WORK EXPERIENCE IN RESOURCE TECHNOLOGY: AN ESSENTIAL COMPONENT OF EFFECTIVE CURRICULUM

by

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ABSTRACT

This study was designed to identify those elements and characteristics common to successful work experience programs and, based on this knowledge, to extend the current work experience model recently introduced in British Columbia. A review of selected literature over the years has shown a gradual acceptance for such programs. In this study, six recently developed work experience programs were described and the results of two national surveys of these programs summarized. This review showed that the elements and characteristics common to successful programs were: time for reflective assessment of the work experience, a collegial relationship with adults who are potential role models, a program of 18 weeks or longer in duration, and a program that is also capable of providing intensive work periods. Models for work experience programs were produced that met the criteria found in the literature and the programs reviewed. One work experience, juvenile spacing, was developed as an example of how the elements can be incorporated into a successful work experience program. The implementation of the program in a school district in British Columbia from 1979 to 1982 is described and the feedback from students and parents as to the success of the program is also reported in the paper. The implementation of work experience for other educational programs is suggested and further research in work experience is recommended.

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BACKGROUND AND STATEMENT OF THE PROBLEM

Background

It is my belief that work experience is an essential component of an effective curriculum. This belief is based on five years of teaching a Forestry 11[1] course at Rutland Senior Secondary. At its implementation, this course conformed to the school's schedules and policies, and in addition, introduced three one-day work experiences. Student performance during these work experiences demonstrated an expected low level of production, but an unexpected lack of resourcefulness, self-reliance and self-discipline. Perhaps it is unreasonable to anticipate that students taken out of the normal classroom situation where they are expected to be physically passive, to be quick to take control of a physical task. The lack of competence and production are examples of student performance that can be expected when the opportunity for personal growth and development are restricted by extended schooling.

Personal growth and development needs of students have been included in the objectives of the British Columbia school systems but are rated as secondary and primarily the responsibility of the home and community. The Administrative Handbook for Elementary and Secondary Schools of B.C. (1981) lays out the following objectives for school systems to achieve with respect to the personal growth and developmental needs of students:

a. Acquire the skills and develop the methods of making effective personal decisions.
b. Develop a realistic but positive assessment of themselves and their abilities.
c. Develop toward maturity and independence,so that they may become resourceful, self-reliant, self-disciplined and adaptive human beings.

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1 Locally developed Forestry course taught at the Grade 11 and 12 level at Rutland Senior Secondary in Kelowna, B.C. from 1979 to date.

d. Acquire the maturity, confidence and responsible independence of thought and action sufficient to sustain them and to help them meet challenges in a changing and complex world (Page 205).

I believe that these objectives may be reached through experience outside the school but with more difficulty because the work place is not organized to ease the transition into the work force. Many adults in the work force are not concerned with the new employee's personal development but leave newcomers to 'sink or swim'. Either within the curriculum or in extra-curricular activities, students who pursue such fields as music, athletics or drama may obtain a type of work experience which will contribute to their personal development. Such work experience is also necessary for a large number of students who do not participate in music, athletic or drama options. If educators wish to develop a curriculum for all students that will fulfil the secondary objectives referred to in the Administrative Handbook than it will be necessary to consider the merits of work experience. Many school districts in British Columbia include these objectives in their programs. For example:

> Saanich school district is to provide each pupil with challenging educational experiences designed to develop the self-esteem, skills, attitudes, and wisdom needed to enable the individual to take his place as a contributing, productive and responsible citizen in a changing society. (Campbell, 1982, p.2.)

One example of a program that attempts to contribute to the personal development and maturation of the student was undertaken by Noel Haynes (1982), British Columbia Institute of Technology (BCIT). Haynes offered a program called Resource Technology to the Ministry of Education at the same time that pre-career programs were being considered by the Minister of Education. Resource Technology was accepted by the Minister because it offered training in the resource industries. Resource Technology, however, differed from other pre-career courses because it allowed the teacher to closely integrate the classroom experience with work experience. This opportunity to teach to, and

reflect on the work experience contrasts with the usual procedures whereby students in career programs are dispersed to many different work sites in the community where they are visited by the supervising teacher who discusses their progress with their work supervisors.

Resource Technology appealed to me because it presented a teaching opportunity that made it possible to extend the Forestry 11 course content and to integrate this content with work experiences that would challenge the student.

Formulation of the Problem

Eliot (1965) noted the difficulty of imposing an education designed for an elite on everyone. This difficulty has increased in size and scope as the senior high school populations have increased and the mounting resistance to the continued imposition of academic courses in the final years now requires a variety of approaches to learning for a larger and more varied population of students. For example, the students of Rutland Senior Secondary School in Kelowna, B.C. come from a wide spectrum of backgrounds and have infinitely varied potential for productive employment in the work force. By inclination or association, some students will be employed in the resource industries. Most students prior to the increased societal pressure for high school graduation would have entered the work force at the end of grade ten. These students and others like them are given no opportunities in their development to identify with particular occupations - an important process of their maturation. Educators who continue to support the necessity for a general academic education have neglected to observe that society no longer provides the kind or quantity of learning experiences (apprenticeship, family business) that form the bridge for students between school and work.

My problem was to identify the elements and characteristics typical of work experience and related programs and based on this knowledge to extend the current work experience model used in this Province. It is my belief that personal growth and development can be fostered in a school-supervised work experience.

Methodology and Organization of the Study

The first step was to review appropriate literature to examine experiental education in all its forms. The next step was to develop the criteria for effective models; this was done partly by examining the following programs: Experience Based Career Education, Kaleidoscope Program, Parkway Program, Career Education, Co-op Education, Challenge Education and Vocational Education. Chapter 2 ends with the criteria for effective models. The student development, work experience and operational models are developed from the criteria and their characteristics are summarized in Chapter 3. Chapter 4 outlines a curriculum and develops one work experience as an example of the method to be used in the curriculum. The problems that must be considered in program implementation are considered in Chapter 5; in addition, interviews with parents and students are reported. Chapter 6 concludes with implications for other educational programs and further research. Appendix E outlines the data collected from an attitudinal test instrument developed by the author for screening program applicants.

Limitations

This study was based on the development of the Resource Technology Program in School District No. 33 (Chilliwack) with a view to implementing a similar program in School District No. 23 (Central Okanagan).

The number of students participating in the Resource Technology Program since its initiation in 1979 has been limited to less than eighty due to restricted class sizes.

The student attitudes expressed in the interviews and the survey must be viewed in the context of the community from which these students come. It was found that two groups make a substantial numerical contribution to the overall community - the Mennonite group in Chilliwack and the relatives of prisoners serving sentences in the nearby institutions and work camps. Although the opinions expressed and the attitudes recorded may well be found in any community, the range of attitudes in this community may be wider and more polarized.

Significance of Study

The analysis of the elements common to extracurricular and cocurricular activities of students with the Resource Technology curriculum activities does suggest the aspects of high school education that lead to personal development.

A written outline of the potential value in the work experience portion of the Resource Technology curriculum will make this program more attractive to other school districts and gradually lead to program implementation across the province.

A look at the attitudes shown in the survey given to participants in this program may lead to a higher success rate in the selection of students in the future.

Chapter 2

LITERATURE REVIEW

What knowledge do we presently have that would help us to understand the elements of work experience required in a curriculum model? This review of educational and psychological literature and educational programs has been undertaken to identify these essential elements in the maturation of the individual and his movement into the work force. The chronological presentation illustrates the evolving nature of educational views based on examples from the writings of Arnold, Dewey, Eliot, Oakshott, Ausubel, Erikson, and Gibbons, and the programs that have evolved from cultural and economic shifts. The discussion presented between each of the examples is intended to advance the argument that work experience is an essential part of effective curriculum.

The organization of the chapter illustrates the parallel streams of historical thought about the goals and purposes of education. The traditional and progressive views of the education process are examined through the views of a number of authors. The changes that occurred in the perception of a traditional general education were due in part to the increasing intrusion of science and technology into a society that found itself to be dependent on the trained artisans and the wealth produced by the industrial processes, yet a society slow to change the education of the next generation.

Re-examination of the purposes of education, accompanied by the introduction of progressive education, was necessary during the first half of the twentieth century due to increasing numbers of students with special requirements found in a more broadly-based student population. The study of adolescence and the development of a theoretical base for a possible

explanation of the needs and behaviour of young adults has produced many new programs intended to relate knowledge and experience. Six of these programs are examined in detail and comments about the diversity of these programs and other closely related programs are considered. The elements of work experience and the arguments for its inclusion are summarized in the conclusion.

Nineteenth and Early Twentieth Century Views

In this period, little agreement existed among the educational philosophers about the inclusion into the curriculum of material not considered part of the humanities. Matthew Arnold (1885), typical of those defending the humanities concludes his lecture on the "Content of a Liberal Education" with the belief.

> And therefore, to say the truth, I cannot really think that humane letters are in much actual danger of being thrust out from their leading place in education, in spite of the array of authorities against them at this moment. So long as human nature is what it is, their attractions will remain irresistible. As with Greek, so with letters generally: they will someday come, we may hope, to be studied more rationally, but they will not lose their place. What will happen will rather be that there will be crowded into education other matters besides, far too many: there will be, perhaps, a period of unsettlement and confusion and false tendency; but letters will not in the end lose their leading place. If they lose it for a time, they will get it back again. We shall be brought back to them by our wants and aspirations. And a poor humanist may possess his soul in patience, neither strive nor cry, admit the energy and brilliancy of the partisans of physical science, and their present favour with the public, to be far greater than his own, and still have a happy faith that the nature of things works silently on behalf of the studies which he loves, and that, while we shall all have to acquaint ourselves with the great results reached by modern science, and to give ourselves as much training in its disciplines as we can conveniently carry, yet the majority of men will always require humane letters; and so much the more, as they have the more and the greater results of science to relate to the need in man for conduct, and to the need in him for beauty (cited in Egan p. 34).

The supremacy of the humanities may have appeared to be at risk when Arnold made this defence of them; his acceptance of the necessity for training in modern science was the beginning of a change that had been strongly resisted by his father, Thomas Arnold, headmaster of Rugby. This love of the humanities expressed by Arnold was not under attack but as the exclusive subject of education it was being attacked on many sides by critics who saw that education in an evolving society also must change. For example, in the United States, an educational commission drafted The Cardinal Principles of Secondary Education in 1918 for the U.S. Department of the Interior, Bureau of Education under the heading "vocation" (Armentrout, 1971).

> The extent to which the secondary school should offer training for a specific vocation depends upon the vocation, the facilities that the school can acquire, and the opportunity that the pupil may have to obtain such training later. To obtain satisfactory results those proficient in that vocation should be employed as instructors and the actual conditions of the vocation should be utilized either within the high school or in cooperation with the home, farm, shop or office. Much of the pupils' time will be required to produce such efficiency (p. 62).

This comment was expressed by a committee of educators who do not share Arnold's concern for the letters, but for a rapidly increasing population of high school students preparing for participation in a dynamic American society in contrast with a relatively stable society of the United Kingdom.

George Counts (1929) in the Inglis lecture to the Harvard Graduate School of Education noted that

> the tradition of secondary education in the western world is an artistocratic tradition. Generally, the secondary school has prepared the favoured few for the privileged positions in the social order, and in some societies, such as our own, it has served as a shortcut to aristocracy for poor but gifted boys and girls. In either case attendance at this institution has carried great social prestige and has suggested to the popular mind separation of the individual from the rank and file of humanity and identification with the source of respectability and power. As long as registration in the institution was highly restricted, either by natural or artificial barriers, tradition was in harmony with the facts. But with the extraordinary

> expansion of the public school in recent years, a serious conflict has arisen. Both parents and children continue to do homage to the occupations of aristocrtic lineage and regard the high school as a means of access to these callings (pp. 62-63).

These comments underline the probable reason for the continued support that parents and students gave to the traditional academic offerings which are based on the conventionally aristocratic secondary school. However, the number of students completing high school in the United States shown in the Statistical Summary of Education for the year 1928-29 indicates that slightly more than half of the students graduated compared to the number who entered (403,000 vs. 760,000) (Armentrout, 1971). These statistics suggest that not all students and parents were certain that success would be found in the traditional curriculum or the students were discouraged from continuing by the presence of barriers, such as examinations and distance to school.

One explanation for this high drop out rate and one that is recognized by most educators is that students attending the final years of high school may have different abilities from those needed in traditional schools. Ability in the traditional school usually refers only to academic ability. Work in the school context means individual academic work and those who are less successful at this kind of work frequently have their abilities underestimated or unrecognized (Ryrie 1981). The traditional school was slowly and reluctantly coming into conflict with progressive education during the first half of this century. John Dewey (1938) believed

> Conservatives as well as radicals in education are profoundly discontented with the present educational system taken as a whole. There is at least this much agreement among intelligent persons of both schools of educational thought. The educational system must move one way or another, either backward to the intellectual and moral standards of a pre-scientific age or forward to ever greater utilization of scientific method in the development of the possibilities of growing, expanding experience (p. 89).

Traditional education and progressive education vary greatly in structure and content but both lack cohesive theory that initiates new tactics and strategy. Dewey believes that what is needed is a sound philosophy of experience but in my opinion is not able to produce one. I believe it is the task of the educational psychologist to complete a theory of learning that will do as Novak (1977) suggests:

> If we can come to understand human learning processes better and if we learn to apply this knowledge in the design of new instructional programs, education can be quantitatively and qualitatively much better than it has been. From an improved basic understanding of learning processes can come new insights for the design of improved books, lectures, computer programs, and A-V devices, better teacher education programs can emerge, and more imaginative and functional school facilities can be designed (p. 190).

The reconciliation of traditional and progressive education will surely occur when human learning processes are better understood. However a learning theory is a necessary prerequisite for the research and development of a variety of educational programs.

The section following selects contributions from developmental psychology that bear on the evolving student population and educational process.

Developmental Psychology

Erikson (1968) and Epstein (1973) see adolescence as a stage that has certain requirements for personal and cognitive development. Erikson, in particular emphasizes the student's need to establish an identity during adolescence after a period of experimentation and crisis. The implication for education is that such experimentation should occur through significant interaction with the environment and should be considered generally as experience. Erikson recommended that students should be encouraged to experiment and take risks, trying out skills and testing different selves, and

finally evaluating themselves by judging the reaction of others to these attempts to construct an identity (Erikson, 1968).

Epstein (1973) reviewed the major writings on self concept. He noted that the self concept develops out of experience, changes with it and organizes the data of experience, particularly that which involves social interaction. These views support my personal conviction that growth requires challenge, conflict and significant experience.

Erikson has also made the concept of reflection an integral part of the adolescent's time for significant experience. He states:

> They need, above all, a moratorium for the integration of identity elements ascribed in the foregoing childhood stages: only that now a larger unit, vague in its outline and yet immediate in its demands, replaces the childhood milieu - "society". A review of these elements is also a list of adolescent problems (p. 128).

Some choices and challenges Erikson (1968) sees for the adolescent to face are the need to learn to trust in oneself and others, the need to have faith in people and their ideas, the need for worthwhile service to prove oneself trustworthy, the opportunity to decide on available avenues of service, and to overcome the fear of a foolish trusting commitment or of being forced into activities in which they would feel exposed to ridicule or self-doubt. They must choose willingly to put trust in peers and elders who will give imaginative scope to aspirations and to be challenged by the desire to make something work and to make it work well that may preclude work unless it can be done with unique excellence.

These challenges and choices point out that establishing an identity is a many-faceted activity that is irrevocably intermingled with education, experience and significant people. In an essay on education, Rogers (1969) gave several general principles of learning that are consistent with his view of human nature. He stated:

> Human beings have a natural potentiality for learning. They are curious about their world, until and unless this curiosity is blunted by their experience in our educational system.... This potentiality and desire for learning, for discovery, for enlargement of knowledge and experience, can be released under suitable condions (p. 157).

Among the conditions he emphasized were relevance to the person, challenge, participation and choice in the learning process, self-initiation and self-evaluation.

The insights offered by the developmental psychologists show clearly to me that education is at risk if it fails to give the opportunity to a large number of students to develop a personal identity and deal effectively with the choices and challenges. More recently, educators have increasingly used a balance of experience, knowledge and concepts to structure new curriculae.

Recent Educational Views

The influence of progressive education can still be seen in the initiation of a variety of strategies and programs.

John Dewey in Experience and Education (1938) states:

> the quality of any experience has two aspects. There is an immediate aspect of agreeableness or disagreeableness and there is its influence upon later experiences. The first is obvious and easy to judge. The effect of an experience is not borne on its face. It sets a problem to the educator. It is his business to arrange for the kind of experiences which, while they do not repel the student; but rather engage his activities, are, nevertheless, more than immediately enjoyable since they promote having desireable future experiences (p. 27).

Arms and Denman (1974) interpret Dewey's remarks as a suggestion that there are at least two kinds of "preparation" by the student during work experience: the kind that is undertaken in the name of some future time and the kind that is contained in a particular quality of present experience. Jamieson and Lightfoot (1981) report:

> On the basis of experience, it would seem that large numbers of schools operating work experience do not place such schemes in an adequate curriculum context to maximize the potential learning gains. Pupils are rarely given assistance in focussing their observations whilst at work; rather it is generally assumed that the experience will rub off on the participants with beneficial affects. A Department of Education and Science (DES) survey (1979) found that half of the schools which offered work experience failed to find "adequate" time for preparatory and follow-up work (p. 46-47).

This failure, illustrated in this survey data, indicates a lack of understanding of the developmental requirements of the adolescent and more likely an administrative inability to set aside time and facilities. The same obstacles are probably encountered in Canada and the U.S.A. in a variety of curriculae known by such names as Challenge Education (Gibbons 1974), Cooperative Education (Mason 1977), Action Learning (Deutschlander 1977), Careers Education (Topping 1979), Experience Based Careers Education (McClure 1977), etc. These programs attempt to replace the full time job with an opportunity to examine work experience, develop an identity and consider career opportunities. Jamieson and Lightfoot (1981) estimate that one third of the schools in Britain, and one quarter of the American schools are estimated to have also developed a form of learning that takes the student away from the school (NSBA: 1975-76). In addition, many schools have prepared or adapted Career Education for the curriculum to supplement work experience (Topping, 1979). The widespread nature of these additions to the curriculum indicate the kind of solutions that educators offer to the student whose schooling objective is to obtain a certificate that permits entry into the work force.

As impressive as these opportunities may be in numbers and variety, many secondary schools reflect the traditional view of education. T.S. Eliot (1948) sees the ultimate value of education being challenged by the attempt to reach social ideals. He states his concerns:

> What we remark especially about the educational thought of the last few years, is the enthusiasm with which education has been taken up as an instrument for the realization of social ideals. It would be a pity if we overlooked the possibilities of education as a means of acquiring wisdom; if we belittled the acquisition of knowledge for the satisfaction of curiosity, without any further motive than the desire to know; and if we lost our respect for learning. So much for the purposes of education (p. 49).

The purposes of education proposed by Eliot suggest that the acquisition of wisdom and the respect for learning are to be acquired through the study of "the highest achievements of the past, in art, in wisdom, in holiness" (p. 56).

This purpose of education is still relevant to the educational aims of many in society but the inability to accept that education has also a role to play in present experience and the development of future societies is to overlook the need for increasing educational diversification in a complex society.

Michael Oakeshott (1970) states:

> The educational engagement is necessary because nobody is born a human being and because the quality of being human is not a latency which becomes an actuality in a process of 'growth'. The human newcomer is not an organism in search of an accommodation to circumstances favorable to its continued existence he is homo discens, a creature capable of learning to think, to understand and to enact himself in a world of human enactments and thus acquire a human character....
>
> What is going on in this transaction, then is not the transfer of products of earlier generations ... it is learning to perform humanly. Education is not acquiring a stock of readymade ideas, images, sentiments, beliefs, etc. - it is learning to look, to listen, to think, to feel, to imagine, to believe, to understand, to choose and to wish (p. 45).

Oakeshott goes on to define 'school' and schooling as an "initiation into an intellectual, imaginative, moral and emotional inheritance, ... an engagement to learn by study ... detachment from the immediate" (p. 45).

Oakeshott's definition of education, its purpose and nature does permit the inclusion of science and foreign languages as long as they are taught

> as an initiation into an intellectual adventure recognized as component of an inheritance of human understanding and beliefs ... consequently, education is not to be confused with that accommodation to circumstances in which a newcomer learns the latest steps in the danse macabre of wants and satisfactions and thus acquires a current value in the world. Some of these steps, the specially complicated skills and versatilities of which the Report on Higher Education speaks, have become intricate and to learn them is an exacting task. But nothing a man may learn in this respect has anything whatsoever to do with education (p. 81).

In my view, humanism is a gradually changing concept and is no more fixed rigidly in time or place or civilizations than the rigid separation and maintenance of species in Biblical analogies.

