	.803

Factor I tasks include means that ranged from 5.325 (Task 21 -- Apply tint to virgin hair.) to 5.700 (Task 18 -- Process and neutralize the permanent wave.). Task 18 had the highest average of all the tasks in the psychomotor cluster.

Factor II - Hair Coloring Specialties

There were five factor loadings within Factor II that exceeded +.50. The highest factor loading for all of the tasks was in this cluster, the factor loading being +.938. The lowest loading in this factor was +.607. The task statements, means, and factor loadings are reported in Table 14.

Table 14
Factor II - Hair Coloring Specialties

Task Number	Task Statement	\bar{X}	Vco
22.	Apply a whole head bleach.	4.875	.938
24.	Apply a bleach retouch.	5.025	.894
26.	Apply a double application color.	5.200	.777
27.	Apply fillers.	4.650	.744
28.	Pre-soften hair.	4.625	.607

The means for this factor ranged from 4.625 (Task 28 -- Pre-soften hair.) to 5.200 (Task 26 -- Apply a double application color.).

Factor III - Manual Skills

The tasks within this factor dealt primarily with manual operations. The factor loadings ranged from +.553 to +.860. The factor loading of +.553 (Task 8 - - Remove excess bulk from hair.) was the lowest loading for all of the psychomotor tasks studied. These results are shown in Table 15.

Table 15
Factor III - Manual Skills

Task Number	Task Statement	\bar{X}	Vco
8.	Remove excess bulk from hair (i.e. thinning and texturing).	4.950	.553
10.	Give a finger wave.	4.450	.628
11.	Make pincuris.	4.725	.860
12.	Style hair with rollers.	4.775	.834

Factor IV - Safety Procedures

The fourth factor accounted for three tasks. The range of loadings was between +.580 and +.888. Table 16 shows the results of this factor.

Table 16
Factor IV - Safety Procedures

Task Number	Task Statement	\bar{X}	Vco
1.	Help establish organized classroom management.	4.900	.888
2.	Perform safety and first aid procedures.	4.975	.858
19.	Give and analyze a patch test.	5.225	.580

This cluster had averages ranging from 4.900 (Task 1 -- Help establish organized classroom management.) to 5.225 (Task 9 -- Give and analyze a patch test.).

Factor V - Cutting and Styling Hair

Three tasks were produced for Factor V. The lowest loading was +.555 with the highest being +.747. Factor V results are reported in Table 17.

Table 17
Factor V - Cutting and Styling Hair

Task Number	Task Statement	\bar{X}	Vco
6.	Give a one-length, zero elevation haircut.	5.500	.747
14.	Style hair using a curling iron.	5.375	.555
16.	Brush and/or comb hair into a style.	5.475	.740

The means were quite alike within this cluster, only varying by 0.125. All tasks were ranked high in their importance.

Factor VI - Reception Obligations

Only two tasks were generated in this factor, each focusing on maintaining accurate files. The task statements, means, and factor loadings are shown in Table 18.

Table 18
Factor VI - Reception Obligations

Task Number	Task Statement	\bar{X}	Vco
20.	Fill out client record card.	5.150	.675
29.	Perform receptionist duties.	4.925	.795

Factor VII - Shaping Hair

Two factor loadings were over .50 for Factor VII. The task means for this factor ranged from 4.625 (Task 15 -- Braid hair.) to 4.725 (Task 9 -- Shingle hair.). Factor VII statistics are reported in Table 19.

Table 19
Factor VII - Shaping Hair

Task Number	Task Statement	\bar{X}	Vco
9.	Shingle hair.	4.725	.732
15.	Braid hair.	4.625	.836

Factor VIII - Primary Tasks

The two tasks in Factor VIII had high means. These primary tasks are generally the first to be taught in the curriculum. Their task statements, means, and factor loadings are shown in Table 20.

Table 20
Factor VIII - Primary Tasks

Task Number	Task Statement	\bar{X}	Vco
4.	Give a shampoo.	5.525	.679
5.	Plan a haircut and section hair for shaping.	5.675	.725

Factor IX - Blow Drying

Only one factor was generated for Factor XI. Task 13 (Blow dry hair into style.) had a mean of 5.375. Factor IX results are reported in Table 21.

Table 21
Factor IX - Blow Drying

Task Number	Task Statement	\bar{X}	Vco
13.	Blow dry hair into a style.	5.375	.888

Factor X - Sterilizing Equipment

Factor X produced one factor with a mean of 5.35. The data for this factor are found in Table 22.

