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AN INTRODUCTORY COURSE IN TEACHING METHODS FOR  
VOCATIONAL TEACHERS

A THESIS  
PRESENTED TO  
THE FACULTY OF EDUCATION  
SAINT MARY'S UNIVERSITY

IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE  
MASTER OF ARTS (EDUCATION)

BY

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MARCH 1985

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## ABSTRACT

A program for training entry level teachers has existed in Nova Scotia since 1952. During the period 1972-1982, the program was held in five different locations. With each change, there has been a complete revision of the program: new teachers, new administrators and new materials. The Nova Scotia Teachers College has recently become the permanent home for the vocational/technical teacher education program. This provides the stability of the program necessary to introduce the course package developed for this study.

This study reviews the development of vocational education in the province of Nova Scotia and the parallel development of a Vocational Teacher Training program. In addition, vocational education and vocational teacher training in the United States and Western Europe was examined.

The main function of this work is to present a course of study for the beginning vocational teacher in teaching methods. This course was developed and modified during the summers of 1982-1983 at the Nova Scotia Summer School for Technical and Vocational Teacher Education at the Nova Scotia Teachers College. The methods and procedures outlined here were field tested during this period and adjusted in response to student feedback.

It is hoped that this completed action research project will provide a continuity of course materials for the program which currently does not exist.

## ACKNOWLEDGEMENTS

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## INTRODUCTION

Vocational and technical education has been defined as "any form of instruction, the purpose of which is to prepare a person for gainful employment in any primary or secondary industry or in any service occupation or to increase his skill or proficiency therein, and without restricting the generality of the foregoing, includes instruction for that purpose in relation to any of the following industries or occupations:

- (i) agriculture
- (ii) fishing
- (iii) forestry
- (iv) mining
- (v) commerce
- (vi) construction
- (vii) manufacturing
- (viii) transportation
- (ix) communications or
- (x) generally any primary or secondary industry or service occupation requiring an understanding of the principles of science or technology and the application thereof, except where such instruction is designed for university credit." (Technical and Vocational Assistance Act 1960)

In the province of Nova Scotia, vocational and technical education forms a vital part of the education system under the direction of a deputy minister responsible only for vocational/technical education. This newly created position indicates the importance of employment oriented education for our youth. The specific mandate of the incumbent is to oversee the operation of and increase the opportunities of the vocational and technical education structure in the province.

Vocational education in Nova Scotia is carried out in thirteen regional vocational schools and one composite high school. Eleven of the vocational schools are operated directly under the jurisdiction of the Minister of Education with the other two administered under amalgamated school boards. In addition

to the vocational schools, which primarily serve our youth; the province administers adult vocational programs operated in two Adult Vocational Training Centres and numerous modules throughout the province. Also, the vocational education system includes an Institute of Technology, a Nautical Institute and a Fisheries School.

There are approximately 1075 teachers in the vocational education system of the province. Due to reasons which will be detailed in a later section of this report, there is a high turnover of these teachers. This, along with the expanding vocational system, has created numerous positions for teachers in the vocational system. The need for trained instructors has resulted in the establishment of the Nova Scotia Summer School for Technical and Vocational Teacher Education.

The purpose of this action research paper is to examine the vocational/technical teacher education program in Nova Scotia and to provide an introductory teaching methods course package. In order to accomplish this task, teacher education programs in the United States and Europe were examined. In brief, the goals of this project are to review where we are now in vocational teacher training, what is happening elsewhere in this area and what should be happening in light of the review.

Research for this paper has been undertaken during the past few years and, like vocational education itself, has consisted of both theoretical and practical aspects. The vocational teacher education system in the United States was examined through a review of the available literature. The teacher education facilities of Europe (specifically the Netherlands and West Germany) were examined first-hand through an in situ seminar program and a tour of the vocational education institutions of these countries. The vocational teacher

education programs of Nova Scotia were examined during the summers of 1982 and 1983 when I participated as an instructor in these programs. During this tenure, the curriculum package included in this paper was developed and tested.

## 1.1 THE DEVELOPMENT OF VOCATIONAL EDUCATION IN NOVA SCOTIA

Although it is not the purpose of this paper to examine the history of vocational education in depth, a review of the major points in the growth of the vocational system would be useful. Included in this review of educational development is the influencing factors of the Canadian Federal Government and the manufacturing community.

Vocational education is not a new concept. Indeed, it is the oldest form of education, practiced by the cavemen in passing on their survival skills. In Canada, a formal vocational system can be traced to 1676 when a crafts and arts school was established at Saint Joachim, Quebec. (Stamp 1972) Although there are early isolated examples of vocationalism, development was, in general, sporadic and unco-ordinated. It was not until the late 1800's that pressure for job-oriented training programs developed.

The manufacturing community, not wanting to deal with many unrelated and unco-ordinated provincial governments, pressured the Federal Government for action in drawing up and financing plans for job-oriented training programs. Ottawa became involved in education, in spite of Section 93 of the British North America Act which assigned education as a provincial responsibility, by invoking the articles of Section 91 which charged the Federal Government with providing the economic requirements for nation building.