Hirst (1967) is not as rigid as Eliot or Oakeshott when he implies that the definition of liberal education is the pursuit of knowledge for the development of the rational mind. This view allows the addition of new knowledge to disciplines and specialization in the pursuit of certain aspects open to the learner without diminishing the concept. However, this immediately leads to the other concern of general or liberal education - breadth of knowledge. The maintenance of a curriculum in British Columbia containing many required subjects to grade ten illustrates adherence to the fundamental concerns of the supporters of the general education concept. The very rapid increase in the number of students in B.C. secondary schools since 1974 was made possible by a curriculum modification that reduced required subjects and opened a Pandora's Box of courses that appealed to a wide variety of interests. This practical decision allowed many students to remain within the schools for another two years effectively removed from the work force. No matter what political forces and educational reflection stimulated this restructuring of the final years in secondary school, they have created an opportunity to

maintain and initiate a wide spectrum of programs for an enlarged and varied student population.

Examples of Experience Based Career Education

Experience Based Career Education was introduced by the U.S. Office of Education in three competing models based on the home, school and employer. The home-based model was gradually transferred to the school. The employer based model was gradually dropped when it was observed that employers were not willing to accept the responsibility of continuously supervising students. The school-based model was implemented by four educational laboratories located in various parts of the U.S. The Appalachian Education Laboratory Experience Based Career Education model contains a number of elements that can be used in summarizing all models.

The elements that I have chosen for description include the following:

1. Relationship to school
2. Relationship to community
3. Nature of work
    a. Objectives
    b. Duration
    c. Relationship to learning
4. Nature of learning
    a. Objectives
    b. Assessment
5. Evaluation
    a. Methods
    b. Documentation

Appalachian Education Laboratory (McClure et al. 1977)

1. Relationship to School: This Experience Based Career Education (EBCE) is designed around the student's high school program of courses and credits. The Appalachian Education Laboratory provides a learning coordinator.

2. Relationship to Community: The students spend 70% to 80% of their time at community sites of their choice. The EBCE advisory council includes parents as well as other community figures.

3. Nature of Work: Helping tasks in hospitals, schools, offices and museums are examples of the service oriented activities.

a. Objectives - the places of work are described as learning sites. It can be assumed that the purpose of the work experience is to learn.

b. Duration - projects are short term ones.

c. Relationship to learning - the activities are designed to develop critical thinking and inquiry skills despite the content of the project. The student must plan the project, gather the data, organize and analyze the data, generalize and draw inferences and communicate the results to the coordinator.

4. Nature of Learning

a. Objectives - as above

b. Assessment - A student activity sheet is maintained that allows the learning coordinator to counsel, discuss and negotiate with students what learning will occur as well as where, when and how.

Each student is enrolled in a career planning and decision making course during each semester so each experience emphasizes self knowledge, knowledge of specific careers and generalized world of work information.

5. Evaluations

a. Methods - courses that are taken in the high school, assessment of project quality by co-ordinator and community supervisor, and on-going assessments during the projects form the basis for evaluation.

b. Documentation - a written report on a quarterly basis is provided for the parents and each student receives a graduation diploma from the home high school as well as a career education certificate.

In the 1977 Educational Resources Information Center (ERIC) Abstract, the following summary of the program is provided:

> "The first year activities of a project designed to implement the EBCE program developed by the AEL at Greely High School, Maine School Administrative District #51, are described. Assessment of student outcomes used a pre-post test design with one experimental group consisting of 28 students participating in the Cumberland EBCE program at Greely High School and two comparison groups from neighbouring Yarmouth High School. Through the use of standardized tests it was demonstrated that there are no deleterious effects on student academic performances from participation in the program. There were no ascertainable differences between the Greely-students and students in comparison groups in obtaining career education knowledge, attitudes and skills which can be clearly attributed to participation in the program. Based on the questionnaire and the interview data, the project's efforts received the endorsement of its enrollers with ten of the fourteen eligible 1977 participants re-enrolling and four returning to traditional classrooms. Of the parents of enrolled students, ninety-four percent indicated that EBCE is a worthwhile program (p. 4366).

Similar evaluations (Anderson, Drucker 1976, Edwards, Vandusseldorp 1977, Shultz 1980) made at other laboratories or schools using their programs indicate positive results.

The Kaleidoscope Program (Arms & Denman 1975)

The Kaleidoscope Program was not a school or a laboratory but a sub-contracting service proposed independently by two teachers and funded by charitable foundations. This service to schools was intended to assist schools

in the Philadelphia metro area with experience based learning for a limited number of students (interns).

1. Relationship to School: Schools paid student costs and recognized equivalency of work experience for final year students.

2. Relationship to Community: Kaleidoscope staff set up over three hundred learning sites in Philadelphia. Each site had an employer supervisor to report on project progress.

3. Nature of Work

a. Objectives - the work varied from archaeological 'digs' to guiding at the children's zoo; the content of the work was chosen by the student but did not necessarily represent a career choice nor an attempt to learn about careers.

b. Duration - the program lasted twelve weeks.

c. Relationship to Learning - the experience at the learning site was evaluated in terms of the insights and understandings that could be brought to twice weekly discussions. A product or project had to be produced.

4. Nature of Learning

a. Objectives - selection of appropriate experience for each learner that will produce a product of worth.

b. Assessment - twice weekly discussions or presentations to peer group. Individual, one-to-one discussions with the coordinator and on-site supervisor.

5. Evaluation

a. Methods - self-evaluation. Pre- and post-self assessment based on own goals to use as evaluative criteria. Periodic self-evaluations were necessary to develop perspective.

b. Documentation - three evaluations were returned to the home school -- a self-evaluation, the community site supervisor's evaluation and the coordinator's evaluation.

The Parkway Program (Philadelphia, Pennsylvania) (Bremer 1975)

1. Relationship to School: The Parkway Program was developed as the school without walls - an attempt to move students away from the school into the Institutions of the Benjamin Franklin Parkway.

2. Relationship to the Community: Over one hundred and twenty institutions and companies cooperated with the Program by providing facilities, work sites, projects and supervision. The Parkway Program was developed to help solve the problems created by a seriously overcrowded school system. The community's collective decision to become involved in a meaningful way with the students of the system rather than provide money to construct more and larger schools was a very positive statement of the relationship.

3. Nature of Work

a. Objectives - to provide a lead-in to vocation, job or career and to provide an opportunity for community service.

b. Duration - work programs are an extra, non-required component.

c. Relationship to Learning - the work component is a voluntary selection by the student who usually chooses a project from an institution or company from which he is taking a course. This association encourages the application of fact and theory in the work place and in addition may provide an opportunity to help others in community service.

4. Nature of Learning

a. Objectives - to help the student to live and learn within his present life space and to expand this life space. The students are expected to help design their own learning program.

b. Assessment - the basis of assessment is self-evaluation and, where required, examination. Projects and research work in cooperating institutions are assessed on a comment sheet prepared by the program office.

5. Evaluation Documentation: The Parkway Program issues a diploma that conforms to state requirements for secondary school graduation.

Career Preparation Program (British Columbia) (Ministry of Education 1979)

1. Relationship to School: This two-year program is designed and run within the present school facilities at any senior secondary school in the province with approximately one hundred hours to be spent at community work stations in the Grade 12 year.

2. Relationship to Community: A school district advisory committee is required to help with the work experience arrangements and in addition close liaison with an appropriate post-secondary agency is required for curriculum development and articulation with the possibility of advanced standing for successful students.

3. Nature of Work

a. Objectives - Grade 11 will concentrate upon acquiring core skills related to a particular occupational field. Grade 12 will move from the core skills acquired in Grade 11 to more specific skills related to a particular occupational field or part of it. The Grade 11 program lists the necessary skills required to become an employee as follows: safety, communications, recording, calculations and attitudes. This program allows students to study the world of work and to test actual working conditions.

b. Duration - A minimum of one hundred hours with a normal allocation of one hundred and twenty hours based on one block in an eight block timetable.

c. Relationship to Learning - The work experience confirms the skills taught in the three specialty courses. In addition, core academic courses in English, Socials and Physical Education are required but may not relate directly to the work experience.

4. Nature of Learning

a. Objectives - Work study in Grade 11 should have as one of its goals the awareness of other work possibilities. It is no real loss to a student to find out as early as Grade 11 that his occupational ambitions need redirection. In addition to the stressing of a particular occupational field, work study should also attempt to inculcate attitudes and insights to work in general. The acquisition of a core of skills which are more general than specific with respect to a particular occupational field or fields plus a ruthless adherence to standards set by good practice are objectives. Greater dedication on the part of the students to all the other subjects required for graduation and the emphasis by particular subject teachers upon the relevance of their subject to the Career Preparation Program is to be expected.

b. Assessment - Assessment of student performance during work experience will be carried out by the supervising teacher.

5. Evaluation

a. Methods - The evaluation process selected by the teacher must be given to the students early in the year and the entire program should

be evaluated by students, teachers, parents, employers and others involved.

b. Documentation - Work experience, for the purpose of credit, is incorporated into the regular course structures. Formal credit should be shown for each subject block of time in which a student is involved. Ministry directives regarding the graduation certificates should be used for the formal granting of credit.

Cooperative Education (Masan 1972)

1. Relationship to School: The Cooperative Education program requires the student to integrate classroom theory with practical work experience under which students have specific periods of attendance and specific periods of employment.

2. Relationship to Community: The student spends from 25% to 50% of his program at community work stations that are available. The employment is supervised and in many instances reimbursement is made at normal starting wages. Students may be sent to other parts of the country if suitable work sites cannot be found in the community.

3. Nature of Work: Work assignments relate to the students' field of study and/or the students' career interests.

a. Purpose - The work experience must be productive in nature and complementary to the students field of study or career interests.

b. Duration - Secondary schools use shorter periods of work (4-6 weeks) and college programs use a twelve week work period occurring seven times during the five year degree program. Other plans include half days, whole days and alternating weeks for a maximum of 80 days.

c. Relationship to Learning - Classroom learning is reinforced by job responsibilities - a realistic extension of the college laboratories.

4. Nature of Learning

a. Objectives - The two experiences, related vocational instruction and job, must be planned and supervised by school and employers, so that each contributes to the student's education.

b. Assessment - Minimum standards of performance are required by the employer for the wages paid and the educational institution may accredit or certify the experience for its degree requirements. The assessment format varies from one educational institute to the next but all usually require pertinent personal information and over-all performance ratings.

5. Evaluations

a. Methods - One subjective evaluation by the immediate supervisor for each work period plus the college coordinator's assessment of the suitability of the job placement.

b. Documentation - Written reports by immediate supervisors are maintained on the students' file and are the basis for obtaining credit for work experience.

This program has a long history in the United States; started in 1906, it has grown until it now is in several hundred schools. The program has spread into the secondary schools and university graduate programs but most of the students are in five year applied science programs.

Challenge Education

Maurice Gibbons (1974) states that secondary education programs should cultivate independence and responsibility in behaviour and formulate a source of identity based on competence. They should prepare the young to make the transition to such characteristics of adulthood as the ability to apply their competence and knowledge in useful work. This he considers to be first among several goals for young adults in the development of a life-long learning style. Gibbons sums up the position of the theorists, in my view, in his chapter on "Reversing the Dwindling Impact".

> The academic study of subjects or disciplines ... the mastery of information, concepts, procedures, processes, and skills ... is the basic model of school learning in North America and is clearly an important one. By itself, however, it has an extremely limited focus encouraging misuse ... emphasis on academic study disregards two powerful elements: concrete experience and useful productive activity. Just any experience will not do. Just as there are strategies of formal learning, so there are strategies of experience. The basic relevant qualities are appropriateness, intensity and preparation. Learning is still incomplete until productive activity is added: applying experience and studies is an activity yielding a product of work to the student. The stimulation gained from experiences and the insight developed from studies remain suspended and inert until one has learned to use it (p. 54).

A summary of challenge education programs in Canada and the United States can only indicate a wide variety of programs aimed at "reversing the dwindling impact".

1. Relationship to School: The school creates the program and supervises the student participation in the community although other agencies may participate.

2. Relationship to Community: The program attempts to place the student in the community to observe and participate for variable periods of time.

3. Nature of Work

a. Objectives - the student is stimulated to apply studies, experience, and insight to a problem or purposeful task.

b. Duration - introductory experiences one half day long are extended to periods of four to six weeks.

c. Relationship to Learning - learning and experience are integrated and applied to a task or project.

4. Nature of Learning

a. Objectives - The regular academic program that sets out the information, concepts and procedures attempts to develop the student's cognitive structure. The experiental learning compliments the academic program by providing stimulation to learn, to integrate and to produce - to make learning complete.

b. Assessment - Self assessment procedures that include journals and diaries are an important part of the assessment; however, the finished product - a report, a project, a successful trip is the most important.

5. Evaluation

a. Methods - The supervising teacher compares the student's plan with the student's product.

b. Documentation - School credit for challenge education appears in a variety of formats. If the project extends over a term and takes time equivalent to one course, then it should appear on the graduation transcript.

A Review of Two Program Assessments

The programs described above are typical of many that have used experience beyond the school to develop the student. Some programs are so widespread that national surveys have been made to evaluate their effectiveness. For example, Owens (1982) reports that over one hundred evaluation reports have been prepared that deal with EBCE findings, together with cross-project evaluations; synthesis of other evaluations, and special studies by agencies such as The Huron Institute which have focused on EBCE implementation issues. The Educational Testing Service report by Watkin and Corder (1977) of what has been learned concludes that:

> EBCE students tend to have some interest in and knowledge of a greater number of career areas than do control group students.
>
> EBCE students know more of the personal and school-related characteristics and abilities that are necessary for entry into careers of interest than do controls.
>
> EBCE students are more positive than control groups in their attitude toward career planning, feeling that they can have some control over choice of careers and can consider a variety of careers.
>
> EBCE students are better able than control groups to respond orally to interviewers' complex questions, providing answers that are to the point and brief.
>
> There is no evidence from the test of basic skills that EBCE participation has resulted in either any particular gain or loss in reading or mathematics achievement for the enrolled students.
>
> EBCE students are not significantly more consistent than control groups in choosing careers of interest that are compatible with knowledge they have of themselves.
>
> Enrolled students look upon their EBCE experiences with strong positive feelings. Nearly all students interviewed say they would enroll again in EBCE if given the opportunity. Control students are aware of this aura of good feeling, and a high majority indicate that they would like to apply again for enrollment.

The desire to enter the EBCE schools seems to come from a desire of both enrolled students and controls to be provided with the career-related features central to the model, rather than to escape from the traditional high school.

Resource persons and organizations state a strong belief in the need for a program which assists students in the transition from school to work. Parents, former students, and enrolled students agree that the career and community-related experiental opportunities provided through resource organization cooperation are the most productive and best-liked features of the program.

The EBCE experiences are seen by all respondent groups as important and useful preparation for the adult world. A consistent finding (as noted through student behaviour during the in-depth interview) associated with preparation for the adult world is that EBCE students appear to face the future with more confidence, feeling that they can have some control over their choice of careers, can consider a wider variety of careers and know more of the required characteristics for entry into a career path than do control students (p. 82).

Owens gives the ingredients for a successful program in the following four factors:

One of the most important success factors is a dedicated staff who believe in the philosophy of experimental education and enjoy serving as learning coordinators rather than as subject matter instructors.

A second factor is the presence of supportive administrators willing to "sell" the program to the community, the board of education, and other educators. These administrators have been willing to take some risks in trying new pproaches to education and have worked out the extra details required, such as student transportation into the community.

A third ingredient has been the active involvement of the youth themselves. In the initial development work at NWREL, about a half dozen students worked with the staff for a year in designing EBCE. At the other sites, EBCE students have been important in modifying the program, recruiting fellow students, and communicating the program to people in the community.

The fourth critical factor has been the freedom of staff and students to adopt or modify the EBCE model to local needs of students, school, and the community. EBCE, as a process model rather than specified content to be learned, has provided for structure in learning, flexibility for change, and a system of student and program accountability that separates it from many of the free school movements of the early 1970's (p. 88).

The key ideas itemized above effectively support the concept that adolescents who participate in EBCE find self confidence in a program with structure, flexibility and accountability.

In addition to the self-confidence generated, students' positive feelings toward the work experiences reported by the Educational Testing Service do not give specific causes but it may be assumed that the structuring of the program is partly responsible. Dedicated staff, able and willing to modify the program with strong administrative support, encourage young people to share and take a responsible part in program implementation.

The National Assessment of Experiental Education by Conrad and Hedin (1981) compared thirty programs taking place outside of the conventional classroom, where students were put into new roles featuring significant tasks with real consequences. In addition, the emphasis was on learning by doing with associated reflection. They report that:

1. Program characteristics are a more powerful predictor of over-all effectiveness than student characteristics.
2. The existence of a seminar was the most significant factor - the more frequent and regular the better.
3. Programs lasting eighteen weeks or longer were more likely to show positive change on all scales.
4. The only student characteristic which strongly contributed to program effectiveness was age, with older students more likely to show positive change.

The impact on the students was measured from pre and post tests with control groups both within and external to the Assessment in many cases.

Surveys on the effects of experience-based career and experiental education generally indicate that students in them are more able and confident to enter the world of work if the program characteristics include regular reflective time during a minimum period of eighteen weeks. The effects of the program on students seem to be more specifically, of two kinds, psychological and intellectual.

Psychological Development: While the National Assessment of experiental based education endorses the practice, there is relatively little supporting evidence to demonstrate or document the impact of these programs on the students. The test instruments that were developed or used in the National Assessment included:

1. Defining Issues Test (moral reasoning)
2. Janis-Field Feelings of Inadequacy Scale (self-esteem)
3. Rosenberg Self-Esteem Scale
4. Social and Personal Responsibility Scale (social respnsibility)
5. Three semantic differentials (attitudes toward others)
6. Owens' Career Exploration Scale (career maturity)
7. Problem Solving Inventory (intellectual development)

In addition, self reports, systematic observation, student journals and case studies were used to triangulate the data from the test results. The analysis employed t-tests of significance, analysis of variance and multiple regression.

The summary states

> Students in experiental programs increased significantly in social and personal responsibility, gained more positive attitudes toward adults and others with whom they worked, and felt more positively toward being active in the community. They also showed increased information about, and activity in exploring, careers. The data also show that such increases are not necessary and inevitable outcomes of any and all experiental programs (Conrad and Hedin. 1981 p. 193).

Intellectual Development: The data reported in this section of the National Assessment suggests that experiental education programs can and do have a positive effect on student learning and intellectual development. This is most strongly the case when the program features a combination of direct experience and formal reflection on that experience.

Characteristics of the Experience: The most powerful predictors of growth were the characteristics of the experience. Autonomy and features suggesting a collegial relationship with adults was the most productive of social development. Program features that provided the meaningful experience included the existence of a regular seminar. Of somewhat less influence was the length of the program (18 weeks or longer is better); even less influential was intensity (better if two or more hours, four or five days per week). There was a small positive relationship between age and growth on social and intellectual measures. No significant relationship was found between student growth and general type of program, grade point average or socio-economic status. Ninety-five percent of the participants in experiental programs rated their own program as either excellent (49%) or very good (46%).

This overwhelming endorsement of the experiental programs by the participants has not yet been subjected to longitudinal studies, however, the most important aspects of program success appear to be program length and in particular, the existence of planned time for reflection.

A further characteristic considered in the National Assessment has to do with modes of learning. Olson and Bruner (1974) point out that humans have three different modes available to them. They can learn through experience, through observation of models, and through symbolic systems. One of their major points is that while there are important variations within the modes, they converge as to the knowledge they specify, but they diverge as to the skills they develop. The skills used to extract the knowledge through each mode are radically different but the basic skills for learning from experience include, at minimum, those of observation, active questioning and synthesis (Conrad, 1981, Appendix B, p. 51). These skills are essential in my view if the adolescent is going to be a confident participant in the work force.

Vocational Training

In the ERIC search for other educational programs in which work experience plays a significant role, forestry and resource titles were searched without success. There is no doubt that programs of this nature exist in North America but they have not been written and edited for the educational journals. However, in Sweden, there is a well-established system of vocational training in forestry (after the termination of secondary school) for young men and women who intend to work in the forest. Most forest labourers now being employed have post-secondary school training. In addition, the largest forest owners have their own special training courses for machine operators. They also have special training courses for such activities as thinning and planting (Hagner 1980). The significance of Hagner's comments to me is found in the unquestioned assumption that academic education and vocational training are different entities that are separated in time by secondary school graduation.

Others (Counts 1929, Dewey 1938, Barrow 1981) have considered that our present culture requires more diversification in the secondary school.