Table 22
Factor X - Sterilizing Equipment

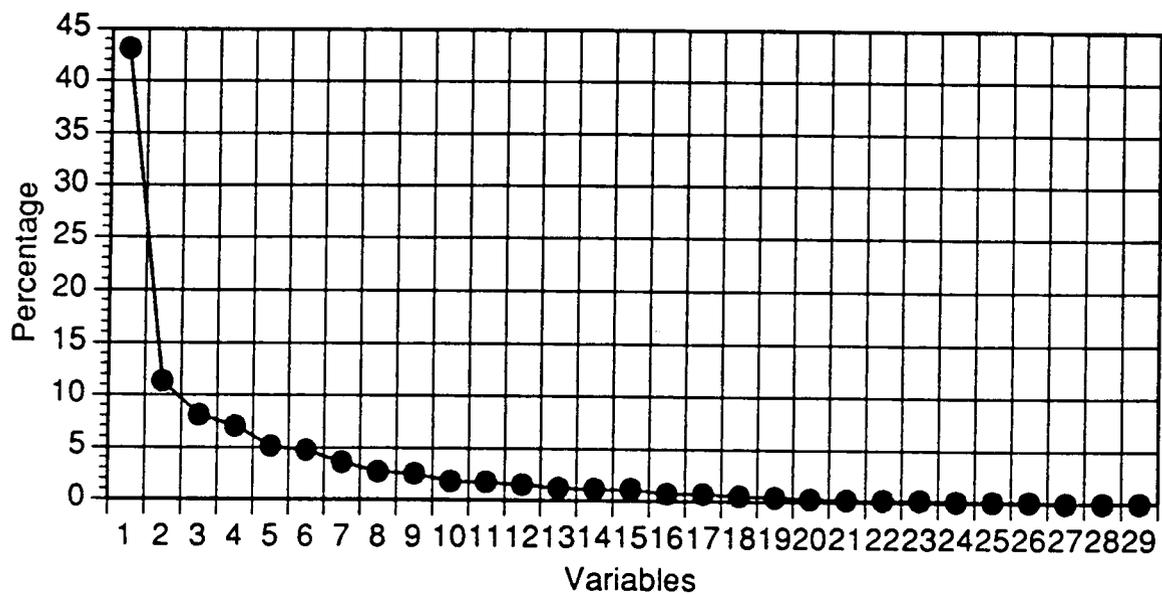
Task Number	Task Statement	\bar{X}	Vco
3.	Demonstrate sterilization and sanitizing procedures.	5.35	.615

Table 23 and Figure 4 show the percentages of variances accounted for in the analysis of the psychomotor tasks.

Table 23
Percentage of Variance Accounted for in the
Analysis of Psychomotor Skills

Tasks	Percentage of Variance	Cumulative Percentage of Variance
1	43.1	43.1
2	11.3	54.4
3	8.1	62.5
4	7.0	69.4
5	5.1	74.5
6	4.7	79.2
7	3.6	82.8
8	2.7	85.5
9	2.5	88.0
10	1.8	89.8
11	1.7	91.5
12	1.5	93.0
13	1.2	94.2
14	1.1	95.3
15	1.1	96.4
16	.7	97.1
17	.7	97.8
18	.5	98.3
19	.4	98.7
20	.3	99.0
21	.2	99.3
22	.2	99.5
23	.2	99.6
24	.1	99.8
25	.1	99.9
26	.1	99.9
27	.0	100.0
28	.0	100.0
29	.0	100.0

Figure 4
Psychomotor Skill Tasks Percentages



Discussion

The findings from this study were, for the most part, expected, since the items used were deemed important in varying degrees. The affective skills loaded very high and were ranked as being very important. The cognitive skills did not rank as high as the affective skills, but percentage-wise, did better than the psychomotor skills.

The factor loading of the cognitive skills and the psychomotor skills lend themselves toward blocking theory and practical instructional time, to enhance the learning experience (Schubert, 1986). Some of the psychomotor loadings were not expected, as not all the basic manipulative skills were clustered together, nor were the hair coloring items that grouped into one category.

All of the skills need to be taught and students need each of them. Many can be taught in concert with one another. For example, sterilization can be taught congruently with sanitation procedures and hair diagnosis (cognitive) and sterilizing equipment (psychomotor). Students enrolled in this curriculum do not come to it with prerequisites in chemistry and biology. The beauty culture curriculum must necessarily include this topics in its program of work.

There could be two approaches in establishing a new sequence in teaching both the theory (cognitive skills) and practical (psychomotor skills) within the Alberta beauty culture curriculum. If a program was to be based on the ranking of the tasks within each of the educational domains, the sequence would follow the Sequence 1 that is outlined below. However, if the curriculum was to focus on contextual learning, using the clustering of the tasks within the factors and the ranking of the tasks, a sequence similar to the second one may be formulated. The introduction (I), teaching (T) and reinforcement (R) of the cognitive skills are done at different times. Affective skills could be taught within

cognitive Factor IV -Ethics formally and introduced and reinforced throughout the other sections of the curriculum.

Sequence 1 (Rank Only)

Psychomotor Skills

Primary Tasks

Basic Income

Cutting and Styling Hair

Blow Drying

Sterilizing Equipment

Safety Procedures

Hair Coloring Specialties

Reception Obligations

Shaping Hair

Manual Skills

Cognitive Skills

Sanitation Procedures and Hair Diagnosis

Hair Care

Ethics

Hair Treatment

Face Contours

Business Operations

Sequence 2 (Factors and Rank)

<u>Psychomotor Skills</u>	<u>Cognitive Skills</u>
Primary Tasks	Face Contours (I)
Basic Income	Sanitation Procedures and Hair Diagnosis/ Hair Care (I &T)
Cutting and Styling Hair	Face Contours (T)
Blow Drying	Face Contours (T)
Sterilizing Equipment	Sanitation Procedures and Hair Diagnosis (R)
Safety Procedures	Hair Care (I &T)
Hair Coloring Specialties	Hair Care (R)
Reception Obligations	Business Operations (I &T)
Shaping Hair	Face Contours (R)
Manual Skills	Face Contours (R)

Of these two sequences, the second one would be preferred because of its contextual learning and intergration capabilities.

