PERCEPTIONS OF STUDENTS, FACULTY, AND ADMINISTRATORS AT THE CABOT INSTITUTE OF APPLIED ARTS AND TECHNOLOGY TOWARD COMPETENCY BASED VOCATIONAL EDUCATION

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By

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ABSTRACT

The purpose for undertaking this study was to identify the benefits and problem areas of competency based vocational education (CBVE) as perceived by students, faculty, and administrators at the Cabot Institute of Applied Arts and Technology in the Province of Newfoundland. It was anticipated that this report would identify areas of agreement and disagreement among, between, and within the three groups.

The study also compared perceptions toward CBVE of faculty who taught academic courses with those who taught courses which were technical or trade specific. The perceptions of students enrolled in business education programs were also compared with those of students enrolled in other pre-employment trade or technical programs at the Institute.

A review of the literature indicated that many of the problems and benefits associated with CBVE either dealt with its implementation or one of five operational aspects concerning learning activity packages, evaluation and testing, performance objectives, managerial aspects, and attitudes toward CBVE. Therefore, data were gathered by means of three questionnaires which were developed specifically for this study based on the review of the literature: one for students; one for faculty; and one for administrators. In order to ensure that a valid investigation could be conducted, statements concerning these five operational aspects were

developed and five content experts in the area of CBVE asked to judge the validity of each statement, and also to indicate in which of the five categories it should be placed. Only items on which four of the five content experts agreed were used in the questionnaires.

On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty toward implementation and operational aspects of CBVE were statistically significant at the .1 level. Academic faculty indicated a more negative reaction toward CBVE than did any other group or sub-group. All other groups and sub-groups reacted positively to the majority of statements concerning CBVE. Students had a very positive perception of the programs in which they were enrolled and the manner in which they were being taught. They indicated quite strongly that they felt their course material was relevant, that evaluation was meaningful, and that they had a good working relationship with their instructors.

The findings of this study may have implications for the development of CBVE at the Cabot Institute. Although CBVE appeared to be operating quite well at Cabot there were obvious problems, not so much with students' interpretations, but with those of academic faculty members. Therefore, it was recommended that studies be conducted to determine what faculty and administrators feel are the major problems hindering the successful implementation and operation of CBVE

at the Cabot Institute, with particular emphasis on academic courses. There is also a need for longitudinal evaluation to ensure that in the future CBVE is implemented and operated in the best possible manner at the Cabot Institute.

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CHAPTER I

Introduction

Introduction to the Study

The Cabot Institute of Applied Arts and Technology (Cabot Institute), formerly known as the College of Trades and Technology, was officially opened November, 1963. It is presently comprised of seven departments located at two campuses on Topsail Road and Prince Philip Drive in St. John's, Newfoundland.

Programs offered at the Cabot Institute can be arranged into three major categories: (a) those of less than ten months' duration, usually referred to as pre-employment programs, in which the graduate is awarded a Certificate of Vocational Education; (b) those of more than ten months' duration, usually referred to as post-secondary or technical programs, in which the graduate is awarded either a Diploma of Applied Arts or a Diploma of Technology; and (c) other courses of mixed duration offered by the Continuing Education Department which are a mixture of general interest, avocational, and apprenticeship courses beyond the first year.

Many of Cabot's post secondary and technical programs are delivered using traditional lecture strategies, however, many of the ten-month pre-employment programs use competency based vocational education (CBVE). CBVE is usually referred to by faculty members and administrators at the Cabot

Institute as either self-paced instruction (SPI) or competency based instruction (CBI). SPI is the term commonly used by those in the Business Education Programs Department while members of the remainder of the Institute's departments tend to use the term CBI.

Although the ten-month Business Education programs at the Cabot Institute had used SPI since 1978, it was not until September 29, 1983 that the former President, Mr. K. F. Duggan, announced that the competency-based approach would be adopted for the remainder of Cabot's pre-employment programs. His reasoning for this was included in a memorandum to faculty members in which he stated:

> ...that adopting this concept would provide: greater flexibility for students; optimum use of facilities, equipment, and faculty; and greater cost efficiency per student, while still maintaining effective program delivery. (Duggan, 1983, p. 1)

Within the Newfoundland Department of Career Development, CBVE is defined as:

> An approach to instruction that assumes each learner will reach specific minimum levels of achievement or competency...and...A program in which the desired learning outcomes are specified in advance...Each outcome is...associated with... tasks that can be easily measured. (Gogan,

> Davis, and Murray, 1984, p. 2)

Others have said:

> It can also be called competency based education or instruction, performance based education or instruction, criterion-referenced instruction, mastery learning, or proficiency-based education. Basically, these terms all have the same meaning. (Maryland Vocational Production Project, 1978, p. 3)

At the Cabot Institute it is defined as:

> ...instruction centered around the individual strengths, needs, and learning styles of the student. It is a very personalized system of learning. (Cabot Institute, 1985, p. 10)

Approximately 20 pre-employment programs are taught at the Cabot Institute using some form of CBVE. Some are taught using a self-paced, continuous intake / exit format, while others use the lecture strategy. The majority of programs, however, use a combination of group and individualized, self-paced instruction. One of the primary resources which the Institute uses to enable it to offer programs which are individualized and self-paced is the Learning Activity Package. This consists of a set of booklets which provide students with the performance objectives, learning activities, information sheets, and sample tests necessary to complete each competency. Learning Activity Packages enable students

to complete required competencies with a minimum of assistance from their instructors.

Purpose / Significance of the Study

The purpose for undertaking the study was to identify the benefits and problem areas of CBVE as perceived by students, faculty members, and administrators at the Cabot Institute and to investigate their perceptions toward it. It was anticipated that this report would identify areas of agreement and disagreement among, between, and within the three groups.

The study also compared perceptions of instructors in CBVE programs who teach academic courses with those who teach courses which are technical or trade specific. The perceptions of students enrolled in business education programs and those enrolled in the remainder of the Cabot Institute's pre-employment programs were also compared.

An anticipated benefit of this study was the use of the results to improve the delivery of CBVE programs both at the Cabot Institute and elsewhere. It was also anticipated that the instruments which were developed for the study could be used by other researchers when investigating CBVE programs.

The following 5 research questions were formulated:

1. Do faculty members and administrators differ in their perceptions of problems concerning the implementation of CBVE?

2. Do faculty members who teach academic courses and faculty members who teach technical courses differ in their perceptions of problems concerning the implementation of CBVE?

3. Do faculty members, students, and administrators differ in their perceptions of problems concerning the operation of programs using CBVE?

4. Do faculty members who teach academic courses and faculty members who teach technical courses differ in their perceptions concerning the operation of programs using CBVE?

5. Do students enrolled in Business Education Programs and those enrolled in other departments differ in their perceptions concerning the operation of programs using CBVE?

Need for the Study

CBVE has been implemented using varying degrees of individualization for a number of years at the Cabot Institute. However, in the majority of its ten-month pre-employment programs, there has been no formal investigation to determine how it was perceived by students, faculty members, and administrators. As these three groups are very much involved with CBVE on a day-to-day basis, it is important to determine what they perceive to be its strengths and weaknesses.

A review of the literature revealed that no similar studies had been conducted in Newfoundland, or for that matter in Canada, yet several hundred students are presently

receiving training in CBVE programs at the Cabot Institute, as well as at several other campuses of Newfoundland's community colleges. A study of the perceptions of students, faculty members, and administrators toward CBVE could provide some basic evaluative information.

Scope and Limitations of the Study

Students enrolled in CBVE programs of approximately ten months' duration in the following departments were included in the study: Construction & Resource Programs, Mechanical Programs, Service Programs, Electrical / Electronics Programs, and Business Education & Applied Arts Programs. Only students attending school in the month of May of the 1987-88 academic year were included in the study. Students who had either completed their program before this date or who had left their program prior to completion, were not included in the investigation.

Since the three questionnaires used in the study were developed by the author, the study was limited by the validity and reliability of the questionnaire items and the manner in which the instruments were completed. Copies of the instruments are included in Appendix A.

Because the number of individuals in each of the student, faculty member, and administrator groups varied greatly (236, 44, and 5 respectively), the results of the statistical analyses must be interpreted cautiously. There-

fore, the empirical framework of the study was somewhat limited and its conclusions are valid only within the specific conditions of this investigation.

Definition of Terms

The following terms were defined for the purpose of this study:

Academic Instructors would include persons who teach pre-employment courses in Communications, Mathematics, and Science.

Business Education Programs would include pre-employment programs in Clerk Accounting, Clerk Typing, and Shorthand Typing.

Technical Instructors would include persons who teach pre-employment courses in Shop Practical and Trade Theory.

Vocational Education would include those programs which prepare students for jobs in various trade and business occupations.

CHAPTER II

Review of Related Literature

Introduction

Competency Based Vocational Education first emerged in its present form during the 1970's. Its purpose was to provide vocational training which was more efficient and effective than traditional teaching methods and which had as its focus, pre-determined competencies (Oen, 1982; Sheldon, 1983; Taylor, 1978; Sade, 1982).

Although CBVE is a widely accepted form of training, evaluations of its effectiveness as compared to those of other educational strategies are difficult to locate (Rudolph, 1974; Sorg, Fardig, Lange, & Koch, 1984). Polk (1982) noted that despite, "...the claims made for CBVE, one of the disturbing aspects of its massive literature is that there are few available research studies which evaluate it..." (p. 18). Rudolph (1974) concluded that confusion over the terminology surrounding the competency-based education movement tends to deter a critical examination of the advantages and disadvantages of the movement itself. Sorg et al. (1984) determined that misconceptions of exactly what constitutes a program which is CBVE is one of the major problems hindering its acceptance and implementation.

The literature also indicated that while there is considerable disagreement as to a common definition of CBVE,

there is also disagreement as to the common elements and characteristics which a competency-based program should include. Fretwell (1987), for example, felt that there were, "...varied opinions as to what really constitutes competency based instruction..." (p. 47), and a study by the Further Education Unit in London (1984) concluded that many of the difficulties regarding the analysis and implementation of competency-based education would be alleviated if there were agreement on a "...wider definition of competence." These views are shared by Buttram (1985), Kaprelian and Perona (1981), and Polk (1982).

Some descriptions of CBVE are either extremely brief or extremely vague. Knack (1983), for example, described it simply as a process which informs those involved of exactly what must be learned and exactly what has to be taught, whereas Sheldon (1983) felt that CBVE, "...has become the umbrella term for programs that focus on both...academic skill needs as well as...life, societal, survival or coping skill needs." (p. 2).

Characteristics of CBVE

Despite the foregoing, there is general agreement among many educators and researchers, however, that for programs to be considered competency-based they should include the following three characteristics: (a) tasks should be determined by means of a detailed analysis of the occupation and

should be reviewed regularly to ensure currency; (b) evaluation standards should be determined before instruction actually begins; and (c) student achievement should be based on demonstrated competency to mastery standards (Center for Instructional Development, 1987; Taylor, 1978; Kaprelian & Perona, 1981; Sorg et al. , 1984; Michigan State Department of Education, 1980; Poorman & Fleckenstein, 1978; Jobe, 1973; Christensen, Bartoo, Dempsey, Dyer, Kollar, Sperker, & Sturges, 1976).

Other educators indicated that in addition to the three characteristics mentioned previously, competency-based programs should also ensure that: (a) students are aware of the course objectives and the standards by which they will be evaluated before instruction begins; and (b) students are provided with alternative means by which to master the course objectives (Blank, 1987; Florida State Department of Education, 1985).

Many of these requirements are summarized in a definition of CBVE by W. R. O'Connell (1979):

> ... (CBVE is) education that focuses on the outcomes of the formal educational process so that those outcomes are defined, agreed upon, and publicly stated in terms of assessable student behaviors. Appropriate assessment instruments and processes are developed and learning experiences designed to assist students in gaining the

> required competencies are offered...This understanding of competency based instruction does not include the specification of any particular teaching mode or strategy, and / or special curriculum. It does require that a consensus be reached on the expectations for students which are to result from educational experiences and that these expectations be stated in terms of assessable behaviors. (p. 5)

In summary, the literature indicated that for programs to be considered competency-based, they must include the following five characteristics: (a) tasks are determined by a rigourous analysis of the defined occupation, and this task list is kept current; (b) tasks are stated as behavioral objectives in terms of outcomes and to measurable mastery standards; (c) evaluation standards are determined before instruction begins and student achievement is based on demonstrated competency by means of criterion referenced instruments; (d) students are aware of the course objectives and the standards and methods by which they will be evaluated, before instruction begins; and (e) learning activities are designed to enable students to attain the objectives by alternative means.

Delivering CBVE

It must be remembered, however, that even though

programs may meet all requirements of CBVE, they may still be delivered primarily by lecture format (O'Connell, 1979). The degree to which a program is self-paced or individualized is often determined, not on whether it is competency-based in format, but rather on the arrangement of instructional materials (Polk, 1982). If, for example, instructional materials are not designed to be delivered in an individualized manner, the course is usually taught using the traditional lecture format and group instruction. One of the primary differences in programs using traditional delivery techniques and competency-based programs using traditional delivery techniques is that in the latter, evaluation is not necessarily in the form of a final examination, and that every competency and not merely a sampling, must be tested.

Varying Degrees of Individualization

Most CBVE programs use a Record of Achievement which is usually in the form of a single sheet skill profile or curriculum chart developed from a rigorous analysis of the tasks which comprise an occupation. However, there are varying degrees of individualization of competency-based programs. Some of the variations of CBVE which use a Record of Achievement are: (a) those which are delivered primarily by means of traditional instruction and have fixed entry / exit dates; (b) those which are delivered using a combination of traditional instruction and learning activity packages and

have fixed entry / exit dates; (c) those which are delivered primarily by means of learning activity packages and which use very little traditional instruction and have fixed entry but continuous exit dates; and (d) those which are delivered primarily by means of learning activity packages and which use very little traditional instruction and which have continuous entry / exit dates.

Designing a Curriculum (DACUM) Approach

The most widely recognized method of identifying occupational competencies is the DACUM process. It is used regularly and successfully throughout many parts of Canada (Mitchell, 1983; Research and Curriculum Development, 1983) and many other countries of the world (El Paco Community College, 1984; Briggs & Wagner, 1981; Carlisle, 1986; Unesco, 1981). The DACUM process has been so successful that it was extremely difficult to locate research which was even mildly negative (Huggard & Pedras, 1985). Its history of success is primarily due to the fact that DACUM committees are composed of people either presently employed in the occupation being analyzed or who are directly supervising workers in this occupation (Adams, 1975; Briggs & Wagner, 1981).

Positive Aspects of CBVE

Supporters of CBVE indicated that it has several advantages compared to more traditional group based and

teacher paced methods of schooling.

One benefit which predominated much of the literature is that CBVE improves the relationship between the objectives of a program and the requirements of an occupation. This is primarily due to the fact that entire programs are built around skills which are identified, specifically defined, and then verified by individuals who are actually employed in the occupation being investigated. Many researchers felt that students enrolled in CBVE programs realize that the course objectives are geared to the requirements of industry. Therefore, because they are aware of the objectives and how they will be evaluated before instruction actually begins, students are quite motivated as the connection between job requirements, the competency objective, instruction, and evaluation is quite evident (Knack, 1983; Kaprelian & Perona, 1981; Blank, 1982; Norton, 1980).

Some writers also argued that because the DACUM process results in a single-sheet skill profile or curriculum chart (Record of Achievement), employers are given more exact information as to what graduates have mastered and are capable of doing, thereby making grade reports much more meaningful (Adams, 1975; Research & Curriculum Development, 1983).

The concept of individual differences may be acknowledged to a greater extent and in a more positive sort of manner in CBVE. This is especially true in CBVE programs which are self-paced as slower students have more time in

which to learn specific tasks and faster students can proceed through the program at their own pace. Time is no longer the governing factor in the learning process and is much more flexible than in many programs using traditional teaching techniques (Polk, 1982; Sade, 1982; Wascana, 1983). In CBVE programs students may also be provided with alternative learning activities by which to master the required competencies (Polk, 1982; Dimmlich & Oen, 1985; Watson, 1984), and this, "...provides the student with increased opportunities to succeed." (Knack, 1983, p. 3). Research indicated that because of the aforementioned factors, many students found CBVE to be much more acceptable than traditional programs and provide a much friendlier environment in which to study (Justensen, 1983).

CBVE seems to provide a more manageable means of instruction for many students because of the specificity of the objectives. Because students tend to be more successful in this type of program, achievement often leads to more achievement and students gain confidence in their abilities to master the material. A more positive attitude toward the subject matter is often the result (Block, 1971; DeGeeter, 1986).

Students enrolled in CBVE programs seem to be appreciative of the fact that their present performance is of primary importance and not the accomplishments or failures they experienced before entering the program. If students can

demonstrate that they have mastered designated tasks to the standards required, they are given credit for these skills and knowledge, even though they may have mastered them before commencing their program of studies (Sorg et al. 1984; Kaprelian & Perona, 1981).

Many writers also felt that student evaluation is more meaningful in CBVE programs as goals and objectives are clearly stated in measurable standards. Evaluation is stated in mastery standards and testing is summative and criterion referenced, and therefore extremely reliable and valid (Crisci, 1986; Sizer, 1984).