In considering the implications of work experience in the secondary school it is necessary to examine the nature of vocational activity of any kind in an academic institution. Barrow's (1981) comments that follow define the limits in which vocational courses and work experience would be welcome in today's secondary school. He suggests that:

> Education is only one of the things that school should be concerned with. Most vocational courses, if not all, are probably not strictly speaking education, but that does not mean that they have no place in schools, for schooling is about more than education. Admittedly, there are dangers here; we should not want vocational courses to oust education, for instance, or to impose constraints on thinking where there should be liberation of the mind, or in any other way to get in the way or interfere with education, since this is a prime function of schooling. But surely it is emminently sensible that in bringing up our children, besides educating and socializing them, we should have an eye to their future employment; besides giving them education for its own sake, we should try to develop their talents and then to match them to likely opportunities for the sake of their livelihood and satisfaction and society's smooth functioning.
>
> Surely it is highly desireable that schools should concern themselves far more than they do now with broad questions of what those who are going to leave schools in two years time are going to do. And little harm can come of thinking in terms of broad categories such as engineering, shopkeeping, nursing and insurance or in seeking to build on specific proclivities.
>
> The dangers to be avoided are:
>
> 1. dictating the future in the name of preparing for it
> 2. providing too specific training
> 3. wasting time and resources on training that is readily available elsewhere
> 4. wasting resources on that which is essentially trivial.
>
> To train people for a trade and thereby to stamp them for a particular future occupation is a risky undertaking and is far better left to the years of apprenticeship or technical college. The secondary or high school should limit itself to concern with a range of broad vocational areas (p. 59).

This educational philosopher's view of the potential that vocational courses can offer the student does not appear to include work experience specifically but it does suggest that development of talents within certain limits is necesssary and realistic function of schooling as distinct from education. If it is assumed that academic work and vocational work are two distinctly different kinds of activity as these examples tend to show, then I propose that it is in the best interest of the school system and its supporters to provide the choices and the administrative flexibility to make them work.

Work Values

In this literature search, the words career, work and experience are often used interchangeably. The meaning of the word career is dependent on the meaning one attaches to the word "work". Work and work values are heavily influenced by the value systems of the particular society and are easily influenced by parents and peers. My experience leads me to believe that schools can help alter student work values even though they may change throughout life due largely to the influence of the social environment.

It is through work values that most individuals find meaning, direction and purpose in life. Schools are responsible for maintaining societal values and helping young people find personally meaningful values. Unfortunately, work values are undergoing change in society so it is not surprising that the work values of many youths are different from those of teachers or other adults. To define work value is difficult; it includes the sense of meeting one's human needs for feelings of self worth or self-esteem. Self worth cannot be felt without an assurance of some control over one's environment. As one acquires saleable skills, one gains more and more control over the environment

and is no longer bound to a single job and completely subject to economic forces over which one has no control. Some people further feel the need to accomplish and to be successful in material ways. A person is best known to himself and others through aspirations and accomplishments that arise out of the true meaning and role of work.

Productivity and service are facets of work that are becoming increasingly more important in our society where some people's hobbies are the work of others. We are forced to search for the reason why a particular activity is being pursued. If the individual is engaging in the activity primarily for his own personal enjoyment, with the need to serve others or make money being of little or no importance, then this is not work but a hobby or game. If on the other hand, that activity is seen by the individual as providing a service or benefits then this is work. Just because the person likes doing the activity does not change the definition. The word career can be assumed to mean work career and the experience is one that is taking place at the work site of adults.

Summary

In this analysis, we first saw that student exposure to the world of work does take place in a wide variety of programs. Second, the programs depend on the employer for work attitudes, and developing relationships with adults, but school administrators set up the conditions for student testing and experiencing of work conditions. The situation in British Columbia is different; the Career Preparation Program expects the teacher supervisor to play a more important role in this process. Third, all successful programs tend to provide work experience for a period of time that provides for the

development of self-confidence. This development occurs during reflection on the experience through class discussion, journals or diaries. Fourth, the completion of a socially useful activity or product must be a goal. These major criteria drawn from effective programs illustrate the division of responsibility between the employer and school and the possible methods of encouraging student development.

It would be reasonable to assume that the process of attitudinal development will take time and in most cases would be better developed in a program that permits close teacher supervision in a community work station. It would be better to break down the entry into the world of work into a number of steps that would be marked by increasing student responsibility and independence. This is best demonstrated in the Career Preparation model because it gradually hands over the responsibility to the student for his performance once the standards have been set. Resource Technology, one of the programs in Career Preparation, would include work experience over an extended period of two years but the experiences would be so organized that the student would be required to accept increased responsibility for work skill performance and in return would be given greater independence within the system. Chapter 3 proposes several models for the structure of Resource Technology that contain the elements of work experience required for a successful program.

Chapter 3

WORK EXPERIENCE MODELS

The purpose of this chapter is to explain the properties and structure of models of a work experience curriculum that meet the developmental requirements of young adults who expect to work in the resource industries and supporting government services. These models have been adapted to meet the restrictions imposed by the present school setting in British Columbia.

To summarize the educational philosophy of the programs outlined in Chapter 2 and to restate the developmental characteristics of young people in a concise way, I have chosen to present a definition of education by Mr. Noel Haynes (1982), originator of the British Columbia Institute of Technology (BCIT) Resource Technology Program.

> Education, properly understood, is the development of the whole person within the context of his community. Its goal must therefore be expressed in terms of the individual's increasingly effective participation in the life of the community. It recognizes that personal development includes physical, intellectual, emotional and spiritual aspects and that these develop simultaneously. We recognize that an individual's total development is the result of both formal and informal educational experiences and that the informal experiences dominate. That is, the schooling process is less significant in human development terms than the combination of family, work and social experience. Therefore, an effective educational strategy for educators would be to recognize the effectiveness of the non-formal learning process and enhance it with materials and techniques designed to continuously broaden an individual's horizons both in the area of knowledge and skills. It would recognize typical stages of 'rites of passage' in one's life experiences and provide learning experiences which effectively prepare individuals for those transition periods (Haynes 1982, p.1).

Erikson (1968) contends that growth requires challenge, conflict, and significant experience. It is the significant learning experience that prepares an individual for subsequent stages of development, particularly if the student's self-concept can be tested and developed in a supportive environment. It is my assumption that these conditions can be developed within

the present school system for each student who participa. extra-curricular or co-curricular activities. Work experience can also part of the significant learning experiences of many more students who a. moving into the world of work from secondary school. To illustrate how this experience will develop, a series of three models or diagrams are presented to show how the structures and sequences can be developed.

Student Development Model

The first model (Figure 1 - Student Development Model) shows the student at the bottom left hand corner of the triangle drawn between societal agent and teacher. The societal agent is the provider of the work site, and of the contract that sets the standard for skills and achievement. The Forest Service, as an example of a societal agent, may give guidance and evaluation directly to the teacher at the beginning of the contract, however, the evaluation role of the societal agent will require that guidance and evaluation be given directly to the student individually during and as a group at the end of the contract. The teacher is responsible for daily evaluations and guidance. The teacher is also responsible for introducing the background information and teaching the skills that make the contract successful. The teacher's skill in organizing the class, observing and correcting work procedures, encouraging skillful use of equipment and productivity, leads to student development in several ways. The experience (contract) can be analysed in the classroom to illustrate and verify the introductory and background material and the relevance of the increased personal skills and the usefulness of the contract in the total picture of the resource industry. This analysis should encourage the student to participate in future contracts and eventually to work as an independent, self-confident individual.

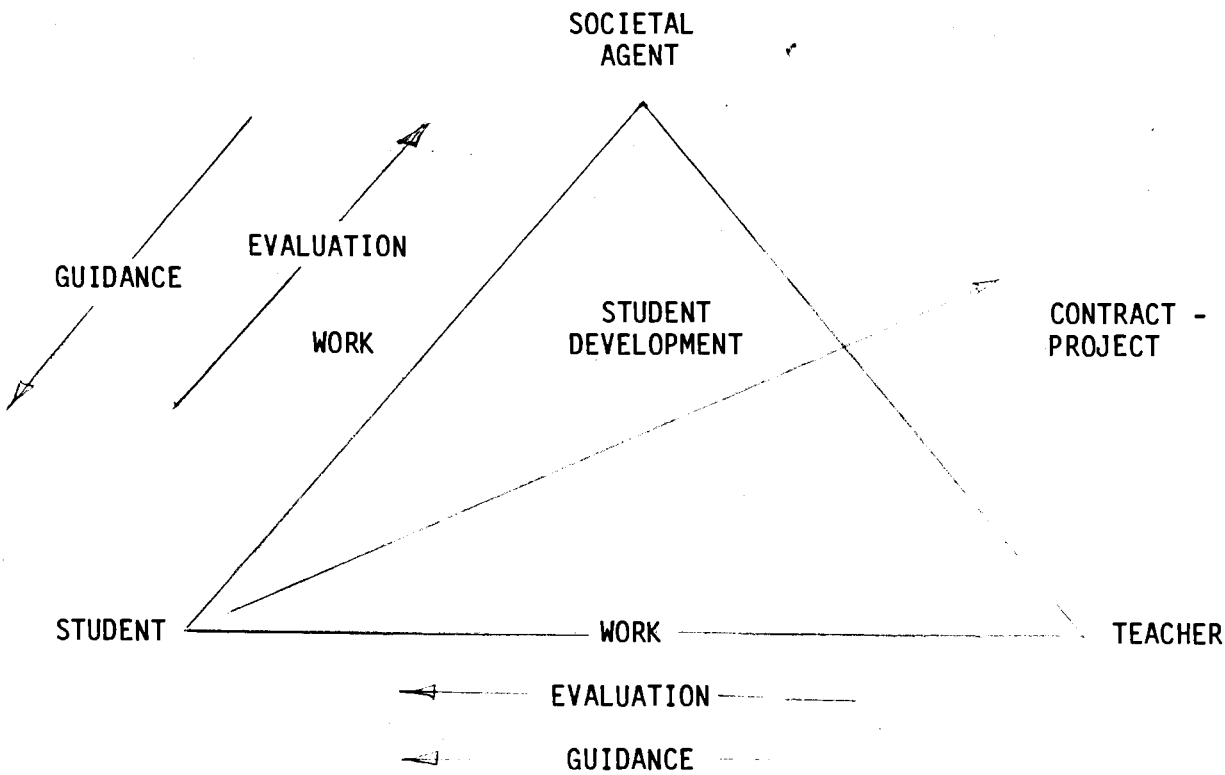


FIGURE 1

STUDENT DEVELOPMENT MODEL

In Figure 1, the line rising from the lower left of the triangle through the side of the triangle marked CONTRACT-PROJECT shows the student development increasing to the level of the Societal Agent. I believe that the Societal Agent is the role model in this diagram and the students are testing their self concept against this position and not the teacher's position. The teacher's instruction, guidance, evaluation and support is critical until the student reaches a personal level of maturation that should correspond in time with secondary school graduation and entry into the work force.

This kind of model is implied in the master-apprentice relationship that exists in other industries but has not become part of the employer-employee relations in the resource management activities of private industry or government departments in British Columbia. Many small contractors in the forest industry have trained their sons and daughters in an informal master-apprentice relationship but this relationship has not been structured purposefully to develop the youth. There are examples of purposeful teaching-learning relationships. Perhaps we should learn from the work of John Wooden (Thorp and Gallimore 1976), basketball coach from the University of California at Los Angeles, that there is room for that kind of relationship in the educational system. Wooden was studied extensively on the basketball court during his final season by Thorp and Gallimore (1976). The object of the study was to discover his teaching techniques and to see if they were adaptable to the classroom. Thorp and Gallimore report:

> perhaps the example of greatest artistry is his use of modelling. His demonstrations are rarely longer than five seconds, but they are of such clarity as to leave an image in memory much like a textbook sketch. He models with his body ... when he will whistle downplay. He promptly demonstrates the correct way to perform an act and then initiates the incorrect way the player has just performed. He then does it the right way again. This sequence is Wooden's typical pattern and appears to be an effective way of providing both feedback and discrimination training (Page 76).

This emphasis on modelling and demonstration of details has some applicability in the classroom but there are many more opportunities for its use in work experience.

Thorp and Gallimore also noted Wooden's use of scolding and praise.

> Halfway through the study we began to record the names of players to whom Wooden directed his remarks. Individual praises and scolds were about equal in number, but there was an enormous variation from man to man. Some players were mostly praised, some mostly scolded. Some got lots of both and some hardly any at all. What he said to the individuals was brief, sharply etched, and rarely interrupted the flow of action. And it was always instructive (p. 74).

This modelling style used by Wooden was intensive and related directly to the situation. This kind of modelling was initially done with a view to establishing cooperative, disciplined, effective team play but Wooden repeated the modelling, scolding and praising continuously to produce national championship teams. The comparison becomes meaningful when we compare Wooden's objective and the objectives of the British Columbia curriculum. The teacher, as coach, is possible when the student has the opportunity to perform in a meaningful way under conditions similar to those of the basketball game. The work experience situation allows the teacher to teach by modelling and increase the effectiveness of work-related behaviours. Essentially, the program is using the work experience to develop the student to a point in maturation that allows for further independent development by the student on joining the work force. The 'Rites of Passage' would be a meaningful event if it meant that the student merged with the community work force as an effective contributor on graduation.

A model that depicts this meshing of school and work must also reflect the role that the teacher has in contracting for projects. This aspect of the

learning experience strategy requires the teacher to arrange experiences of increasing difficulty to complement the student's development but to ensure that the classroom activity puts the project into perspective.

Work Experience Model

The Work Experience Model (Figure 2) illustrates the structure of Resource Technology Program at Chilliwack Senior Secondary School which is part of the school timetable. The students are in the regular core subjects during one semester and move into the program for a second semester. This arrangement permits the scheduling of instruction and contracts at the appropriate time and season without conflict with required academic courses.

The scheduling arrangements permit the selection of projects and contracts that develop the skills taught in the classroom. It also permits the flexibility of administrative arrangements that is necessary when participating in a contract that is subject to the weather, equipment failure and transportation.

The student who passes Grade 10 requirements has a broad spectrum of choice in Grade 11 but is required to take three courses at least (English 11, Social Studies 11, Physical Education 11) and in some districts or schools, Mathematics is also required. Therefore, Resource Technology students would require one semester to take three required courses plus a mathematics or science course. Semestered schools only permit a maximum of four courses in one half year consequently the program does not permit options to be taken until the Grade 12 year. In Grade 12, the requirement for English 12 only in the core subject box permits the student to select three additional courses not directly related to the Resource Technology Program. University and college

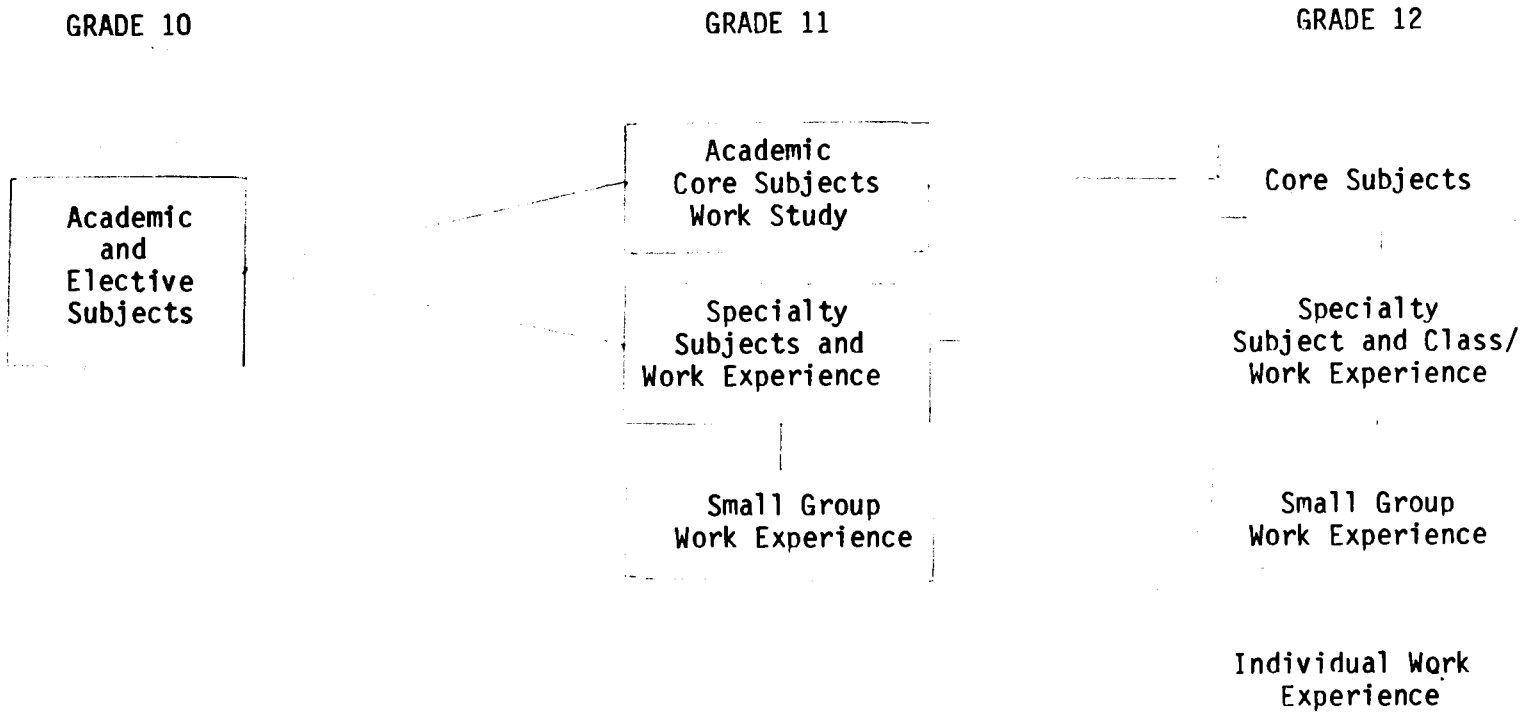


FIGURE 2

WORK EXPERIENCE MODEL

prerequisite courses, business training and shop experience are available options for students who have selected their post secondary goals.

This model permits the student who is undecided to maintain the opportunity to enroll in post secondary education for further training or to exploit a new situation. This safeguard for the student must be incorporated into all programs of this nature to permit change and prevent the student from entering a program that does not match the student's talents or expectations. It must be remembered that the key to the effectiveness of the program lies in its ability to develop the student as an individual using the resource technology material and work situations. The data produced from the experiental programs and the experience based career education (EBCE) consistently report the student satisfaction associated with learning at the work station and lack of negative effect on basic academic skills.

The sequence of the model indicates that the student is to be taught about work experience in Grade 11, particularly in the area of safety. The demonstration and repetition will occur in the classroom and on class projects. Workers' Compensation Board inspectors are required to monitor the effectiveness of the safety training and to reinforce the necessity of thinking about safety before acting.

Other aspects of work experience that are taught include the "buddy system" where students assume some responsibility for the safety of their working partner. Equipment care and maintenance is taught in the classroom and practised on the projects.

Small group projects within the larger class project are created to increase the opportunity for exercising resourceful responsible behaviour. The planning and strategies developed by the supervising teachers to include these

opportunities in both the Grade 11 and Grade 12 years are intended to prepare the student for an individual experience or apprenticeship during the final weeks of Grade 12.

The Work Experience Model (Figure 2) shows the separation of core, special courses and work experience. However, the model fails to illustrate the strength of the special courses in their application of core material to the work experience and projects. Written project assessments, marked by the teacher for content and structure, mathematical calculations, and science concept applications are examples of the interaction and application of content from academic courses to the work experience.

Operational Model

Taking the structure of the Resource Technology Program into the community requires a third and final model (Figure 3) to illustrate the relationships. The many groups who have a special interest in and responsibility for forest resources can play a guiding and supportive role at both the Provincial Government level and the local school board level. Their representatives can shape the Ministry of Education policy and support this policy by providing projects and work experience. The central place in the model has been given to BCIT as the originator and coordinator of the program but the cooperative interaction of all aspects of this web are necessary to ensure that there is continuity of support and cooperation between the provincial and local advisors.

This program does not take work away from the union worker by placing students on the site but it permits the creation of a student project or contract site that parallels, and in most respects equals, the union work site.