The Boards of Trade, the Canadian Manufacturers Association and the Trades and Labour Congress applied unrelented pressure on the Federal Government to become involved in vocational education. Through their efforts a Royal Commission was established in 1910 to "inquire into Canada's needs respecting industrial training and technical education.....". (Glendenning 1968)

This resulted in the Agriculture Instruction Act of 1913 which was the first instance of Ottawa providing money for direct educational assistance.

By 1920, every province had adjusted its educational system to the demands of the industrial age. Ottawa, through the Technical Education Act of 1919, defined the roles of both levels of government in vocational education. The role of the Federal Government was to fund and co-ordinate the work of the provincial governments and to give advice where solicited. The Act provided for a total of \$10 million to be paid proportionately to each province over a ten-year period. This marked Ottawa's first concrete move into vocational education and set the precedent for future assistance and guidance. (Glendenning 1968)

The period after 1920 was marked by development closely tied to the general economy of the country. Federal involvement in vocational programs was essential because, when Federal money stopped, the provinces stopped the programs. Up to 1939, development was ad hoc and sporadic. At the outbreak of World War II, all programs were placed under the War Measures Act and Ottawa took over hiring teachers, co-ordinating materials and supplies and funding the programs. Industry was involved through a close liaison with the schools. (Glendenning 1968)

For Nova Scotia, the Vocational Training Co-ordination Act of 1942 was most important. This Act combined all the vocational training programs in Canada under one piece of legislation. It provided for advisory councils composed of employers, employees, women's organizations, agricultural representatives, war veterans and adult educators. Through this Act, a comprehensive apprenticeship program was established, veterans were provided

with training and vocational schools were funded in their establishment.

Under this Act, Nova Scotia attained its first full-fledged vocational schools, opening in Halifax and Yarmouth in 1950.

The period from 1950 to 1970 saw a massive infusion of Federal funds into the provincial education system. Through the Vocational and Technical Training Act of 1957 and the Technical and Vocational Training Assistance Act of 1960, Ottawa poured over \$2 billion into vocational funding. This provided a tremendous stimulus to the provincial governments. Nova Scotia took advantage of this money and established the basic vocational system in place today. The number of vocational schools increased from two to thirteen and additional funds were allocated to increase the vocational training capability of high schools.

The system of Federal involvement has now changed. Through the Department of Employment and Immigration, the Federal government has now become a purchaser of school services from the provinces. Under the latest programs, the Federal Department of Employment and Immigration determines the needs of the students and industry, selects the students, pays them an allowance for attending the courses and pays the province, private schools or industry to provide the training. This program was established to bring basic opportunity for training and retraining within the reach of Canadian workers.

The Occupational Training Act of 1967 and subsequent Federal-Provincial agreements have shifted the emphasis of Ottawa from providing undesignated block funding to becoming a purchaser of tailored programs from the provinces. This has led to the parallel development of the youth vocational school system



whereby the province, through their own resources, provides vocational and technical education to our youth prior to entry into the job market and the adult vocational training system, where workers are upgraded or retrained prior to re-entry into the labour force.

As can be seen through the preceding, vocational education in Nova Scotia has progressed through the joint efforts of both the province and the Federal Government. Vocational teacher education, which is the focus of this paper, has progressed in parallel to the expansion of vocational education.

In the early 1950's, after the establishment of the two vocational schools and other retraining programs in the province, a system of vocational teacher training was established. In Halifax, training programs in pedagogy were compulsory for vocational teachers. These programs were operated both in the evenings during the school year and during the summers.

This system led to a combined Atlantic Regional Summer School established at the New Brunswick Institute of Technology in Moncton in 1960. Teachers beginning in vocational education from Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland were required to attend a three-year program in teaching methods, psychology and educational philosophy very similar to the program in place today (to be detailed later).

The program in Moncton continued unchanged until 1974 when Newfoundland opted to establish a separate program at Memorial University. The other three Maritime provinces continued at Moncton for 1974 but in 1975 changed venues to Fredericton and the University of New Brunswick campus. The program remained basically unchanged.

In 1976 Nova Scotia decided to establish a separate program and the Nova Scotia School for Vocational Technical Teachers held classes in Halifax at the Halifax Regional Vocational School. The next year saw another move, this time to the Nova Scotia Institute of Technology, also in Halifax.

The program remained unchanged until 1982 when the entire Nova Scotia Summer School program was moved to Truro under the jurisdiction of the Nova Scotia Teachers College. It is hoped that this move will result in a permanent home for the program.

### III. THE VOCATIONAL TEACHER

An examination of vocational teacher training must necessarily include a review of the vocational teacher. The primary goal of vocational education is to prepare the student for direct employment in their chosen occupation. Thus, the fundamental requirement of the vocational teacher is that he/she be accomplished in his/her trade area. Most newly hired vocational teachers are required to have a minimum of eight years of training and/or experience in the trade and also must have achieved a minimum of journeyman or equivalent status. This requirement is the prime reason for the differences which exist between the vocational teacher and his academic counterpart.

Who is the entry level vocational teacher? He or she is not a person who can be classified by averages. The beginning teacher in a high school or grade school can usually be grouped within very tight confines as to education, age, male/female ratios and teaching subject area. The vocational teacher simply does not comply to the law of averages. The following remarks are based on a survey of 73 first-year vocational teachers during the period 1982-83.