Chapter V

Conclusions and Implications

The purpose of this study was to determine the essential tasks necessary for mastering the beauty culture curriculum in Alberta. Beauty culture instructors within the public high schools were asked to assign quantitative scores to each of the 41 items representing the essential tasks. The study involved four major dimensions:

1. the construction of an instrument to assess the importance of specific beauty culture tasks,
2. the assignment of a summated rating scale score to each task by beauty culture instructors representing Alberta (Canada) high schools,
3. the statistical analysis of the data to assess the level of importance of each beauty culture task, and its placement within a representative cluster,
4. the formulation of curricular implications for a beauty culture program of studies for Alberta schools.

Dependent Variable

The dependent variable for this study was a score derived from a six point scale that the respondent judgmentally assigned to each of 41 tasks representing affective, psychomotor, and cognitive beauty culture skills.

Reliability of the Instrument

A Delphi panel was utilized to establish content validity in the development of the 41 item instrument used in collecting data for the study. The Hoyt-Stunkard (ANOVA) technique was used to calculate the internal consistency reliability of the responses. The reliability for this instrument was determined to be +.95, indicating a very high level of internal consistency.

Factor Analysis

Clusters (factors) were identified by using R-mode factor analysis. The skills were separated into three individual domains and clustered accordingly. Nearly all of the tasks loaded on a factor with only one of the 41 tasks not meeting the established factor loading criteria of $\pm.50$ or higher. Seventeen factors produced the best fit for analysis. The 17 factors spread across cognitive, affective, and psychomotor skill areas, are identified as follows:

Cognitive Skills

- Factor I - Business Operations (3)
- Factor II - Sanitation Procedures and Hair Diagnosis (2)
- Factor III - Hair Care (2)
- Factor IV - Face Contours (1)
- Factor V - Personal Ethics (1)
- Factor VI - Hair Treatment (1)

Affective Skills

- Factor I - Affective Skills (3)

Psychomotor Skills

- Factor I - Basic Income (6)
- Factor II - Hair Coloring Specialties (5)
- Factor III - Manual Skills (4)
- Factor IV - Safety Procedures (3)
- Factor V - Cutting and Styling Hair (3)
- Factor VI - Reception Obligations (2)
- Factor VII - Shaping Hair (2)
- Factor VIII - Primary Tasks (2)
- Factor IX - Blow Drying (1)
- Factor X - Sterilizing Equipment (1)

Implications

Beauty culture teachers in Alberta high schools indicated that all of the tasks on the instrument were important in varying degrees. However, the scope and sequence of the tasks that are taught presently (Government of Alberta, 1984) need to be restructured, as the clustering pattern of the tasks in this study indicated a need to change. The affective skills should be introduced, taught, and reinforced throughout the program. The psychomotor skills that deal with basic income (i.e., permanent waving, hair cutting) should be taught first, while teaching the corresponding cognitive skills (i.e., trichology and chemistry). More instructional and practical time should be devoted to the most important skills, which are those tasks that bring in the most income to the business. Less time should be devoted to teaching the two lowest ranking tasks, which were Task 10 (finger waves) and Task 41 (licensing procedures). The tasks are found in

ranked order in Appendix F. The results of this study affirm that the curriculum is based on utility (Schubert, 1986).

Skills involving simple manual operations were deemed to be an important component of the curriculum. However, the basic manipulative skills, excluding shampooing, were found to have lower rankings than those skills that were used in maintaining a basic income.

The highest ranked tasks, those at or above 5.500, represented a cross-section of psychomotor, affective, and cognitive skills. The affective skills, had all three tasks in the top grouping within the frequency of means range (see Table 2). This reaffirms Pucel, Jensrud, & Damme's (1990) assessment of affective skills and their importance in expanding the individual's marketable skills.

Cognitive skills were mostly judged as important to very important, indicating that having a knowledge base is an intrinsic part of the overall program. This segment of the curriculum, as recent studies have indicated, can be integrated relatively easily with other disciplines (i.e., chemistry, biology, and math) to ensure relevance (Roger, 1990) .

In comparing the outcome of the study to the (Alberta) government's examination (see Appendix H), the teachers' responses reflect similar task importance. The examination grades individuals on cognitive and affective, as well as psychomotor skills. However, in reviewing the components of the exam, it is evident that manual skill development is placed higher than the utilization of technological advancements in the workplace.