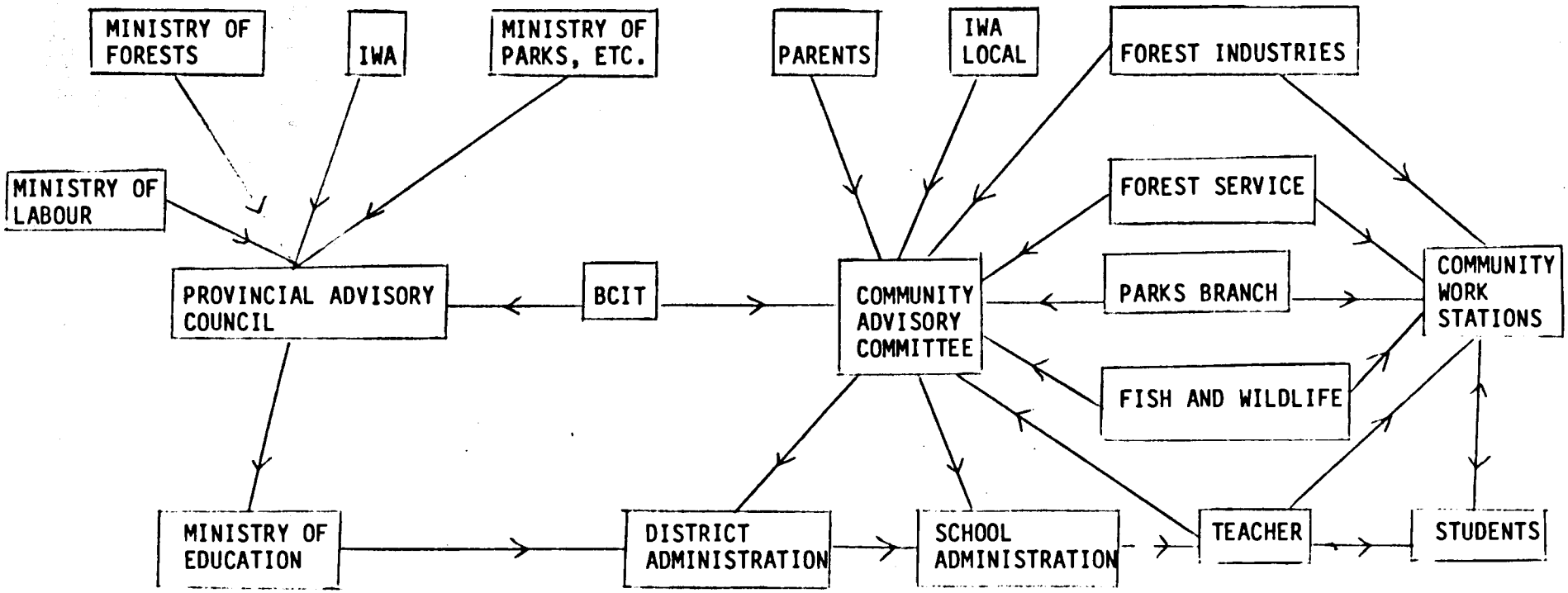


FIGURE 3

OPERATIONAL MODEL

RESOURCE TECHNOLOGY

Interested parents can participate through a Community Advisory Committee. They are a source of feedback to the committee and to the teacher that tends to strengthen the program. The teacher's presence on the committee is also necessary to increase the sources of information available for committee decision making. The teacher's view of the program and the capabilities of the students will tend to balance the views of other adults who may, for example, over or underestimate the learning value and work required in any given project or contract. The membership of the committee will vary according to the major industries, union locals and government activity in the community and the enthusiasm of their representatives.

The Resource Tech Program in Chilliwack is strongly suported by the B.C. Forest Service and the Parks Branch. Carradice (1983), the B.C. Forest Service District Manager, considers the extra time and effort required by his staff to select and arrange projects and contracts suitable for the program are obligations that he must fulfill for the next generation. He has developed this view over the years while he has been associated with the Forest Service Training Programs and has provided consistent encouragement and opportunities to try new projects.

To summarize, the more important characteristics of all three models developed to implement work experience as an effective component of the Resource Technology Curriculum are:

1. The work experience should take place in the community at a work station but time must be provided in the classroom and on the site for reflective assessment by the student.

2. The work experience should be a real project that represents adult work in the community. The proper equipment and clothing should be worn to reinforce adult status associated with the project.
3. Teachers and members of the community should provide role models for skill development as well as attitudinal development toward work.
4. The strategy for arranging work experience must allow for the development and application of competence based on work skills. In addition, the strategy must arrange experiences to cultivate independence and responsibility in behaviour. For example, the operation of a chain saw would be followed by an extensive period of thinning using the saw to reach the required level of skill. This work experience would make the student responsible for decisions about cutting and for the safety of other students working nearby.
5. The program developed from the model should require a personal commitment from the student. The commitment could take the form of a performance contract but other forms necessary for handling equipment costs and school district legal obligations may suffice to create a commitment to participate fully. In exchange for this commitment, the school should not guarantee a job but make every effort to place students after graduation.
6. The work experience is of greater benefit to the student if it occurs after general education requirements have been met but before entering the work force - during the transition years of Grade 11 and 12.
7. The model must have an administrative structure that meshes with the home school. The academic core subjects required for high school graduation can be integrated with the program if teachers (counsellors, administrators) are available between projects and contracts. If students

must be integrated into regular classes, the best arrangements can be made by reserving one semester for core subjects and one semester for Resource Technology.

In addition to these points, it is strongly recommended that the selection of students from volunteers occur at a time when the model would be a logical alternative for students who do not wish to continue on a primarily academic study model. It is recommended that the students remain with their peers who are not in the program while taking core subjects, in order to maintain their social contacts. Also it is assumed that the specialty subjects will be taught primarily in the home secondary school (Soet, 1983).

One particular aspect of the first model was the use of adults as role models for students. It was clear during interviews with Chilliwack students in the program and Kelowna students in other programs such as music, drama and athletics that almost every student had and still has a person who is consciously or unconsciously his role model. In a few cases, the teacher's role was mentioned not as one of the roles that the student wanted to fill, but as a role for adult behaviour that the student admired and wished to follow.

The operational model is based on the present organization of the Resource Technology Program as it exists at Chilliwack Senior Secondary, Chilliwack, British Columbia. The model contains a number of minor additions to the committees that have been added for completeness or as required by Career Preparation guidelines. This model permits the community to participate in the development and management at two levels in society. The community work stations provide the most important contact, however, between society and the student. This kind of model can only exist with the financial support and guidelines provided by the Provincial Government Ministries, particularly the Ministry of Education.

Chapter 4

CURRICULUM

The characteristics of the models presented in Chapter 3 show the elements required for a successful work experience program. This chapter will use these elements to develop a Resource Technology Program.

First, the elements are listed, then the goals of the program are discussed; followed by a table of possible work experiences. Next, an example of one work experience to illustrate structure and content will be given including a lesson on one of the skills needed within the work experience to illustrate the teaching method (see Appendix A). Finally, the ongoing components of the curriculum will be presented.

Elements

The following elements are summarized from the previous chapter:

1. Program location will be at community work station and in the classroom.
2. Time will be required for reflective assessment.
3. The work experience will be a real project.
4. Proper equipment will be worn to reinforce adult status.
5. Teachers and members of the community will act as role models for skill and attitude development.
6. Competence will be based on work skills.
7. Work skills will be developed to production level.
8. Students will make decisions during work experience that will develop their independence and responsibility.
9. The student must make a personal commitment in exchange for a potentially useful social role.

Goals

The students who graduate from Resource Technology must have a number of qualifications. First, they must have the required courses for secondary school graduation. Second, they must have the necessary skills for employment in the resource industries and third, they should have the course work necessary to enter BCIT Forest Resources Program or a local college. The first goal reflects the objectives of the school and society in that this outcome gives the student access to employment and further education - a major consideration of parents and students. A second goal is the students' personal development, particularly the acquisition of a realistic but positive self-assessment of their abilities, but also development toward maturity and independence; hopefully these will help them become resourceful, self-reliant, self-disciplined, and adaptive. The third goal requires the development of skills, concepts and knowledge necessary to qualify for entry into the resource industries. These goals are of equal importance and must be balanced in the curriculum.

The first goal - secondary school graduation - implies that the students, depending on their ability, must be able to select the courses appropriate to their career goals. For example, students in Grade 11 after one semester of Resource Technology must select English 11, Social Studies 11 and Physical Education 11. One other course such as Algebra 11 or Biology 11 is recommended. Both can be taken if Physical Education 11 is postponed until Grade 12. Since English 12 is the only required course in addition to the four Resource Technology courses that are numbered 12, options are available that include Algebra 12 and any other two courses.

The second goal contains the objectives necessary for personal development. An examination of the elements extracted from successful programs show that the behavioral objectives are reached through the activity pursued and reflection on the work experience. Therefore, the behavioral objectives are:

1. Manual skill development to the production level
2. Development of safety awareness with people, tools and equipment
3. Development of responsibility by meeting task assignment, criteria and deadlines
4. Development of personal habits of self-reliance through punctuality, and maintenance of clothing and equipment.
5. Development of resourcefulness through problem solving such as chain saw repair
6. Development of a realistic, positive self assessment by successfully accomplishing larger and more complex projects and contracts under different environmental conditions.

These behavioral objectives can be identified and the degree of success of each student in meeting the behavioral objectives should be apparent to the teacher. Encouragement from other students as well as the teacher helps to create a group spirit in which reaching the behavioral objectives becomes easier for some students.

The third goal requires the development of the skills, concepts and knowledge necessary to qualify for entry into the resource industries. These objectives are more diverse

1. Identification of commercial tree species by bark cones, needles or leaves

2. Identification of ecological groupings of trees, shrubs and plants found locally
3. Measurement of trees and land survey
4. Sampling techniques using, for example, timber inventories, regeneration cruises and survival surveys
5. Silvicultural requirements for planting, thinning and harvesting commercial tree species
6. Maintenance and repair of small gasoline engines
7. Correct use of hand tools - axe, saws, mattocks - used in fire control
8. Identification of important insects and fungi diseases in commercial species
9. Basic first aid and survival training
10. Record keeping of collected measurements, counts, etc.

The skills, concepts and knowledge for each project are integrated so that the student is aware of the background that produces the reason for the project. Skill development is necessary for the project completion and reflection is necessary for class and student weighing of the results.

Organization of Work Experience

The work experience will consist of projects and contracts. The difference between the two kinds of work experience focuses on the willingness of the contracting agency to offer the students tasks which are the responsibility of technically trained personnel. For example, if we considered timber inventory cruising necessary experience because it gave the opportunity to practise measuring skills, we would not expect the forestry department of

any agency to accept the results due to the specialized decision-making and experience that is necessary. Therefore, this would be undertaken as a project by the class in an area that had been cruised recently in order to compare results.

Example of Work Experience

Juvenile spacing is the removal of undesired species and defective trees in younger, crowded stands to permit the faster growth (release) of the remaining commercial tree species. Juvenile spacing combines many of the objectives of Resource Technology in a way that demonstrates the elements of successful experiental programs. Detailed learning outcomes are listed below to show clearly how the student would be evaluated during and after a juvenile spacing contract.

1. Operates chain saw properly
2. Use accurate felling techniques
3. Follows safety procedures
4. Handles fuel in a safe manner
5. Demonstrates a knowledge of tree growth and the effect of thinning
6. Is able to explain sampling techniques
7. Is able to identify tree species of local area by bark alone
8. Is able to identify ten tree defects
9. Understands the need for job organization
10. Works to production level consistently after introductory period

Table 1

Examples of Possible Work Experiences

GRADE ELEVEN

Projects	Contracts
a. Stream clearance	a. Cone collecting
b. Timber inventory cruise	b. Trail making
c. Regeneration cruise	c. Campsite construction
d. Survival survey	d. Thinning
e. Thinning	e. Juvenile spacing
Other Activities	f. Planting
a. Basic first-aid (St. John's Ambulance)	
b. Small engine maintenance and repair	
c. Tool maintenance and repair	
d. Forest protection - fire, insects and disease	
e. Survival training	

GRADE TWELVE

Projects	Contracts
a. Chaining and mapping	a. Juvenile spacing
b. Thinning	b. Thinning
c. Seed Orchard	c. Planting
Other Activities	d. Campsite construction
a Scaling	
b. Industrial first-aid	
c. Air photo reading	
d. Field trips	

The juvenile spacing of young trees, then, is going to be used as an example of one contract that could be considered as a typical example of the kind of experience that can be provided by the Ministry of Forests. This experience has been written in detail to show the necessary relationship between concrete activities and student development. The objectives of this work experience are the elements found in the characteristics of successful programs previously outlined in Chapter 3 and in particular "to develop a realistic but positive assessment of themselves and their abilities" and "develop toward maturity and independence, so that they may become resourceful, self-reliant, self-disciplined, and adaptive human beings". It is the self-confidence that is generated in successfully doing a difficult job, I believe, that is the underlying reason for the high rating that students give to work experience. On the assumption that a successful experience generates realistic and positive self assessments by making the students exercise self-discipline, self-reliance and resourcefulness, I fully support all types of work experience, including experience in sports, music and drama. Work experience is a vehicle that can allow the student to prepare for work without leaving the school system. While it can also illustrate very clearly the strong ties between theory and practice, for students and parents with a more limited view, it also provides basic skills that would be usful in the resource industries. The learning outcomes for juvenile spacing and their relationship to the elements required for student development are discussed on the following pages.

Chain saw operation: In addition to the manual skills required to hold, fuel, start, maintain, and sharpen the saw, taught in previous classes, the student will be taught the skills of falling as they are set down in the Fallers' and Buckers' Handbook (see lesson - Appendix A).

Safety procedures: Rules of safety require that the proper clothing and protective equipment will be supplied to the students to wear while using the chain saws. For example, on joining the program, the following items will be supplied:

a. Hardhat with hearing protectors
b. Eye protection } combined
c. Calk-soled boots
d. Leg protection (Fallers' pants)
e. Suspenders
f. Gloves
g. Whistle
h. Pressure bandage
i. Rain gear (pants, jacket and hood)
j. Ignition screw driver and plug wrench

The cost of these items will be recovered by the school board from the student's share of the contract monies (See Appendix B).

Correct storing, handling and mixing of oil and gasoline: The necessity of allowing the equipment to cool before refueling, and restarting away from the refueling point to prevent fire will be additional safety skills.

The student's knowledge of tree growth: Growth, stand composition, ages, and the optimum stand density for the contract area must be taught and demonstrated.

The use of the increment borer for obtaining tree ages can be taught and practised on field trips to see examples of the increase in tree growth after spacing (called tree release) by observing the increasing thickness of the annual growth increment. Similarly, the density in stems per hectare and spacing between trees in meters can be compared to establish optimum distances. The effect of growth stagnation on stand rotation ages can be predicted for a variety of sites. The student should be aware before and during the contract, that the selected distance between trees (4 to 8 meters) will produce a lowered rotation age for high quality merchantable trees. The selected species such as Douglas Fir, Spruce, Balsam Fir and Pine are valuable lumber and pulping species that are capable of rapid growth if released before approximately 35 years.

Survey techniques: The student is required to understand the concept of sampling at regular intervals throughout the stand in order to establish the size and complexity of the contract. It must be assumed that this would be done by the Forest Service prior to setting up the contract but this concept must be taught and reviewed due to its applicability in a variety of other contract situations.

Species identification: This must be a well developed skill by this stage. In particular the species must be identified by their juvenile bark and little else. The density of the canopy does not usually permit needle or cone identification.

Tree defects: Defects arising from scarring, mistletoe, sweep, and spiral grain are difficult to see in a crowded canopy but the student must be aware of the possible defects and their effect on lumber quantity and quality.

The job organization: The students must be aware of the layout of the cutting face and their position on it. It is necessary to establish the

boundary of their cutting strip and the responsibility that they have for the students working on either side of their strip. A contract may call for girdling some species with the chain saw and felling other species. In any event, the falling pattern must be consistent in each strip but joint decisions must be made on trees at the boundary between strips. Competition between students may create an irregular cutting face with some students much farther ahead than others. One solution to this potential danger is to assign strips to students based on previous work experience to match ability and stamina, to create a separate cutting face for students with markedly different production rates. The location of first aid and communication equipment should be known to everyone. The immediate first actions in case of an accident, should be taught; to alert the teacher, get first aid, and organize a stretcher path to the bus/ambulance.

Production and quality goals: Goals for the contract can be established from the terms of the contract, the width of the cutting strip and the number of students available. It is recommended that students be made aware of the production expectations on a daily basis in order to meet a target completion date. The quality of work must be maintained by the quick demonstration of the wrong and right way, using the scold and praise methods used by John Wooden. Students must learn to handle the chain saw properly to prevent saw kick back, to produce low stumps, to completely girdle deciduous trees (alder, maple, birch, poplar), to select and fell damaged or diseased trees, and to judge spacing distance accurately.

Above all, the objective of this and all work experience in this program is student development. It is apparent in the literature and in the comments of students that the application of learning to the production level develops

self-confidence, a positive self-assessment, self-reliance, self-discipline and eventually maturity and independence.

The last 'in class' lesson prior to starting the contract should be visited briefly by a representative from the contracting agency to reinforce the teacher's outline of the need for the contract and the desired results. This meeting will remove any doubt about the validity of the contract and its value, and will reinforce the quality production objectives of the teacher. At the same time, it places the teacher in the role of a person who will help the class reach its objective - a successfully completed contract. This action tends to unite the group and helps to create an esprit de corps that produces good working attitudes.

Ongoing Components: The marking of cut strips can be done on the first day with tape tied to the trees along the boundaries. This individual strip marking can continue for a few days until the strip width of 25 to 35 meters can be maintained by individual student judgment from a clearly marked right hand boundary. The tree spacing judgment may be assisted at the beginning by having each student cut a spacing pole or bring a tape to check their cutting distances. An evaluation of each student's work at the beginning of the cutting followed by another check within the hour is critical to get the contract off to a smooth start.

Also on the first day the fueling and refueling of the chain-saws will be reviewed and a site will be chosen away from the slash for this purpose. The timing of refueling and the route to the refueling site should be established before cutting starts to prevent the crossing of cut strips while cutting is in progress.

A 'buddy system' should be established with each student responsible for the safety of the person on his right; that person will probably be working most of the time with his back to the person on his left. This system helps to maintain a safe working distance and assigns responsibility to the person on the left. It also makes it possible for the cutter to fulfil this responsibility more effectively by assigning him one direction only to watch. In addition, when the backcut is being made, the cutting stance will put the student in a position where he will face his 'buddy'. This system is necessary because chain saw noise and ear protectors make warning shouts and other signals ineffective.

Serious production thinning should not occur until a practice session has made it possible for the teacher to correct errors in cutting techniques and demonstrate the correct method. This coaching must continue until a high standard is reached and production can follow. Each student's production and quality of work must be formally evaluated each day. This evaluation may be discussed and negotiated if necessary. This evaluation gives the teacher the opportunity to provide daily feedback on performance and may lead to informal discussion about the causes of poor performance. The evaluation also decides the allocation of contract money. The teacher assigns a mark for the day's work based on quality and production, equipment conditions, safety and co-operation. These marks, when added up over the length of the contract, indicate each student's share. For example, a student over a fifteen day period may receive a total of 120 marks. If the class total came to 2,150 marks that student's share would be established as 120/2150 X (contract minus contractor costs). This money could be used to pay for their equipment or a portion could be paid in cash. The same marks are also used to establish letter grades for the Resource Technology subjects listed on the school report

card as Forestry 11A, B, C or D. This provides an opportunity that rarely occurs in the school system - to equate marks and income. This income does not directly relate to the hourly rate of a full-time thinner due to the time taken to reach production level. This payment gives the student a taste of the benefits that come from working and reinforces the objectives of the program.

A useful reinforcement would be obtained from an early visit of the Forest Service supervisor to check the quality of work. The Workers' Compensation Board Inspector is a necessary visitor to check safety procedures and the work layout. The reports or comments of these people can be used in a number of ways.

1. To maintain the confidence of the school board and other contracting agencies in the community.
2. As a discussion point with the class, if the inspector does not wish to speak directly to the class. Points of criticism and praise can be passed on at the appropriate time.
3. To advise the parents and members of the Community Advisory Committee of the effectiveness of safety training.
4. To stress the safety orientation of the program among prospective employers.

Therefore, the work experience allows a teacher to introduce theory and practical application, a series of small, concrete operations that involve a number of minor skills. If these skills are learned well and used repeatedly until they provide the confidence the student needs to develop as a young adult, the work experience aspect of the Resource Technology Program will have reached the Ministry of Education objectives. The step-by-step introduction and practising of minor skills, co-ordinated with safety and background information, provides an excellent teaching/learning/self-development experience.

Summary

This chapter has defined the three Resource Technology Program goals, described the behavioural objectives and the learning outcomes for juvenile spacing. The elements listed at the beginning of the chapter can be related to the goals, objectives and learning outcomes in the following ways:

1. The location of this juvenile spacing contract was selected by the Forest Service in an area that had been surveyed and found to require this silvicultural treatment. The class preparation for the contract took place in the school and any further review or discussion of safety or work goals should take place on the site. The site, located on Crown land, is a public place but probably isolated from most traffic. Since this is a normal condition in B.C. forests, it is reasonable to call this kind of site a community work station.

2. The time required for reflective assessment should occur at least three times during the contract. First, during the early part of the practice period; second, during the production period preferably at the end of the second week and finally when the contract has been completed the reflection should occur in the classroom.

3. Juvenile spacing is a real, necessary silvicultural project that will produce more, higher-quality forest products at a faster rate.

4. The protective equipment required by students is identical to the equipment used by loggers. The equipment specifications are part of the regulations enforced by the Workers' Compensation Board. In addition, the equipment is owned by the student and its cost is paid by the student through this kind of contract.