These teachers were questioned as to their reasons for leaving their trade and entering the teaching profession. The almost universal reply was given as a desire to improve their trade with better qualified entry level tradesmen. This concern with trade requirements is natural. The tradesman, who has spent a minimum of eight years practicing and perfecting his craft, has entered a new trade: teaching. The new job is fundamentally different in scope, application and approach. He or she has not yet become a "teacher". Even though the career change was done consciously, the new teacher has

moved from "expert" in his previous occupation to "beginner" in his new area.

The concern with improved trade practices may be at the expense of helping students. The attitudes expressed by these teachers show that the beginning teacher expects the student to change to meet the trade rather than to have the student develop along his best talents. This conflict between being a tradesman versus a teacher can be a source of frustration.

Another major area of concern is the high ideals and expectations of the beginning teacher. They have progressed in their trade to a position of competence and expertise. They are, if the selection process works, the best available person combining trade knowledge and personal qualities. They expect their students to have the same goals, ideals and drives toward their occupation. All too often this is just not so. This transference of ideals can lead to frustration until the teacher gains the required experience that will allow development of those desires within the students.

Of the entry level vocational teachers, 57 (78%) were male while 16 (22%) were females. This reflects the general composition of the provincial vocational schools for both teaching staff and students. The schools tend to be male dominated. In fact, all vocational schools have males as principals and vice-principals.

The trade areas represented by these teachers were very diverse. Thirty-four different occupations were represented by the group. In fact, in the vocational school system alone, there are 68 trades being taught (Appendix A). These courses require different attributes of both teacher and student. This diversity of occupation and attitudes can lead to problems and conflicts between course and trade area.

The greatest differences in the entry level vocational teachers can be seen when examining their ages. The youngest was 26 years old while the oldest was 57 for a range of 31 years. The average age was 37 years 6 months, while the median was 37 years. The following table will show the wide range of ages.

| <u>Age Group</u> | <u>Number</u> | <u>%</u> |
|------------------|---------------|----------|
| 25 - 29          | 14            | 19.1     |
| 30 - 34          | 22            | 30.2     |
| 35 - 39          | 7             | 9.6      |
| 40 - 44          | 16            | 21.9     |
| 45 - 49          | 6             | 8.2      |
| 50 - 54          | 2             | 2.7      |
| 55 - 60          | 6             | 8.2      |

It should be noted that the minimum age for an entry level vocational teacher is effectively placed in the late twenties. This is due to the minimum requirement of eight years of training and experience. The relatively high average age of the new vocational teacher results in a much shortened teaching career and leads to a relatively high turnover of teachers in the system.

The educational achievement of the beginning vocational teacher has great extremes and a large area of commonality. Of the 73 teachers surveyed, the lowest achievement was grade 6 while the highest educational level was a university degree (B.Sc.). Despite these widely differing extremes, the average entry level educational achievement is junior matriculation plus a completed trades course of one or two years duration. In fact, 52 (71%) of the teachers in the survey group had exactly this qualification. The majority of the others had within one or two years of this average education.

The main problem with the new teacher in regards to education is the fact that an average of fifteen years have passed since their last formal educational experience. This creates some problems in being able to reorient themselves to classroom study and causes some frustrations in their teacher education program. Learning during their trades career has normally been ad hoc and informal. Where formalized instruction has been required, it has usually been of a short duration (2-3 days) seminar application type.

Another primary difference between the vocational teacher attending the training program and his academic counterpart is the availability of position. While teacher training institutions have been graduating more and more teachers, the employment of new teachers has been declining. Of the 73 students attending the summer school for vocational teachers, 71 (97%) were employed prior to attending the school or contracted for employment for the subsequent September. This security of employment is necessary to cause the tradesman to leave his job for teacher training.

As can be seen from the preceding, the "average" vocational teacher is a mythical person. Age differences, educational differences and trade differences create a group of teachers where each is truly unique. These diversities can create many problems in designing a teacher education program that will enable these students to fully change from tradesmen who happen to be teaching to teachers who teach a trade.

#### IV. VOCATIONAL TEACHER TRAINING IN NOVA SCOTIA

Currently in the Province of Nova Scotia, a beginning vocational teacher is required to attend a three-year program in teacher training offered at the Nova Scotia Teachers College. The course content is predetermined and fully structured. It consists of three thirty-hour courses in each of the three years. Additionally, the teacher is offered incentives by way of license increases to further his education. Each of these upgrading routes will be examined.

The following is a summary of the courses offered in the Technical and Vocational Teacher Education Program:

##### Hours

##### Year 1

|   |    |
|---|----|
| VC010 - Basic Psychology.....                           | 30 |
| VC011 - Methods of Technical/Vocational Teaching I..... | 30 |
| - Additional Time - Practice Teaching I.....            | 30 |
| VC012 - Tests and Measurements .....                    | 30 |

##### Year 2

|  |    |
|--|----|
| VC020 - Educational Psychology.....                      | 30 |
| VC021 - Methods of Technical/Vocational Teaching II..... | 30 |
| VC022 - Technical/Vocational Course Construction.....    | 30 |

##### Year 3

|   |    |
|---|----|
| VC030 - Principles of Technical/Vocational Education..... | 30 |
| VC031 - Role of Teacher in Guidance.....                  | 30 |
| VC032 - Methods of Technical/Vocational Teaching III..... | 30 |

##### Course Descriptions

##### VC010 - Basic Psychology

Topics covered include: the healthy personality; effective learning; effective thinking and problem-solving; childhood, adolescence, adulthood; the why of behaviour; understanding emotions; understanding perception; understanding personality problems; understanding the unhealthy.

personality; and lastly, the diagnosis, treatment and prevention of unhealthy personalities.