Negative Aspects of CBVE

Although the competency-based approach to vocational education seems to have been embraced by many educational facilities throughout North America, there are a number of problems and concerns associated with it.

Evaluation in CBVE creates problems for certain students and instructors because of the criterion referenced testing which is a fundamental requirement. Criterion referenced testing requires that a student master all aspects of the program and not merely a sampling of them. These mastery standards are usually translated into grades of 80%. Many feel that the 80% passing grade is unrealistic and that unnecessary stress is placed on both the teacher and the student when such a high degree of success is expected.

Others argue that because most students receive high grades in CBVE, this may destroy the desire of some individuals to strive for excellence (DeGeeter, 1986; Stallings & Stipek, 1986; McClung, 1978).

The vast majority of competency-based programs tend to use 'rating scales' instead of specific letter grades and the range within the rating scales differs significantly. Some are based on a seven point scale whereas others consist simply of a rating of 'complete or incomplete'. Some researchers argue that the broader scales are too mediocre and that the narrower scales do not provide the means by which to differentiate the excellent students from those who are border-line (Martell, 1986; Polk, 1982; Dimmlich & Oen, 1985; Kligman & Gardner, 1982).

Some schools permit students to rewrite final tests several times whereas some researchers felt that permitting students to regularly rewrite examinations significantly reduces the validity of the entire program (Polk, 1982; Slavin, 1981).

Certain students do not fair very well at directing their own educational activities. This is perhaps partially due to the fact that they may never have been required to do so or been given choices as to the type of learning activities they wished to pursue. Therefore, some students begin their programs successfully but are unable to budget their time in a manner which permits them to complete courses in the

prescribed amount of time and may terminate their programs as pressure increases (Sade, 1982).

Because there are rarely formal pre-testing procedures in place (Polk, 1982), students may be attempting to complete course objectives for which they have not completed the required pre-requisites. Therefore, because of the mastery requirements less able individuals may occupy much of an instructor's time. If additional instructional time cannot be scheduled for these slower students, they may not progress as quickly as their classmates.

In CBVE programs the instructor's role often changes from teacher to a combination of manager, counsellor, and facilitator. Many teachers find this transition quite difficult as they are no longer the only source or the best source of information. Critics argue that too much of the teacher's time is spent sorting out students' problems and evaluating progress and that the focus is no longer on teaching (Royce & Shank, 1975; Rudolph, 1974). Recording of results is also a major task especially for academic instructors who may deal with larger numbers of students than do technical (trade specific) instructors. This problem is compounded by the fact that in some programs students are permitted to write up to three versions of post tests or summative evaluations. Recording marks and informing superiors of student performance becomes a major area of concern and may take up large amounts of an instructor's time.

Therefore, some educators argue that the instructor's time is diverted from individual and group instruction and into the preparation and updating of materials and the performance of additional managerial duties, and that most interactions between students and faculty members are no longer focused on instruction. Many instructors also find it especially confusing when students are permitted to consistently work in small groups or leave the immediate area to avail of alternative learning resources. They feel that they lose control of their class when student population changes regularly and when students direct many of their own activities (Royce & Shank, 1975; Budz & Grabar, 1976; Polk, 1982).

Because CBVE is a relatively recent innovation, it is often viewed cautiously by educators. This is compounded by the fact that instructors sometime feel that CBVE has been thrust upon them without sufficient consultation and that they are expected to teach using a philosophy of education which is quite contrary to traditional beliefs. Research also indicated that if administrators do not support the implementation of CBVE, it usually proves to be unsuccessful. Therefore, unless administrators clearly voice their support for CBVE and follow this through with meaningful assistance, it is almost certainly doomed to failure (Sade, 1982).

Although many of its supporters claimed that CBVE improved the quality of education and the individual's ability to perform on the job, few studies have been completed which

actually support this belief. Polk (1982) determined that evaluations of CBVE were extremely difficult to locate and Buttram (1985) concluded that even though many of those who support the competency-based system praise it, "Their endorsement of the implementation of competency based vocational education was often based on its conceptual appeal..." (p. 71). Other critics of CBVE feel that because it de-emphasizes knowledge and understanding and focuses primarily on performance, graduates may not acquire the skills necessary to enable them to adapt to changing job conditions (Knack, 1983; Kaprelian & Perona, 1981).

In CBVE programs which are self-paced, large amounts of print and audio visual materials are necessary and instruction is usually in the form of learning activity packages. This material is both expensive and time consuming to develop and update. Campbell (1984) noted that the development of instructional booklets may cost in excess of $400 per hour of instruction. Sorg et al. (1984) reported that much of the money which large consortiums in the United States spend on activities associated with CBVE, is targeted in the area of curriculum development. Research also tended to indicate that although the development of appropriate resource material is imperative to the success of a competency-based system of instruction many training agencies are either unwilling or unable to allocate the amount of financial support necessary to properly develop curriculum. Therefore, many of the

instructional materials presently in use are inappropriate and inadequate to meet students' needs.

Present Trends

In order to offset the cost of developing and updating curriculum materials, the major thrust of the CBVE movement in the United States is through consortiums. Organizations such as the Mid-America Vocational Curriculum Consortium which has 10 states as members, and the Vocational-Technical Education Consortium of States which represents 26 states, share the expense of developing CBVE materials. The materials are cataloged and made available to member states. Membership costs for each state vary from $40 000 to $100 000 per year, but "...a member state gains curriculum materials and services worth close to $2 million per year in developmental costs." (McCage, 1989, p. 5)

The sharing of curriculum materials is also being attempted in various parts of Canada, but as of yet, is still in the experimental stage. The Competency Based Curriculum Information Center at Holland College in Charlottetown, Prince Edward Island is working to facilitate the sharing of information among Canadian Institutions (Steele, 1988).

It was concluded, after discussions with M. Dillion (Personal Interview, 1988) at the Department of Career Development in St. John's, that in Newfoundland CBVE is presently being used in the majority of pre-employment

programs within the Province. Mr. Dillion felt that, even with the recent reorganization of the Newfoundland vocational system, the Department will continue the use of CBVE. He stated, however, that he was not aware of any formal evaluation of CBVE which had been completed by the Department.

Summary

One of the major problems which hinders many CBVE programs is the absence of formal evaluation. Although CBVE appears to have definite advantages for the delivery of vocational programs, without meaningful evaluation and research it is impossible to accurately access its performance.

The research which has been completed concerning the performance of CBVE programs, is quite inconclusive. Studies by Poorman and Fleckenstein (1978), for example, cited several advantages of CBVE while those conducted by Buttram (1985) reported that no such benefits existed. However, most agreed that with the support of a committed faculty and administration, CBVE could become a much more viable alternative by which to deliver vocational programs.

In conclusion, although CBVE has supporters who feel it may prove advantageous when teaching vocational courses, there are definite problem areas which must be addressed. This review has highlighted both the positive and the negative aspects of CBVE. The study which follows will attempt to

highlight the problem areas and benefits associated with the implementation and operation of CBVE programs at the Cabot Institute of Applied Arts and Technology.

CHAPTER III

Theoretical Framework and Research Design

Introduction

In order to ensure that CBVE has been successfully implemented, the environment in which the curriculum is delivered must be investigated. Because students, faculty members, and administrators are the primary individuals involved in this environment, their attitudes and perceptions of how it was implemented and how it is operating are perhaps the most appropriate indicators of success or failure. Therefore, if areas of agreement and / or disagreement between, among, and / or within the three groups could be identified, the information could serve to indicate possible designs by which programs could be delivered.

The literature indicates that many of the problems and benefits associated with CBVE fall within one of the following six categories:

1. Learning Activity Packages: Materials must be written at the appropriate level and directions easy to follow. Self-checks / check-points should be included and enough copies of the learning activity packages made available.

2. Evaluation and Testing: Testing must be valid and reliable and must not occupy too much time. Rating scales must be appropriate and passing grades attainable.

3. Performance Objectives: Course objectives must be appropriate, clearly stated, and regularly updated and students should be aware of the course objectives before instruction actually begins.

4. Managerial Aspects: There must be sufficient materials and supplies and the student-teacher ratio and required course pre-requisites must be appropriate. Courses must be arranged so that there is not too much time spent on managerial duties.

5. Attitudes Toward CBVE: Students must possess the necessary disciplinary skills, and students, faculty members, and administrators must believe in the philosophy of CBVE.

6. Implementation Aspects: CBVE must be implemented only after students, faculty members, and administrators have been properly orientated and the necessary framework put in place.

Some educators view the above categories as strengths of CBVE while others feel they are potential weaknesses.

Population

The population of the study consisted of all of the students, faculty members, and immediate administrators associated with CBVE in the following departments at the Cabot Institute during the 1987-88 academic year: Construction and Resource Programs, Mechanical Programs, Service Programs, Electrical / Electronics Programs, and Business Education and

Applied Arts Programs. A more detailed description of this population is given in Tables 1 and 2.

All faculty members involved with the teaching of courses which were competency-based were included in the study. These faculty members were teaching courses which were categorized as either technical or trade specific (trade theory, shop practical, etc.), or academic (mathematics, science, etc.). Table 1 provides a detailed description of this population by department and indicates the number of questionnaires which were distributed. Type 1 indicates a faculty member teaching an academic course(s) and Type 2 indicates a faculty member teaching a course(s) which was technical or trade specific.

The study also included all full-time students enrolled in pre-employment programs of less than ten months' duration who had not completed their programs by the month of either April or May, 1988. The majority of the students who completed questionnaires were nearing the completion of their programs, however, as some were enrolled in programs which operated on a continuous entry / exit basis, these students may only have been in their programs for as little as two weeks. Students were spread across 18 distinct programs, the population of which varied from 3 to 32 students. Overall, the population was very evenly distributed by sex and consisted of 118 males, 114 females, and 4 students who did not indicate their gender. Table 2 contains a more detailed

Table 1

Faculty Members Included in the Study by Type and Department

Department	Questionnaires Given		
	Type 1	Type 2	Total
Construction	-	3	3
Mechanical	10	12	22
Services	-	10	10
Electrical	5	3	8
Business	4	8	12
Total	19	36	55

Note. Type 1 indicates a faculty member teaching an academic course(s).

Type 2 indicates a faculty member teaching a technical course(s).

description of the students.

The immediate supervisor of each of the five departments also participated in the study. In four cases the immediate supervisor was a department head and in one case a coordinating instructor. It was decided to use only immediate supervisors as it was assumed that it would be these individuals who would be most in touch with the implementation and operation of CBVE within their respective departments.

Design of the Study

In order to investigate the six areas of CBVE as identified in the literature, three similar questionnaires were developed by the author, copies of which are included in Appendix A. It was necessary to develop the questionnaires as a review of the literature showed that there were no instruments available which could be used to study the perceptions of students, faculty members, and administrators toward the six previously identified areas of CBVE. In fact the only study located which was even vaguely similar to the one proposed by the author was a study completed by Vincent and Cobb (1977), in which the authors investigated the effectiveness of CBVE as compared with programs which used more traditional teaching strategies. Because of differences in the major objectives and hypotheses of their study, however, the instruments developed for the Vincent and Cobb study could not be used, even though some of the questionnaire

Table 2

Students Included in the Study by Department and Sex

Department Program	Sex			
	Male	Female	Unknown	Total
Construction				20
Bricklaying	6	1	-	7
Carpentry	8	-	-	8
Sheet Metal	5	-	-	5
Mechanical				47
Machinist	11	-	-	11
Heavy Equipment Repair	8	-	-	8
Welding	9	-	-	9
Millwright	11	-	-	11
Motor Vehicle Repair	8	-	-	8
Service				57
Printing	4	4	-	8
Barber Stylist	2	2	1	5
Commercial Art	-	3	-	3
Beauty Culture	1	20	-	21
Commercial Cooking	13	6	1	20
Electrical				26
Electronics (Basic)	14	3	-	17
Electrical	9	-	-	9
Business				86
Shorthand (Typist)	-	32	-	32
Clerk Typing	1	23	1	25
Clerk Accounting	8	20	1	29
Total	118	114	4	236

items addressed similar topics.

The questionnaires were administered between April and June of the 1987-88 academic year at the Prince Philip Drive Campus of the Cabot Institute of Applied Arts and Technology. The questionnaire items were computer analyzed at Memorial University of Newfoundland between the months of September and February of 1988-89 using the Statistical Package for the Social Sciences (SPSSX).

Hypotheses of the Study

The following five hypothesis were formulated with the intent of identifying implementation and operational benefits and problems associated with CBVE as perceived by students, faculty members, and administrators at the Cabot Institute:

1. There are no differences in perceived implementation problems between faculty and administrators.

2. There are no differences in perceived implementation problems between faculty who teach academic courses (academic instructors) and faculty who teach technical courses (technical instructors).

3. There are no differences in perceived operational procedures among faculty, students, and administrators.

4. There are no differences in perceived operational procedures between faculty who teach academic courses (academic instructors) and faculty who teach technical courses (technical instructors).

5. There are no differences in perceived operational procedures between students enrolled in pre-employment Business Education programs and those enrolled in pre-employment Construction, Service, Mechanical, and Electrical programs.

Instrumentation

A total of three questionnaires were developed: one for students, one for faculty members, and one for administrators. These questionnaires were designed to investigate the six major areas of CBVE as mentioned previously in this Chapter. All three questionnaires included items on the following five operational aspects of CBVE: learning activity packages; evaluation and testing; performance objectives; managerial aspects; and attitudes toward CBVE. Instructor and administrator questionnaires included additional questions concerning the implementation of CBVE. Students were asked a total of 52 questions while faculty members and administrators were asked an additional 20 items. Questionnaire items were assigned identification numbers so that items on each of the 3 questionnaires corresponded to one another. The 20 items which were included on the faculty member and administrator questionnaires but not on the student questionnaire were numbered 36-52 and 70-72. So as not to influence the responses of participants, a percentage of questionnaire items were worded in a positive manner while others were worded

negatively.

A Likert scale was used to allow for ease in the statistical analysis of the data and participants were presented with statements and asked to either strongly agree (1), agree (2), disagree (3), or strongly disagree (4).

Instrumentation Validity

In order to ensure that a valid investigation could be conducted an extensive review of the literature was undertaken. From this study six major areas of concern were identified. One of these areas dealt with implementation and the remaining five areas dealt with operational aspects. Statements which the author felt could determine the perceptions of students, faculty members, and administrators toward the six major areas of concern were then developed from the literature review. In order to ensure that each of the statements concerning the five operational aspects were categorized properly, each statement was printed on a file card and submitted to five content experts in the area of CBVE. Each of these experts had extensive experience in the implementation and / or operation of CBVE programs. An accompanying letter, a copy of which is included in Appendix B, was enclosed explaining the nature of the study. These experts were asked to judge the validity of each statement, to determine whether it should be used on the student questionnaire, and to indicate in which of the five categories

it should be placed. They were also told to feel free to make additional comments concerning any of the statements to help clarify their decisions.

After the content experts returned the categorized file cards, and after their comments were reviewed, the student questionnaire was developed. Only items on which four of the five content experts (80%) agreed were included in the study. Neutral statements which were neither slanted positively nor negatively, were also eliminated. The outcome of the procedure is reported in Table 3.

Questionnaires were then developed for faculty members and administrators. These questionnaires contained the same items as did the student questionnaire, and queried administrators and faculty members as to how they felt students would respond on each item of their questionnaires. It was felt that this would result in a realistic picture of how students perceived CBVE to be operating, and how faculty members and administrators felt students perceived CBVE to be operating. In addition, the administrator and faculty member questionnaires contained 20 items on perceptions of the implementation and operation of CBVE at the Cabot.

Table 3

Categorization of Questionnaire Items by Content Experts Concerning Operational Aspects as Perceived by Students

Item	Expert					Item	Expert					Item	Expert				
	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5
1	2	2	2	2	2	21	5	5	5	5	5		2	4	-	2	5
2	4	4	4	4	4	22	2	2	2	2	2	54	1	1	1	1	1
3	4	4	4	4	4	23	4	5	5	5	5	55	1	1	1	1	1
4	2	2	2	2	2	24	3	5	5	5	5	56	1	1	1	1	1
5	2	2	2	2	2	25	2	2	5	2	2	57	1	1	1	1	1
	4	4	5	1	2		3	5	2	-	2	58	1	1	1	1	1
6	2	3	2	2	2		2	2	2	2	2	59	1	1	1	1	1
7	4	4	4	4	4	26	4	5	5	5	5	60	1	1	3	1	1
8	2	2	2	2	2	27	4	4	4	-	4	61	1	1	3	1	1
9	5	5	5	5	2	28	3	3	3	3	3	62	1	1	1	1	5
10	2	5	2	2	2		2	5	2	5	2	63	4	1	1	1	1
	-	5	5	5	5	29	2	5	5	5	5	64	1	1	1	1	1
11	5	5	5	5	-	30	4	4	4	4	4	65	5	1	1	1	1
12	2	2	2	2	2	31	5	5	5	5	5	66	1	1	1	1	1
13	2	2	2	2	2		5	1	2	-	5	67	1	1	1	1	1
14	4	4	4	2	4	32	2	2	2	2	2		1	5	1	5	2
15	5	5	5	-	5	33	3	3	3	3	3		2	4	2	-	1
16	4	4	4	4	4	34	2	2	2	2	2	68	1	1	1	1	1
17	4	4	5	4	4	35	-	5	5	5	5		1	2	-	-	-
18	4	4	4	4	4		4	4	4	4	-	69	1	1	1	1	1
19	4	4	4	4	2	53	3	5	3	3	3		1	2	-	2	3
20	2	2	2	2	2		2	4	2	-	5		1	2	-	2	3

Note. Item numbers correspond to the student questionnaire. Items which are not numbered were not used in the study

- indicates no response

1, 2, 3, 4, 5 indicates random numbers assigned to each of the five content experts

Procedure

Permission to conduct the study was obtained verbally from Mr. M. T. O'Brien, Vice President Academic at the Cabot Institute, as well as from each of the department heads whose departments were being studied. After receiving their approval to proceed with the study, faculty members and students were asked to participate on a voluntary basis. They were informed that the investigation had been sanctioned by the Vice President as well as their department head. They were also assured that they were in no way being evaluated and that all information would be held in strict confidence. The questionnaires were distributed between April and June of 1988. In order to facilitate data analysis it was requested that questionnaires be returned by September 15, 1988.