5. The presentation of the falling lesson and the follow-up demonstrations by the teacher give him/her the opportunity to act as role models

for skill development and attitude development. If it is possible, this role should be shared with members of the community who are skilled fallers.

6. The evaluation of the students would include, among others, their competence in many aspects including the accuracy of felling, maintaining minimum stump heights, defective tree identification and removal, accuracy of tree spacing, correct choice of species for removal, cooperation and coordination with buddy, chain saw handling and safety practices.

7. The forested area assigned in the contract would be sufficiently large to guarantee a minimum of three weeks work to develop the level of competence required for production efficiency. It is assumed that most students have the ability to fulfil production goals during the third week and in so doing, succesfully complete the contract.

8. The work experience requires decision-making about many steps in the process. Juvenile spacing requires tree selection decisions, cutting decisions, spacing decisions and the assumption of responsibility for production and safety of fellow students.

9. A personal commitment to learn, develop, and produce in the work experience and, in particular to keep trying when the physical conditions become difficult. This commitment may be partly based on the formal arrangements and papersigning at the beginning of the program and be developed through class loyalty. However, the justification for the commitment most widely accepted by parents and students, is the prospect of obtaining a useful, interesting social role after graduation.

Chapter 5

IMPLEMENTATION AND FEEDBACK

This chapter describes the implementation of the Resource Technology Program in School District No. 33 since the program started in September 1979. Many of the implementation details are presented and discussed followed by a summary of the interviews with fifteen students who graduated in 1982 and 1983. A final discussion in Chapter 6 summarizes what has appeared in the thesis and shows the significance of work experience in Resource Technology.

Background

The Resource Technology Program concept was developed by Noel Haynes at the British Columbia Institute of Technology based on his philosophy of education given in Chapter 3. The program was presented to the Ministry of Education for consideration at the same time as Career Education was being developed. The acceptance of Resource Technology by the Ministry and the organization of the Provincial Advisory Council did not guarantee that the program would be implemented; however two districts, Kamloops and Chilliwack, decided to implement the program with the assistance of BCIT and funding under the Careers Program.

Resource Technology was started as a District Program in School District No. 33 (Chilliwack) in September 1979 with one teacher and twelve students who were starting Grade 10 at Rosedale Junior Secondary. The Resource Technology subjects were integrated with the academic subjects and were taught by the same teacher. The following year, a second teacher and twelve more students were added when the program moved to Sardis Secondary School. The third year, the program again moved to the Senior Secondary School in Chilliwack leaving behind a number of students who did not wish to leave their school and friends who

were not in the program. At this point the program took its present form - a semester of Resource Technology and a semester of academic subjects taught by staff members. This allows the two Resource Technology teachers to spend their time completely with the Grade 11 class in the fall semester and the Grade 12 class in the spring semester.

The program has been assigned a small classroom in the Chilliwack Senior Secondary School and a storage area for chain saws and equipment in the metal workshop. In addition, the program has been assigned a regular forty-five passenger bus for transportation to the field. This bus has been converted so that it has first-aid facilities equivalent to an ambulance with additional space for equipment storage.

Implementation

The implementation of the program, in any district, requires a number of steps to develop the cooperation of the community resources and school district staff. Many of the following steps were used in Chilliwack during 1978-79 to start the Resource Technology Program.

The first proposal for the Resource Technology Program can come from a teacher who is interested in this type of program or from BCIT directly. The presentation may be an informal meeting to discuss the thrust of the program and to establish the program's priority among other educational concerns of the district staff. Further clarification of administrative problems that are inherent in the program must be resolved and one school must be selected for program implementation. The principal and the majority of staff of this school must be in agreement with the Resource Technology Program before a formal presentation is made to the school board.

The school board presentation (Appendix C) should be a formal occasion that takes place only after each member of the board has been supplied with all the pertinent information required to understand the objectives, administration and funding (Appendix D) of the Resource Technology Program. This presentation should be conducted by the superintendent or the staff member responsible for the curriculum with the help of a short (15 minute) slide show and a question period handled by a BCIT staff member. It is advisable to contact board members informally to answer questions that may arise from the written program outline before the formal presentation.

Board acceptance should also make it possible to invite members of the community who have been previously contacted to become members of the Community Advsiory Committee. The selection of one member of the board to liaise with the Committee may help to initiate and maintain a good working relationship.

The Community Advisory Committee shown on the Operational Model (Figure 3) contains representatives of government agencies, union (IWA), and private companies, in addition to parents and administrators. Their purpose is to alert the community to the program's existence and pave the way for project and contract creation. Money is allocated under the Career Program for special funding that will permit the school district to contract for the services of BCIT staff. This contract could require the BCIT staff member to act as chairperson of the Community Advisory Committee, assist at the presentation of the proposal to the school board, and provide technical advice for equipment purchases. When the program is underway, further advice to the Committee and instruction in specialized forest technology for the students can be provided.

The selection of a teacher for the first year of the program must be made sufficiently early in the calendar year (April - May) to permit teacher recruiting and selection of Grade 10 students. The school board should be

prepared to hire a suitable person with extensive woods experience to demonstrate and supervise many of the practical skills that form the basis of the work experience.

The selection of students for the program in Chilliwack has been based on the student's own record of outdoor activities and work experience. Academic success and counsellor recommendations have not been given as much weight. The experience of the teacher in Kamloops indicated a need for a screening device that would assist in portraying the student attitude to work. An attitude scale was developed by the author (Appendix E) and administered to the Grade 11 class in September 1982 and January 1983. A comparison of the data obtained on these two occasions from this Resource Technology class with Grade 11 students not in the program reveals a strong continuing preference for outdoor activity and a positive attitude toward work.

An analysis of the data indicates that students developed their positive attitude toward outdoor work before coming into the program and maintained this attitude through the first semester. Their positive attitude toward work as calculated by the attitude survey also showed a similar consistency. It is desireable to select some students with a positive work attitude to get the program off to a good start but it is also necessary to include students who can benefit from the program. An attitude scale can help balance the student selection for optimum results. When the attitude scale was compared with work experience marks, the predictive validity of the attitude scale was found to be quite low (.147). It is believed that with further refinement the attitude scale could be improved sufficiently to warrant its use as a screening instrument.

Sources of Resistance

The quasi-legal agreements that must be made between the student, parent/guardian and school board about responsibility for equipment payments and accidents are attached as Appendices B and F. The legal status of the agreements have not been tested in court to the author's knowledge and consequently, there is some concern in this area. The Workers' Compensation Board by Order-in-Council 3147 (September 27, 1974) deem the students for the purpose of the Compensation Act to be workers of the Crown and eligible for benefits.

The British Columbia Teachers' Federation does not support Career Education Program (Appendix G) as presented and have pointed out the ambiguities, contradictions and problems. Although the Ministry attempts to distinguish between Vocational and Career Education, it has been my experience when discussing the work experience concept with some colleagues and administators, that they do not accept the reasoning or the examples of experiental education because they have already prejudged the circumstances and classified Resource Technology as another vocational program. The curriculum of a vocational program narrows the choices to concentrate on topics relevant to the vocation. In the Resource Technology Program, by contrast, work experience has the highest priority because its objective is student development. The concrete skills necessary to make the work experience feasible are seen by other educators as vocational skills but they are not aware that they are secondary to the work experience objective - student development.

It has been generously estimated by my colleagues that 35% of the students in the secondary school system do participate in the equivalent to work experience (athletics, music and drama); the remaining 65% do not participate

in these developmental experiences and cannot do so except through the career program. The criticisms of the secondary education system have many origins but most often arise from the poor performance of students who have not developed while taking the present academic or vocational curriculae. It is not intended that work experience in Resource Technology will be any more than a very effective solution for a selected group of students who are prepared to work outdoors.

To overcome the resistance based on the misunderstanding or the indifference of colleagues and administrators, requires patience and persistence. My experience indicates that a teacher has to develop a reputation of integrity in a closely related teaching area before a teacher-initiated proposal for this program would be considered by district administrators. If the superintendent or a principal made the proposal and initiated the program, patience and persistance would still be necessary to protect the reputations of the initiators. To start this program involves risk-taking, so implementation procedures must be clearly focused on the objectives. The selection of the teacher, facilities and students cannot be left to disinterested individuals in the district who do not share the same goals.

It is assumed that this program will draw students from district schools with teaching staff who do not share the same goals as the program initiators. The assumption that this program will draw students from the whole district makes it necessary for the district staff to prepare implementation proposals. These proposals for implementation must be organized early in the school year prior to program commencement. Principals and counsellors of the district have to be informed about a possible loss of students to the program. This item by itself may be sufficient to reduce cooperation if the school staffing levels

are in danger from declining enrollments. To overcome this difficulty, the teacher responsible for the program should be actively recruiting in April and May in order to establish a direct link to the Grade 10 student. Further meetings with students and parents to establish expectations and requirements would be necessary in June.

Summary

The implementation of Resource Technology has been made more acceptable to school boards by the generous funding of the Career Program and at the same time, opposition has developed on educational grounds to the Career Program. The Resource Technology program must be well presented to every group concerned with the implementation but in particular, it must be well presented directly to the student. The Community Advisory Committee must be developed to support the program and provide projects and contracts that will stimulate student development. The administrative staff within the school and district office must be committed to program goals and be prepared to support the program and the teachers with facilities and equipment.

Interviews

Students from the Resource Technology program, who had graduated from the program in 1982 and 1983 were interviewed by the author. Students who were starting or halfway through the program were only asked to complete the work attitude sheet. However, the members of the two classes who were interviewed gave clear and direct support for the work experience part of the program.

Method

In the summer of 1982, tape recorded interviews were obtained from three students and two sets of parents. From these open-ended discussions, a question sheet was drafted using the interview guide in Borg and Gall (1979). The interview sheet was structured but included opportunities to probe more deeply and relate the questions to the total experience (Appendix H).

The students who were randomly selected from a class list provided by the teachers were interviewed August 5, 6, and 7, 1983. The interviews were as short as thirty minutes or extended to ninety minutes if the parents participated. Students who dropped out of the program were discussed with the teachers and one student who dropped out but remained in high school was also interviewed.

Eight students were interviewed from the 1982 graduating class and seven from the 1983 class. Some of the 1982 class had three years in the Program having started in Grade Ten at Rosedale, the others who joined this class had two years - one at Sardis Secondary and one at Chilliwack Senior Secondary. Some that lived in the Sardis area did not transfer to Chilliwack Senior Secondary for graduation, preferring to remain with their friends (reported by teachers and students interviewed). This change in location appeared upsetting to many students and parents.

This is the dropout situation:

1981 - 2 dropouts from a class of 12

1982 - 5 dropouts from a class of 21

1983 - 6 dropouts from a class of 24

Although the numbers appear to be high, they can be related to pressures over which the school and teachers have little control. Three students who left the course stayed in school finding that their interest in outdoor and

resource related topics was not sufficiently strong. One student who was interviewed felt that he would not graduate with enough courses to enter Fraser Valley College but this expressed fear did not turn out to be valid. Two students left the course and school due to boyfriend/job pressures. The number of girls selected for the course appeared to cause a proportionately higher number of dropouts; as an example, the class of 1983 lost three of the four girls in the class. One of these had to be counselled to leave the course because she would or did not participate. Two students recommended that the screening process be "stiffened" because they thought that too many "lazy" students were entering the program.

Employment

The analysis of the question sheet showed that in the 1982 class for example one had a full time job logging, two students had summer jobs that were forestry related. Three others had summer employment that was not related to forestry and two were presently unemployed but one had worked during the winter on construction at Tumbler Ridge. When asked about their future plans, four of the eight indicated that they would go to BCIT and take Forestry Technology.

Preparation For Work

All graduates agreed that they were better prepared for a job than the students who did not take the Program and the only confirmation of this feeling is the high employment rate. The comparative unemployment rate for students in the Chilliwack area as reported by the Chilliwack Unemployment Insurance Office in August 1983 is shown in Table 2.

Table 2

Unemployment Statistics - Chilliwack, B.C. - August 1983

Age Range	Number of Unemployed	
Age 15 - 19	Male and female Number registered 168	(% unknown but estimated at 50%)
Age 20 - 24	Male and female Number registered 643 = 24.7%	

This period in the Chilliwack area was a period of high unemployment that particularly affected young people trying to enter the work force for the first time. The unemployment rate of the graduates (2 of 8) appears to be similar to the rate of the age 20 - 24 group but the student who worked at Tumbler Ridge indicated that he had three roofing contracts organized and would be working on them when the buildings were finished. This would drop the rate to 12.5% if this graduate was considered to be self-employed.

The ratings given to the statements in Question five were as follows:

Table 3

Student Response to Four Statements

	Rating/Number of Responses				
	Very High	High	Medium	Low	Very Low
Statements:	5	4	3	2	1
a. I learned how to work	4	8	2	0	1
b. I know what the employer wants	7	6	2	0	0
c. I get along better on the job	3	6	6	0	0
d. I have some skills that are useful	8	5	1	1	0

The statements in question five were selected from the comments made by graduates interviewed in August 1982 when they were describing the benefits they perceived in the program. Other graduates were asked in August 1983 to rate the statements numerically on a scale of 1 to 5 or in words, using very low to very high. The large number of responses in the high and very high end of the scale (12 out of 15 for item a) indicate a very positive feeling toward these aspects of the Resource Technology Program. All statements relate to the work experiences in the program and reflect the feelings of accomplishment and self confidence that the experience created.

Role Model

Question six asked about the part that a role model may have played in showing the student how to be a better worker. Seven replies were negative and eight were positive. The positive replies should be broken down further into a group drawn from close relatives (4) and a group that helped at the work stations (4). The teachers were excluded from the question but in three instances the graduates suggested that the teachers were the most important part of the program and had to be very special to do this kind of teaching.

The answers to question seven indicate that three would definitely have left school at the end of Grade Ten, two others replied that they wanted to quit but their parents wanted them to finish school. The rest of the group would have remained in school taking the regular program.

To the next question, number eight, the interviewed graduates had a variety of responses but four replied that "monotony, penned-in feeling, doing nothing in class" best described their feeling toward academic classroom work, whereas the others reported difficulties with certain subjects or that they liked school.

The final question allowed the graduates to cover a wide range of topics because it asked for the experiences that they thought were excellent and those that were disappointing. The excellence of work experience was mentioned in many contexts but particularly in the sense that many of the students developed lasting friendships that were formed during the difficult times. One of the teachers stated that it was their intent to assist in this bonding process by creating a group loyalty and by offering assistance where required to individual students during a period of personal crisis. It would appear that the group work experience if it is designed and used for the purpose of creating a group spirit, will improve the attitude and performance in many areas of the program. Peer pressure was used positively sometimes at the suggestion of the teacher. The daily marking of work performance made it possible for a student to work at his or her own rate and accept the consequences without being accused of being 'lazy' or a 'goodie'. This particular point was mentioned by two graduates who described themselves as 'loners'. They appreciated the friendships and the lack of adverse peer pressure.

Six students attending Rutland Senior Secondary School who were very active in co-curricular and extra-curricular activities were questioned about their participation in athletics (3), music (2), and drama (1). They were asked in a non-structured way about their objectives, source of satisfaction and their view of the role of the supervising teacher. Out of the variety of answers it was possible to establish that their participation was an attempt to gain skills that would be useful or give satisfaction in their future. The satisfaction was derived partly from the team, band or drama production, association with friends and in the activity itself. The teacher's role was to arrange the environment in such a way that they could develop their skills

through practice and performance. This simplified view contains most of the elements that we see in the answers given by the Resource Technology graduates.

The reality of these in school experiences and their ability to challenge, develop and mature the student are accepted by educators and parents. The work experience in Resource Technology also demanded the esprit de corps of a winning team, and at the same time the individual performances of the drama group or band. Only one of the six students interviewed at Rutland, however, wanted to become a professional (soccer player). The remainder considered that their continued activity would be in addition to their method of earning a living - a satisfactory hobby only.

Chapter 6

SUMMARY AND IMPLICATIONS

Summary

The first chapter of the thesis outlined the Ministry of Education personal growth and development objectives for students. It was observed, however, that these objectives are not being met by most students because many students do not participate in extra-curricular or co-curricular activities that encourage personal development.

The literature search revealed a trend in educational thought away from a narrow emphasis on cognitive learning to a more diverse schooling that contained experiental learning. The educational psychologists have suggested a number of possible reasons for this trend but have not yet developed a comprehensive educational theory on which teaching and learning can be structured. Several examples of successful programs were examined and the common elements in each were used to build Resource Technology models. The most important part of the models was the work experience in the community.

The curriculum suggested for Resource Technology is a series of work experiences arranged in a sequence that allows the development of increasing skill and responsibility coupled with time for reflection. The success of this strategy is shown in the story of the Resource Technology Program developed in Chilliwack, British Columbia.

Implications

From the review of the literature and an analysis of the experimental programs, guidelines were developed for a work experience program for high school students that would encourage the personal growth and development needs of the participating students. As a result of having developed and implemented a program based on these guidelines it seems evident that Resource Technology students may not be the only students who could benefit from experiental education. If the program elements can be operationalized in other areas then the opportunity of work experience could be extended to larger numbers of students. I believe most schools could reduce the present number of academic hours per course and build an excellent relationship with the community through a series of programs based on the Resource Technology models.

As Erikson and other development psychologists point out, there are other benefits to work experience. Students in the senior high school age group are establishing an identity through their experiences, education and the significant people in their environment. Erikson's insight explains, in my view, why the isolated academic experience does not satisfy the developmental needs of approximately 65% of the student population in a school such as Rutland Senior Secondary. If a variety of work experiences were combined with academic courses then the student would be mentally and physically prepared to join society. It is necessary to extend this reasoning to recommend that all students participate in a form of experiental education even if they participate in music, drama or athletics for exactly the same reason that we expect a variety of academic subjects to be included in a well rounded academic program.

Could the school system accommodate a major change in emphasis? The introduction of consumer education and the proposed introduction of Technology 11 are examples of Ministry initiations that have been adopted by school districts. The experiental education would require Ministry support and detailed administration in each school but could be phased in over a five year period until all students were accommodated. The staffing arrangements would remain relatively constant although teaching assignments would change from present formats to the facilitator and supervisor role. I see this role change as very desireable because it will be stimulating to newer and also for more experienced teachers. In turn, more teachers may become significant persons in the lives of many students by sharing their work experience through discussion and reflection. Society will share the responsibility of providing the opportunity for student development and will be the first to reap the benefits through increased student work skills and improved attitudes. Most parents would find that their relationship with their son or daughter would improve as a result of the student development of interpersonal skills with other adults. The parents who were interviewed all expressed their satisfaction with the improvement in family relationships that appeared to be part of the benefit when students participated in the Resource Technology work experience. It is strongly recommended that the major ideas presented in this thesis be examined at all levels in education on the grounds that the elements of the work experience can be implemented in many situations in addition to the Resource Technology Program.

Appendix A

LESSON PLAN

Name of Lesson: Tree felling during juvenile spacing.

Purpose: To demonstrate the sequence of steps necessary to safely and accurately fall a tree.

Site: Choose a mixed stand between 20 and 35 years of age containing at least 80% commercial species of conifers. Prepare demonstration site on the open face of the stand with student viewing area in the stand. Mark trees that will NOT be cut down.

Equipment: Ten chainsaws
Ten aluminum or plastic wedges
Ten litres of mixed fuel
Ten axes

Method:

1. Demonstration (emphasis safety)

   Preparation - clear underbrush around tree with axe

   Examine tree - check for lean, branches, touching adjacent trees, wind

   Select falling direction - the undercut will be started on the same side as the falling direction no more than 30 cm. from the soil

   Undercut - a horizontal wedge is cut from the tree one quarter of the diameter in depth and one third of the wedge thick at the bark. For example, a 40 cm. tree requires a 10 cm. undercut and the wedge should be 3.5 cm. thick at the bark. Demonstrate on selected tree.

Backcut - after making certain that all of the wedge of the undercut has been cleared, stand to the side and behind the tree to start the backcut. Show new position. Start the backcut slightly above the position of the undercut and cut parallel to it.

Safety: It is very important that the amount of holding wood between the undercut and backcut remains the same during the cutting or the holding may give on one side making the tree twist and fall in an uncontrolled dangerous manner. Accurate falling is required in juvenile spacing because the number of desireable standing trees will create many hang ups.

Use of Wedge - if there is any danger of the tree settling back on the backcut drive a wedge with the axe in behind the chainsaw. Leaning trees may start to bind the saw in the backcut so take the pressure off the saw with wedge. Demonstrate wedge driving.

2. Class Activity

Spread the class along the open face of the stand. Organize the buddy system. Ask for a tree selection, falling direction, stump height and possible hazards. Check each pair in turn and observe the tree falling. Repeat the process with the other buddy.

3. Bring the class together to point out the danger of hang ups, Dutchmen and barber chairs that will accidently occur along the cutting face.