#### VC011 - Methods of Technical/Vocational Teaching I

This course is designed to give the beginning teacher the essential knowledge and skills to function effectively in the classroom.

This course will cover the accepted methods, techniques and skills of teaching. The factors affecting learning will be investigated as well as the basis of learning evaluation. It will also cover procedures of planning, administration, discipline, etc. which are essential to good classroom management.

An additional period of 30 hours will be devoted to practice teaching. The candidates will be required to prepare and present actual lessons of topics applicable to their subject-area, which will be recorded on video-tape. Students should give some prior thought as to lessons they may teach and arrive prepared with necessary tools, materials and references. Evaluation will be based on the candidate's ability to present the lesson as though it were a normal instructional situation. Students will be given the opportunity for self-evaluation of lessons presented by means of videotape.

#### VC012 - Tests and Measurements

An introductory course designed to acquaint the student with the basic concepts and problems of testing, planning the test, types of items, marking, grading, reporting evaluation and revision.

Practical application in preparation of the different types of teacher-made tests and examinations will be required in addition to the lectures.

#### VC020 - Educational Psychology

Topics covered include: understanding growth and development; basic needs, learning and development in the pre-school, school and post-school period; understanding the general nature of learning; retention and transfer; attitudes, interests and values, concept formation



and problem-solving, creativity, individual differences, measurements and evaluation; learning to cope with stress; exceptional individuals.

VC021 - Methods of Technical/Vocational Teaching II

The aim of this course is to demonstrate the production methods of various teaching aids and the techniques of incorporating them effectively in a classroom.

This course covers the preparation and reproduction of information, projects, assignments, sheets, etc.; the use of slides, film strips, films, etc.; the making of overhead transparencies and techniques of using them effectively in an individualized learning environment. Self-evaluation through the use of videotape will assist the learners in determining the quality of their presentations.

Students should arrive prepared to teach (with the use of instructional aids) an introduction to the courses which they are or will be teaching in their own schools.

VC022 - Technical/Vocational Course Construction

This course is designed to assist the teacher to select and organize instructional material and activities into logical and effective teaching units in keeping with the objectives of the course and the need of the students. Techniques of developing course and instructional units are discussed and evaluated. Emphasis is placed on approaches to individualized learning. The student has the opportunity to increase his competence in constructing and developing a vocational course of study.

VC030 - Principles of Technical/Vocational Education

The course is designed to develop an understanding of the meaning and functions of vocational education, and a familiarity with its organization. Also, it provides an opportunity for the teacher to gain an awareness of problems and practices pertinent to the development of vocational training programs.

VC031 - Role of Teacher in Guidance

This course is designed to introduce to the teachers the philosophy, principles and practices of guidance in the schools. Emphasis is also placed on the role of the teacher in studying pupils and how the teacher can help individual students to achieve their maximum potential.

VC032 - Methods of Technical/Vocational Teaching III

This course covers two topics:

(a) A study of the various systems of individualized instruction; the theoretical basis for individualizing courses - individual differences, organizing individual courses, selection and development of materials; management of individual student progress and,

(b). A study of the group instruction system including reaction learning, interaction learning, organizing courses and lessons, preparation of resources and instructional management.

(Nova Scotia Teachers College Summer School Calendar)

These courses are subsidized fully by the Department of Education, Province of Nova Scotia for teachers employed by the province.

The training provided aims to give the teacher a general, theoretical base for teaching, covers the requisite functions of teaching and allows for the transformation from tradesperson to teacher. These courses are deemed to be adequate in the preparation of the vocational teacher. Unfortunately, in many cases, the program does not succeed. Students encounter two major problems in the program which affect their teaching performance: timing and content.

The courses are spread out over a period of three years. This means that the teacher has encountered the problems and situations that will occur

in a classroom before receiving training to cope with them. The teacher must use a "trial and error" intuition method of solving these problems. If the method has, to some extent, succeeded, this method (which has been "proven") will be used instead of the correct methods subsequently taught in summer school. In fact, the discovery method of teaching is encouraged by this system. The majority of vocational teachers in this province attend their first summer school session after their first year of teaching. Inappropriate methods and practices have been reinforced and may not be changed easily by short duration programs.

The second problem, one of content, is much more subtle than the problem of timing. The courses offered appear to cover the full range of requisite teacher training. The problem is in application. Vocational teachers attend courses designed to aid in vocational education, controlled by vocational administrators and taught by vocational educators. The courses are practical, fact-oriented and pragmatic. They tend to concentrate on the teacher and his/her behavior and tend to ignore the student. The result is a teacher who can effectively lecture, demonstrate, use A-V material and manage a shop or classroom. The interpersonal skills necessary to effectively teach students of differing abilities and backgrounds are questionable. Whatever humanistic skills the teacher uses are inherent rather than learned.

Upon completion of the summer school program and the subsequent obtaining of a Vocational Teaching Certificate, vocational teachers may proceed to upgrade their license. The courses, subject to approval of the Department of Education, may be either vocational or academic. The vocational courses are to be applicable to the trade being taught and are to be oriented to keep the vocational teacher abreast of industry developments.