Home room instructors at the Cabot Institute were asked to administer the questionnaire to their students. The students were told that they were not required to complete the questionnaire, but that if they did, no attempt would be made to determine their identity. In order to reassure students, the completed questionnaires were collected by one of their classmates and placed in an envelope which was sealed before being returned to their instructor. The faculty member administering the questionnaire was asked to read aloud to his or her class the directions included with each questionnaire. The purpose of the study was included in these directions. Faculty members reported that students spent approximately 20

minutes completing the questionnaires and that no significant problems concerning any of the directions or statements were encountered.

Data Analysis

All data was computer analyzed using programs contained within the Statistical Package for the Social Sciences (SPSSX). Using the SPSSX analysis package, descriptive statistics on the responses to the three questionnaires were generated.

A Likert scale was used on each questionnaire and participants were presented with statements and asked to either strongly agree (1), agree (2), disagree (3), or strongly disagree (4).

All items for the three groups and sub-groups were analyzed individually. An analysis of variance was conducted for each of the clusters of variables and differences and similarities between and within the three groups were investigated. Tests were conducted to determine whether the indicated differences were significant. The results of these analyses are reported in Chapter 4.

In an attempt to better understand the results of the study, improve the quality of the instruments used, and better test the hypotheses, several additional statistical processes were completed. These included determining the alpha reliability of the clusters and conducting two principal component

analyses, followed by a regression analysis. It was anticipated that these processes would identify the weaker items within the clusters, thus improving the overall reliability of the instruments, and making tests of significance more meaningful.

CHAPTER IV

Analysis of the Data

Introduction

In this chapter the findings of the study are reported. Tabulated descriptive statistics for each of the five hypothesis are included as are the F values which indicated the extent to which the hypothesized relationships are statistically significant. To more fully explore the hypotheses and to provide information concerning the validity and reliability of the instruments, more rigorous analyses were also undertaken. These consisted of alpha reliability measurements, principal component analyses, and regression analyses.

A total of 320 questionnaires were distributed. Of these, 261 questionnaires were distributed to students, 236 or 90% were returned; 55 questionnaires were distributed to faculty members, 44 or 80% were returned; and five questionnaires were distributed to administrators, all of which were returned. Therefore, the size of the three groups which participated in the study differed widely. Although the author fully realized that the inclusion of more instructors and administrators would have been desirable, this was not possible. There was a total of only 55 instructors involved with CBVE at the Cabot Institute and 10 of these did not participate in the study. There was a total of only five

administrators whose departments were involved in pre-employment programs which used CBVE, therefore, the total population of immediate supervisors was used. Consequently, although significance levels of .05 were considered satisfactory for the bulk of the study, it was decided that a significance level of .1 would be considered acceptable for hypotheses involving only instructors and, or administrators.

Respondents were given four choices from which to choose; Strongly Agree, Agree, Disagree, Strongly Disagree. These choices were given values ranging from 1 to 4; Strongly Agree (1), Agree (2), Disagree (3), and Strongly Disagree (4). Therefore, a mean of 2.5 indicated a neutral reaction.

It should also be noted that while some literature exists concerning investigations of various aspects of CBVE, in effect the study is unique and hence exploratory in nature.

Test of Hypothesis 1

Hypothesis 1: There are no differences in perceived implementation problems between faculty and administrators.

Seven items on both the Administrator and Faculty Member Questionnaires were used to test the validity of this hypothesis. Table 4 lists the results for the two groups.

Column 1 lists the item numbers and column 2 paraphrases the item. The means of the items are presented in columns 3 and 4.

Columns 5 and 6 list the F scores and the significance

levels of these scores. As stated previously, F scores were considered significant at the .1 level when data concerning only instructors and administrators was analyzed.

Means presented in columns 3 and 4 indicated that faculty members reacted negatively to all statements except item 48, whereas administrators reacted positively to all statements except items 44 and 46; administrators indicated a neutral response to item 44. The only statement to which both groups reacted negatively was item 46 which meant that neither group felt instructors were properly orientated before they were required to teach in CBVE / SPI programs. The only statement to which both groups reacted positively was item 48; both groups felt they understood CBVE / SPI philosophy.

Results presented in column 6 indicated whether differences in the manner in which the two groups responded to the questionnaire items were statistically significant. The only statement on which there was significant difference at the .1 level between the two groups was item 45. Faculty members felt that there were major problems associated with the manner in which CBVE / SPI was implemented, whereas administrators felt there were not. Whether or not the null hypothesis should be rejected on the basis of this statement alone is debatable. However, it should be noted that the faculty member group felt that CBVE / SPI was not implemented properly and that there was not adequate discussion before CBVE / SPI was implemented. The aspect of CBVE about which

Table 4

Perceptions of Faculty and Administrators Toward Implementation Problems

Item	Means		F	Sig F
	Fac	Adm		
43. CBVE/SPI was implemented properly	2.95	2.25	2.35	.13
44. There was adequate discussion before CBVE/SPI was implemented	3.05	2.50	1.59	.21
45. There are no major problems with the manner in which CBVE/SPI was implemented	3.07	2.40	3.62	.06
46. Instructors are properly orientated before being required to teach in CBVE/SPI programs	3.17	2.80	1.19	.28
47. Administrators support the concept of CBVE/SPI	2.70	2.20	2.14	.15
48. I do not understand CBVE/SPI philosophy	2.77	3.00	.32	.57
51. Students are properly orientated toward CBVE/SPI before they begin their programs	2.59	2.20	.95	.34

faculty members reacted most positively concerned their understanding of its philosophy. This coupled with the fact that faculty members felt administrators did not support the concept of CBVE / SPI, and that administrators did not indicate strongly that they did support it, leads one to conclude that there may be a possibility of serious implementation problems.

To more fully understand the results of the analysis and to further refine the questionnaires, additional analyses were completed. Although the alpha reliability of the cluster, as described in the Statistical Package for the Social Sciences manual, was determined to be .7405, which is quite acceptable, the seven items were subjected to a principal component analysis so as to isolate the weaker items. The remaining items were again subjected to a principal component analysis. The results of these analyses are presented in Table 6 and Table 7 and a correlation matrix is presented in Table 5.

The factor score coefficients presented in Table 7 were used to construct a linear composite or latent variable indicating attitudes toward the implementation of CBVE, as follows:

$$
\begin{aligned}
\text{Imple} = {} & .275 \times [\ (\ v43 - 2.894\ ) / .872\ ] + \\
& .238 \times [\ (\ v44 - 3.000\ ) / .817\ ] + \\
& .289 \times [\ (\ v45 - 3.000\ ) / .764\ ] + \\
& .246 \times [\ (\ v46 - 3.128\ ) / .696\ ] + \\
& .236 \times [\ (\ v47 - 2.646\ ) / .721\ ]
\end{aligned}
$$

A regression analysis was completed, the results of which are presented in Table 8. Based on the results of this analysis, differences between the groups faculty and administrators, were not significant; the null hypothesis was accepted.

It should be noted that although there were two groups, only one is identified in Table 8. This is because "group" was coded as a dummy variable, for example, faculty (1) or not (0). The dummy variable regression procedure calls for the omission of one group in each set of dummy variables. The omitted group becomes the reference group for the interpretation of the coefficients associated with the included binary vector or vectors. It is common place to omit the group offering the most meaningful interpretation. In this case the faculty group was omitted as it was the largest group. See, for example, Andrew and Messenger (1973) for a discussion of the theory of nominal (dummy variable) scale analysis.

Table 5

Correlation Matrix for the Perceptions of Faculty and Administrators Toward Implementation Problems

	43	44	45	46	47	48	51	X	SD
43	1.000							2.89	.872
44	.524	1.000						3.00	.817
45	.657	.535	1.000					3.00	.764
46	.465	.440	.583	1.000				3.13	.696
47	.523	.305	.554	.399	1.000			2.65	.721
48	.033	-.152	-.065	-.086	-.212	1.000		2.80	.841
51	.321	.315	.325	.305	.190	.126	1.000	2.54	.809

Table 6

Principal Component Analysis for the Perceptions of Faculty and Administrators Toward Implementation Problems

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
43	.814	3.218	.253
44	.722	1.154	.224
45	.860	.760	.267
46	.739	.642	.230
47	.694	.570	.216
* 48	.129	.343	-.040
* 51	.500	.313	.155

Alpha Reliability = .7405

Note. * indicates deleted items

Table 7

Revised Principal Component Analysis for the Perceptions of Faculty and Administrators Toward Implementation Problems

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
43	.827	3.012	.275
44	.717	.700	.238
45	.871	.571	.289
46	.741	.403	.246
47	.711	.314	.236

Alpha Reliability = .8252

Table 8

Regression Analysis Results for the Perceptions of Faculty and Administrators Toward Implementation Problems

Independent Variable	B	SEB	Beta	T	Sig t
Faculty	.6203	.4391	.2018	1.413	.1643

Multiple R .20182
R Square .04073

Test of Hypothesis 2

Hypothesis 2: There are no differences in perceived implementation problems between faculty who teach academic courses (academic instructors) and faculty who teach technical courses (technical instructors).

The seven items used in the first hypothesis were again presented to test the validity of Hypothesis 2. Table 9 lists the results for the two groups, academic instructors and technical instructors.

The means presented in columns 3 and 4 indicated that technical instructors reacted neutrally to item 51 and negatively to all others except item 48. Item 48, which investigated whether faculty members felt they understood the philosophy of CBVE / SPI, was also the only item to which academic instructors reacted positively. Although there was agreement between the two groups, academic instructors were more negative on all variables than were technical instructors.

Column 5 of Table 9 indicated that the only statements on which there were significant differences between the two groups at the .1 level, were on items 43 and 45. Their responses to these items indicated that although both groups reacted negatively to both statements, academic instructors felt more strongly that there were major problems associated with the manner in which CBVE / SPI was implemented.

Whether or not the null hypothesis should be rejected on the basis of these statements alone is again debatable.

Table 9

Perceptions of Faculty who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Implementation Problems

Item	Means		F	Sig F
	Acad	Tech		
43. CBVE/SPI was implemented properly	3.40	2.73	5.79	.02
44. There was adequate discussion before CBVE/SPI was implemented	3.27	2.93	1.56	.22
45. There are no major problems with the manner in which CBVE/SPI was implemented	3.47	2.89	6.31	.02
46. Instructors are properly orientated before being required to teach in CBVE/SPI programs	3.43	3.07	2.34	.13
47. Administrators support the concept of CBVE/SPI	2.79	2.67	.25	.62
48. I do not understand CBVE/SPI philosophy	2.53	2.85	1.26	.27
51. Students are properly orientated toward CBVE/SPI before they begin their programs	2.79	2.52	.82	.37

However, it should be noted that a large proportion of academic faculty felt that instructors were not properly orientated toward CBVE / SPI before they were required to teach in programs which use it, and that there had not been adequate discussion before CBVE / SPI was implemented. This coupled with the fact that the only aspect of CBVE to which both groups reacted positively concerned their understanding of its philosophy, indicated that there was a possibility of serious implementation problems.

Differences between academic instructors and administrators as investigated in Hypothesis 1, become even more acute when one considers that responses of academic instructors were much more negative than were those of technical instructors. Therefore, differences between academic instructors and administrators were much more significant than were those between administrators and the total group of faculty members.

The alpha reliability of the cluster remained unchanged at .8252, which is quite acceptable, as did the principal component analysis and the revised principal component analysis. A correlation matrix is presented in Table 10.

A regression analysis was completed for the two groups, the results of which are listed in Table 11. Based on the results of this analysis, there were significant differences between the two groups. On the basis of the regression analysis, the null hypothesis was rejected.

Table 10

Correlation Matrix for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Implementation Problems

	43	44	45	46	47	48	51	X	SD
43	1.000							2.95	.888
44	.534	1.000						3.05	.834
45	.659	.544	1.000					3.07	.759
46	.482	.457	.573	1.000				3.17	.713
47	.525	.329	.595	.400	1.000			2.70	.700
48	.015	-.174	-.093	-.104	-.247	1.000		2.77	.886
51	.293	.328	.294	.292	.150	.117	1.000	2.59	.835

Table 11

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Implementation Problems

Independent Variable	B	SEB	Beta	T	Sig t
Academic	.6623	.2960	.3263	2.237	.0306

Multiple R .32629
R Square .10647

Test of Hypothesis 3

Hypothesis 3: There are no differences in perceived operational procedures among faculty, students, and administrators.

In order to falsify this hypothesis, five clusters of questions were developed to investigate five operational aspects of CBVE. Each of these aspects was investigated separately.

Cluster A

The first cluster concerned Learning Activity Packages (LAPS). Seventeen items were used to investigate it and the results of the analysis are listed in Table 12. The means presented in columns 3, 4, and 5 indicated that students reacted positively to all items concerning LAPS, administrators reacted positively to all except 1 item, and faculty reacted positively to all but 2 items. The means for the three groups, however, were very similar.

The results listed in columns 6 and 7 indicated that the only statements on which there were significant differences at the .05 level among the three groups, were on items 55, 59, 63, 64, and 66. The means of items 55, 59, 63, and 64 indicated that the significant differences were between faculty and students, and the mean of item 66 indicated that the difference was between faculty and administrators.

Table 12

Perceptions of Students, Faculty, and Administrators Toward Learning Activity Packages

	Item	Means			F	Sig F
		Stu	Fac	Adm		
53.	Students have difficulty reading laps	2.86	2.73	2.80	.57	.57
54.	Students have time to complete all lap activities	2.19	1.91	2.00	2.77	.06
55.	Students learn quite well when using laps	2.16	2.55	2.40	4.50	.01
56.	There is enough resource material to accompany laps	2.31	2.36	2.40	.12	.88
57.	Laps are an excellent source of information about topics students study	2.09	2.27	2.20	1.17	.31
58.	There are enough copies of laps available	2.25	2.03	2.20	1.17	.31
59.	Information in laps is kept up to date	2.15	2.47	2.40	3.29	.04
60.	Laps make students more aware of objectives and evaluation	2.03	1.82	2.20	1.99	.14
61.	Laps are a good use of students in-school time	2.12	2.39	2.40	2.47	.09
62.	Students find self checks/ check points very helpful	1.87	1.94	2.00	.30	.74
63.	Students prefer laps instead of lectures	2.45	2.84	2.80	2.98	.05
64.	Students find it hard to learn using laps	2.87	2.33	2.60	8.95	.00
65.	Lap instructions are easy to follow	2.13	2.09	2.20	.08	.93
66.	Laps suggest more than one type of reference material which may be used	2.05	1.79	2.20	3.03	.05
67.	Instructors have enough time to answer questions	2.10	2.12	2.00	.07	.94
68.	Lap material is arranged so that it is easy to follow	2.07	2.12	2.20	.16	.85
69.	Students feel isolated and alone when using laps	2.77	2.67	2.80	.29	.75

Faculty members doubted students' ability to learn using LAPS, whereas students felt quite confident. Similarly, instructors felt students were having problems learning when using LAPS, whereas students did not indicate that they were experiencing difficulties. Although there was a signi~icant difference in the manner in which the three groups reacted to item 66, the reactions of all three groups were so positive that differences do not warrant discussion. Whether or not the null hypothesis should be rejected on the basis of these five statements alone is debatable.

Although the alpha reliability of the cluster was quite acceptable at .8986, the items were subjected to a principal component analysis so as to isolate the weaker items. The remaining items were again subjected to a principal component analysis. The results of these analyses are presented in Tables 14 and 15, and a correlation matrix is presented in Table 13.