4. Demonstrate the reason for cutting a V wedge. Show that the falling tree will close the V more quickly if any wood (Dutchman) is left in the V causing the tree to bind and split at the holding wood. The result may be a barbers chair allowing the tree to kick back in the face of the faller.

5. Summarize safe steps to proper tree felling.

Appendix B

SCHOOL DISTRICT NO. 33 (CHILLIWACK)

CHILLIWACK SENIOR SECONDARY SCHOOL

RESOURCE-TECH FORESTRY PROGRAM EQUIPMENT AGREEMENT

The Board agrees to purchase for students of the Resource Tech Program, personal and compulsory equipment as needed. This equipment is to be purchased from the Board by student with their share of net earnings from work projects. The student's equipment shall be his responsibility as to care and maintenance, loss or damage.

In the event a student leaves the Forestry Program, all his equipment must be either returned or the balance owing paid. If the student decides to return his equipment any monies paid by him towards purchasing will be refunded, taking into account depreciation of equipment. In the event that a student has not earned enough money through the Forestry Program to pay for depreciation on returned equipment he will be required to pay the balance owing. Where there are disputes as to the amount of depreciation on returned equipment the values assigned by the equipment supplier shall be accepted by both parties.

If the student wishes to keep his equipment he will be required to pay off any amounts owing.

We, the undersigned, agree to accept financial responsibility as outlined above.

Student Name (Signature)_____

Address_____ Phone:_____

Parent or Sponsor Name (Signature)_____

Address_____ Phone:_____

Date_____

Appendix C

OFFICE OF THE SUPERINTENDENT OF SCHOOLS

SCHOOL DISTRICT NO. 23

(CENTRAL OKANAGAN)

The following draft proposal dealing with Career Preparation Programs is presented on behalf of the Committee identified in the introduction section of the paper.

INTRODUCTION: In December a committee consisting of Bill Marjoribanks (Chairman), Harry Dewar (K.S.S. - Secondary Adminstrators), Glen Leslie (Rutland Secondary - Secondary Administrators), Glen Deacoff (Rutland Secondary), and Ken Miyasaki (George Elliot) was struck in order to prepare proposals for the introduction of Career Preparation Programs to School District #23. The Committee was to present any proposal to the Superintendent through Don Marson, Director of Programs.

DESCRIPTION: The minimum requirements for an approved Career Preparation Program are:

1. Six courses in academic/elective areas as programmed by the school to meet graduation requirements, plus
2. Six courses in a specified Career Preparation area.
3. All courses in #1 and #2 must be at the grade 11 and grade 12 levels.
4. The programs must be developed so there is access to a recognized post secondary school (e.g. Okanagan College).

5. Career Preparation Programs must have a minimum of 120 hours provided for work experience relating directly to the career specialty.

6. An advisory committee with representatives from industry must be appointed for each Career Preparation area.

Note: The Ministry of Education recommends, and the Career Preparation Committee endorses, the concept of "Generic Skills" for each Career Preparation area. By Generic Skills we mean a family of inter-related skills which could lead to further training or entry to work in a family of related occupations.

e.g. Business Technology (Tourism)

1. Introductory Accounting 11 - Advanced Accounting 12
2. Careers Typing 11
3. Cafeteria 12 A - B
4. Machines, Calculations and Procedures 12
5. General Business 11 and General Business 12
6. Tourism and Human Relations
7. Business Communication 12
8. Office Procedures 11 and Office Procedures 12

GENERAL PROPOSAL: At the present time the Ministry is sponsoring Career Preparation Programs in 35 different school districts and at 63 individual schools. A sample of programs being sponsored would be: Mining, Commerce,

Machine Shop, Millwright, Forestry, Cooking, Automotive, Carpentry, Horticulture, Graphics.

The Committee is requesting Board approval to proceed with the development of three specific Career Preparation areas for introduction in September, 1981. Should such Board approval be given, the Committee would proceed immediately to prepare proposals for the Ministry (deadline March 31, 1981).

The three areas would be:

1. Resource Technology - Forestry
2. Business Technology - Commerce/Business
3. Business Technology - Tourism

FACILITIES: It is proposed that all three areas be offered at K.S.S. for the first year. If and as the program expands to other schools, further proposals would be presented to the Board (as the Committee continues liaison work with the Secondary Administrators).

The advantages of a first year operation at K.S.S. are:

1. Present facilities are able to handle these programs.
   - 1.1 Room Tech 205 - recently renovated as a business area
   - 1.2 No special shop facility needed for Forestry
2. Supervision and coordination of the program would be more efficient.

3. Present bus routes would make the programs available to all District students.
4. Better flexibility and ease of access to work experience contacts.
5. Better flexibility for student timetabling with a greater concentration of students in one area.
6. Better coordination and planning likely with several teachers located in one school.

FUNDING: The Ministry provides specific funding approvals for Career Preparation Programs. The funding is for a calendar year and would approximately equal:

1. Resource Technology - $26,000 per unit
2. Other areas - $13,000 per unit

These approvals are designed to cover additional maintenance costs for Career Programs, e.g. - consultative help, extra aide or teacher help, transportation, etc. The special Career Preparation approval would not be available until the 1982 budget year. The equipment necessary for these programs should be requisitioned through regular C.E.P. procedures or J Section Budget. (Specific cases may be considered by the Ministry.)

BUDGET:

A. Estimates - 1981

1. Transportation - expenditure

1.1	Forty return trips to Silver Lake for Forestry classes	$ 4,000.00
1.2	Lease van or pick-up truck for two months (used for transportation of equipment and as a back-up safety vehicle)	$ 1,000.00
	Total Transportation	$ 5,000.00

2. Equipment - expenditure

2.1	Class set of incidental small hand equipment	
2.1.1	Hard hats, poly chains, hand level, prisms, tapes, tree borers, compasses	$ 3,000.00
3.	Consulting fees - estimate	$ 2,000.00
	Grand Total	$10,000.00

B. Funding Approvals From the Ministry - 1981

1. Instructional Units

1.1 The regular Instructional Unit approvals apply to students in Career Preparation Programs.

1.2 Career Preparation special approvals - nil for 1981 budget year.

C. Estimates - 1982

1. Transportation - expenditure	
1.1 Eighty return trips to Silver Lake area or equivalent	$ 8,000.00
1.2 Lease van or pick-up truck for four months	$ 2,000.00
Total transportation	$10,000.00
2. Equipment - expenditure	
2.1 Eight complete chain saw units with auxillary equipment (8 x $500)	$ 4,000.00
2.2 Class set of small hand equipment - axes, swede saws, shovels, hand pruners, etc.	$ 1,500.00
2.3 Set of hand carpentry tools	$ 500.00
3. Consulting fees - estimate	$ 2,000.00
Grand Total	$18,000.00

D. Funding Approval - 1982

1. Resource Technology - Forestry Gr. 11	$26,000.00
2. Business Technology - Tourism Gr. 11	$13,000.00
3. Business Technology - Commerce/ Business - Gr. 11	$13,000.00
4. Business Technology - Commerce/ Business - Gr. 12	$13,000.00
Total	$65,000.00

Note: The Career Preparation allocations are to cover additional costs of the program, e.g. - consultative help, aide or extra teacher assignment, transportation, etc. The equipment necessary for these programs is normally requisitioned through regular C.E.P. procedures or through J Section Budget. (Specific equipment cases may be considered, through Career Preparation allocations, by the Ministry.)

E Staff

No requests beyond regular staff allocation for first semester would be made. A maximum of the equivalent of one full time teacher could be needed from the second semester on. This second teacher would be funded from Career Preparation allocations and would be responsible for work experience supervision and contact work. The specific assignment of this teacher would be established through discussions with the Superintendent, Director and Principal.

For the estimated 88 students who will be enrolled in the program for the first year, four teachers would be assigned for the first semester. These teachers would be funded through the regular Instructional Unit allocations. The equivalent of one full time teacher would likely be required for the second semester. This teacher would be funded

from the Career Preparation allocations (average estimated salary $27,400). The extra teacher allocation would be required to provide the necessary administrative supervisory component to the work experience part of the program.

F. Surplus

Estimate total funding from Ministry	$65,000.00
Estimate expenses - transportation, equipment, consulting	$28,000.00
Estimate - staff - 1982	$27,400.00
Estimated surplus 1981 - 1982	$ 9,600.00

STUDENT ENROLLMENT: The Committee estimates that enrollments for the first year of the Program would be:

1. Resource Technology - Forestry - 1st year - 16 students
2. Business Technology - Commerce - 1st year - 24 students
3. Business Technology - Commerce - 2nd year - 24 students
4. Business Technology - Tourism - 1st year - 24 students

Total = 88 students

The Committee suggests that enrollments be above 10 students for Forestry and 16 students for Business or the course would not be offered. An information booklet and registration forms would be circulated to all secondary schools so that any District

student would be eligible to register. Should more than the maximum number of students apply, a selection procedure involving grades, general school record such as attendance and genuine vocational interest would be employed to identify successful applications.

OBSERVATION:

1. The Committee would like the Board to be aware of the fact that certain jobs can be contracted out to the Career Preparation Classes. These contracts would be for field work done for industrial companies, e.g. tree planting. Monies from these contracts would be directed toward equipment purchases and maintenance costs.

2. The Committee is also of the opinion that some form of coordination for Career Preparation will likely be required, particularly if the Program expands to other schools by September 1982. Coordination costs will likely be covered by the special allocations.

POST SECONDARY:

Consultation has taken place with some officials at B.C.I.T. Assuming that our students obtain passing grades, it has been indicated that these students would be granted enrollment for resource technology studies. Discussions have also taken place with officials at Okanagan College and the same indicators are evident. It might even be possible that some of the students could challenge some

required College courses. Further contact with officials from Okanagan College will precede discussions with the Ministry. The Committee is of the opinion that someone from Okanagan College might be asked to sit on one of our advisory committees in order to provide better liaison for the Program.

ADVISORY COMMITTEE: In that the District now operates a Forestry (locally approved) and some Work Experience (business) programs, it is not anticipated there would be any difficulty in forming Advisory Commitees. These committees generally consist of:

1. Board representative
2. District staff representative
3. Administrative representative
4. Teacher representative
5. Representative from industry
   - 5.1 Management
   - 5.2 Labour
6. Post secondary representative (optional)
7. Department of Labour

These commmittees act in an advisory capacity so that the programs will be up to date at all times.

RECOMMENDATIONS:

1. That the Board of Trustees of School District #23 approve, in principle, the implementation of Career Preparation Programs as outlined in this draft proposal.

2. That the Career Preparation Committee be authorized to prepare proposals for the Resource Technology and Business Technology programs for the Ministry to be presented through the Superintendent, and

2.1 That the two programs be offered for September, 1981 at Kelowna Secondary School

3. That minimum enrollment for Resource Technology - Forestry be 10, and for the Business Technology course be 16.

Sgd. M.G. Pendharkar
M.G. Pendharkar,
Superintendent of Schools

D.G. Marson
D.G. Marson,
Assistant Superintendent
(Curriculum & Instruction) &
Deputy Superintendent

Appendix D

CAREER PREPARATION PROGRAMS

FUNDING

1.0 The Program should be accommodated in existing facilities.

2.0 For the most part, present equipment should be used for the Program.

2.1 Requests for C.E.P. funding of equipment would follow present practice and be directed to J. Jupp, Director, Career Education (schools).

3.0 Ministry of Education funding for Career Preparation Programs will be through Career Instructional Units.

3.1 Each Career Instructional Unit will represent one-half of 80% of an instructional unit.

In terms of the 1980 budget year, this would represent (.8 x $32,700.)/2 = $13,080.

3.2 Career Instructional Units will be granted on a pupil-teacher ratio of 15-20:1.

3.3 One approved class (15-20 students) = one C.I.U. (Such a class would normally use the equivalent of one-half of one teacher's time.)

3.4 Two approved classes (30-40 student) = 2 x C.I.U.

3.5 Classes less than 15 students will be pro-rated in modules of 5 students.

5 students = 33.3% x C.I.U.

10 students = 66.6% x C.I.U.

4.0 Primary Resource Industry Career Programs

School districts offering programs in Forestry, Fisheries, Mining, or Energy, may additionally, apply for up to 50% of a C.I.U. in each program to contract services from external agencies such as Colleges, B.C.I.T., B.C. Hydro, Ministry of Forests, Ministry of Mines and Petroleum Resources, etc. Consultation with J. Jupp, Director of Career Education is to occur before financial commitments are made under this provision.

5.0 The Ministry of Education reserves the right to limit the number of programs.

6.0 A Ministry of Education committee, chaired by the Director of Career Education, will be established to adjudicate requests for funding that are above that provided by the regular formula.

7.0 Career Instructional Unit funding will be established in the "G" account of the local school district.

Appendix E

STUDENT SELECTION FOR THE RESOURCE TECHNOLOGY PROGRAM

INTRODUCTION

The teachers and administrators involved in Resource Technology must introduce a public relations program into the schools that will supply the students. This involves visiting the grade ten classes or school assemblies with an audio visual presentation and application forms. It also requires follow-up meetings with parents and students to discuss the questions and problems. Finally, it requires an interview with each student who applies to assess suitability. It is at this point that the final selection could be assisted by a work attitude scale that would reveal to some degree the student's attitude toward work. The combination of interview and scale may help to increase the number of graduations in the program.

METHOD

The format of the work attitude scale was prepared from a number of common sayings and widely held views about work in the agriculture and forestry sector. The statements were grouped into clusters dealing with one topic and then placed on the scale in random order.

Osgood's Semantic Differential was reduced from seven to five choices to make the scale easier to administer. Osgood and his students designed this scale for research on perception, meaning and attitudes (Osgood et al., 1957) and in most of their studies, investigated specific concepts and their significance to the individual.

The scale was administered to one hundred students grouped in four classes at Chilliwack Senior Secondary in September 1982 and again in January 1983.

The same scale was given to the twenty-four Resource Technology students at the same time. The Resource Technology students were asked to put their names on their scale sheets in January to permit a comparison for criterion-related validity. The predictive ability of this scale rests on the criterion. In this case, each student is given a rating from one to ten by the teacher for each day of work experience. This mark reflects effort, consistency, and responsibility and becomes the basis for the cash settlement when contract funds are divided up. The students total work experience mark for the semester consequently had been thoroughly examined by everyone concerned and is considered to be the best available criterion for test validation.

The following pages outline the data and compare the attitude scale scores with the work experience score.

ATTITUDE SCALE

Instructions: Place a check on the line that tells the marker your attitude toward the questions below.

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. Work is a necessary evil.	____	____	____	____	____
2. I want my group to be the best when we work.	____	____	____	____	____
3. I don't like getting up early to go to work.	____	____	____	____	____
4. Cutting tools should be sharpened before you go to work.	____	____	____	____	____
5. People should do their work before they play.	____	____	____	____	____
6. I prefer to be paid by the hour rather than by piecework.	____	____	____	____	____
7. I like working outdoors.	____	____	____	____	____
8. The only good thing you get from working is the money.	____	____	____	____	____
9. Oh well, if you can't get a job, you can always get unemployment insurance!	____	____	____	____	____
10. People who live on welfare are usually lazy.	____	____	____	____	____
11. Some people work hard all the time.	____	____	____	____	____
12. Work is usually interesting if it is on the job that you have chosen.	____	____	____	____	____
13. Some people hate their job and they don't care what happens.	____	____	____	____	____

Please turn over -

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
14. If I wasn't bothered by my friends I could do very good work.	____	____	____	____	____
15. A difficult job, successfully completed, gives a feeling of satisfaction.	____	____	____	____	____
16. Working hurts my back!	____	____	____	____	____
17. I do my best work when I work by myself.	____	____	____	____	____
18 .Some people would move anywhere to get the job they want.	____	____	____	____	____
19. I respect people who do a good job.	____	____	____	____	____
20. A little rain and mud on the job never hurt anybody.	____	____	____	____	____
21. I would work for minimum wage if I could get experience.	____	____	____	____	____
22. I don't like working with a group because some people don't do their share.	____	____	____	____	____
23. I'd never work again if I won the lottery.	____	____	____	____	____
24. I like to stand back and admire the work that I did with my hands.	____	____	____	____	____
25. If I have to work, then I would prefer to be in a warm, dry, building.	____	____	____	____	____

RANDOM NUMBER SELECTION - G.W. Swedecor Stat. Methods 5th Ed.
Iowa State Univ. Press, Ames, Iowa 1956

QUESTION		SEQUENCE
1	01	1
2	38	16
3	30	12
4	83	23
5	89	24
6	98	25
7	21	6
8	11	3
9	78	22
10	29	11
11	22	7
12	21	5
13	33	13
14	27	9
15	46	17
16	15	4
17	52	18
18	69	21
19	63	19
20	23	8
21	64	20
22	35	14
23	28	10
24	36	15
25	03	2

ATTITUDE SCALE

CLUSTERING QUESTIONS - BALANCING

GROUP:

1. Reward - intrinsic - extrinsic
   Question Numbers: 6, 8, 15, 21
2. Location - indoor - outdoor
   Question Numbers: 7, 18, 20, 25
3. Alone or in groups
   Question Numbers: 2, 14, 17, 22
4. Attitude good-bad toward work
   Question Numbers: 1, 11, 13, 19
5. Alternatives to work
   Question Numbers: 3, 5, 10, 9, 23
6. Miscellaneous
   Question Numbers: 4, 12, 16, 24

SCORING SHEET

1	-2	-1	0	+1	+2
2	+2	+1	0	-1	-2
3	-2	-1	0	+1	+2
4	+2	+1	0	-1	-2
5	+2	+1	0	-1	-2
6	-2	-1	0	+1	+2
7	+2	+1	0	-1	-2
8	-2	-1	0	+1	+2
9	-2	-1	0	+1	+2
10	-2	-1	0	+1	+2
11	+2	+1	0	-1	-2
12	+2	+1	0	-1	-2
13	+2	+1	0	-1	-2
14	-2	-1	0	+1	+2
15	+2	+1	0	-1	-2
16	-2	-1	0	+1	+2
17	-2	-1	0	+1	+2
18	+2	+1	0	-1	-2
19	+2	+1	0	-1	-2
20	+2	+1	0	-1	-2
21	+2	+1	0	-1	-2
22	-2	-1	0	+1	+2
23	-2	-1	0	+1	+2
24	+2	+1	0	-1	-2
25	-2	-1	0	+1	+2

Semantic Scale (Osgood)

+	outdoor	indoor	-
+	satisfaction	money	-
+	work	no work	-
+	group	alone	-
+	work good	work bad	-

DATA SUMMARY: SEPTEMBER 1982

CLUSTER 1 (6, 8, 15, 21)

A +84
B 64
C 83
D 32/263 = +263/100 = +2.63
Control Average = +2.63
Resource Tech. Average =
+74/24 = +3.08

CLUSTER 2 (7, 18, 20, 25)

A +79
B 52
C 64
D 36/231 = +231/100 = +2.31
Control Average = +2.31
Resource Tech. Average =
+129/24 = +5.38

CLUSTER 3 (2, 14, 17, 22)

A + 8
B - 8
C -23
D -10/-33 = -33/100 = -.33
Control Average = -.33
Resource Tech. Average =
+21/24 = +.86

CLUSTER 4 (1, 11, 13, 19)

A 88
B 108
C 118
D 54/368 = 368/100 = +3.68
Control Average = +3.68
Resource Tech. Average =
+100/24 = +4.17