The academic courses, which represent the simpler route, have allowed many vocational teachers to start and complete various degree programs. In both cases, there are certain problems.

The vocational course route suffers from restrictions that can effectively block the progress of the vocational teacher. The courses are required to have a theoretical component that is equivalent, in teaching hours, to a university level credit. When the practical component, which is not credited, is added on, the result is a course which requires three to four hours of work for each equivalent hour of a university course. The second problem with vocational upgrading courses is availability. It is very difficult to find courses at a suitable level that are of sufficient duration to qualify for upgrading credit.

In the early 1970's, the universities of the province responded to a need and established degree programs specifically for vocational teachers. These programs enable many currently employed vocational teachers to upgrade their qualifications by attending classes at a university or at any of a number of extension centres. The formal programs have been largely phased out, but the availability of advancement opportunities remain through individualized programs. The problem is that many of these courses are taken for reasons other than their relevance to the classroom situation.

Through the extension courses, teachers may undertake degree programs. Unfortunately, these centres cannot offer a full range of courses and the teacher literally has to accept what the university offers. This problem is solved for teachers who attend classes at the main university campus. Here the problem is one of time. Courses are selected, even in the Education Department, not with a view to improved teaching, but to fit into a particular

time period. The teacher who completes these programs is undoubtedly enriched as a person but may or may not be able to translate the results in positive action in the classroom.

## V. VOCATIONAL TEACHER TRAINING IN THE UNITED STATES

In attempting to develop a curriculum package for training vocational teachers, we must examine what is happening elsewhere. As is the case in many of our endeavours, the source of much research and application of vocational teacher training comes from the United States. The American experience, as usual, predates the events in Nova Scotia by several years. By examining the trends in the U.S., we can adapt their solutions to our situation, hopefully avoiding their mistakes.

Adamsky and Cotrell (1979) have identified that the demand for teachers in health, agriculture, trade and industrial education prior to 1976 exceeded the supply by a significant amount. In addition, they also reported that many vocational teachers chose not to enter teaching after graduation. This shortfall of teachers, reported to be as much as 60% (Cross 1976), has supported a system of pre-qualification for vocational teachers in the U.S.

This system is similar to the training procedures of academic teachers and includes a degree program at a recognized teacher training institution. The tradesperson, having completed the minimum requirements for trades qualification, enters the training institution with full-time attendance. The degree program is entered into on speculation and without assurances of a teaching job upon graduation. Swanson has determined that the loss of these qualified teachers to the profession is a result of low salaries, a shift in job priorities and, in some cases, a change in teacher staffing requirements. (Swanson 1974) It should be noted that several jurisdictions in Canada have speculative degree programs for vocational teachers including York University

in Toronto and The University of New Brunswick in Fredericton.

The four-year university program provides for high quality teachers for vocational education; however, as previously mentioned, many trained teachers choose not to teach after graduation. This has led to recruitment of teachers directly from business and industry (as is the case in Nova Scotia). This, in turn, has produced a situation in which teacher qualifications and certification regulations in many states are subject to the laws of supply and demand (Swanson 1974).

This situation of teacher qualification is not consistent throughout the states of the United States. Glenn reports that one-half of the states require vocational teachers to have formal pedagogical preparation before beginning to teach and that five states require a minimum of a bachelor's degree prior to teaching. The situation in the other states is one of inconsistency of requirements based on individual need and available supply of teacher recruits (Glenn 1973).

Studies by N.L. Gage suggest that, as of 1974, vocational teacher education in the U.S. was not producing an adequate supply of quality teachers to meet the needs of the various educational systems. He noted that there is little evidence linking vocational teacher education programs and teacher effectiveness and he further suggested that the system of vocational teacher training was less than successful (Gage 1972).

At the same time as the previously noted deficiencies in teacher education were noted, there was developing significant changes in the way the programs were being delivered. The traditional approach was being discarded in favour of a more individualized approach. The DACUM (Developing A Curriculum) process of occupational analysis, the LAP (Learning Activities

(Package) system of delivering individualized instruction and the competency based system of task performance evaluation were changing the role of the teacher from that of lecturer and group leader to that of resource person or learning manager. In effect, the teacher becomes the facilitator of learning. The introduction of learning modules, continuous input/continuous output and individualized progress rates has freed the teacher from many of the mundane administrative functions and allowed a transformation into a true learning helper.

Norton and Huang in 1977 and Norton in 1982 explained the development of the Performance Based Teacher Education (PBTE) System. Through the late 1960's and early 1970's, many educators applied the DACUM system to analyzing the occupational requirements of vocational teaching. As a result of this procedure, the National Center for Research in Vocational Education undertook to coordinate and continue the research. They were able to identify 384 elements of performance associated with being a master vocational teacher.

Furthering their work, the National Center established a base for developing a PBTE system. This system is based on 100 modules developed around the performance elements for vocational teachers. Each module includes content appropriate to the performance elements and sequenced learning activities necessary to assist the learners develop the requisite skills. It has been suggested that proper use of the PBTE materials will redefine the role of teacher educator (Adamsky 1979). In other words, the vocational system will use the same techniques to train its teachers as it now uses to train its students.