Table 13

Correlation Matrix for the Perceptions of Students, Faculty, and Administrators Toward Learning Activity Packages

	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	X	SD
53	1.000																	2.84	.626
54	.280	1.000																2.15	.599
55	.497	.413	1.000															2.22	.646
56	.253	.249	.510	1.000														2.32	.635
57	.258	.243	.568	.450	1.000													2.11	.605
58	.051	.401	.222	.280	.223	1.000												2.22	.713
59	.324	.163	.507	.359	.495	.287	1.000											2.20	.634
60	.335	.285	.529	.495	.472	.310	.510	1.000										2.00	.553
61	.341	.288	.646	.419	.513	.197	.419	.532	1.000									2.17	.629
62	.195	.179	.460	.333	.314	.140	.361	.557	.582	1.000								1.87	.591
63	.291	.198	.493	.368	.393	.141	.344	.351	.443	.354	1.000							2.51	.789
64	.320	.180	.462	.265	.285	.089	.177	.286	.366	.257	.375	1.000						2.79	.641
65	.458	.352	.611	.428	.405	.264	.465	.515	.449	.389	.475	.322	1.000					2.13	.628
66	.171	.246	.306	.351	.298	.213	.209	.485	.314	.335	.216	.117	.381	1.000				2.02	.537
67	.278	.328	.357	.303	.357	.280	.212	.287	.352	.137	.333	.361	.362	.344	1.000			2.10	.641
68	.360	.340	.557	.389	.441	.261	.378	.452	.479	.403	.404	.393	.597	.414	.496	1.000		2.08	.646
69	.279	.254	.419	.303	.276	.134	.186	.254	.284	.230	.333	.483	.286	.195	.464	.340	1.000	2.76	.664

Table 14

Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Learning Activity Packages

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
* 53	.538	6.718	.080
* 54	.488	1.357	.073
55	.827	1.250	.123
56	.644	.947	.096
57	.674	.866	.100
* 58	.391	.790	.058
59	.615	.674	.092
60	.734	.640	.109
61	.739	.638	.110
62	.601	.542	.089
63	.623	.492	.093
* 64	.537	.478	.080
65	.747	.377	.111
* 66	.522	.356	.078
* 67	.576	.344	.086
68	.738	.291	.110
* 69	.525	.240	.078

Alpha Reliability = .8986

Note. * indicates deleted items

Table 15

Revised Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Learning Activity Packages

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
55	.831	5.153	.161
56	.658	.806	.128
57	.705	.753	.137
58	.672	.656	.130
60	.758	.636	.147
61	.771	.577	.150
62	.660	.428	.128
63	.637	.384	.124
65	.749	.326	.145
68	.714	.280	.139

Alpha Reliability = .8906

Table 16

Regression Analysis Results for the Perceptions of Students, Faculty, and Administrators Toward Learning Activity Packages

Independent Variable	B	SEB	Beta	T	Sig t
Students	-.4158	.4335	-.1633	-.959	.3383
Faculty	-.1379	.4527	-.0519	-.305	.7608

Multiple R .11608
R Square .01348

The factor score coefficients presented in Table 15 were used to construct a linear composite or latent variable indicating attitudes toward Learning Activity Packages, as follows:

Laps = .161 x [(v55 - 2.218) / .646] +
.128 x [(v56 - 2.318) / .635] +
.137 x [(v57 - 2.114) / .605] +
.130 x [(v58 - 2.203) / .634] +
.147 x [(v60 - 2.004) / .553] +
.150 x [(v61 - 2.167) / .629] +
.128 x [(v62 - 1.874) / .591] +
.124 x [(v63 - 2.511) / .789] +
.145 x [(v65 - 2.128) / .628] +
.139 x [(v73 - 2.077) / .646]

A regression analysis was completed, the results of which are presented in Table 16. Based on the results of this analysis, there was no significant difference between the three groups; this section of the null hypothesis was accepted.

Cluster B

Cluster B concerned evaluation and testing. Eleven items were used to investigate it and the results of the analysis are listed in Table 17. The means shown in columns 3, 4, and 5 of the Table indicated that students reacted positively to all aspects; faculty reacted neutrally to items 10 and 22, and

Table 17

Perceptions of Students, Faculty, and Administrators Toward Evaluation and Testing

Item		Means			F	Sig f
		Stu	Fac	Adm		
1.	Students are allowed to complete tests when they feel they are ready	1.99	2.21	2.00	1.12	.33
5.	Grades/ratings are fair	1.96	1.91	2.20	.49	.61
8.	Students usually have time to complete all test questions	1.76	1.48	1.80	4.10	.02
10.	Students are capable of obtaining grades of 80% and ratings of 2	1.69	2.49	2.00	30.35	.00
12.	Projects/assignments are usually graded fairly	1.81	1.82	1.80	.01	.99
13.	It is easy to cheat on tests	3.06	2.34	2.25	16.33	.00
20.	Tests only ask questions about topics covered in class	2.12	1.81	2.00	4.00	.02
22.	Students spend too much time completing tests	2.95	2.48	2.75	10.71	.00
25.	The 1-2-3 rating scale is a fair way to evaluate	2.44	3.30	3.00	15.40	.00
32.	Students often cheat on tests	2.81	2.82	3.00	.15	.86
34.	Tests check things that students need to know	1.92	1.66	1.60	4.40	.01

both faculty and administrators reacted positively to all items except 13 and 25. Both faculty and administrators felt it was easy to cheat on tests and that the 1-2-3 rating scale was not a fair way to evaluate students. Although there was significant difference between students and these two groups, students were only marginally positive about the 1-2-3 rating scale.

Columns 6 and 7 of Table 17 indicated significant different at the .05 level on 7 of 11 items. They were items 8, 10, 13, 20, 22, 25, and 34. The means indicated that in all but two items the differences were between faculty and another group. Although there were significant differences in the manner in which the three groups reacted to items 8 and 34, this did not indicate a problem as the reactions of the three groups were very positive.

Although the alpha reliability of the cluster was quite acceptable at .6316, a principal component analysis was completed so as to isolate the weaker items. The remaining items were again subjected to a principal component analysis. The results of these analyses are presented in Tables 19 and 20, and a correlation matrix is presented in Table 18.

The factor score coefficients presented in Table 20 were used to construct a linear composite or latent variable indicating attitudes toward evaluation and testing:

$$\text{eval} = .331 \times [\ (\ v05 - 1.958\ ) / .638\ ] +$$
$$.324 \times [\ (\ v08 - 1.715\ ) / .605\ ] +$$

Table 18

Correlation Matrix for the Perceptions of Students, Faculty, and Administrators Toward Evaluation and Testing

	1	5	8	10	12	13	20	22	25	32	34	X	SD
1	1.000											2.02	.892
5	.144	1.000										1.96	.638
8	.189	.272	1.000									1.71	.605
10	.211	.097	.184	1.000								1.82	.676
12	-.046	.359	.275	.263	1.000							1.81	.562
13	.036	.143	.021	.156	.078	1.000						2.94	.841
20	.110	.057	.191	.083	.272	.050	1.000					2.07	.657
22	.149	.150	.127	.367	.095	.161	.120	1.000				2.87	.643
25	.222	.202	.004	.190	.143	.183	-.021	.191	1.000			2.59	.985
32	.147	.112	.049	-.049	.008	.423	.002	.053	.157	1.000		2.82	.729
34	.032	.127	.191	.042	.129	.023	.140	.125	.114	.078	1.000	1.88	.590

Table 19

Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Evaluation and Testing

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
* 1	.408	2.379	.172
5	.569	1.449	.239
8	.517	1.196	.217
10	.549	1.025	.231
12	.555	.991	.233
* 13	.409	.934	.172
* 20	.359	.827	.151
22	.525	.693	.221
* 25	.469	.571	.197
* 32	.311	.535	.131
* 34	.349	.399	.147

Alpha Reliability = .6313

Note. * indicates deleted items

Table 20

Revised Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Evaluation and Testing

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
5	.623	1.883	.331
8	.610	1.102	.324
10	.617	.752	.328
12	.684	.744	.363
22	.523	.519	.278

Alpha Reliability = .6327

Table 21

Regression Analysis Results for the Perceptions of Students, Faculty, and Administrators Toward Evaluation and Testing

Independent Variable	B	SEB	Beta	T	Sig t
Students	-.2918	.4469	-.1107	-.653	.5143
Faculty	.1093	.4666	.0397	.234	.8150

Multiple R .14855
R Square .02207

.328 x [(v10 - 1.820) / .676] +

.363 x [(v12 - 1.809) / .562] +

.278 x [(v22 - 2.127) / .643]

A regression analysis was completed, the results of which are presented in Table 21. Based on the results of this analysis, differences between the three groups were not significant; this section of the null hypothesis was accepted.

Cluster C

Cluster C concerned course objectives. Four items were used to investigate it and the results of the analysis are presented in Table 22. Columns 3, 4, and 5 of the Table indicated that students, faculty, and administrators reacted positively to all aspects; students reacted most positively.

Columns 6 and 7 of Table 22 indicated that the three groups reacted significantly differently at the .05 level on 2 of the 4 items, 24 and 35, and that these differences appear to be between instructors and students.

The alpha reliability of the cluster was acceptable at .6403. A principal component analysis was completed, the results of which are presented in Table 24. Because all items had factor loadings above the .5 level and as there were only 4 items, the cluster was not subjected to a second principal component analysis. A correlation matrix is presented in Table 23.

Table 22

Perceptions of Students, Faculty, and Administrators Toward Course Objectives

Item		Means			F	Sig f
		Stu	Fac	Adm		
24.	After completing their program, students will be qualified to work in their trade/occupation	1.82	2.18	1.80	5.56	.00
28.	Students are taught skills they need to know	1.89	1.64	1.80	2.61	.08
33.	Students are usually aware of the objectives of a lesson/block before it begins	2.11	1.98	2.20	1.02	.36
35.	Students want to do well because they feel the topics they are learning are important	1.71	2.19	2.20	11.94	.00

Table 23

Correlation Matrix for the Perceptions of Students, Faculty, and Administrators Toward Course Objectives

	24	28	33	35	X	SD
24	1.000				1.87	.634
28	.309	1.000			1.85	.669
33	.262	.217	1.000		2.09	.579
35	.403	.351	.246	1.000	1.79	.643

Table 24

Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Course Objectives

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
24	.735	1.905	.386
28	.681	.809	.358
33	.581	.696	.305
35	.750	.590	.394

Alpha Reliability = .6403

Table 25

Regression Analysis Results for the Perceptions of Students, Faculty, and Administrators Toward Course Objectives

Independent Variable	B	SEB	Beta	T	Sig t
Students	-.2889	.4466	-.1104	-.647	.5183
Faculty	-.0591	.4664	-.0216	-.127	.8993

Multiple R .09046
R Square .00818

The factor score coefficients presented in Table 24 were used to construct a linear composite or latent variable indicating attitudes toward course objectives, as follows:

$$\begin{aligned} Objc = \; & .386 \times [\, (v24 - 1.868) / .634 \,] + \\ & .358 \times [\, (v28 - 1.846) / .669 \,] + \\ & .305 \times [\, (v33 - 2.089) / .578 \,] + \\ & .394 \times [\, (v35 - 1.789) / .643 \,] \end{aligned}$$

A regression analysis was completed, the results of which are presented in Table 25. Based on the results of this analysis, difference between the three groups were not significant; this section of the null hypothesis was accepted.

Cluster D

Cluster D concerned managerial aspects. Eleven items were used to investigate it and the results of the analysis are listed in Table 26. The means presented in columns 3, 4, and 5 of the Table indicated that students and administrators reacted positively to all items, and that faculty reacted positively to all items, except 4, 7, 18, and 19.

Table 26 also indicated that the three groups reacted significantly different at the .05 level to 4 of the 11 items, 2, 4, 19, and 30, and that the significant differences were between faculty and another group. More faculty felt that there were too many students in their classes than did students, and faculty also felt that there was too much time being spent on testing than did students and administrators.

Table 26

Perceptions of Students, Faculty, and Administrators Toward Managerial Aspects

	Item	Means			F	Sig f
		Stu	Fac	Adm		
2.	There are too many students in class	3.14	2.61	3.20	10.52	.00
3.	There are enough reference books and audio visual materials	2.10	2.37	2.20	2.47	.09
4.	Students are permitted to complete pre-tests	2.21	2.70	2.20	7.12	.00
7.	Instructors do not have enough time to help slower students	2.58	2.39	2.80	2.01	.14
14.	Students have difficulty keeping a record of their grades/ratings	3.03	2.77	2.80	2.51	.08
16.	Students have enough class/shop time to complete their assignments/projects	1.95	1.86	1.80	.45	.64
17.	Students may choose different activities to learn the course objectives	2.38	2.42	2.40	.05	.95
18.	There are sufficient materials, supplies, and equipment	2.29	2.52	2.00	1.89	.15
19.	Teachers spend more time giving/correcting tests than helping students/ teaching	2.94	2.45	3.40	7.53	.00
27.	The classroom/lab/ resource center is too noisy a place in which to learn	2.61	2.82	3.20	2.57	.08
30.	Teachers do not have enough time to help faster students	2.82	2.48	3.20	8.99	.00

The alpha reliability of the cluster was marginally acceptable at .5685, therefore, a principal component analysis was completed so as to isolate the weaker items; the results are presented in Table 28, and a correlation matrix is presented in Table 27. The weaker items were dropped and the cluster was subjected to a second principal component analysis, the results of which are presented in Table 29.

The factor score coefficients presented in Table 29 were used to construct a linear composite or latent variable indicating attitudes toward managerial aspects as follows:

$$
\begin{aligned}
Aspd = \; & .218 \times [\, (v02 - 1.944) / .720 \,] + \\
& .208 \times [\, (v03 - 2.143) / .737 \,] + \\
& .153 \times [\, (v04 - 2.288) / .816 \,] + \\
& .257 \times [\, (v07 - 2.360) / .922 \,] + \\
& .146 \times [\, (v14 - 2.016) / .751 \,] + \\
& .184 \times [\, (v16 - 1.925) / .635 \,] + \\
& .160 \times [\, (v17 - 2.364) / .668 \,] + \\
& .231 \times [\, (v18 - 2.319) / .827 \,] + \\
& .219 \times [\, (v19 - 2.131) / .831 \,] + \\
& .162 \times [\, (v27 - 2.328) / .771 \,]
\end{aligned}
$$

Based on the results of the regression analysis presented in Table 30, there were significant differences between the groups; this section of the null hypothesis was rejected.

Table 27

Correlation Matrix for the Perceptions of Students, Faculty, and Administrators Toward Managerial Aspects

	2	3	4	7	14	16	17	18	19	27	30	X	SD
2	1.000											3.06	.720
3	.267	1.000										2.14	.737
4	.242	.258	1.000									2.29	.795
7	.269	.227	.109	1.000								2.36	.922
14	.258	.045	.047	.140	1.000							2.64	.743
16	.124	.065	.004	.272	.168	1.000						1.93	.627
17	.095	.231	.386	.171	.012	.108	1.000					2.39	.664
18	.249	.326	.175	.188	.189	.232	.197	1.000				2.32	.826
19	.135	.072	-.013	.462	.214	.315	-.006	.206	1.000			2.87	.831
27	.133	.114	.013	.265	-.012	.095	.107	.143	.316	1.000		2.65	.778
30	-.197	.180	-.162	-.324	-.185	-.105	-.145	-.231	-.342	-.245	1.000	2.76	.679

Table 28

Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Managerial Aspects

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
2	.539	2.839	.190
3	.521	1.819	.185
* 4	.379	1.119	.134
7	.667	.951	.235
14	.377	.874	.133
16	.441	.781	.155
17	.392	.725	.138
18	.577	.632	.203
19	.591	.572	.208
27	.437	.552	.154
*30	-.591	.434	-.208

Alpha Reliability = .5685

Note. * indicates deleted items

Table 29

Revised Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Managerial Aspects

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
2	.563	2.584	.218
3	.524	1.511	.208
7	.664	.927	.257
14	.376	.851	.146
16	.474	.746	.184
17	.415	.674	.161
18	.597	.610	.231
19	.567	.552	.220
27	.420	.434	.163

Alpha Reliability = .6698

Table 30

Regression Analysis Results for the Perceptions of Students, Faculty, and Administrators Toward Managerial Aspects

Independent Variable	B	SEB	Beta	T	Sig t
Students	.9079	.4444	.3390	2.043	.0420
Faculty	.2470	.4256	.0963	.580	.5621

Multiple R .25094
R Square .06297

Cluster E

Cluster E concerned attitudes toward CBVE. Twelve items were used to investigate it and the results of the analysis are listed in Table 31. The means presented in columns 3, 4, and 5 of the Table indicated that students reacted positively to all items; administrators reacted positively to all except 2 items, 11 and 23; and faculty reacted positively to all except items 11, 21, and 23.

Table 31 also indicated that the three groups reacted significantly different at the .05 level to 8 of the 12 items, 6, 9, 10, 11, 21, 29, 31, and 35. More instructors felt that students found it difficult to obtain grades of 80% than did administrators and students, and more instructors and administrators felt students did not make good use of their study time than did students.

The alpha reliability of the cluster was quite acceptable at .7347, however, a principal component analysis was completed so as to isolate the weaker items; results are presented in Table 33. A correlation matrix is presented in Table 32. The weaker items were dropped and the cluster was subjected to a second principal component analysis and a regression analysis; results are presented in Table 34 and Table 35.