The tasks comprised in this study are currently included the Alberta beauty culture curriculum and encompass affective, cognitive and psychomotor skills. The degree of time allotted to each task and its importance varies. Until further integration of other disciplines occurs, beauty culture's primary focus will be manipulative. Recent educational advancements, as well as the result of this

study, suggest that curriculum revision is necessary to ensure relevant preparation of professional cosmetologists.

Suggestions for Further Studies

The following suggestions are based upon the findings of this study:

1. A curriculum based on the skills most needed in the beauty culture industry (to assure the utility of the program) needs to be developed.
2. This study included only the Alberta high schools teaching beauty culture. Further study is needed in other provinces and states, as well as within the private beauty schools.
3. A study of the demographics of the teachers participating in the study would provide insight into the influence of location, school population, instructor's years of experience, and the school's philosophy of vocational education.
4. A list of necessary equipment requirements for a beauty culture laboratory needs to be established. This would enhance the equity of programs provided within the Alberta High School Beauty Culture Programs.
5. Further research into the implementation of affective skills within beauty culture curriculum (vocational education) would be beneficial.
6. Further study in the integration of other disciplines' cognitive-based knowledge is needed to solidify the beauty culture program's cognitive skills. Such a study would aid students in finding relevance in both their vocational and academic studies (Jacob, 1989).
7. The present study should be replicated over time, as the participant differences and the updating of technology will change over the course of time.

8. A study of the demographics of the students enrolled in beauty culture would provide direction to help reduce the stigma attached to the vocational education (beauty culture) population.

9. An updated scope and sequence should be developed and instituted to ensure that students have adequate time to master those tasks deemed most important.

Conclusion

At the time the beauty culture program was established within the Alberta curriculum, it met the needs of students within the school setting. The findings of this study indicate that there is a need to change the existing curriculum.

All of the tasks within this study were deemed as important in varying degrees. Thus, all should be retained in the curriculum. However, the sequence of teaching the tasks needs to change. For example, in the existing curriculum permanent waving is not introduced until the second year, whereas pincurls are taught during the first year. Using the clustering from the factor analysis allows appropriate blocking of instructional time to best meet the students' need in achieving proficiency of the beauty culture tasks.

The division of the tasks into the three educational domains -- cognitive, affective, and psychomotor -- provided further insight into the importance of each domain within the beauty culture program. With the high ranking of the affective skills, it is apparent that these skills must be introduced at the beginning of the program and reinforced throughout the curriculum.

To ensure that these findings have appropriate application, an executive summary will be sent to the Alberta Department of Education and the beauty culture instructors. The summary will include recommendations to alter the

existing sequence of the program, enabling students sufficient time to master the necessary skills, before learning the less essential components of cosmetology. The summary will also stress the importance of the affective component of the curriculum, as well as the need to interpret other academic content into the beauty culture curriculum.

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Appendices

Appendix A**Delphi Panel**

Dr. Michael Alpern
Beauty Culture Representative
Alberta Department of Education

Ms. Carol Gendreau
Apprenticeship Board Member (Beautician)
Northern Alberta

Mrs. Sharon Lasaksky
Experienced Cosmetologist
and Instructor

Mr. Bob Payette
Executive Director
Apprenticeship and Trade Certification

Ms. Annamarie Schreiner
Apprenticeship Board Member (Beautician)
Southern Alberta

Mrs. PamElla Russell
Veteran Beauty Culture Instructor, and
Inter-provincial Licensed Cosmetologist

Appendix B

Beauty Culture Tasks

- *Participate in organized classroom management
- *Use effective techniques in customer relations
- *Explain journeyman certification requirements
- *Maintain professional code of ethics
- *Demonstrate appropriate professional attitudes towards patrons
- *Perform safety and first aid procedures
- *Identify job opportunities in the cosmetology profession
- *Identify personal appearance standards
- *Identify the classifications of bacteria
- *Examine sterilization and sanitation procedures
- *Perform housekeeping tasks
- *Sterilize scalp disorders and diseases
- *Give a shampoo
- *Select and apply hair and scalp conditioners
- *Give a scalp treatment
- *Give an oil treatment
- *Identify implements used to shape hair and demonstrate proper method of holding
- *Section hair for hair shaping
- *Explain factors related to choice of haircut
- *Give a one-length, low-elevation haircut
- *Give a layered haircut
- *Give a combination one-length and layered haircut
- *Thin hair
- *Shingle hair
- *Analyze facial shapes, profiles, and body structures
- *Give a finger wave
- *Make pincurls
- *Make roller curls

- *Airwave hair into a style
- *Thermal-straighten hair
- *Make thermal curls
- *Braid hair
- *Brush or comb hair into a style
- *Analyze structure and composition of hair and scalp conditions
- *Select proper waving solution and rods for type of hair
- *Wrap hair on wave rods
- *Process and neutralize the permanent wave
- *Identify after-care procedures
- *Compare effects of the basic categories of hair coloring products
- *Explain hair structure and chemical composition as it relates to hair coloring
- *Give a predisposition test
- *Fill out patron record card
- *Apply a virgin tint
- *Apply a virgin bleach
- *Apply a tint retouch
- *Apply a bleach retouch
- *Apply a single application color
- *Apply a double application color
- *Apply a tint-back to natural color
- *Apply fillers
- *Use various high fashion techniques
- *Pre-soften hair
- *Identify and select chemicals used in chemical relaxer
- *Give a chemical relaxer retouch
- *Identify types of wings and hairpieces
- *Identify materials and explain construction of hairgoods
- *Shape and thin wigs and hairpieces
- *Style various types of hairgoods
- *Clean and condition hairgoods
- *Explain coloring of wigs and hairpieces
- *Use massage techniques
- *Give basic types of facials
- *Describe anatomy and physiology of the head, face, and neck
- *Arch eyebrows