Norton and Huang relate that many vocational teacher preparation institutions are making use of the PBTE materials. Ten states now require



entry level vocational teachers to complete the program. In addition, many institutions with formal programs in vocational teacher preparation have programs which make use of PBTE materials. (Included in this group is Holland College in P.E.I.) (Norton and Huang 1977).

According to the American Association for Vocational Instructional Materials, the PBTE modules had been purchased by:

- over 2800 different agencies
- over 500 colleges and universities of teacher education
- over 350 two-year post-secondary colleges and institutions
- over 100 government agencies in the U.S.
- over 300 business, industries and other private agencies
- 29 countries other than the U.S.

The AAVIM also reports that a further 39 modules are being developed, recognizing changing and expanding requirements in vocational education. Additionally, the original 100 modules in 10 categories are being rewritten and improved.

In addition to PBTE, Adamsky and Cotrell note that many institutions are opting to remain with the traditional preservice and inservice vocational teacher education programs. Although these programs do use the traditional time based, university calendar based approach, they have made allowances for the competency based approach and have established minimum standards for pedagogical competence (Adamsky and Cotrell 1979).

The individual American states use differing methods of vocational teacher education. Each jurisdiction uses a different approach and a different criteria set for training vocational teachers. There is a consistency, however, in the adaptation of the various routes used to achieve the introduction of performance or competency based training systems.

## **VI. VOCATIONAL EDUCATION IN THE NETHERLANDS AND WEST GERMANY**

During a two-week period in March, 1984, I was privileged to participate in a seminar program in Europe. This program consisted of lectures on vocational education and tours of a wide variety of institutions concerned with vocational education. In reference to this work, I was particularly concerned with the training of vocational teachers in the countries visited.

### **A. The Netherlands**

Vocational education in the Netherlands is funded and controlled directly by the central Dutch government. The provinces do not have a strong voice in formulating educational policy. This is possible because of the small size of the country. The control of vocational education is, however, jointly shared by the federal government and one of thirty-one National Boards. These boards each cover one branch of the labour market. For example, the automotive branch (V.A.M.) has joint administrative responsibilities for all automotive trades.

The apprenticeship system is completely operated under a co-operative education system. Education is perceived to be both a governmental and an industrial function. Thus, the apprentice spends one (or two) days in a vocational school, primarily concerned with theory work, and four (or three) days at the workplace, mainly concerned with practical applications. The breakdown of the work week is decided by age. All students under 17 years of age spend two days in school, all those over 17 spend one day in school. Under this system, journeyman status is attained after two years of study.

The course curriculum is controlled by the branch of industry concerned, and the programs are funded by the federal government. The curriculum

is similar to a modular training program. The student has a task book, which outlines the procedures to accomplish the task. These are for both the theory and practical aspects of training. At the end of a specified number of tasks, indicating plateaus of training, the student is required to attend a two-day testing program at one of the national testing centres. Each branch has one or two testing centres for their trades. Here the student takes written theory exams and solves practical problems. If successful, the student continues at the next level of training or graduates with journeyman status. If not successful, the student returns to study at the same level and is allowed to retest at a later date.

The cooperative education program is dependent on the availability of training positions in industry. Where these positions do not exist, the training system has established other vocational schools where full-time attendance is allowed. The graduates from these schools have the same requirements for graduation as do the students in the cooperative program.

The vocational training system of the Netherlands, in summary, can be said to be universally accessible and offers a comprehensive program for the students. Through the vocational school system, which has three levels of skill development, and the cooperative education system, the student can obtain journeyman status from the programs set up by the industry training branches.

Teachers from the various types of vocational institutions, prior to 1970, were recruited directly from industry without pedagogical training. In 1970, a vocational teacher training centre was established in Eindhoven. This centre focuses on initial teacher training as well as in-service teacher training to upgrade previously employed teachers. This institution, in southwest

Holland, is the only teacher training centre for vocational teachers in the country. All teachers must complete the school's program before being employed in the Dutch vocational program.

The system for teacher training at Eindhoven is either a three or four-year program. The three-year program graduates are certified to teach at the lower vocational school level which has students in the 12 to 16 year old range. The four-year graduates can teach at the senior vocational levels or the Technical Colleges which covers the age group from 16 to 21.

Prospective vocational teachers enter the Nieuwe Leraren Opleiding (N.L.O.) at Eindhoven upon leaving school at the upper secondary level. This is equivalent to our senior matriculation. As such, they have no practical experience in industrial topics. They have acquired the equivalent of one year technical credit through practical work. (The closest correlation in our system would be the industrial arts programs of the senior high level.) Therefore, in order to establish the technical qualifications of the teachers, the N.L.O. program contains components which allow the students to obtain their apprenticeship completion.

The student selects the program area for training upon entry. Four broad areas are established and the student can branch out to the specialties upon graduation. The broad areas are Electrical, Mechanical, Automotive and Architectural (including building trades). It would be useful in our examination of this school to follow the course of a typical student in the Electrical Engineering course.

The Electrical Engineering student in the four-year program completes the equivalent of ten courses over four years. They include:

- 2 courses in Electrical Fundamentals
- 3 courses in Energy Conversion
- 2 courses in Telecommunications
- 1 course in General Electronics
- 1 course in Additional Electrical Fundamentals
- 1 course as an elective in specialization areas

The three-year program would be identical with the deletion of the last two courses.