The factor score coefficients presented in Table 34 were used to construct a linear composite or latent variable indicating attitudes towards CBVE as follows:

Table 31

Perceptions of Students, Faculty, and Administrators Toward Attitudes Concerning CBVE

	Item	Means			F	Sig f
		Stu	Fac	Adm		
6.	Students know how they will be tested before course begins	2.12	1.57	1.60	13.47	.00
9.	Students get good grades	1.86	2.28	2.20	9.30	.00
10.	Students are capable of obtaining grades of 80% and ratings of 2 on tests/projects	1.69	2.49	2.00	30.35	.00
11.	Students make good use of study time both inside/outside class	2.10	3.19	3.00	46.83	.00
15.	Teachers get along well with students	1.80	1.86	2.00	.50	.61
17.	Students choose different activities to learn the course objectives	2.38	2.42	2.40	.05	.95
21.	Students learn more in this program than in other programs they have taken	2.04	2.91	2.00	26.48	.00
23.	Students prefer teachers to lecture more often	2.49	2.21	2.20	2.16	.12
26.	The Record of Achievement/chart provides a more accurate list than does a grade report	2.09	2.26	2.20	1.09	.34
29.	Expecting students to obtain grades of 80% places too much pressure on them	2.55	2.89	3.20	3.87	.02
31.	Students enjoy their programs	1.65	2.19	2.00	15.07	.00
35.	Students want to do well	1.71	2.19	2.20	11.94	.00

Table 32

Correlation Matrix for the Perceptions of Students, Faculty, and Administrators Toward Attitudes Concerning CBVE

	6	9	10	11	15	17	21	23	26	29	31	35	X	SD
6	1.000												2.02	.699
9	.084	1.000											1.93	.618
10	-.028	.476	1.000										1.82	.676
11	.040	.371	.310	1.000									2.28	.803
15	.126	.252	.124	.144	1.000								3.18	.573
17	.166	.077	.006	.122	-.050	1.000							2.39	.664
21	.124	.242	.382	.363	.127	.167	1.000						2.18	.765
23	.048	.080	.044	.068	.094	.009	.205	1.000					2.44	.859
26	.086	.058	.167	.100	.057	.273	.112	.059	1.000				2.11	.713
29	-.167	-.096	-.170	.058	-.004	-.035	-.094	-.050	.053	1.000			2.61	.883
31	.166	.372	.301	.463	.220	.132	.506	.245	.156	-.033	1.000		1.74	.624
35	.100	.272	.215	.446	.224	.106	.349	.124	.179	.057	.539	1.000	1.79	.643

Table 33

Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Attitudes Concerning CBVE

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
* 6	.227	3.164	.072
9	.625	1.291	.198
10	.587	1.211	.186
11	.676	1.095	.214
*15	.370	.996	.117
*17	.245	.905	.077
21	.681	.719	.215
*23	.282	.669	.089
*26	.296	.641	.094
*29	-.101	.516	-.032
31	.787	.429	.249
35	.681	.365	.215

Alpha Reliability = .7347

Note. * indicates deleted items

Table 34

Revised Principal Component Analysis for the Perceptions of Students, Faculty, and Administrators Toward Attitudes Concerning CBVE

Item	Factor Loadings	Eigenvalue	Factor Score Coefficients
9	.643	2.881	.223
10	.625	.962	.217
11	.719	.730	.249
21	.687	.554	.238
31	.786	.492	.273
35	.687	.381	.238

Alpha Reliability = .8252

Table 35

Regression Analysis Results for the Perceptions of Students, Faculty, and Administrators Toward Attitudes Concerning CBVE

Independent Variable	B	SEB	Beta	T	Sig t
Students	-.6312	.3853	-.2441	-1.638	.1025
Faculty	.6973	.4024	.2582	1.733	.0842

Multiple R .49445
R Square .24448

$$\begin{aligned} Attit = {} & .223 \times [(v09 - 1.929) / .618] + \\ & .217 \times [(v10 - 1.820) / .676] + \\ & .249 \times [(v11 - 2.278) / .803] + \\ & .238 \times [(v21 - 2.184) / .765] + \\ & .273 \times [(v31 - 1.739) / .624] + \\ & .238 \times [(v35 - 1.789) / .643] \end{aligned}$$

Based on the results of the regression analysis, there was no significant difference between the three groups; this section of the null hypothesis was accepted.

Summary

Hypothesis 3 compared the perceptions of students, faculty, and administrators toward the five operational aspects. Although faculty reacted more negatively than did students and administrators, the results of the regression analyses indicated that differences were statistically significant in only one of the five clusters, cluster D, managerial aspects. Therefore, the null hypothesis was accepted.

Test of Hypothesis 4

Hypothesis 4: There are no differences in perceived operational procedures between faculty who teach academic courses (academic instructors) and faculty who teach technical courses (technical instructors).

The five clusters of questions were again used to investigate the five operational aspects of CBVE. Each of

these aspects was investigated separately.

Cluster A

The first cluster concerned Learning Activity Packages (laps). The means presented in columns 3 and 4 of Table 36 indicated that technical instructors reacted positively to all items except 63 and 64, and that academic instructors reacted negatively to 9 items concerning LAPS. Technical instructors reacted more positively than did academic instructors on 15 of the 17 items.

More academic instructors felt students did not learn well using LAPS and that there were not sufficient quantities of LAPS available than did technical instructors, and more academic instructors felt students seemed isolated and alone when using LAPS than did technical instructors. The majority of academic and technical instructors felt students found it difficult to learn when using LAPS and would rather listen to lectures.

Columns 5 and 6 of Table 36 indicated that the two groups reacted significantly differently at the .1 level on 8 of the 17 items. A regression analysis was completed, the results of which are presented in Table 38. A correlation matrix is presented in Table 37. Based on the results of the regression analysis there were significant differences between the two groups; this section of the null hypothesis was rejected.

Table 36

Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Learning Activity Packages

	Item	Means		F	Sig f
		Acad	Tech		
53.	Students have difficulty reading laps	2.70	2.71	.00	.96
54.	Students have time to complete all lap activities	2.30	1.71	5.44	.03
55.	Students learn quite well when using laps	3.00	2.38	3.97	.06
56.	There is enough resource material to accompany laps	2.80	2.14	5.25	.03
57.	Laps are an excellent source of information about topics students study	2.70	2.10	4.52	.04
58.	There are enough copies of laps available	2.70	1.73	13.49	.00
59.	Information in laps is kept up to date	2.80	2.36	1.73	.20
60.	Laps make students more aware of objectives and evaluation	2.00	1.76	1.14	.30
61.	Laps are a good use of students in-school time	2.80	2.24	2.44	.13
62.	Students find self checks/ check points very helpful	2.30	1.81	2.73	.11
63.	Students prefer laps instead of lectures	3.00	2.81	.37	.55
64.	Students find it hard to learn using laps	2.20	2.33	.19	.67
65.	Lap instructions are easy to follow	2.20	2.05	.28	.60
66.	Laps suggest more than one type of reference material which may be used	2.20	1.57	7.23	.01
67.	Instructors have enough time to answer questions	2.40	2.00	3.02	.09
68.	Lap material is arranged so that it is easy to follow	2.40	2.05	1.59	.22
69.	Students feel isolated and alone when using laps	2.20	2.86	6.98	.01

Table 37

Correlation Matrix for the Perceptions of Faculty Who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Learning Activity Packages

	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	X	SD
53	1.000																	2.71	.691
54	.277	1.000																1.91	.585
55	.426	.588	1.000															2.55	.718
56	.435	.652	.645	1.000														2.36	.676
57	-.023	.231	.448	.248	1.000													2.27	.657
58	.158	.564	.582	.511	.572	1.000												2.03	.698
59	.231	.383	.359	.178	.337	.465	1.000											2.47	.754
60	.577	.588	.660	.491	.396	.451	.462	1.000										1.82	.504
61	437	.404	.720	.567	.372	.430	.401	.652	1.000									2.39	.805
62	.373	.456	.623	.442	.289	.438	.628	.654	.671	1.000								1.94	.680
63	.187	.164	.493	.155	.406	.350	.202	.309	.360	.149	1.000							2.16	.650
64	.452	.296	.676	.411	.317	.430	.169	.482	.402	.323	.402	1.000						2.35	.671
65	.441	.209	.434	.381	.067	.272	.481	.336	.223	.504	.314	.334	1.000					2.09	.624
66	.055	.168	.336	.279	.310	.344	.218	.225	.297	.279	.163	.289	.175	1.000				1.79	.561
67	.384	-.049	.427	.236	.404	.265	.256	.422	.470	.413	.379	.491	.262	.549	1.000			2.12	.517
68	.364	.209	.295	.299	.217	.215	.401	.414	.291	.388	.213	.344	.388	.315	.318	1.000		2.12	.638
69	.338	.599	.705	.519	.297	.520	.430	.464	.468	.554	.525	.503	.437	.301	.276	.407	1.000	2.67	.597

Table 38

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Learning Activity Packages

Independent Variable	B	SEB	Beta	T	Sig t
Academic	.7342	.3034	.3498	2.420	.0189

Multiple R .34985
R Square .12239

Table 39

Perceptions of Faculty who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Evaluation and Testing

Item		Means		F	Sig f
		Acad	Tech		
1.	Students are allowed to complete tests when they feel they are ready	2.67	1.96	3.99	.05
5.	Grades/ratings are fair	2.33	1.67	8.87	.00
8.	Students usually have time to complete all test questions	1.60	1.37	1.46	.23
10.	Students are capable of obtaining grades of 80% and ratings of 2	2.73	2.35	1.80	.19
12.	Projects/assignments are usually graded fairly	1.67	1.89	.79	.38
13.	It is easy to cheat on tests	2.27	2.37	.12	.73
20.	Tests only ask questions about topics covered in class	1.80	1.85	.04	.84
22.	Students spend too much time completing tests	1.93	2.74	9.63	.00
25.	The 1-2-3 rating scale is a fair way to evaluate students	3.80	3.07	5.61	.02
32.	Students often cheat on tests	2.60	2.93	3.58	.07
34.	Tests check things that students need to know	1.73	1.59	.57	.46

Cluster B

Cluster B concerned evaluation and testing. Columns 4 and 5 of Table 39 indicated that technical instructors reacted positively to all except 2 items, 13 and 25, and academic instructors reacted negatively to 5 of the 11 items. More academic instructors felt students spent too much time completing tests than did technical instructors, and both groups felt the 1-2-3 rating scale was not a fair way to grade students. More academic instructors felt students usually cheat on tests than did technical instructors.

Results presented in columns 5 and 6 of Table 39 indicated that the two groups reacted significantly different at the .1 level on 5 of the 11 items. A regression analysis was completed, the results of which are presented in Table 41. A correlation matrix is presented in Table 40. Based on the results of the regression analysis, there were significant differences between the two groups; this section of the null hypothesis was rejected.

Cluster C

Cluster C concerned course objectives. The results of the analysis are presented in Table 42. Columns 4 and 5 of the Table indicated that technical instructors reacted positively to all items and academic instructors reacted negatively to 2 of the 4 items. More academic instructors felt students would not be qualified to work in the occupation

Table 40

Correlation Matrix for the Perceptions of Faculty Who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Evaluation and Testing

	1	5	8	10	12	13	20	22	25	32	34	X	SD
1	1.000											2.20	.909
5	.139	1.000										1.90	.741
8	.492	.261	1.000									1.48	.590
10	.232	.070	.326	1.000								2.49	.873
12	-.241	.260	-.001	.244	1.000							1.81	.756
13	-.002	.482	.185	-.065	.148	1.000						2.34	.888
20	.151	.330	.394	.123	.432	.122	1.000					1.81	.691
22	.297	.254	.091	.495	.006	.205	.056	1.000				2.48	.876
25	.287	.194	.071	.377	.196	-.015	.262	.510	1.000			3.30	.900
32	.408	.333	.232	.029	-.202	.375	.030	.581	.199	1.000		2.82	.540
34	.193	.256	.150	-.079	-.094	.133	.083	.320	.181	.434	1.000	1.66	.568

Table 41

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Evaluation and Testing

Independent Variable	B	SEB	Beta	T	Sig t
Academic Inst.	.8844	.3642	.3509	2.428	.0195

Multiple R .35089
R Square .12312

Table 42

Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Course Objectives

Item		Means		F	Sig f
		Acad	Tech		
24.	After completing their program, students will be qualified to work in their trade/occupation	2.62	1.96	9.08	.00
28.	Students are taught skills they need to know	2.07	1.41	10.85	.00
33.	Students are usually aware of the objectives of a lesson/block before it begins	2.07	1.93	.41	.53
35.	Students want to do well because they feel the topics they are learning are important	2.86	1.85	19.00	.00

in which they were studying than did technical instructors, and that students felt the topics they were learning were not important. Table 42 indicates that differences between the 2 groups were significant on 3 of the 4 items.

A regression analysis was completed, the results of which are presented in Table 44. A correlation matrix is presented in Table 43. Based on the results of the regression analysis there were significant differences between the two groups; this section of the null hypothesis was rejected.

Cluster D

Cluster D concerned managerial aspects. Eleven items were used to investigate it, the results of which are listed in Table 45. Technical instructors reacted positively to all except 2 items, whereas academic instructors reacted negatively to 7 items. More academic instructors felt there were too many students in their classes and their classrooms were too noisy than did technical instructors. Both groups reacted negatively concerning the amount of time available to help slower students.

Results presented in Table 45 indicated that the 2 groups reacted significantly different at the .05 level on 4 of the 11 statements. More academic instructors felt there were not enough reference books and audio visual materials than did technical instructors, and that they spent too much time correcting tests and did not have enough time to help faster students.

Table 43

Correlation Matrix for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Course Objectives

	24	28	33	35	X	SD
24	1.000				2.18	.642
28	.310	1.000			1.64	.685
33	.500	.186	1.000		1.98	.664
35	.351	.366	.317	1.000	2.19	.814

Table 44

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Course Objectives

Independent Variable	B	SEB	Beta	T	Sig t
Academic	1.2165	.3082	.5205	3.947	.0003

Multiple R .52016
R Square .27057

Table 45

Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Managerial Aspects

	Item	Means		F	Sig f
		Acad	Tech		
2.	There are too many students in class	2.33	2.74	2.84	.10
3.	There are enough reference reference books and audio visual materials	2.93	2.04	10.65	.00
4.	Students are permitted to to complete pre-tests	3.20	2.48	7.92	.01
7.	Instructors do not have enough time to help slower students	2.07	2.52	2.65	.11
14.	Students have difficulty keeping a record of their grades/ratings	2.50	2.81	.90	.35
16.	Students have enough class/ class/shop time to complete their assignments/projects	1.80	1.89	.14	.71
17.	Students may choose different activities to learn the course objectives	2.60	2.31	1.50	.23
18.	There are sufficient materials, supplies, and equipment	2.80	2.41	2.21	.15
19.	Teachers spend more time giving/correcting tests than helping students/teaching	2.00	2.67	5.36	.03
27.	The classroom/lab/resource center is too noisy a place in which to learn	2.60	2.93	2.11	.15
30.	Teachers do not have enough time to help faster students	2.07	2.67	8.20	.01

A regression analysis was completed, the results of which are presented in Table 47. A correlation matrix is presented in Table 46. Based on the results of the regression analysis, there were significant differences between the two groups; this section of the null hypothesis was rejected.

Cluster E

Cluster E concerned attitudes toward CBVE; results are listed in Table 48. The means indicated that academic instructors reacted negatively to 9 of 12 items and that technical instructors reacted negatively to only 2 items. Technical instructors reacted more positively than did academic instructors on all but 1 item. Both academic and technical instructors felt they made students aware of how they would be tested before instruction actually began and students would prefer to have more lectures.

Table 48 indicated that the two groups reacted significantly different at the .05 level on 6 of the 12 items. More academic instructors felt expecting students to obtain grades of 80% placed too much pressure on them than did technical instructors. More technical instructors than academic instructors felt students enjoyed the courses in which they were enrolled and that students wanted to do well in their courses because they felt what they were learning was important.

Table 46

Correlation Matrix for the Perceptions of Faculty Who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Managerial Aspects

	2	3	4	7	14	16	17	18	19	27	30	X	SD
2	1.000											2.62	.754
3	.259	1.000										2.37	.916
4	.327	.364	1.000									2.70	.851
7	.553	.342	.188	1.000								2.39	.868
14	.338	.064	-.223	.358	1.000							2.68	.906
16	.102	.058	-.069	.102	.342	1.000						1.86	.702
17	.123	.053	.228	.026	-.111	.088	1.000					2.42	.723
18	.380	.315	.359	.257	.356	.450	.211	1.000				2.52	.821
19	.224	.012	-.145	.413	.608	.260	-.002	.228	1.000			2.46	.926
27	.264	.332	.093	.197	-.021	-.139	-.016	.156	.059	1.000		2.82	.691
30	-.447	-.248	-.227	-.456	-.459	-.386	.075	-.445	-.340	-.232	1.000	2.52	.698

Table 47

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Managerial Aspects

Independent Variable	B	SEB	Beta	T	Sig t
Academic	1.2543	.3297	.5063	3.805	.0005

Multiple R	.50627
R Square	.25630

Table 48

Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Attitudes Concerning CBVE

	Item	Means		F	Sig f
		Acad	Tech		
6.	Students know how they will be tested before the course begins	1.73	1.48	1.79	.19
9.	Students get good grades	2.20	2.31	.24	.63
10.	Students are capable of obtaining grades of 80% and ratings of 2 on tests/projects	2.73	2.35	1.80	.19
11.	Students make good use of study time both inside/ outside class	3.50	2.00	25.14	.00
15.	Teachers get along well with students	1.80	1.89	.34	.57
17.	Students choose different activities to learn the course objectives	2.60	2.31	1.50	.23
21.	Students learn more in this this program than in other programs they have taken	3.27	2.70	4.00	.05
23.	Students prefer teachers to lecture more often	2.20	2.15	.04	.84
26.	The Record of Achievement/ chart provides a more accurate list than does a grade report	2.71	2.04	6.12	.02
29.	Expecting students to obtain grades of 80% places too much pressure on them	2.47	3.11	4.94	.03
31.	Students enjoy their programs	2.71	1.93	15.19	.00
35.	Students want to do well	2.86	1.85	19.00	.00

A regression analysis was completed, the results of which are presented in Table 50. A correlation matrix is presented in Table 49. Based on the results of the regression analysis, there were significant differences between the two groups; this section of the null hypothesis was rejected.