- *Remove superfluous hair
- *Analyze facial shapes and profiles
- *Cleanse the face
- *Use facial contouring
- *Apply basic day make-up
- *Apply basic evening make-up
- *Apply corrective make-up
- *Apply false eyelashes
- *Explain the structure of the nail and anatomy of the shoulders, arms and hands
- *Identify disorders and diseases of the nail
- *Give an oil manicure
- *Give a plain manicure
- *Massage arms and hands
- *Apply artificial nails
- *Use nail design technique
- *Select a site for a salon
- *Compare various types of salons
- *Analyze factors involved in purchasing equipment and supplies
- *Explain and use advertising techniques
- *Plan interior design of a model salon
- *Perform receptionist duties
- *Inventory, order, and issue supplies
- *Set up and maintain records
- *Perform basic bookkeeping/accounting duties
- *Explain the procedure for licensing a salon for business

Compilation from the Henrico County Public Schools (1985) and the Beauty Culture Curriculum of Alberta (Government of Alberta, 1984).

Appendix C

Teachers' Cover Letter to the Survey

February 3, 1992

Dear Beauty Culture Educator:

Presently, I am doing a study on the current Beauty Culture Curriculum of Alberta, and would like your input. With the second semester now underway, and revisions having been made to your long range plans, this is an ideal time to evaluate the appropriateness of the contents of the program.

The tasks enclosed have been selected from previous studies stateside, but have been edited by Beauty Culture experts here in Alberta. I would greatly appreciate your assistance in identifying those tasks you deem most important. There are six different categories for each task. All you need to do is check the category you feel is most appropriate.

The survey should only take as long as it does to have a pop. Then simply drop it into the mail, using the enclosed envelope. Please return before **February 21th**.

Thank-you for your anticipated co-operation in this matter.

Yours truly,

Vonda J. Chatterton

Enclosures

Appendix D

Beauty Culture Survey

BEAUTY CULTURE SURVEY

Unimportant
Little Importance
Somewhat Important
Important
Very Important
Extremely Important

Psychomotor Skills

- | | | | | | | |
|--|---|---|---|---|---|---|
| 1. Help establish organized classroom management. | — | — | — | — | — | — |
| 2. Perform safety and first aid procedures. | — | — | — | — | — | — |
| 3. Demonstrate sterilization and sanitizing procedures. | — | — | — | — | — | — |
| 4. Give a shampoo. | — | — | — | — | — | — |
| 5. Plan a haircut and section hair for shaping. | — | — | — | — | — | — |
| 6. Give a one-length, zero elevation haircut. | — | — | — | — | — | — |
| 7. Give a layered haircut. | — | — | — | — | — | — |
| 8. Remove excess bulk from hair (i.e. thinning and texturizing). | — | — | — | — | — | — |
| 9. Shingle hair. | — | — | — | — | — | — |
| 10. Give a fingerwave. | — | — | — | — | — | — |
| 11. Make pincurls. | — | — | — | — | — | — |
| 12. Style hair with rollers. | — | — | — | — | — | — |
| 13. Blow dry hair into a style. | — | — | — | — | — | — |
| 14. Style hair using a curling iron. | — | — | — | — | — | — |
| 15. Braid hair. | — | — | — | — | — | — |
| 16. Brush and/or comb hair into a style. | — | — | — | — | — | — |

	<i>Unimportant</i>	<i>Little Importance</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
17. Section, block, and wrap hair on wave rods.	—	—	—	—	—	—
18. Process and neutralize the permanent wave.	—	—	—	—	—	—
19. Give and analyze a patch test.	—	—	—	—	—	—
20. Fill out client record card.	—	—	—	—	—	—
21. Apply tint to virgin hair.	—	—	—	—	—	—
22. Apply a whole head bleach.	—	—	—	—	—	—
23. Apply a tint retouch.	—	—	—	—	—	—
24. Apply a bleach retouch.	—	—	—	—	—	—
25. Apply a single application color.	—	—	—	—	—	—
26. Apply a double application color.	—	—	—	—	—	—
27. Apply fillers.	—	—	—	—	—	—
28. Pre-soften hair.	—	—	—	—	—	—
29. Perform receptionist duties.	—	—	—	—	—	—

Affective Skills

30. Implement positive customer relation techniques.	—	—	—	—	—	—
31. Maintain professional code of ethics.	—	—	—	—	—	—
32. Demonstrate professional attitudes towards clients.	—	—	—	—	—	—