The courses are equivalent of one semester in length. Included in the program is the equivalent of one year in industry, spread throughout the four years in six to eight week blocks. There is also a total of 14 weeks of practice teaching in the vocational system. Additionally, the students have many opportunities for skill development through the construction of various projects. These projects become the subject of micro-teaching sessions.

The program also includes courses in the general theory of education, training methods and other pedagogical subjects. The technical qualification component of the program is about 75% of the student's work while 25% of the time the students are at the institute is taken up by pedagogic qualification. The graduate of the N.L.O. is certified as a journeyman in his specialist area and also certified to teach in the Dutch vocational education system.

#### **B. West Germany**

In order to examine vocational teacher education in West Germany, it is necessary to look at the entire vocational education system. This is required in order to understand the functions of the two different types of vocational teachers, one in the school and one in the workplace.

The administration and funding of education is the responsibility of the German Lander (provinces). They follow a program prescribed by the

German Federal Government, which constitutionally, is charged with ensuring uniformity of educational opportunity throughout the country. Therefore, the eleven lander each provide an identical education system. Each lander provides vocational training opportunities in approximately 455 different trade areas.

Vocational education functions under what is known as the "Dual system of vocational education". School is compulsory up to age 16 for full-time attendance and an additional three years for compulsory part-time attendance. Under the dual system of apprenticeship training, this additional time is achieved through a contracted cooperative program. As in the Netherlands, the school is attended one or two days per week with the work place having the other four or three days. The time required for completion of the apprenticeship program is two or three years depending on the occupation. For those programs less than three years, the compulsory part-time school must be continued up to that limit.

Under the dual system, the employer and employee sign a contract covering the term of apprenticeship. The company pays the apprentice a wage and agrees to complete the practical training. The requirements and standards are set by committees in each of the 455 trade areas. The examinations are totally specified and unified ensuring consistency of qualification regardless of geography and the size of the training company. The theoretical aspects of the trade are covered at vocational schools in the one or two days a week allotted for such training.

According to proponents of this system, the system has many advantages. Among them are:

- (a) Low rate of unemployment of youth as two-thirds of all students follow this educational route.
- (b) Any technological advance is brought into the educational system as soon as it is adopted by industry.
- (c) Since the apprentice is already familiar with the workplace, the transition to employee is very smooth.
- (d) There are lower capital costs for government since the money invested in the system is mainly from industry.

A typical vocational school in Bocholt was visited during the seminar program. The size of the building was equivalent to a medium-large vocational school in Nova Scotia. The school in Bocholt had 2600 students attending one day a week for seven or eight hours. The Nova Scotia equivalent would house about 700 students on a five day a week program. There were 73 full-time teachers for these 2600 students and the school offered 83 different courses. The programs covered two and one-half to three year apprenticeships under a block release system.

When not attending the vocational school, the student would be attending the training facility of the firm to which he is apprenticed. This may be a large or small establishment, but the training facility is for apprenticeship training only. The students are not permitted to become full-time producing workers under the program. In other words, production cannot replace education. The firm assigns employees, on a permanent or rotating basis, as shop teachers/supervisors for the apprentices.

Teacher training for the vocational system is established according to function. The vocational teacher in the vocational school must have achieved a minimum of master status in his trade area which usually consists

of eight years of experience followed by a stringent examination. In addition, the vocational teacher must have graduated from a two-year university level program in pedagogical subjects.

The requirements for teaching at the workplace are not so strict. The company selects the teachers from their own workforce. They must be of journeyman status and a minimum of 24 years old. They must also have pedagogical and psychological training which can be obtained through a forty-hour seminar program sponsored by the Boards of Trade and Commerce.

From the preceding, we can see that vocational education and vocational teacher training in the Netherlands and West Germany is offered under a comprehensive and well thought out system. The qualifications to teach in a vocational school are consistent and, in some cases, quite high. On the other hand, the qualifications required to teach the industrial component of the cooperative education system vary from none (in the Netherlands) to very little (in West Germany). Each country has concepts that may be adopted when examining our system of vocational teacher training.



## VII. RECOMMENDATIONS FOR CHANGE

If the vocational teacher must be more than a mechanic, plumber or electrician who conveys information to his students in a machine-like manner, the system of training the vocational teacher must change. The methods currently employed in Nova Scotia for vocational teacher training need not be completely discarded; in fact, they are excellent for teaching the mechanics of teaching. The need is for a change in timing and emphasis; a need for a program which fulfills the need for the mechanics of teaching and develops the personal qualities of the teacher.

The ideal training method would be a program to cover all the requisite skills before a teacher enters the classroom. This method is widely used for academic teacher training and vocational teacher training in the U.S. and Holland. Unfortunately, the requirements for vocational teachers in Nova Scotia are not sufficient to train a pool of qualified vocational teachers. Since the vocational teacher must be trade specific, generalization is not possible. Job openings for vocational teachers are erratic and frequently must be filled on the short term. This necessitates an ad hoc hiring policy which limits the amount and type of change to be implemented.

Change, however, must be made if we are to advance in providing better teachers for our students. With these limitations and considerations in mind, I put forward the following recommendations.

1. That the current summer school program for vocational teachers be maintained but with increased emphasis on interpersonal skill development.
2. That wherever possible teachers be required to attend the first summer school session prior to entering the classroom.