Summary

Hypothesis 4 compared the perceptions of faculty who taught academic courses and faculty who taught technical courses toward the five operational aspects. Academic faculty reacted more negatively than did technical faculty, and based on the results of the regression analyses, differences were statistically significant in all five clusters. Therefore, the null hypothesis was rejected.

Test of Hypothesis 5

Hypothesis 5: There are no differences in perceived operational procedures between students enrolled in pre-employment Business Education programs and those enrolled in pre-employment Construction, Service, Mechanical, and Electrical programs.

Cluster A

Cluster A concerned Learning Activity Packages; results are listed in Table 51. Columns 3 and 4 of Table 51 indicated that business education students reacted positively to all

Table 49

Correlation Matrix for the Perceptions of Faculty Who Teach Academic Courses and Faculty Who Teach Technical Courses Toward Attitudes Concerning CBVE

	6	9	10	11	15	17	21	23	26	29	31	35	X	SD
6	1.000												1.57	.587
9	-.042	1.000											2.28	.659
10	-.124	.491	1.000										2.49	.873
11	.443	.232	-.123	1.000									3.19	.691
15	-.051	.281	.054	.008	1.000								1.86	.462
17	-.135	.042	.148	.073	.036	1.000							2.42	.723
21	.281	.204	.541	.295	-.088	-.027	1.000						2.91	.884
23	.114	.130	.019	.082	-.090	-.190	.073	1.000					2.19	.701
26	-.014	-.105	.402	-.016	-.178	.286	.410	-.222	1.000				2.26	.837
29	-.265	-.023	-.393	-.149	.291	-.102	-.356	-.146	-.248	1.000			2.89	.920
31	.422	.343	.285	.569	.008	.091	.492	.218	.240	-.272	1.000		2.19	.691
35	.406	.217	.126	.606	-.055	.116	.418	.102	.238	-.200	.641	1.000	2.19	.814

Table 50

Regression Analysis Results for the Perceptions of Faculty who Teach Academic Courses and Faculty who Teach Technical Courses Toward Attitudes Concerning CBVE

Independent Variable	B	SEB	Beta	T	Sig t
Academic	1.1053	.3098	.4822	3.567	.0009

Multiple R	.48222
R Square	.23254

items and all other students reacted positively to all except 1 item relating to Learning Activity Packages. The means indicated that business education students reacted more positively on 13 of 17 items than did the other students.

Table 51 indicated that the groups reacted significantly different at the .05 level on 5 of the 17 items, however, these were aspects on which both groups reacted quite positively.

A regression analysis was completed, the results of which are presented in Table 53. A correlation matrix is presented in Table 52. Based on the results of the regression analysis, there were significant differences between the two groups; this section of the null hypothesis was rejected.

Cluster B

Cluster B concerned evaluation and testing; results are listed in Table 54. Columns 3 and 4 of Table 54 indicated that business education students reacted positively to all except 1 item, and that students enrolled in other programs reacted positively to all items concerning evaluation and testing.

Columns 5 and 6 of Table 54 indicated that the two groups reacted significantly different at the .05 level on 7 of the 11 items. The aspect which both groups reacted to most negatively concerned the 1-2-3 rating scale.

Table 51

Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Learning Activity Packages

	Item	Means		F	Sig f
		Bus	Other		
53.	Students have difficulty reading laps	2.92	2.84	.41	.52
54.	Students have time to complete all lap activities	2.21	2.18	.10	.76
55.	Students learn quite well when using laps	2.06	2.23	3.01	.08
56.	There is enough resource material to accompany laps	2.21	2.38	2.99	.09
57.	Laps are an excellent source of information about topics students study	2.16	2.03	1.77	.18
58.	There are enough copies of laps available	2.27	2.24	.07	.80
59.	Information in laps is kept up to date	2.11	2.18	.53	.47
60.	Laps make students more aware of objectives and evaluation	1.86	2.16	12.33	.00
61.	Laps are a good use of students in-school time	2.06	2.16	1.17	.28
62.	Students find self checks/ check points very helpful	1.63	2.03	19.33	.00
63.	Students prefer laps instead of lectures	2.33	2.54	2.75	.10
64.	Students find it hard to learn using laps	3.01	2.77	6.28	.01
65.	Lap instructions are easy to follow	1.96	2.25	8.45	.00
66.	Laps suggest more than one type of reference material which may be used	1.96	2.12	3.26	.07
67.	Instructors have enough time to answer questions	2.20	2.03	2.57	.11
68.	Lap material is arranged so that it is easy to follow	1.94	2.16	4.47	.04
69.	Students feel isolated and alone when using laps	2.80	2.75	.21	.65

Table 52

Correlation Matrix for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Learning Activity Packages

	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	X	SD
53	1.000																	2.87	.617
54	.300	1.000																2.19	.601
55	.508	.432	1.000															2.16	.622
56	.207	.183	.479	1.000														2.31	.631
57	.320	.270	.588	.491	1.000													2.09	.596
58	.033	.359	.180	.239	.176	1.000												2.25	.719
59	.340	.147	.537	.408	.539	.272	1.000											2.15	.603
60	.311	.226	.550	.504	.503	.280	.568	1.000										2.03	.560
61	.305	.300	.610	.374	.546	.164	.414	.545	1.000									2.12	.587
62	.150	.133	.422	.308	.317	.086	.289	.555	.562	1.000								1.86	.581
63	.299	.235	.479	.402	.383	.135	.356	.379	.453	.388	1.000							2.45	.808
64	.278	.222	.370	.227	.255	.064	.142	.301	.320	.239	.342	1.000						2.87	.611
65	.462	.381	.668	.436	.483	.256	.472	.554	.516	.368	.511	.338	1.000					2.13	.634
66	.217	.245	.343	.373	.312	.175	.247	.513	.352	.362	.264	.131	.429	1.000				2.05	.528
67	.264	.387	.358	.318	.356	.287	.212	.277	.346	.093	.334	.360	.380	.325	1.000			2.10	.669
68	.353	.375	.617	.403	.491	.269	.372	.473	.529	.406	.430	.409	.631	.451	.525	1.000		2.07	.652
69	.272	.213	.376	.273	.273	.084	.140	.239	.252	.169	.304	.498	.268	.194	.489	.334	1.000	2.23	.680

Table 53

Regression Analysis Results for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Learning Activity Packages

Independent Variable	B	SEB	Beta	T	Sig t
Business	-.3115	.1277	-.1574	-2.439	.0155

Multiple R .15745
R Square .02478

Table 54

Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Evaluation and Testing

Item		Means		F	Sig f
		Bus	Other		
1.	Students are allowed to complete tests when they feel they are ready	1.73	2.13	12.70	.00
5.	Grades/ratings are fair	2.12	1.88	9.06	.00
8.	Students usually have time to complete all test questions	1.90	1.68	7.28	.01
10.	Students are capable of obtaining grades of 80% and ratings of 2	1.57	1.77	6.90	.01
12.	Projects/assignments are usually graded fairly	1.92	1.75	5.75	.02
13.	It is easy to cheat on tests	3.26	2.95	8.89	.00
20.	Tests only ask questions about topics covered in class	2.10	2.14	.23	.63
22.	Students spend too much time completing tests	2.98	2.93	.32	.57
25.	The 1-2-3 rating scale is a fair way to evaluate students	2.60	2.35	4.13	.04
32.	Students often cheat on tests	2.93	2.75	2.84	.09
34.	Tests check things that students need to know	1.95	1.91	.35	.56

A regression analysis was completed, the results of which are presented in Table 56. A correlation matrix is included in Table 55. Based on the results of the regression analysis, differences between the two groups were not significant; this section of the null hypothesis was accepted.

Cluster C

Cluster C concerned course objectives; results are listed in Table 57. Columns 3 and 4 of Table 57 indicated that both groups of students reacted positively to all items related to course objectives. The table also indicates that the two groups reacted significantly different at the .05 level on 1 of the 4 items.

A regression analysis was completed, the results of which are presented in Table 59. A correlation matrix is presented in Table 58. Based on the results of the regression analysis, differences between the two groups were not significant; this section of the null hypothesis was accepted.

Table 55

Correlation Matrix for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Evaluation and Testing

	1	5	8	10	12	13	20	22	25	32	34	X	SD
1	1.000											1.98	.853
5	.130	1.000										1.96	.607
8	.137	.268	1.000									1.75	.602
10	.178	.141	.284	1.000								1.69	.561
12	.006	.390	.352	.309	1.000							1.80	.523
13	-.002	.047	.048	.056	.054	1.000						3.06	.781
20	.118	-.023	.118	.195	.230	.099	1.000					2.11	.641
22	.072	.141	.208	.210	.131	.055	.217	1.000				2.95	.566
25	.176	.218	.050	-.032	.131	.098	-.025	.001	1.000			2.44	.924
32	.109	.085	.027	-.065	.047	.473	-.002	-.045	.163	1.000		2.82	.767
34	.006	.087	.167	.188	.185	.074	.125	.140	.180	.033	1.000	1.92	.586

Table 56

Regression Analysis Results for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Evaluation and Testing

Independent Variable	B	SEB	Beta	T	Sig t
Business	.2185	.1274	.1114	1.715	.0876

Multiple R .11144
R Square .01242

Table 57

Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Course Objectives

Item		Means		F	Sig f
		Bus	Other		
24.	After completing their program, students will be qualified to work in their trade/occupation	1.78	1.84	.522	.47
28.	Students are taught skills they need to know	2.01	1.81	4.94	.03
33.	Students are usually aware of the objectives of a lesson/block before it begins	2.08	2.12	.27	.61
35.	Students want to do well because they feel the topics they are learning are important	1.78	1.67	2.07	.15

Table 58

Correlation Matrix for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Course Objectives

	24	28	33	35	X	SD
24	1.000				1.82	.623
28	.360	1.000			1.89	.665
33	.237	.225	1.000		2.10	.562
35	.394	.421	.277	1.000	1.71	.579

Table 59

Regression Analysis Results for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Course Objectives

Independent Variable	B	SEB	Beta	T	Sig t
Business	.1265	.1314	.0628	.963	.3366

Multiple R	.06282
R Square	.00395

Cluster D

Cluster D concerned managerial aspects; results are listed in Table 60. Columns 3 and 4 of Table 60 indicated that business education students reacted positively to all but items 7, 27 and 30, and that students enrolled in other programs reacted positively to all items concerning managerial aspects of CBVE, except item 30. Table 60 indicates that the two groups reacted significantly different at the .05 level on 6 of the 11 items.

A regression analysis was completed, the results of which are presented in Table 62. A correlation matrix is presented in Table 61. Based on the results of the regression analysis, differences between the two groups were not significant; this section of the null hypothesis was accepted.

Cluster E

Cluster E concerned attitudes toward CBVE; results are listed in Table 63. Columns 3 and 4 of Table 63 indicated that business education students reacted positively to all items relating to attitudes toward CBVE, except items 23 and 29, and that students enrolled in other programs reacted positively to all items except 29.

Table 63 also indicated that the two groups reacted significantly different at the .05 level to 3 of the 12 items. More business education students indicated they would prefer

Table 60

Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Managerial Aspects

	Item	Means		F	Sig f
		Bus	Other		
2.	There are too many students in class	3.31	3.03	9.38	.00
3.	There are enough reference reference books and audio visual materials	2.06	2.12	.48	.49
4.	Students are permitted to to complete pre-tests	1.98	2.35	11.99	.00
7.	Instructors do not have enough time to help slower students	2.48	2.80	6.80	.01
14.	Students have difficulty keeping a record of their grades/ratings	3.29	2.89	20.65	.00
16.	Students have enough class/ shop time to complete their assignments/projects	2.03	1.90	2.64	.11
17.	Students may choose different activities to learn the course objectives	2.32	2.42	1.25	.26
18.	There are sufficient materials, supplies, and equipment	2.22	2.33	.91	.34
19.	Teachers spend more time giving/correcting tests than helping students/teaching	2.58	3.14	31.06	.00
27.	The classroom/lab/resource center is too noisy a place in which to learn	2.36	2.76	14.25	.00
30.	Teachers do not have enough time to help faster students	2.76	2.30	.05	.83

Table 61

Correlation Matrix for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Managerial Aspects

	2	3	4	7	14	16	17	18	19	27	30	X	SD
2	1.000											3.14	.689
3	.233	1.000										2.10	.693
4	.173	.218	1.000									2.21	.767
7	.193	.189	.069	1.000								2.69	.933
14	.207	.009	.093	.066	1.000							3.04	.683
16	.153	.080	.035	.315	.127	1.000						1.95	.617
17	.083	.278	.433	.201	.057	.122	1.000					2.38	.656
18	.197	.309	.124	.160	.131	.189	.198	1.000				2.29	.821
19	.047	.049	-.038	.458	.059	.358	-.010	.176	1.000			2.94	.821
27	.148	.090	.021	.291	.009	.133	.130	.152	.394	1.000		2.62	.793
30	-.081	-.134	-.087	-.280	-.082	-.062	-.184	-.170	-.294	-.275	1.000	2.51	.657

Table 62

Regression Analysis Results for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Managerial Aspects

Independent Variable	B	SEB	Beta	T	Sig t
Business	-.0484	.1204	-.0262	-.401	.6884

Multiple R .02624
R Square .00069

Table 63

Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Attitudes Concerning CBVE

	Item	Means		F	Sig f
		Bus	Other		
6.	Students know how they will be tested before the course begins	2.07	2.15	.71	.40
9.	Students get good grades	1.87	1.85	.07	.80
10.	Students are capable of obtaining grades of 80% and ratings of 2 on tests/projects	1.57	1.77	6.90	.01
11.	Students make good use of study time both inside/ outside class	1.99	2.16	3.33	.07
15.	Teachers get along well with students	1.90	1.75	3.49	.06
17.	Students choose different activities to learn the course objectives	2.32	2.42	1.25	.26
21.	Students learn more in this this program than in other programs they have taken	1.99	2.07	.74	.39
23.	Students prefer teachers to lecture more often	2.16	2.68	19.65	.00
26.	The Record of Achievement/ chart provides a more accurate list than does a grade report	2.15	2.05	1.30	.26
29.	Expecting students to obtain grades of 80% places too much pressure on them	2.69	2.45	6.01	.01
31.	Students enjoy their programs	1.73	1.60	2.67	.10
35.	Students want to do well	1.78	1.67	2.07	.15

instructors to lecture more often than did students enrolled in other programs.

A regression analysis was completed the results of which are presented in Table 65. A correlation matrix is presented in Table 64. Based on the results of the regression analysis, differences between the two groups were not significant; this section of the null hypothesis was accepted.

Summary

Hypothesis 5 compared the perceptions of students enrolled in business education programs and students enrolled in other programs toward the five operational aspects. Although business education students were generally more positive than were those enrolled in other programs, both groups reacted quite positively. Based on the results of the regression analyses, differences between the two groups were statistically significant in only one of the five clusters, cluster A, Learning Activity Packages. Therefore, the null hypothesis was accepted.

Table 64

Correlation Matrix for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Attitudes Concerning CBVE

	6	9	10	11	15	17	21	23	26	29	31	35	X	SD
6	1.000												2.12	.686
9	.207	1.000											1.86	.592
10	.173	.410	1.000										1.69	.561
11	.197	.291	.195	1.000									2.10	.699
15	.172	.247	.137	.159	1.000								1.80	.596
17	.229	.074	-.053	.131	-.065	1.000							2.38	.658
21	.264	.145	.157	.185	.172	.218	1.000						2.04	.661
23	.090	.047	-.012	-.001	.109	.042	.201	1.000					2.51	.881
26	.132	.062	.057	.064	.093	.269	-.027	.098	1.000				2.09	.685
29	-.110	-.173	-.220	-.005	-.059	-.029	-.125	-.056	.101	1.000			2.70	.871
31	.260	.316	.181	.342	.256	.152	.435	.222	.117	-.050	1.000		1.65	.581
35	.153	.216	.130	.313	.281	.104	.229	.100	.138	.059	.454	1.000	1.71	.579

Table 65

Regression Analysis Results for the Perceptions of Students Enrolled in Business Education Programs and Students Enrolled in Other Programs Toward Attitudes Concerning CBVE

Independent Variable	B	SEB	Beta	T	Sig t
Business	-.01419	.1072	-.0087	-.132	.8948

Multiple R .00866
R Square .00007

CHAPTER V

Conclusions and Recommendations

Introduction

The purpose for undertaking the study was to investigate the perceptions of students, faculty, and administrators at the Cabot Institute of Applied Arts and Technology toward competency based vocational education (CBVE). This chapter presents a summary of the findings and the conclusions of the study, and also offers recommendations for further study.