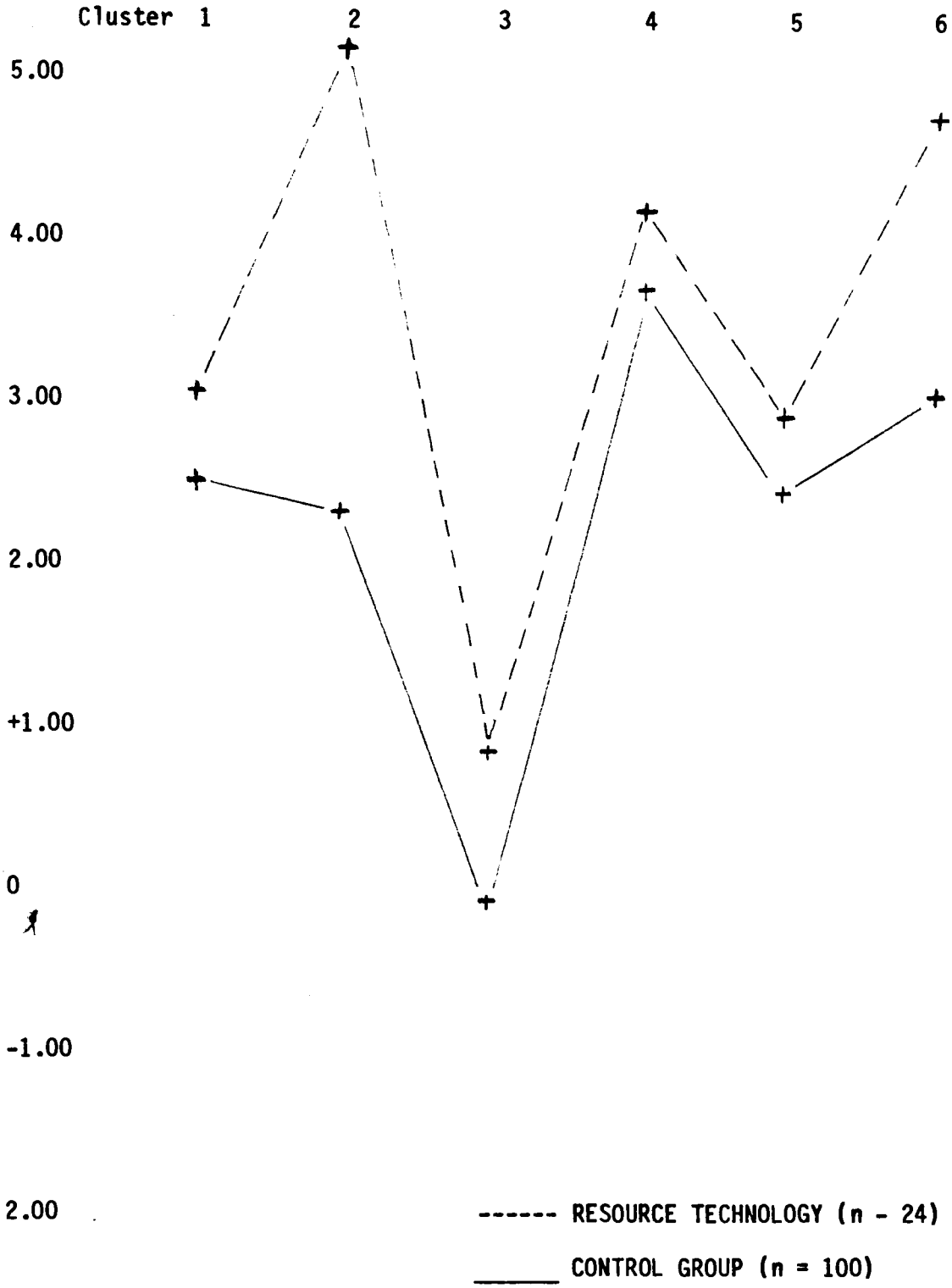
CLUSTER 5 (3, 5, 9, 10, 23)

A 75
B 50
C 72
D 25/222 = 222/100 = +2.22
Control Average = +2.22
Resource Tech. Average =
87/24 = +3.63
+3.63 X 4/5 = +2.90

CLUSTER 6 (4, 12, 16, 24)

A 82
B 78
C 88
D 51/299 = 299/100 = +2.99
Control Average = +2.99
Resource Tech. Average =
+108/24 = +4.50

GRAPH OF WORK ATTITUDE SCALE: SEPTEMBER 1982



DATA SUMMARY: JANUARY 1983

Control n = 85; Experimental n = 24

Questions

CLUSTER 1 (6, 8, 15, 21)

A 81
B 40
C 71
D 43 Total 235/85(n) = 2.76
F 79

Control Average = 2.76

Forestry Average = 79/24 = 3.29

Questions

CLUSTER 2 (7, 18, 20, 25)

A 57
B 57
C 59
D 62 Total 235/85(n) = 2.76
F 128

Control Average = 2.76

Forestry Average = 128/24 = 5.33

CLUSTER 3 (2, 14, 17, 22)

A 9
B - 4
C -25
D - 7 Total -29/85 = -.34
F - 2

Control Average = -.34

Forestry Average = -2/24 = -.08

CLUSTER 4 (1, 11, 13, 19)

A 77
B 67
C 111
D 63 Total 318/85 = 3.74
F 88

Control Average = +3.74

Forestry Average = 88/24 = +3.67

CLUSTER 5 (3, 5, 9, 10, 23)

A 65
B 39
C 43
D 39 Total 186/85 X 4/5= +1.74
F 89

Control Average = 2.18 X 4/5= 1.74

Forestry Average =89/24 X 4/5=3.71

4/5 X 3.71 = 2.97

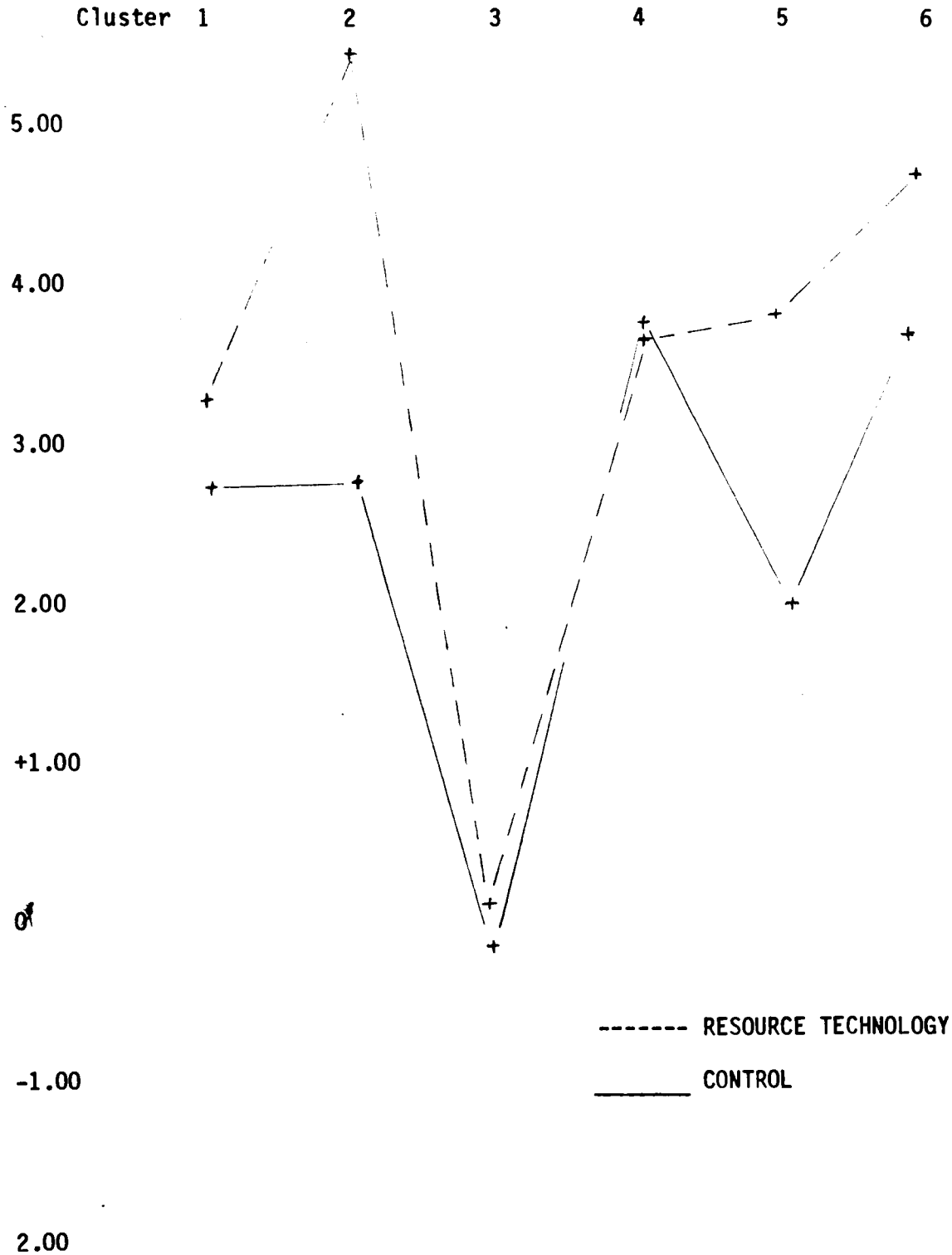
CLUSTER 6 (4, 12, 16, 24)

A 78
B 72
C 93
D 68 Total 311/85 = +3.66
F 107

Control Average = +3.66

Forestry Average = 107/24 = +4.46

GRAPH OF WORK ATTITUDE SCALE: JANUARY 1983

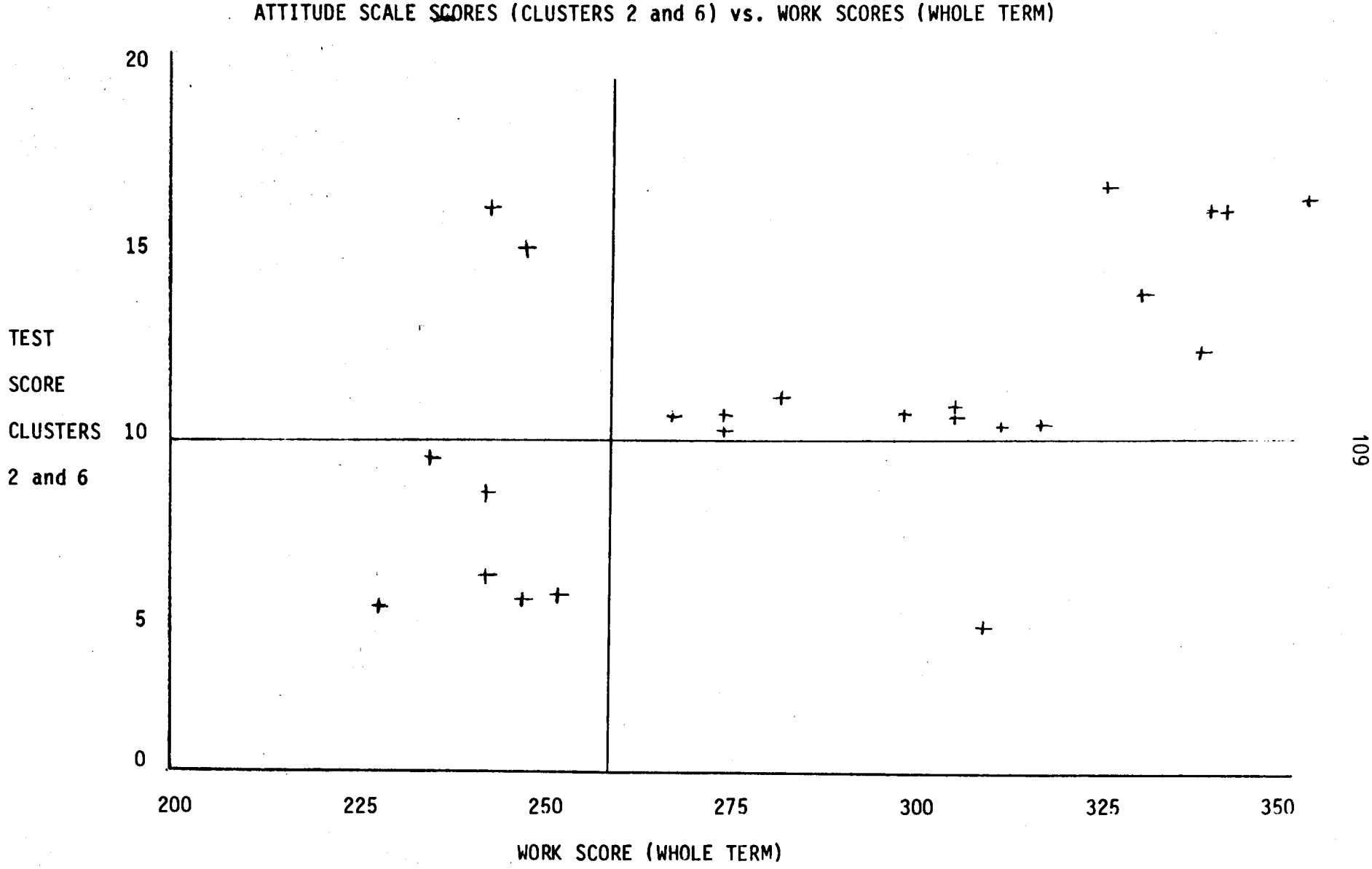


EXPERIMENTAL - FORESTRY

DATA COLLECTION: SEPTEMBER 1982 n = 24

Cluster	1	2	3	4	5	6
Student:						
1	+4	+5	+2	+3	+5	+5
2	+3	+4	0	+2	+6	+4
3	+4	+6	-2	+5	+4	+1
4	-3	+2	-1	-3	-2	+3
5	+2	+3	+2	+2	+4	+1
6	+6	+8	+5	+6	+8	+6
7	+3	+6	-1	+7	+7	+6
8	+8	+5	-3	+8	+7	+7
9	-1	+3	0	+3	-2	+3
10	+1	+7	+3	+6	0	+4
11	+3	+7	+6	+7	0	+6
12	+4	+5	-2	+6	+1	+3
13	+6	+7	0	+4	+2	+6
14	+3	+7	+1	+4	+7	+2
15	+3	+2	+2	+4	+2	+5
16	+1	+5	+2	+3	+5	+5
17	+3	+5	-3	+3	+2	+5
18	+7	+7	+5	+3	+5	+5
19	+5	+5	+1	+5	+8	+6
20	+1	+7	+3	+4	+3	+5
21	+1	+6	+2	+5	-2	+6
22	+3	+8	0	+5	+7	+6
23	+2	+2	+3	+3	+5	+2
24	+4	+7	-4	+5	+5	+6
Total:	+74	+129	+21	+100	+87	+108
Average:	+3.08	+5.38	+.86	+4.17	+3.63	+4.50

X 4/5 = 2.90


ATTITUDE SCALE SCORES (CLUSTERS 2 and 6) vs. WORK SCORES (WHOLE TERM)
20
15
10
5
0
TEST
SCORE
CLUSTERS
2 and 6
200
225
250
275
300
325
350
WORK SCORE (WHOLE TERM)
109

STATISTICAL CALCULATION OF COEFFICIENT OF PREDICATIVE VALIDITY

Deviation Scores

Student	Test Score	Work Score	Test	Work	Mult.	Test	Work
1	14	332	+3.6	+48.3	+173.88	12.96	2332.89
2	6	251	-4.4	-32.7	+143.88	19.36	1069.29
3	4	305	-6.4	+21.3	-136.32	40.96	453.69
4	16	242	+5.6	-41.7	-233.52	31.36	1738.89
5	14	246	+3.6	-37.7	-135.72	12.96	1421.29
6	12	327	+1.6	+43.3	+ 69.28	2.56	1874.89
7	15	350	+4.6	+66.3	+304.98	21.16	4395.69
8	9	312	-1.4	+28.3	-39.62	1.96	800.89
9	16	320	+5.6	+36.3	+203.28	31.16	1317.69
10	9	232	-1.4	-51.7	+72.38	1.96	2672.89
11	5	245	-5.4	-38.7	+208.98	29.16	1497.69
12	10	299	-0.4	+15.3	- 6.12	0.16	234.09
13	8	238	-2.4	-45.7	+109.68	5.76	2088.49
14	9	306	-1.4	+22.3	-31.22	1.96	497.29
15	10	265	-0.4	-18.7	+7.48	0.16	349.69
16	14	333	+3.6	+49.3	+177.48	12.96	2430.49
17	11	280	+0.6	-3.7	-2.22	.36	13.69
18	10	300	-0.4	+16.3	-6.52	.16	265.69
19	6	228	-4.4	-55.7	+245.08	19.36	3102.49
20	13	320	+2.6	+36.3	+94.38	6.76	1317.69
21	11	272	+0.6	-11.7	-7.02	0.36	136.89
22	7	240	-3.4	-43.7	+148.58	11.56	1909.69
23	10	272	-0.4	-11.7	+4.68	.16	136.89
24	10	294	-0.4	+10.3	-4.12	.16	106.09
	249	6809	-0.6	+.2	1361.62	265.64	32164.96
	10.4	288.7	-32.6	+32.0	-393.4	+393.6	

Formula:

$$r = \frac{N \Sigma test \times work - \Sigma test \; \Sigma work}{\sqrt{\left(N \Sigma test - (\Sigma test)^2\right)\left(N \Sigma work^2 - (\Sigma work)^2\right)}}$$

$$r = \frac{24 \times 1{,}361.62}{\sqrt{24 \times 265.64} \times \sqrt{24 \times 32{,}164.96}}$$

$$r = \frac{32{,}679.36}{\sqrt{63{,}775.36} \times \sqrt{771{,}959.04}}$$

$$r = \frac{32{,}679.36}{252.53783 \times 878.611.99}$$

$$r = \frac{32{,}679.36}{221{,}882.76} = .147$$

Although the attitude scale scores for clusters 2 and 6, when compared with the work scores on the graph appear to demonstrate a strong correlation, this appearance is modified by the calculation of the coefficient of predictive validity. The coefficient of .147 is too low to place any confidence in scores from clusters 2 and 6. However, this method could be developed and refined in the future to help in the student selection process.

Appendix F

SCHOOL DISTRICT

RESOURCE-TECH FORESTRY

EDUCATIONAL PROGRAMME AGREEMENT

_____ of _____ Phone:_____
Name of student Address of student

_____ of _____ Phone:_____
Name of parent or guardian Address of parent or guardian

1. PROGRAMME: The student worker agrees to undergo any training programme arranged by the Board and the Board agrees to arrange for training and supervising the student.

2. DUTIES: The student worker agrees to perform for the Board the duties included in the job assignment as determined from time to time by the Board.

3. SUPERVISION: During the hours of employment herein set forth the students shall be under the direct supervision and control of a representative of the Board.

4. WORK STUDY - WORK EXPERIENCE EVALUATION:

The Board shall evaluate the student in the performance of his duties.

5. WORKERS' COMPENSATION:

By Order-in-Council 3147 (September 27, 1974) the students, for the purpose of the Workers' Compensation Act have been deemed to be workers of the Crown.

6. REMUNERATION: The Board shall not be obligated to remunerate the student for the services performed by the student pursuant to this agreement. Students enrolled in programmes authorized by the Ministries of Labour and Education have been exempted from the operation of the Minimum Wage Act (May 22nd, 1974).

7. BOARD'S OBLIGATION:

It is agreed that, having arranged work experience and supervision for the student worker as herein set out, the Board shall not be liable for any damage or other claim arising out of any act or omission of any other party to this agreement.

8. INDEMNITY: In consideration of the Board having arranged for the work study-work experience herein described, the undersigned parents or guardians agree jointly and severally with the Board to save harmless and indemnify the Board with respect to any costs or liabilities arising from any damage or injury occurring or allegedly occurring during or in connection with the aforesaid employment except where the Board or its representative have been negligent.

9. TERMINATION: Any party to this agreement may terminate it by giving notice of termination to the other parties at the addresses shown in the agreement.

10. EMPLOYEE TENURE: It is agreed that where a student is employed in work normally done by a member of a certified union, the Board shall obtain prior approval of the union(s) involved.

11. INSURANCE: The Board maintains insurance with respect to its liability and that of the student worker under this programme.

12. FIELD TRIPS: The parent or guardian consents to the student worker participating in field trips requiring absence overnight or unique in destination or activity. The Board agrees to provide supervision on every such field trip and to give parents/guardians prior notice of all such field trips.

13. STANDARDS: The student worker agrees that in order to qualify to continue on the work experience programme the student worker will maintain standards of attendance, scholastic achievement and attitude at school acceptable to the Board.

14. EXCEPTION: In the event the student shall be employed by any employer outside the scope of this agreement, the student shall be deemed to be an "employee" or "worker" for the purpose of all Statutes of British Columbia.

15. EFFECTIVE PERIOD AND HOURS:

This agreement shall, unless sooner terminated, be effective from _____, 19___ to _____, 19___. Working hours shall be _____ or other such hours as may be determined from time to time by the Board of its representative.

The Board of School Trustees
School District

_____

_____
Signature of student

_____
Signature of parent or guardian

Dated at _____

_____, 19___

Appendix G

REPORT RE CAREER EXPLORATION EDUCATION

TO THE FRIDAY - SATURDAY, NOVEMBER 7-8, 1980

MEETING OF THE BCTF EXECUTIVE COMMITTEE

This report includes three sections and three appendices.

Section A — Recommendations

Section B — Summary of meeting of Larry Kuehn, first vice-president, Nancy Flodin, and John Church, staff members, with Joe Jupp, Dave Able, Russ Regan, Jim Mitchell, Ken Douglas, Ministry of Education, and Dave Rennick, Principal, Vancouver Technical Secondary School - Tuesday, October 14, 1980, 13:00 to 15:30.

Section C — Summary of meeting of Larry Kuehn and John Church with Muriel Allison, Joan South, Myrna Duthie and Bob Peacock, B.C. Business Educators' Association; Bev Anderson and Joyce Friedrich, Teachers of the Home Economics Association; and Alan Bathurst, Arnid Moan and Colin Buckoke, B.C. Industrial Education Association -- Tuesday, October 14, 1980, 16:00 to 19:30.

Appendix 1 — Part of speech given by Larry Kuehn to the B.C. Industrial Educators' Association, Friday, October 17, 1980.