Appendix E

Respondent Mean Scores and Standard Errors

Respondent	Mean	Std. Error of the Mean
1	5.024	.1656
2	4.390	.1776
3	5.415	.1103
4	5.780	.0820
5	5.122	.1220
6	5.448	.1358
7	4.829	.1302
8	5.634	.1091
9	3.659	.1423
10	5.171	.1671
11	5.293	.1407
12	4.878	.0796
13	5.049	.1428
14	4.805	.2072
15	4.659	.2460
16	5.634	.0838
17	5.805	.0717
18	4.780	.1693
19	5.707	.1062
20	4.146	.1080
21	4.756	.1147
22	4.756	.1147
23	4.415	.1306
24	5.293	.1222
25	5.463	.1604
26	5.878	.0869
27	5.878	.0869
28	5.024	.1763
29	4.463	.1851
30	4.951	.1350
31	4.951	.1636
32	5.634	.0973
33	4.390	.1301
34	5.561	.1050
35	5.171	.1302

Respondent	Mean	Std. Error of the Mean
36	5.707	.1271
37	5.902	.0681
38	5.756	.1199
39	6.000	.0000
40	6.000	.0000
Overall	5.185	.0208

Appendix F

Beauty Culture Tasks Placed in Ranked Order

5.50 +

- 32. (A) Demonstrate professional attitudes towards clients
- 30. (A) Implement positive customer relation techniques
- 37. (C) Select proper waving solution and rods for type of hair
- 18. (P) Process and neutralize the permanent wave
- 5. (P) Plan a haircut and section hair for shaping
- 31. (A) Maintain professional code of ethics
- 17. (P) Section, block, and wrap hair on wave rods
- 4. (P) Give a shampoo
- 7. (P) Give a layered haircut
- 6. (P) Give a one-length, zero-elevation haircut

5.0 - 5.49

- 16. (P) Brush and/or comb hair into a style
- 39. (C) Recognize the effects of different hair coloring products on the hair.
- 23. (P) Apply a tint retouch
- 13. (P) Blow-dry hair into a style
- 14. (P) Style hair using a curling iron
- 25. (P) Apply a single application color
- 3. (P) Demonstrate sterilization and sanitizing
- 35. (C) Identify personal appearance standards
- 21. (P) Apply tint to virgin hair
- 38. (C) Identify after haircare procedures
- 36. (C) Know sterilization and sanitation procedures
- 19. (P) Give and analyze a patch test
- 26. (P) Apply a double application color
- 20. (P) Fill out client record card
- 24. (P) Apply a bleach retouch

4.5 - 4.99

- 2. (P) Perform safety and first aid procedures
- 8. (P) Remove excess bulk from hair (i.e.. thinning and texturizing)
- 29. (P) Perform receptionist duties
- 40. (C) Analyze facial shapes and profiles
- 1. (P) Help establish organized classroom management
- 22. (P) Apply a whole head bleach
- 33. (C) Identify and explain journeyman certification requirements
- 34. (C) Identify job opportunities for qualified beauticians
- 9. (P) Shingle hair
- 11. (P) Make pincurls
- 12. (P) Style hair with rollers
- 27. (P) Apply fillers
- 15. (P) Braid hair
- 28. (P) Pre-soften hair

Below 4.50

- 10. (P) Give a finger wave
- 41. (C) Explain the procedure for licensing a salon for business

(P) -- Psychomotor Skills

(A) -- Affective Skills

(C) -- Cognitive Skills

Appendix G

The Factor Loadings

Cognitive Skills

Factor I - Business Operation

Task Number	Task Statement	\bar{X}	Vco
33.	Identify and explain journeyman certification requirements.	4.800	.840
34.	Identify job opportunities for qualified beauticians.	4.775	.882
41.	Explain the procedures for licensing a salon for business.	4.125	.731

Factor II - Sanitation Procedures and Hair Diagnosis

36.	Know sterilization and sanitation procedures.	5.250	.875
37.	Select proper waving solution and rods for type of hair.	5.725	.840

Factor III - Hair Care

38.	Identify after perm haircare procedures.	5.300	.709
39.	Recognize the effect of different hair coloring products on the hair.	5.450	.857

Factor IV - Face Contours

40.	Analyze facial shapes and profiles.	4.925	.926
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Factor V - Ethics

35.	Identify personal appearance standards.	5.350	.978
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Factor VI - Hair Treatment

38.	Identify after perm haircare procedures.	5.300	.463
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Psychomotor Skills

Factor I - Basic Income

Task Number	Task Statement	\bar{X}	Vco
7.	Give a layered haircut.	5.525	.554
17.	Section, block, and wrap hair on wave rods.	5.625	.797
18.	Process and neutralize the permanent wave.	5.700	.775
21.	Apply tint to virgin hair.	5.325	.782
23.	Apply a tint retouch.	5.400	.683
25.	Apply a single application color.	5.375	.803

Factor II - Hair Coloring Specialties

22.	Apply a whole head bleach.	4.875	.938
24.	Apply a bleach retouch.	5.025	.894
26.	Apply a double application color.	5.200	.777
27.	Apply fillers.	4.650	.744
28.	Pre-soften hair.	4.625	.607