Summary of the Findings

Five hypotheses were used to study implementation and operational aspects of CBVE at the Cabot Institute. Hypotheses 1 and 2 dealt with implementation aspects and Hypotheses 3, 4, and 5 investigated operational aspects of CBVE.

Implementation

Hypothesis 1 and 2 investigated perceptions toward the implementation of CBVE. A single cluster of questions was used to investigate it.

Hypothesis 1 compared the perceptions of faculty and administrators on various aspects of implementation. Although faculty reacted more negatively than did administrators on all aspects, the results of the regression analysis indicated that

differences were not statistically significant. Therefore, the null hypothesis was accepted.

Hypothesis 2 compared the perceptions of faculty who taught academic courses and faculty who taught technical courses on various aspects of implementation. Academic faculty reacted more negatively than did technical faculty on the majority of aspects and the results of the regression analysis indicated that differences were statistically significant. Therefore, the null hypothesis was rejected.

Operational Aspects

Hypotheses 3, 4, and 5 investigated perceptions toward operational aspects of CBVE. Five categories or clusters of questions were used to investigate each of these hypothesis. The five clusters of questions were: Cluster A, which dealt with Learning Activity Packages; Cluster B, which dealt with testing and evaluation; Cluster C, which dealt with course objectives; Cluster D, which dealt with managerial aspects; and Cluster E, which dealt with attitudes toward CBVE.

Hypothesis 3 compared the perceptions of students, faculty, and administrators toward the five operational aspects. Although faculty reacted more negatively than did students and administrators, the results of the regression analyses indicated that differences were statistically significant in only one of the five clusters, cluster D. Therefore, the null hypothesis was accepted.

Hypothesis 4 compared the perceptions of faculty who taught academic courses and faculty who taught technical courses toward the five operational aspects. Academic faculty reacted more negatively than did technical faculty, and based on the results of the regression analyses, differences were statistically significant in all five clusters. Therefore, the null hypothesis was rejected.

Hypothesis 5 compared the perceptions of students enrolled in business education programs and students enrolled in other programs toward the five operational aspects. Although business education students were generally more positive than were those enrolled in other programs, both groups reacted quite positively. Based on the results of the regression analyses, differences between the two groups were statistically significant in only one of the five clusters, cluster A. Therefore, the null hypothesis was accepted.

Conclusions and Implications

As the study investigated implementation and operational aspects of CBVE each of these will be discussed separately.

Implementation

On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty toward implementation, were statistically significant at the .1 level. Academic faculty felt more strongly than did

technical faculty that CBVE was not implemented properly and that, in fact, there were major problems with the manner in which CBVE was implemented.

Although differences in the perceptions of faculty members and administrators concerning implementation were not statistically significant, faculty members and administrators reacted significantly different at the .1 level to the statement that there were no major problems with the manner in which CBVE was implemented. The reaction of faculty members to this statement was much more negative than was that of administrators.

Therefore, as faculty were more negative toward implementation than were administrators, and as academic faculty were more negative toward implementation than were technical faculty, it was concluded that differences between academic faculty and administrators were obviously quite significant. These differences become even more apparent when one considers that academic faculty reacted more negatively to all seven items concerning implementation than did either administrators or technical faculty. As these differences do not appear to be addressed in the literature, and as they are of possible concern to those involved with CBVE at the Cabot Institute, they could be a source of future study.

Two other items concerning implementation also seem noteworthy. Both faculty and administrators felt instructors were not properly orientated before being required to teach

in CBVE programs, and administrators indicated only marginal support for the concept of CBVE. As teachers often react negatively to innovations which they do not understand, and as research indicated that CBVE worked best in situations where it was consistently endorsed by administrators (Sade, 1982), the reactions of faculty and administrators to these items could have serious implications for the Cabot Institute.

Operational Aspects

Cluster A concerned perceptions toward Learning Activity Packages and all groups and sub-groups reacted positively to the majority of items with the exception of the sub-group, academic faculty. Students reacted positively to all items. On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty toward Learning Activity Packages, were statistically significant at the .1 level. Academic faculty reacted more negatively than did technical faculty on 15 of the 17 items, and felt quite strongly that students did not learn well when using Learning Activity Packages.

On the basis of the study it was also concluded that differences in the perceptions of students enrolled in business education programs and students enrolled in other programs toward Learning Activity Packages, were statistically significant at the .1 level. Although both sub-groups reacted positively to all except 1 of the items, the reactions of

business education students were more positive on 13 of the 17 items. Therefore, it can also be concluded that although all students reacted positively to the Laps which they were using, students enrolled in business education programs were the more satisfied. This indicates that it may be possible to increase the satisfaction of students enrolled in programs other than business education at the Cabot Institute by modifying the Laps used.

Cluster B concerned perceptions toward evaluation and testing and all groups and sub-groups reacted positively to the majority of items with the exception of the sub-group, academic instructors. Students reacted positively to all items. On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty toward evaluation and testing, were statistically significant at the .1 level. Academic faculty reacted more negatively than did technical faculty, and their views were significantly different on 5 of the 11 items.

Although the reactions of students were only marginally negative, faculty members and administrators felt quite strongly that the 1-2-3 rating scale was not a fair way to evaluate students. This is consistent with the findings of other research which indicated that there is very little agreement among educators as to the range and validity of rating scales (Dimmlich & Oen, 1985; Martell, 1986). Academic faculty also felt that students were not capable of consist-

ently attaining grades of 80%, but their opinions were not shared by students.

Cluster C concerned perceptions toward course objectives and all groups and sub-groups reacted positively to all four items with the exception of the sub-group, academic instructors. On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty toward course objectives, were statistically significant at the .1 level. The views of academic faculty were significantly different from those of technical faculty on three of the four items.

Academic faculty felt that students would not be qualified to work in their occupation after completing their program, and that students did not feel that the topics which they were learning were important. These opinions were not shared by students, who felt quite confident that what they were being taught was necessary. Whether the lack of confidence on the part of academic faculty in what they were teaching was legitimate or not cannot be ascertained from the results of this study. However, their doubts do warrant further investigation.

Cluster D concerned perceptions toward managerial aspects and all groups and sub-groups reacted positively to the majority of items with the exception of the sub-group, academic instructors. Students reacted positively to all items. On the basis of the study it was concluded that

differences in the perceptions of academic faculty and technical faculty toward managerial aspects, were statistically significant at the .1 level. Academic faculty reacted more negatively than did technical faculty on 7 of the 11 items, and felt that their classes had too many students, their classrooms were too noisy, and that they spent too much time giving and correcting tests. This may have been due in part to the fact that academic faculty spent more time in classrooms lecturing than did technical faculty and that their classes usually consisted of more students than did those of technical faculty. Academic faculty also felt that they did not have enough time to help slower students which was a complaint frequently reported in the literature (Sade, 1982; Wascana, 1983). However, students did not agree.

On the basis of the study it was also concluded that differences in the perceptions of students, faculty, and administrators toward managerial aspects, were statistically significant at the .05 level. These differences were primarily between students and faculty.

Cluster E concerned perceptions of attitudes toward CBVE and all groups and sub-groups reacted positively to the majority of items with the exception of the sub-group, academic instructors. Students reacted positively to all items. On the basis of the study it was concluded that differences in the perceptions of academic faculty and technical faculty concerning attitudes toward CBVE, were statisti-

cally significant at the .1 level. Academic faculty reacted more negatively than did technical faculty on 9 of the 12 items. They felt that expecting students to obtain grades of 80% was placing too much pressure on students and that students did not enjoy the programs in which they were enrolled.

Both faculty and administrators felt quite strongly that students did not make good use of their study time; however, students felt quite confidently that they used their study time appropriately.

Summary

Students had a very positive perception of the programs in which they were enrolled and the manner in which they were being taught. They indicated that they felt their course material was relevant, that evaluation was meaningful, and that they had a good working relationship with their instructors. It can be concluded from the results of this study that students felt CBVE was operating quite effectively at the Cabot Institute.

However, it should be noted that the majority of non-business education students had almost completed their programs when this study was undertaken. Therefore, only non-business education students who were successful in their program were investigated and their attitudes would probably be more positive than would be the attitudes of those who had

not been successful. However, business education students were enrolled in programs which were continuous intake / exit which meant that they were in various stages of their programs. Perhaps a more accurate sample would have been obtained if all students had been asked their opinions after they had completed a specific portion of their programs.

It can also be concluded from this study that the subgroup academic faculty had a more negative reaction toward implementation and operational aspects of CBVE than did technical faculty. This could be the result of several factors directly related to the fact that academic instructors usually have more students in their classes than do technical faculty. However, the fact that all other groups and subgroups reacted positively to the majority of items in each cluster indicates that additional investigation is required.

This research could begin by identifying differences in the manner in which CBVE was implemented and is operating in academic courses and technical courses at the Cabot Institute, and in how academic courses differ from technical courses. It is possible that this research could also discover why academic and technical faculty at the Cabot Institute who were teaching courses in the same programs, have significantly different views on how CBVE was implemented and was operating. This research could also investigate the degree to which the opposing views of academic and technical faculty affect the manner in which students learn in CBVE programs at the Cabot

Institute.

Although CBVE appeared to be operating quite well at Cabot there were obvious problems, not so much with students' interpretations, but with those of academic faculty members. However, to simply dismiss the concerns of academic instructors as merely a negative attitude toward CBVE would not be appropriate; further investigation is required. It should also be noted that academic and technical faculty were making statements concerning their specific courses, whereas administrators and students were making statements concerning entire programs. Therefore, perhaps if administrators and students were asked to comment on academic and trade courses through separate questionnaires, their views would be more in line with those of academic instructors.

It should also be noted that academic faculty usually have larger classes and more students than do technical faculty, therefore, problems associated with testing, with providing individual assistance, and with discipline, are compounded. Perhaps if class size were reduced many of the implementation and operational problems noted by academic instructors would be alleviated.

Recommendations

Based on the results of this research, a number of recommendations concerning CBVE at the Cabot Institute are in

order:

1. A study could be conducted to determine what faculty and administrators feel are the major problems hindering the implementation of CBVE at the Cabot Institute, with particular emphasis on academic courses.

2. A study could be conducted to determine if administrators support the implementation of CBVE at the Cabot Institute.

3. A study could be made into effective ways in which faculty should be properly orientated before they are required to teach CBVE programs at the Cabot Institute.

4. A study could be conducted to determine in what ways learning activity packages used in business education programs are different from those used in other programs at the Cabot Institute.

5. A study could be conducted to determine what students, faculty, and administrators feel are the major problems hindering the operation of CBVE at the Cabot Institute, with particular emphasis on academic courses.

6. A study could be conducted to determine if the 1-2-3 rating scale is the best way in which to evaluate students in CBVE programs at the Cabot Institute.

7. A study could be conducted similar to the one conducted by the author, but in which students and administrators are asked to complete separate questionnaires on both their academic and technical courses.

8. A study could be conducted similar to the one conducted by the author, but in which students are asked to complete the questionnaire after they have been enrolled in their programs for a specific period of time rather than in any specific month.

9. There is a need for longitudinal evaluation to ensure that CBVE is both implemented and operating effectively at the Cabot Institute.

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APPENDIX A

STUDENT QUESTIONNAIRE

NAME OF PROGRAM IN WHICH YOU ARE ENROLLED:

_____

AGE: _____ years and _____ months

SEX: _____ male _____ female

Approximately how many months have you been enrolled in this program: _____ months

Below are statements concerning your opinion of the program in which you are enrolled at the Cabot Institute. Since you are a student at our Institute, your honest, personal opinion is very valuable to us in ensuring that our programs are meeting your needs in the best possible manner. As there are no right or wrong answers, and as you do not have to sign your name to this questionnaire, please do not hesitate to give your honest opinion. After you have completed your questionnaire, please place it in the envelope which will be circulated by your instructor.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. test, post test, and examination
2. classroom, lab, shop, and resource center
3. grades, marks, and ratings

INSTRUCTIONS

Please read each of the following statements and the four possible responses next to the statement. When you have decided which response is closest to your opinion, circle one of the following:

SA) Strongly Agree A) Agree D) Disagree SD) Strongly Disagree

For Example:

Toronto is a large city	(SA)	A	D	SD
1. I am usually allowed to complete tests whenever I feel I am ready	SA	A	D	SD
2. There are too many students in my class	SA	A	D	SD
3. There are enough Reference Books and Audio Visual materials available	SA	A	D	SD
4. I am allowed to complete pre-tests to see if I need to complete all of the parts of my course	SA	A	D	SD
5. The grades and ratings I receive are fair	SA	A	D	SD
6. I usually know how I will be tested as soon as each section of my course begins	SA	A	D	SD
7. My instructors usually do not have enough time to help the slower students in my class	SA	A	D	SD
8. I usually have enough time to finish all of the questions on tests	SA	A	D	SD
9. I am getting good grades and doing well in my program	SA	A	D	SD
10. I am capable of obtaining grades of 80% and/or ratings of 2 on tests and projects	SA	A	D	SD

11. I make good use of my study time both inside and outside school	SA	A	D	SD
12. My trade/occupation instructors usually grade my projects/assignments fairly	SA	A	D	SD
13. It is easy to cheat on tests	SA	A	D	SD
14. I have difficulty keeping a record of my grades and ratings	SA	A	D	SD
15. I get along well with my instructors	SA	A	D	SD
16. I usually have enough class/shop time to complete my assignments and projects	SA	A	D	SD
17. My instructors let me choose from different activities to learn the course objectives	SA	A	D	SD
18. There are sufficient materials, supplies, and equipment available in the classroom, lab, and shop	SA	A	D	SD
19. My instructors spend more time giving and correcting tests than they do helping students and teaching	SA	A	D	SD
20. Tests only ask questions about information that I was taught in my program	SA	A	D	SD
21. I seem to learn more in this program than I did in other programs I have taken	SA	A	D	SD
22. I spend too much time completing tests	SA	A	D	SD
23. I would prefer to have my teachers lecture more often	SA	A	D	SD
24. After completing my program, I feel I will be qualified in the occupation/trade which I am studying	SA	A	D	SD
25. The 1-2-3 rating scale is a fair way to grade students	SA	A	D	SD
26. The Record of Achievement/Chart provides a more accurate list of what I know than does a grade report	SA	A	D	SD
27. The classroom, lab, or resource center is usually too noisy a place in which to learn	SA	A	D	SD

28. I think that the skills taught in my course are those that I need to know SA A D SD

29. Expecting students to obtain a grade of 80% on tests puts too much pressure on them SA A D SD

30. My instructors usually do not have enough time to help the faster students in my class SA A D SD

31. I enjoy the program in which I am enrolled SA A D SD

32. Students often cheat on tests SA A D SD

33. I am usually aware of the objectives of a lesson or block as soon as the lesson or block begins SA A D SD

34. Tests ask questions about knowledge and skills that I need to know SA A D SD

35. I want to do well because I feel that the topics I am learning are important SA A D SD

****

Only answer the following questions if you are using Learning Activity Packages (LAPs), Modules, or Study Guides.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. Learning Activity Packages, LAPs, Modules, and Study Guides

53. I find it difficult to read the words and understand the sentences in the LAPs SA A D SD

54. I usually have enough time to complete all of the activities in the LAPs SA A D SD

55. I learn quite well using LAPs SA A D SD

56. When LAPs refer me to resource material, there is usually enough resource material available SA A D SD

57. LAPs are an excellent source of important information about the topics I am studying SA A D SD

58. There are enough copies of LAPs available so that I do not have to wait to use them SA A D SD

59. The information presented in the LAPs seems to be up to date SA A D SD

60. LAPs make me aware of the course objectives and the way I will be tested SA A D SD

61. Working through the LAPs is a good use of my in-school time SA A D SD

62. I find the self-checks/check-points very helpful SA A D SD

63. I would rather use LAPs than listen to lectures SA A D SD

64. I find it difficult to learn using LAPs SA A D SD

65. Instructions in the LAPs are clear and easy to follow SA A D SD

66. Most LAPs suggest more than one type of reference material I can use to learn the course objectives SA A D SD

67. My instructors usually have enough time to answer my questions about the material in the LAPs SA A D SD

68. Material is arranged in the LAPs so that it is easy to follow SA A D SD

69. I feel isolated and alone when working with LAPs SA A D SD

Thank you for your cooperation
and good luck in your program

FACULTY MEMBER QUESTIONNAIRE

Name of the department in which you are employed:

MECHANICAL	( )	ELECTRICAL	( )
BUSINESS	( )	CONSTRUCTION	( )
SERVICE	( )		

Name of the department / departments in which you teach courses which are competency based or self paced:

MECHANICAL	( )	ELECTRICAL	( )
BUSINESS	( )	CONSTRUCTION	( )
SERVICE	( )		

Are you an academic/related instructor, e. g. communications, mathematics, science, drafting, etc.

YES ( ) OR

A trade specific/occupation instructor, e. g. trade theory, shop practical, etc.