Appendix 2 — Three Essential Differences Between Career Education and Vocational/Career Preparation Education.

Appendix 3 — Draft from the ministry -- Career Preparation Programs.

Section A -- Recommendations

1. That Larry Kuehn and John Church be appointed as interim representatives on the steering committee of the ministry's career preparation program.

2. That the BCTF representatives work to ensure that the career preparation program is consistent with BCTF policies 11.A.03.5 and 11.A.03.6.

   11.A.03.5 That the BCTF believes that public schools should be primarily concerned with general education, not with training for specific jobs.

   11.A.03.6 That provincial educational goals should be directed toward ensuring provision of lifelong access to public education.

3. That the BCTF executive postpone submitting nominations to the ministry for the curriculum committees (associated with the career preparation program) until after it has received a report with recommendations from its representatives on the steering committee.

4. That the PD Division be asked to set up an information network and a monitoring of career education programs.

5. That at an appropriate future time, a second meeting be convened with representatives of the B.C. School Counsellors' Association, the B.C. Business Educators' Association, the B.C. Industrial Education Association and the Teachers of Home Economics' Association to review the purpose and the then present progress of the ministry's career preparation program.

6. That the BCTF seek a meeting with the B.C. Federation of Labour to discuss the career preparation program and work study/work experience programs.
7. That the BCTF seek to have the Ministry of Education strike a committee, with BCTF representation, to examine and make recommendations on the purpose and organization of the secondary school. Included in this study should be the place and role of career preparation and career education programs.

Section B -- Summary of meeting with ministry personnel

1. Joe Jupp traced the emergence of the vocational specific program as one of the programs within the "rainbow chart" of the 1960's. He noted that two entire secondary schools -- Centennial in Coquitlam and Carson Graham in North Vancouver -- had been built with federal grants. The ministry had, at an earlier time, and now was continuing to promote comprehensive general education. The proposed career preparation program was not in any way intended to replace the primary focus on comprehensive general education.
2. Money has been budgeted for the program. The additional money based on a percentage bonus of the instructional unit frees teachers and thus enables them to visit students when they are on work experience.
3. Approximately 3,000 students out of a total of 60,000 enrolled in Grades 11-12 are presently taking the career preparation program.

4. The Occupational Training Council and the B.C. Federation of Labor are presently opposed to the career preparation program.

5. We were made aware of many contradictions:

   a) The majority of students who take the program get jobs -- perhaps in a related area rather than in the original area but yet the major focus of the ministry is in seeking to mesh the program of the senior secondary school with the program of the tertiary institution. Only a very small percentage of students go on to tertiary institutions.

   b) At a time of extensive unemployment, there are vacancies for many positions which require highly developed skills.

   c) There is a need for the student to receive a broad overview of the world of work. How is this reconciled with a program which was outlined as:

	Grade 11	Grade 12
i)	English	English
ii)	Mathematics	English
iii)	Social Studies	Hairdressing 12A
iv)	Health, PE and Guidance	Hairdressing 12B
v)	Hairdressing 11A	Hairdressing 12C
vi)	Hairdressing 11B	Hairdressing 12D
vii)	Hairdressing 11C	Elective
viii)	Elective	Elective

d) The program is not to be carried out at the expense of general education, but there is a crying need to obtain workers who have specialized skills.

e) The ministry is not planning to do anything different. The facilities, the equipment, the teachers, the students are all there, but the ministry needs curriculum committees to identify relevant content and then to mesh that relevant content with the programs of tertiary institutions -- vocational institutes and community colleges.

f) The ministry is trying to serve in a leadership role. The notable absence of industry from assuming a responsible position was only briefly mentioned.

6. The BCTF representatives pointed out the unacceptability of the proposed provincial career certificate. In hindsight, it is interesting to note that though the Draft II of the administrative handbook recommends the introduction of a provincial career certificate, the same handbook also states: "Nothing should be done to make it mandatory that pupils are replaced or retained in specific, rigidly differentiated programs." p. 429.

7. Many questions remained unanswered, partially and/or inaequately answered. For example:

a) Will students learn primarily about a particular job or the world of work?

b) Will students learn about the purpose and place of unions?

c) How will the program develop positive attitudes to work and to the importance of work among human undertaking?

d) Will the program and subsequent job experience facilitate the graduate to return to subsequent formal education?

e) Will the student be assured of advanced placement?

f) How will the school be protected from raising expectations about subsequent jobs or early entry to advanced placement in a tertiary institution or to an apprenticeship?

g) What kinds of upgrading and in-service education programs will the ministry finance to assist teachers of the career preparation program. Are we not describing a highly specialized kind of teaching?

h) From where will new teachers for the program come?

8. The following structure was presented:

Project Review Committee
Carter Fisher Duncan McRae
Daneliuk Jupp Hartwig
(all ministry personel)

Steering Committee

Hartwig -- Chairperson
representative(s) from:
Ministry of Labor
College of principals
District superintendants
BCTF*

Curriculum revision committees**

Four major areas:
1. cooking/hospitality services
2. health/human services
3. business career
   - clerk typist/secretarial***
   - bookkeeping/accounting
4. mechanical career
   - automotive
   - small engines
   - diesel

Field advisory committee

Should be one for each program to:
1. co-ordinate employment opportunities
2. ensure that the curriculum produced is relevant to the existing employment needs

Academic council for business education preparation programs

Occupational training council for all other career preparation programs

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* The BCTF clarified that it was understood that should the federation agree to serve on this committee, the representative(s) would be named by and responsible to the BCTF.

** Would not be generating new curriculum but would be reviewing existing curriculum and would be integrating. It would probably be a competence-based curriculum.

*** One teacher from a secondary school, one tertiary instructor from the same geographical area of the province for each area listed. The ministry is anxious to secure BCTF nominations in the business career and in the mechanical career areas immediately; in the cooking/hospitality serices and health/human services areas in the near future.

Section C -- Summary of meeting with representatives of three PSAs

1. Early in the meeting, the distinction was made between career education and career preparation in education. Some of the important distinctions follow. Please allow review Appendix 1.

Career Education	Career Preparation Education
- for all students	- for some students
- focus on paid and unpaid work	- focus on paid work
- importance of building an attitude, an awareness	
- focus on learning how to make decisions and how to interview	- focus on learning how to acquire vocationally oriented skills
- start at Grade 8 or earlier and build onward	- start at Grade 12 and the integration with post-secondary
- need to balance recreational-vocational interests	- almost exclusive focus on vocational interests
- focus on living skills	- focus on working skills
- preparing students for the world of work	- preparing students for a specific job
- has the support of the B.C. Federation of Labor	- does not have the support of the B.C. Federation of Labor

2. Concerns raised include:

   a) Why is vocational specific education now appearing under the new name of career preparation education?

   b) In some schools, because of the requirement of 700 hours in the career preparation education program in shops, other students, particularly girls, are not able to enrol in shop courses. There is no space available.

   c) Priority is being given to the career preparation program because of the availability of extra funding. In spite of assurances that other programs should not suffer, the reality is quite different.

   d) To now, business education has managed to present a balanced perspective between personal and career development skills. Will it be able to continue to give this present balance given the present thrust to expand career preparation educational programs?

   e) Pressure is coming from industry to have schools focus on career preparation education. There is no way that schools can win by pursuing this route. Teachers will become the scapegoats.

   f) The possibility of increased numbers of courses which may be required for secondary school graduation will decrease the number of electives available for students enrolled in the career preparation program. On the other hand, students favor a fewer number of courses required to complete graduation.

g) The various community colleges have to date failed to mesh or to integrate their programs. How will the career preparation programs of secondary schools mesh with the variety of community colleges and vocational institutions?

h) Students who graduate on the career preparation program have to wait between 18 months and two years for admission to a tertiary institution or to acceptance in apprenticeship.

i) About 90 percent of the graduates go to work. Yet the focus is on integrating the course content of secondary schools and the tertiary institutions.

j) The focus for teachers of the career preparation program is on the skills of the trade, not on the teaching skills.

3. The PSA representatives were asked to, and offered advice:

a) The BCTF should be represented on the steering committee with a view to changing the thrust of the career preparation program.*

b) The BCTF should advertise for the curriculum committees. It was explained that the BCTF may not nominate even though advertising had occurred.

c) The BCTF should work to change the focus from the career preparation thrust to a career education thrust. The present program constitutes a bandaid cure approach.

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* The ministry had invited nominations from the BCTF for both the steering committee and various curriculum committes. Two alternatives -- to accept membership on the steering committee and to accept the present thrust of the career preparation program or to refuse membership -- were considered at this time to be impractical.

d) The Professional Development Division should explore the feasibility of setting up an information network on career education.

e) There should be a subsequent meeting to review the purpose and the then progress of the career education program. To such a meeting, representatives of the B.C. School Counsellors' Association should be invited in addition to those who attended the first meeting.

Respectfully submitted,

Larry Kuehn, First Vice-President

John Church, Staff

Distribution: Representative Assembly, Executive Committee, PDAC, PSACE, Officers, Counsellors, Industrial Education, Home Economics, and Business Educators PSAs, Bob Buzza, Bernice Fender, PDA.

October 21, 1980

PART OF SPEECH GIVEN BY LARRY KUEHN

TO THE B.C. INDUSTRIAL EDUCATORS' ASSOCIATION

Friday, October 17, 1980

Recent newspaper headlines screamed about a shortage of skilled workers in B.C. Could a proposal that the school system should solve a newly identified problem be far behind?

In fact, in this case, the proposal for a "solution" predated about six weeks the problem moving from the business section to the front page. In late August, a Ministry of Education news release announced the "Career Preparation Program".

What is this program? In fact, it is a variety of things:

Perhaps most significantly, it is a political response to a perceived public demand. We face in this Province -- in common with most industrialized areas -- the irony of a combination of high unemployment and skilled jobs going begging for people to fill them.

The minister's press announcement of the Career Preparation Program seems to promise an answer to this dilemma. It says the program will "lead to satisfying jobs for students who might otherwise be untrained" and will "help to alleviate the continuing shortage of skilled tradesmen".

But can this program -- or the schools in general -- provide the solution? One root of the problem of a shortage of skilled workers is in the failure of Canadian industry to provide a high enough level of skill training programs.

Canada has always depended on the importation of skilled labor from other countries. But this source has now, for a variety of reasons, dried up.

And now it appears that the response provided by government is not one to force industry to live up to its obligations, but one of bringing back vocational education under a new name.

This approach is reflected in one "draft" document from the ministry which says that, "A primary purpose of our schools is assisting students to prepare for satisfying and successful employment".

It is an approach rejected in the past in favor of comprehensive, general education. At the same time the ministry is mandating the "mainstreaming" of special needs students, it is developing a program to stream others out.

But the motivations behind this program are not entirely political. It is also an attempt to respond to a very real failure of the secondary school system; a failure to offer enough programs which adequately meet the needs of the great majority of students who will never go to university.

However, it is a tiny band-aid being put on a body which is at least half covered by an open sore.

The Career Preparation Program is, in fact, at least three different types of programs, some of which are already running in schools on a pilot basis.

One type of Career Preparation Program can be based on already existing courses. As an example, a business eduction student could get the required 700 hours of "career" training by taking more regular business education courses, being mixed in with other business education students who are not in a Career Preparation Program.

A second category is really alternate programs for students not making it in the regular programs of the school. An example would be the Alert Bay programs to train Native Indians as engineers on fish boats.

The third type is new programs aimed at giving advanced standing or credit in post-secondary programs. The first emphasis on these seems to be in the area of what the ministry's press release calls "mechanical industries": automotive, diesel, small engines and heavy-duty mechanics.

An examination of the program at this stage of development indicates that it is full of ambiguities, contradictions and problems.

Ambiguities, Contradictions, Problems

1. The ministry is speeding ahead on a multi-million dollar program with an amazing lack of clarity on what the program is. Some examples are that:

   a) Most of the public documents describing the program have the label "draft" and are being revised.

   b) Significant documents describing the curriculum development objectives and procedures had not even been released in "draft" form by the time the ministry was seeking people to sit on curriculum committees.

   c) It has not been decided if there will be a "Provincial Career Certificate", and if such exists, whether it will be in place of or in addition to the Dogwood Certificate.

   d) Details of the program seem to change frequently, but without announcement. For example, the press release announcing the program said the six career preparation courses would "include a

A second category is really alternate programs for students not making it in the regular programs of the school. An example would be the Alert Bay programs to train Native Indians as engineers on fish boats.

The third type is new programs aimed at giving advanced standing or credit in post-secondary programs. The first emphasis on these seems to be in the area of what the ministry's press release calls "mechanical industries": automotive, diesel, small engines and heavy-duty mechanics.

An examination of the program at this stage of development indicates that it is full of ambiguities, contradictions and problems.

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Grade 11 work study course which contains a core of skills necessary to become an employee -- calculations, communications, attitudes, etc." Since then, it has been decided that work study may be integrated into the other courses rather than being a separate course.

2. It is unclear who the program is aimed at. The press release says it "is designed for the very large number of students who may be academically capable of obtaining a professional education at a university but choose not to do so" and emphasizes that "secondary graduates may earn advanced placement in a college vocational course, or in apprenticeship preparation, thereby reducing the total time spent in school".

   Certainly some of the programs might ideally lend themselves to this approach, such as heavy-duty mechanics, bookkeepping and practical nursing, but what post-secondary institutions offer programs or apprenticeships in other proposed programs, such as waiter/waitress, tourism, and homemaker? Program officials admit that despite post-secondary emphasis, "reality" says most students will go directly to work, not school.

3. False promises are being made to the public, parents and most importantly, students. When the minister says the program will "help alleviate the continual shortage of skilled tradesmen", many will understandably jump to the conclusion that students will come out of the career preparation programs as skilled tradesmen. They, of course, won't, but they may well feel cheated.

And even if they can obtain advance placement or credit in college vocational courses of pre-apprenticeship programs, many students will have to wait up to two years just to get into the programs. The reality for the student is not likely to be the easy transition implied in political statements.

And who is likely to be blamed? -- the school system again.

4. The program director places great emphasis on the fact that these programs "are not to be offered at the expense of other programs". One of the criteria for a program to quality for funding is that: "space and equipment must, in almost all instances, be available without additional capital funding".

However, one of the other criteria is that "appliations must originate from the school district office". The reality of effect on other programs and available space and equipment are often seen quite differently in the school district office than the teacher sees them.

The reality, as reported by some teachers in schools with pilot programs, is that:

> Time, interest and priority goes to programs that are valued by an outside group, as demonstrated by big bucks (40% of an instructional unit extra funding for each 15 students);
>
> A large number of students are missing out on shop time because so much is devoted to students with the 700 hour requirements; this has particularly produced a significant drop in the number of girls in the industrial education courses;

Interestingly, the program director says the funding is "to repair the impact on the total school district, not to fund the specific program".

5. The options for students are greatly narrowed.

As one teacher said, "The students are not allowed to make decisions; the program is making them for them".

Some students have complained that their options for electives are too limited, and it is no wonder when one looks at a sample program for a student in one of the hairdressing programs: of the minimum twelve courses over two years, he/she would have to pass six hairdressing courses, four general education constants, and two electives.

One has to wonder how well this student will be prepared to enter some distinctly different occupation if he/she develops an allergy to the fluids used in hairdressing, let alone how broad a general education the student has.

6. The B.C. Federation of Labour is opposing the program. The B.C. Federation of Labour policy on secondary schools says that "students should be able to take what elective courses are relevant to them without restriction based on academic or non-academic channelling". The B.C. Federation of Labour policy also indicates that vocational training is appropriate at the post-secondary level.

7. The principal of one school with more than 10% of his students in a career preparation program says the money can have significant positive impact on working conditions for teachers: smaller class

sizes; in-school time for teachers to do the things they are expected to do through double preparation periods, markers in the class with them while they teach, and the like. All of these are quite positive, but will similar provisions be made for others, such as English teachers for example? Or primary teachers?

And the program director admits that once the approval is made, the money goes into the board budget and "local autonomy" reigns. Getting it to the school level will depend on the insistence of principals and teachers.

And the reluctance at both the secondary and post-secondary levels reflects not a Luddite desire to destroy a new advanced technology, but a genuine and legitimate concern about potential damage to the ways in which institutions do actually serve the needs of the children.

The colleges can have legitimate fears this program is part of a ministry strategy to destroy the autonomy of the colleges.

And secondary school people must recognize that the effect of the "laddered", articulated program will be to focus the senior secondary school even more in the direction of the tertiary institution, with the secondary school having to adjust its program to meet college course credit requirements, rather than accepting the fact that secondary and post-secondary institutions have <u>unique</u> and <u>different</u> aims.

And in the midst of all this, there are advisory comittees for each program representing business, labor, school trustees, educators and the public "to supply information on skill requiremetns and job opportunities". How can a program be based on a standardized, province-wide, secondary/post-secondary curriculum, and at the same time be responsive to local committees identifying skill requirements. At the very least, there is the potential for conflict.

Once again, teachers may be left to pick up the pieces of expectations shattered by the disparity between the promises of political announcements and the reality of a program which is philosophically misguided and operationally confused.

HOW DOES CAREER EDUCATION DIFFER FROM VOCATIONAL EDUCATION?

Three essential differences exist:

1. Career education includes career awareness, decision-making, exploration, entry, and progression. Vocational education has only one of these components -- career preparation -- as its main thrust.
2. Career education is for all persons, whereas vocational education, as it now exists, concentrates its efforts primarily upon those seeking vocational-technical education at the secondary and subbaccalaureate degree levels.
3. Career education emphasizes both paid and unpaid work in the lives of individuals, whereas vocational education emphasizes preparation for work in the world of paid employment.

Extracted from: "Some Questions and Straight Answers About Career Education" in Today's Education, January - February 1975.

DRAFT FROM THE MINISTRY

CAREER PREPARATION PROGRAMS

Definition

A career preparation program is defined as a selection and arrangement of courses in general education subjects and courses in major vocational fields to form a systematic pattern leading to graduation from a senior secondary school with advanced admission to a post-secondary program and/or direct entry to a job. The courses required to complete a program consist of six approved specialty courses which include work study and related work experience, together with constants and electives to meet the requirements of secondary school graduation.

Major Objectives of the Program

1. Secondary school graduation
2. Qualifications for a Provincial Career Certificate
3. Articulated post-secondary credit to:
   a) College courses
   b) BCIT
   c) apprenticeships
   d) specialty employment
   e) general employment

Course Requirements (120 hours per course)

1. General education constants - 4 courses
2. Electives, freely chosen - 2 to 4 courses
3. Career preparation specialty - 6 courses (3 Grade 11, 3 Grade 12)

Specialty courses (from agriculture to welding) will be developed and laddered to contain secondary/post-secondary content in the particular vocational field and will be prefixed by CP 11A or CP 12, e.g.:

CP 11A (Cooking)	CP 12A (Cooking)
CP 11B (Cooking)	CP 12B (Cooking)
CP 11C (Cooking)	CP 12C (Cooking)

Note: Work study is an integral part of the Grade 11 program and may be offered as a full course. The work study course contains a CORE of necessary skills required to become an employee, e.g., safety, communications, recording, calculations, attitudes, etc.

Work experience is an integral part of the three Grade 12 specialty courses, and it is expected that a minimum of 100 hours will be spent at community work stations to provide on-the-job training.

Post-Secondary Articulation Process

To meet the objectives of a career preparation program it is necessary for a school district to form a close liaison with the appropriate post-secondary agency. Prior to making application to the ministry for a career preparation program approval, the school district must ensure:

1. That the post-secondary agency involved is identified.
2. That the curriculum to be followed is acceptable and laddered to post-secondary courses.
3. That the total program will meet the post-secondary requirements and criteria.
4. That qualified students will be permitted to write external examinations for appropriate credit.

Appendix H

RESOURCE TECHNOLOGY PROGRAM INTERVIEWS

STUDENT_____ GRAD YEAR_____

		Yes	No
1.	Do you have employment now that required the Resource Technology Program?	____	____
2.	If not, has the Resource Technology Program been helpful in your present job?	____	____
3.	Would it be helpful in your future plans? Comment:	____	____
4.	Do you feel that you are better prepared for a job than the students who didn't take the Resource Technology Program?	____	____

		5	4	3	2	1
5.	If you feel better prepared, react to the following possible reasons:					
	a. I learned how to work	___	___	___	___	___
	b. I know what the employer wants	___	___	___	___	___
	c. I get along better on the job	___	___	___	___	___
	d. I have some skills that are useful	___	___	___	___	___

6.	Did the adults other than the teachers help you to see how to become a better worker? Comment:	____	____

	Yes	No
7. Would you have finished high school if you hadn't taken the Resource Technology Program?	_____	_____

Comment:

8. What part of the regular high school program helped you to decide to take the Resource Technology Program? (Because you did not like the topic or activity.)

For example:

a. Math

b. Homework

c. Classwork

d. English

e. Other

9. Suggestions:

Areas of Excellence

Disappointments

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