Factor III - Manual Skills

8.	Remove excess bulk from hair (i.e. thinning and texturing).	4.950	.553
10.	Give a finger wave.	4.450	.628
11.	Make pincurls.	4.725	.860
12.	Style hair with rollers.	4.775	.834

Factor IV - Safety Procedures

1.	Help establish organized classroom management.	4.900	.888
2.	Perform safety and first aid procedures.	4.975	.858
19.	Give and analyze a patch test.	5.225	.580

Factor V - Cutting and Styling Hair

6.	Give a one-length, zero elevation haircut.	5.500	.747
14.	Style hair using a curling iron.	5.375	.555
16.	Brush and/or comb hair into a style.	5.475	.740

Factor VI - Reception Obligations

20.	Fill out client record card.	5.150	.675
29.	Perform receptionist duties.	4.925	.795

Factor VII - Shaping Hair

9. Shingle hair.	4.725	.732
15. Braid hair.	4.625	.836

Factor VIII - Primary Tasks

4. Give a shampoo.	5.525	.679
5. Plan a haircut and section hair for shaping.	5.675	.725

Factor IX - Blow Drying

13. Blow dry hair into a style.	5.375	.888
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Factor X - Sterilizing Equipment

3. Demonstrate sterilization and sanitizing procedures.	5.35	.615
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Affective Skills

Task Number	Task Statement	\bar{X}	Vco
30.	Implement positive customer relation techniques.	5.825	.938
31.	Maintain professional code of ethics.	5.675	.945
32.	Demonstrate professional attitudes towards clients.	5.850	.922

Appendix H

**Alberta Beautician Practical
Examination**

DIRECTIONS TO CANDIDATES

1. You are required to bring the following PROFESSIONAL EQUIPMENT and SUPPLIES with you when you report for the practical examination:

- Protection cream
- Towels (20)
- Setting lotion and gel
- Plastic cap
- End papers
- Cotton batting and tissue
- Hair spray
- Pincurl clips
- Water spray bottle
- Perm and neutralizing solutions
- Finishing rinse
- Shampoo
- Brushes
- Combs
- Rollers
- Shears
- Razor
- Permanent wave rods (conventional — 100 rods)
- Applicator or brush and bowl for applying tint (setting gel)
- Capes
- Timer

NOTE: Positively no towels or any part of your supplies or equipment can be borrowed at the examination. Points may not be awarded to candidates who fail to provide themselves with the supplies and equipment listed above. You are obliged to bring other professional products and supplies to complete all services on the exam.

2. Floor Dryers will be supplied at the place of examination
3. Models — You are required to furnish your own model(s). The model must be in need of a haircut and be agreeable to having it cut and permed. **THE MODEL MUST BE AGREEABLE TO THE SIGNING OF A RELEASE FORM AND HAVING A STRAND TEST AND PATCH TEST PRIOR TO THE EXAM DATE.**
4. Please be advised the permanent wave may not be a finished hairstyle, and lunch arrangements are at your own discretion.
5. Customer and Attendant Hygiene — Every attendant shall be clean in his habits and shall wear a clean garment of washable light colored material covering all clothing above the hips. (C.C. 1719 - 57, 822 - 61)
6. Candidates shall not display badges or pins identifying them with any particular school or salon.
7. Please appear fifteen minutes before the examination

PRACTICAL EXAMINATION CONTENT
BEAUTICIAN EXAMINATION "A"

You will be expected to demonstrate your skill and knowledge in the following areas:

AREA	MAXIMUM TIME	OPERATION
COLOR DEMONSTRATION	20 Min.	Virgin hair to be prepared as for a color, setting gel only to be applied.
SHAMPOO	10 Min.	
PERMANENT WAVE FULL SERVICE	2 Hours	Preparation of model. Basic sectioning and conventional wrapping of the entire head. Preparation and application of "solutions".
LUNCH BREAK	60 Min.	Provided the morning services are completed on time.
HAIRCUT FULL SERVICE	30 Min.	Complete haircut with scissors, razor, clippers using any of the aforementioned tools.
HAIRSTYLING FULL SERVICE	60 Min.	Wet Set — using 50% rollers and 50% pincurls. Demonstrating three different types of pincurls, clockwise, counter clockwise and stand-up.
DEPORTMENT AND APTITUDE		Conduct and grooming at professional standards.
TIME LIMIT	5 Hours	Although the times allocated total 5 hours the total time for the exam includes lunch break and "marking time" and it is expected it will take approximately 7 hours.

PASS MARK 65%

The purpose of having more than one marker in attendance at the practical examinations is to obtain the broadest possible trade expertise. This expertise is applied in assessing the individual skill operations, to be able to average the marks awarded and be as fair as possible regarding the candidates practical ability. The marks are awarded throughout the examination and as each skill is demonstrated. All marks awarded, by necessity, are final.