YES ( )

SEX: male ( ) female ( )

Approximately how many years have you been teaching at the institute/college:

_____ years

Approximately how many years have you been teaching subjects in programs which are competency based and/or self paced:

_____ years

****

Below are statements concerning your opinion of the competency based (CBVE) and/or self paced (SPI) courses which YOU TEACH at the Cabot Institute and the students enrolled in YOUR CLASSES. Since you instruct either CBVE or SPI courses your honest, personal opinion is very valuable to me in attempting to determine if programs at the Cabot Institute are meeting their objectives and the needs of the students

enrolled in them. As there are no right or wrong answers, and as you do not have to sign your name to this questionnaire, please do not hesitate to give your honest opinion.

Please feel assured that no attempt will be made to determine your identity. The information gathered from you will be summarized on an Institute wide basis, and used by me when completing my thesis. The structure of the study is such that I do not need to know which questionnaires specific instructors completed. However, it is imperative that the vast majority of instructors complete the questionnaires so that a meaningful sample can be collected. Therefore, I would be most appreciative if you could complete the questionnaire at your earliest convenience; it should take approximately 10 to 15 minutes. After you have completed the questionnaire, please place it in the envelope enclosed and return it to me through internal mail.

NOTE:

Please remember that the questionnaire contains statements concerning YOUR OPINION of the competency based (CBVE) and self paced (SPI) courses which YOU TEACH and the students enrolled in YOUR CLASSES.

If you require clarification or wish to make additional comments do not hesitate to contact me at either extension 290 or at my home, 364-7086. If you prefer you may write additional comments on the questionnaire; your personal opinions would be most appreciated.

Once again I would like to thank you for your cooperation.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. test, post test, and examination
2. classroom, lab, shop, and resource center
3. grades, marks, and ratings

INSTRUCTIONS

Please read each of the following statements and the four possible responses next to the statement. When you have decided which response is closest to your opinion, circle one of the following:

SA) Strongly Agree A) Agree D) Disagree SD) Strongly Disagree

For Example:
Toronto is a large city (SA) A D SD

1. I usually allow students to complete tests whenever they feel they are ready SA A D SD

2. There are too many students in my classes SA A D SD

3. There are enough Reference Books and Audio Visual materials available for my students to use SA A D SD

4. I allow students to complete pre-tests to see if they need to complete all of the parts of my courses SA A D SD

5. The grades and ratings I give are fair SA A D SD

6. My students usually know how they will be tested as soon as each section of my course begins SA A D SD

7. I usually do not have enough time to help the slower students in my classes SA A D SD

8. My students usually have enough time to finish all of the questions on tests SA A D SD

9. My students get good grades and do well in my classes SA A D SD

10. My students are capable of obtaining grades of 80% and/or ratings of 2 on my tests and projects SA A D SD

11. My students make good use of their study time both inside and outside school SA A D SD

12. I usually grade projects/assignments fairly SA A D SD

13. It is easy for my students to cheat on tests SA A D SD

14. Students have difficulty keeping a record of their grades and ratings SA A D SD

15. I get along well with my students SA A D SD

16. My students usually have enough class/shop time to complete their assignments and projects SA A D SD

17. I let my students choose from different activities to learn the course objectives SA A D SD

18. There are sufficient materials, supplies, and equipment available in my classroom, lab, and/or shop SA A D SD

19. I usually spend more time giving and correcting tests than I do helping students and teaching SA A D SD

20. My tests only ask questions about information that was taught in my class SA A D SD

21. Students learn more in this program than they did in other programs they have taken SA A D SD

22. My students spend too much time completing tests SA A D SD

23. Students would prefer it if I lectured more often SA A D SD

24. After completing their programs, I feel that my students will be qualified in the occupation/trade which they are studying SA A D SD

25. The 1-2-3 rating scale is a fair way to evaluate my students SA A D SD

26. The Record of Achievement/Chart provides a more accurate list of what my students know than does a grade report SA A D SD

27. My classroom, lab, or resource center is usually too noisy a place for my students to learn SA A D SD

28. The skills I teach are those which students need to know SA A D SD

29. Expecting my students to obtain grades of 80% on tests puts too much pressure on them	SA	A	D	SD
30. I usually do not have enough time to help the faster students in my class	SA	A	D	SD
31. My students enjoy the program in which they are enrolled	SA	A	D	SD
32. My students often cheat on tests	SA	A	D	SD
33. Students are usually aware of the objectives of a lesson/block as soon as the lesson/ block begins	SA	A	D	SD
34. My tests ask questions about knowledge and skills that students need to know	SA	A	D	SD
35. Students want to do well in my classes because they feel that the topics they are learning are important	SA	A	D	SD
36. I have difficulty keeping a record of my students grades and ratings	SA	A	D	SD
37. I would prefer to lecture more often	SA	A	D	SD
38. Instructors are expected to develop too many tests	SA	A	D	SD
39. My program has an advisory committee which meets on a regular basis	SA	A	D	SD
40. The tasks on the Record of Achievement were accurately identified	SA	A	D	SD
41. Task listings on the Record of Achievement are reviewed on a regular basis	SA	A	D	SD
42. Instructors spend too much time on managerial duties	SA	A	D	SD
43. I feel that CBVE/SPI was implemented properly at the Institute/College	SA	A	D	SD
44. I feel that there was adequate discussion with faculty members before CBVE/SPI was implemented	SA	A	D	SD
45. I feel that there are no major problems associated with the manner in which CBVE/ SPI was implemented	SA	A	D	SD

46. Instructors are properly orientated before they are required to teach in programs which are CBVE/SPI SA A D SD

47. Administrators at the Institute support the concept of CBVE/SPI SA A D SD

48. I do not understand CBVE/SPI philosophy SA A D SD

49. Administrators at the Institute usually attempt to solve the CBVE/SPI problems I encounter SA A D SD

50. Administrators at the Institute usually solve the CBVE/SPI problems I encounter SA A D SD

51. Students are properly orientated towards CBVE/SPI before they begin their programs SA A D SD

52. Students learn more in CBVE/SPI programs than they do in programs using more traditional methods of instruction SA A D SD

****

Only answer the following questions if your students are using Learning Activity Packages (LAPs), Modules, or Study Guides in at least some of your classes.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. Learning Activity Packages, LAPs, Modules, and Study Guides

53. My students find it difficult to read the words and understand the sentences in the LAPs SA A D SD

54. My students usually have enough time to complete all of the activities in the LAPs SA A D SD

55. My students learn quite well using LAPs SA A D SD

56. When LAPs refer my students to resource material, there is usually enough resource material available SA A D SD

57. LAPs are an excellent source of important information about the topics my students are studying SA A D SD

58. There are enough copies of LAPs available so that my students do not have to wait to use them SA A D SD

59. The information presented in the LAPs seems to be/is kept up to date SA A D SD

60. LAPs make my students aware of the course objectives and the manner in which they will be tested SA A D SD

61. Working through the LAPs is a good use of my students in-school time SA A D SD

62. My students find the self-checks/check-points very helpful SA A D SD

63. My students would rather use LAPs than listen to lectures SA A D SD

64. My students find it difficult to learn using LAPs SA A D SD

65. Instructions in the LAPs that my students use are clear and easy to follow SA A D SD

66. Most of the LAPs my students use suggest more than one type of reference material they can use to learn the course objectives SA A D SD

67. I usually have enough time to answer my students questions about the material in the LAPs SA A D SD

68. Material is arranged in the LAPs that I am using, so that it is easy to follow SA A D SD

69. My students seem to feel isolated and alone when working with LAPs SA A D SD

75. Instructors are given enough time to develop LAPs SA A D SD

76. Instructors are given enough time to update LAPs SA A D SD

77. It is difficult and time consuming to have mistakes corrected in LAPs SA A D SD

Thank you for your cooperation

ADMINISTRATOR QUESTIONNAIRE

Name of Department:

MECHANICAL	( )	ELECTRICAL	( )
BUSINESS	( )	CONSTRUCTION	( )
SERVICE	( )		

****

Below are statements concerning your opinion of the competency based (CBVE) and/or self paced (SPI) courses in YOUR department and the students and teachers involved with them. Since you are also involved with these courses your honest, personal opinion is very valuable to me in attempting to determine if programs at the Cabot Institute are meeting their objectives and the needs of the students enrolled in them. As there are no right or wrong answers, please do not hesitate to give your honest opinion.

The information gathered from you will be summarized on an Institute-wide basis, and used ONLY by me when completing my thesis. It is imperative that all department heads complete the questionnaires so that meaningful analyses can take place. Therefore, I would be most appreciative if you could complete the questionnaire at your earliest convenience; it should take approximately 10 to 15 minutes. After you have completed the questionnaire, please place it in the enclosed envelope, and return it to me through internal mail.

As the honest, personal opinion of each department head is required, please do not discuss this questionnaire with anyone until after you have it completed. If you have any reservations about completing any of the questions, please do not hesitate to contact me.

NOTE.

Please remember that the questionnaire contains statements concerning YOUR OPINION of the competency based (CBVE) and self paced (SPI) courses and the students and the teachers which are in YOUR department.

If you require clarification or wish to make additional comments, do not hesitate to contact me at either extension 290 or at my home, 364-7086. If you prefer you may write additional comments on the questionnaire; your opinion would be most appreciated.

Once again I would like to thank you for your cooperation.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. test, post test, and examination
2. classroom, lab, shop, and resource center
3. grades, marks, and ratings

INSTRUCTIONS

Please read each of the following statements and the four possible responses next to the statement. When you have decided which response is closest to your opinion, circle one of the following:

SA) Strongly Agree A) Agree D) Disagree SD) Strongly Disagree

For Example:

Toronto is a large city	(SA)	A	D	SD
1. Students are usually allowed to complete tests whenever they feel they are ready	SA	A	D	SD
2. There are too many students in classes	SA	A	D	SD
3. There are enough Reference Books and Audio Visual materials available for students to use	SA	A	D	SD
4. Students are allowed to complete pre-tests to see if they need to complete all of the parts of their courses	SA	A	D	SD
5. The grades and ratings students receive are fair	SA	A	D	SD
6. Students usually know how they will be tested as soon as each section of their course begins	SA	A	D	SD
7. Instructors usually do not have enough time to help the slower students in their classes	SA	A	D	SD
8. Students usually have enough time to finish all of the questions on tests	SA	A	D	SD
9. Students get good grades and do well in their classes	SA	A	D	SD

10. Students are capable of obtaining grades of 80% and/or ratings of 2 on their tests and projects	SA	A	D	SD
11. Students make good use of study time both inside and outside school	SA	A	D	SD
12. Trade specific instructors usually grade projects/assignments fairly	SA	A	D	SD
13. It is easy for students to cheat on tests	SA	A	D	SD
14. Students have difficulty keeping a record of their grades and ratings	SA	A	D	SD
15. Instructors get along well with their students	SA	A	D	SD
16. Students usually have enough class/shop time to complete their assignments and projects	SA	A	D	SD
17. Students are allowed to choose from different activities to learn the course objectives	SA	A	D	SD
18. There are sufficient materials, supplies, and equipment available in classrooms, labs, and/or shops	SA	A	D	SD
19. Instructors usually spend more time giving and correcting tests than they do helping students and teaching	SA	A	D	SD
20. Tests only ask students questions about information that was taught in their program	SA	A	D	SD
21. I think that students learn more in programs at the Cabot Institute than they did in previous programs they have taken	SA	A	D	SD
22. I think students spend too much time completing tests	SA	A	D	SD
23. Students would prefer it if instructors lectured more often	SA	A	D	SD
24. After completing their programs, feel that students will be qualified in the occupation/trade which they are studying	SA	A	D	SD

25. The 1-2-3 rating scale is a fair way to evaluate students SA A D SD

26. The Record of Achievement/Chart provides a more accurate list of what students know than does a grade report SA A D SD

27. The classroom, lab, or resource center is usually too noisy a place for students to learn SA A D SD

28. I think that the skills that instructors teach in their program are those which students really need to know SA A D SD

29. Expecting students to obtain grades of 80% on tests puts too much pressure on them SA A D SD

30. Instructors usually do not have enough time to help the faster students SA A D SD

31. Students enjoy the programs in which they are enrolled SA A D SD

32. Students often cheat on tests SA A D SD

33. Students are usually aware of the objectives of a lesson/block as soon as the lesson/block begins SA A D SD

34. Tests ask questions about knowledge and skills that students need to know SA A D SD

35. Students want to do well in their classes because they feel that the topics they are learning are important SA A D SD

36. Instructors have difficulty keeping a record of students' grades and ratings SA A D SD

37. Instructors would prefer to lecture more often SA A D SD

38. Instructors are expected to develop too many tests SA A D SD

39. Programs have advisory committees which meet on a regular basis SA A D SD

40. Task listings on the Record of Achievement were accurately identified SA A D SD

41. Task listings on the Record of Achievement are reviewed on a regular basis SA A D SD

42. Instructors spend too much time on managerial duties SA A D SD

43. I feel that CBVE/SPI was implemented properly at the Institute/College SA A D SD

44. I feel that there was adequate discussion with faculty members before CBVE/SPI was implemented SA A D SD

45. I feel that there are no major problems associated with the manner in which CBVE/SPI was implemented SA A D SD

46. Instructors are properly orientated toward CBVE before they are required to teach in programs which are CBVE/SPI SA A D SD

47. I support the concept of CBVE/SPI SA A D SD

48. I do not understand CBVE/SPI philosophy SA A D SD

49. I usually attempt to solve the CBVE/SPI problems which instructors encounter SA A D SD

50. I usually solve the CBVE/SPI problems encountered by instructors in my department SA A D SD

51. Students are properly orientated toward CBVE/SPI before they begin their programs SA A D SD

52. Students learn more in CBVE/SPI programs than they do in programs using more traditional methods of instruction SA A D SD

The following questions concern Learning Activity Packages (LAPs), Modules, or Study Guides. The statements only concern LAPs which are used by students in your department.

NOTE.

For the purposes of this questionnaire the following terms mean the same:

1. Learning Activity Packages, LAPs, Modules, and Study Guides

53. Students find it difficult to read the words and understand the sentences in the LAPs SA A D SD

54. Students usually have enough time to complete all of the activities in the LAPs SA A D SD

55. Students learn quite well using LAPs SA A D SD

56. When LAPs refer students to resource material, there is usually enough resource material available SA A D SD

57. LAPs are an excellent source of important information about the topics students are studying SA A D SD

58. There are enough copies of LAPs available so that students do not have to wait to use them SA A D SD

59. The information presented in the LAPs seems to be/is kept up to date SA A D SD

60. LAPs make students aware of the course objectives and the manner in which they will be tested SA A D SD

61. Working through the LAPs is a good use of students' in-school time SA A D SD

62. Students find the self-checks/check-points very helpful SA A D SD

63. Students would rather use LAPs than listen to lectures SA A D SD

64. Students find it difficult to learn using LAPs SA A D SD

65. Instructions in the LAPs that students use are clear and easy to follow SA A D SD

66. Most of the LAPs used at Cabot suggest more than one type of reference material which students can use to learn the course objectives SA A D SD

67. Instructors usually have enough time to answer students' questions about the material in the LAPs SA A D SD

68. Material is arranged in the LAPs so that it is easy to follow SA A D SD

69. Students seem to feel isolated and alone when working with LAPs SA A D SD

70. Instructors are given enough time to develop LAPs SA A D SD

71. Instructors are given enougn time to update LAPs SA A D SD

72. It is difficult and time consuming to have mistakes corrected in LAPs SA A D SD

Thank you for your cooperation

APPENDIX B

You have been given a total of 66 cards which have been arranged randomly and assigned numbers for identification purposes only. Each card contains a statement which may be used in a questionnaire to determine the perceptions of students toward competency based vocational education (CBVE) as used at the Cabot Institute.

It is hoped that each of the statements can be arranged into at least one of the following 5 categories:

1. Learning Activity Packages / Modules
   - e. g. Are they worded and arranged properly?
     Do they contain enough information?
2. Student Evaluation / Testing
   - e. g. Are the tests valid/reliable?
     Does testing occupy too much time?
3. Course Objectives
   - e. g. Were appropriate objectives chosen?
     Are the objectives updated regularly?
4. Managerial Aspects of Programs
   - e. g. Are there enough materials/equipment?
     Is the student-teacher ratio appropriate?
5. Attitude Toward / Support For
   - e. g. Does the program meet the requirements of CBVE?
     What are students' attitudes toward CBVE?
     Do student prefer/like programs using CBVE?

DIRECTIONS:

1. Please read each statement carefully and determine into which of the 5 categories it best fits. Signify your choice by placing the appropriate category number on the card. For example, statements concerning Student Evaluation would be numbered 2.
2. If you feel that the statement does not fit appropriately into either of the 5 categories, signify by placing an 'X' through the statement.
3. If you feel that the statement is confusing or ambiguous place a '?' on it and indicate the part or word which you feel is most difficult to understand. If time permits it would be very much appreciated if you could suggest an alternate way in which to rephrase the statement.

If you would like to comment on any statement, please do so on either the reverse side of the card or on a separate sheet of paper including the statement number to which you are referring.

I would like to thank you in advance for your cooperation. If you require additional information or if you wish to contact me concerning any of the statements or directions, do not hesitate to telephone me at your convenience at either the Cabot Institute (778-2290) or my residence (364-7086).

John Reynolds