ALBERTA MANPOWER

BEAUTICIAN PRACTICAL
EXAMINATION "A"Apprenticeship and
Trade Certification

MARKING SHEET

Section sub-headings including marks:

HAIR COLORING DEMONSTRATION	20 Points
<ul style="list-style-type: none"> - Sectioning - Work Area - Application of Tint (Virgin) 	
PERMANENT WAVING FULL SERVICE	30 Points
<ul style="list-style-type: none"> - Preparation of Model - Winding - Finished Results 	
HAIRCUTTING AND SHAPING FULL SERVICE	25 Points
<ul style="list-style-type: none"> - Finished Results 	
HAIRSTYLING FULL SERVICE	20 Points
<ul style="list-style-type: none"> - Hairsetting - Finish of Hairstyle 	
DEPORTMENT AND APTITUDE	5 Points
<ul style="list-style-type: none"> - Personal Appearance - Sanitary Work Habits - Professional Aptitude 	



MANPOWER

BEAUTICIAN PRACTICAL EXAMINATION "B"

Apprenticeship and Trade Certification

DIRECTIONS TO CANDIDATES

1. You are required to bring the following **PROFESSIONAL EQUIPMENT** and **SUPPLIES** with you when you report for the practical examination:

- Towels (20)
- Setting lotion and gel
- End papers
- Gibson towels (10)
- Hair spray
- Water spray bottle
- Finishing rinse
- Shampoo
- Brushes
- Combs — including wave comb
- Professional blower and curling iron (no tips or spring loaded handles)
- Shears and/or razor
- Permanent wave rods (36)
- Applicator or brush and bowl for applying tint
- Capes
- Rubber gloves
- Peroxide and color (for one-step permanent color)
- Tint apron
- Protection cream and color remover
- Timer

NOTE: Positively no towels or any part of your supplies or equipment can be borrowed at the examination. Points may not be awarded to candidates who fail to provide themselves with the supplies and equipment listed above. You are obliged to bring other professional products and supplies to complete all services on the exam.

2. Floor Dryers will be supplied at the place of examination.
3. **MODEL(S)** — You are required to furnish your own model(s). The model must be in need of a haircut and be agreeable to having it cut and tinted. **THE MODEL MUST BE AGREEABLE TO THE SIGNING OF A RELEASE FORM AND HAVING A PATCH TEST PRIOR TO THE EXAM DATE.**
4. **Customer and Attendant Hygiene** — Every attendant shall be clean in his habits and shall wear a clean garment of washable light colored material covering all clothing above the hips. (O.C. 1719 - 57, 322 - 51)
5. Candidates shall not display badges or pins identifying them with any particular school or salon.
6. Please appear fifteen minutes before the examination.

PRACTICAL EXAMINATION CONTENT
BEAUTICIAN EXAMINATION "B"

You will be expected to demonstrate your skill and knowledge in the following areas:

AREA	MAXIMUM TIME	OPERATION
COLOR FULL SERVICE	100 Min.	Preparation of model. One-step peroxide color, full application either virgin or re-touch.
PERM DEMONSTRATION	40 Min.	Basic sectioning of the entire head wrapping the front portion from ear to ear, including the front hairline, together with the nape area from ear to ear, all as in cold wave (Water only to be used.)
LUNCH BREAK	60 Min.	Provided the morning services are completed on time.
FINGER WAVE DEMONSTRATION	15 Min.	Finger wave the entire head (no clips or clamps to be used).
SHAMPOO	10 Min.	
HAIRCUT FULL SERVICE	30 Min.	Complete haircut with scissors, razor or clippers using any of the aforementioned tools.
HAIRSTYLING FULL SERVICE	45 Min.	Blow dry and curling iron set required.
DEPORTMENT AND APTITUDE		Conduct and grooming at professional standards.
TIME LIMIT	5 Hours	Although the times allocated total 5 hours the total time for the exam includes lunch break and "marking time" and it is expected it will take approximately 7 hours.

PASS MARK 65%

The purpose of having more than one marker in attendance at the practical examinations is to obtain the broadest possible trade expertise. This expertise is applied in assessing the individual skill operations, to be able to average the marks awarded and be as fair as possible regarding the candidates practical ability. The marks are awarded throughout the examination and as each skill is demonstrated. All marks awarded, by necessity, are final.

ALBERTA MANPOWER

BEAUTICIAN PRACTICAL
EXAMINATION "B"Apprenticeship and
Trade Certification**MARKING SHEET**

Section sub-headings including marks:

HAIR COLORING FULL SERVICE	30 Points
- Sectioning	
- Work Area	
- Application of Tint	
- Finished Results	
PERMANENT WAVING DEMONSTRATION	15 Points
- Sectioning	
- Size of Curl Section	
- Winding	
FINGER WAVE DEMONSTRATION	5 Points
- Shape and Quality of Fingerwave	
HAIRCUTTING AND SHAPING FULL SERVICE	25 Points
- Finished Results	
HAIRSTYLE FULL SERVICE	20 Points
- Blow Dry and Iron Set	
- Finish of Hairstyle	
DEPORTMENT AND APTITUDE	5 Points
- Personal Appearance	
- Sanitary Work Habits	
- Professional Aptitude	