3. That a "master teacher" program be implemented in each of the vocational training institutions. The purpose of the master teacher would be to serve as mentor to the beginning teacher.
4. That a coordinated program for license upgrading be implemented that allows for meaningful, consistent methods of advancement.

These recommendations would allow for the development of teaching skills in the tradesperson in a coordinated cohesive manner. The requisite mechanics of teaching would still be learned in the same way as now, but the emphasis would be on the development of communication skills. The teacher would be a teacher not a tradesman.

The current summer school program is excellent for providing the "nuts and bolts" type of training necessary for teaching. The courses in Teaching Methods, Course Construction, Tests and Measurements, etc., are excellent and could be a part of any beginning teacher training program. The problem, if indeed there is one, is that the courses, particularly in the second and third year, are not interrelated and coordinated. With a very small shift in emphasis, this may be corrected.

The first year methods course is probably the most important in the development of the beginning teacher. Here the general tone of teaching is developed. The main purpose of this paper is to propose a curriculum package for the VCOI Methods of Technical/Vocational Teaching I course. This will be presented in the next section.

The majority of teacher requirements are known to the school boards before the end of April, four months prior to the start of the new teaching year and two months prior to the start of summer school. If the hiring process was more streamlined, the new teachers could be hired before the start of

summer school. This would allow for implementation of Recommendation 2 which suggests that the first summer school session be completed before teaching.

The current practice varies from school to school. Some schools do require their beginning teachers to attend summer school before teaching, others hire their teachers and immediately place them in the classroom. This, I believe, leads to development and reinforcement of poor teaching habits. The "trial and error" method of problem solving is encouraged and student-teacher relationship suffers. The vocational teacher, in fact any teacher, has enough to deal with during his first year of teaching that we should not burden him with reinventing the teaching methods wheel. Skills and solutions to problem situations which may be easily taught in a summer school program need not be learned (or improperly learned) in an ad hoc manner in the classroom. A similar, albeit ridiculous, parallel would be to tell a person to build a house and, then, by pointing out his errors and mistakes, train him to be a carpenter.

Implementation of a "Master Teacher" program would supplement the teacher training program. In our vocational system we have many excellent, well qualified teachers. These teachers, recognized both by administration and peers as being superior, should be recruited to aid beginning teachers. The new teacher would be assigned to a Master Teacher for a period of three years. The Master Teacher would serve as advisor and mentor in the areas of teaching methodology and problem solving. This would allow problems to be approached with the aid of experienced and qualified assistance. The Master Teacher would, of course, benefit from an incentives program which would provide a stipend for his time and efforts.

Frequently, the beginning teacher will not seek out assistance to problems as they develop because this may be perceived as a deficiency in the teacher. This concern with the appearance of competence frequently allows the problem to escalate. The Master Teacher would permit the teacher to confidentially seek aid and a "no fault" solution to problems. The beginner and the Master Teacher would have regular scheduled discussions on the progress of the teacher. As well, the Master Teacher would be available for assistance as the need arises.

The fourth recommendation deals with the upgrading of teacher qualifications. Currently, the requirements for license increases are established through regulations and administered by the Registrars Office of the Department of Education for the province. There are a multiplicity of routes which allow for vocational courses, academic courses, pedagogical courses or a combination of only two or all three. These courses are not universally available, resulting in a disproportionate number of higher licensed teachers in the metropolitan areas than compared to the more rural areas.

Coordination of the upgrading qualifications of vocational teachers should be through the Vocational Education division of the Department of Education. Trade courses should be developed and encouraged in order to maintain the skill levels required by the changing industrial setting. We can no longer afford the encouragement of meaningless and unnecessary courses for vocational teachers. Reward should be given for courses which enhance the teacher's ability to teach, not simply for courses that are given at a convenient place and time, regardless of subject matter.

The core of this recommendation would be the recognition of the

PBTE modular program for upgrading credit. Adaption of this program would recognize that professional development can be achieved on an equal basis throughout the province. A prescribed course using these modules can be established using the Master Teachers as on site course guidance people. A centralized modular testing area can be established, which will provide for consistent and uniform standards of achievement. Within the proposed program, a formal course attendance requirement would be established. This would be given through the facilities of the Nova Scotia Summer School for Vocational Teachers as a post-graduate course.

Recognition of a modular training course in teacher education would align the teacher training system to the system of vocational education currently being developed in the province. It should be noted that many aspects of vocational teacher training used in other jurisdictions have been included in these suggestions.

## VIII. AN INTRODUCTORY COURSE IN TEACHING METHODS FOR VOCATIONAL TEACHERS

The following curriculum package is for a survey course in Methods of Teaching for beginning vocational teachers. It has been developed during the Nova Scotia Summer School for Vocational Teachers sessions of 1982 and 1983. This package will include:

- A. Rationale
- B. Introductory course description and topical outline
- C. Description of course requirements, assignments and evaluation
- D. Detailed description of outline topics including
  - 1. Presentation instructions
  - 2. Information sheets and handouts
  - 3. Reference material
- E. Conclusions and evaluations

During the two-year developmental stage of the course, 36 students attended classes; 25 in 1982 and 11 in 1983. These students were typical vocational teachers; that is, there was no commonality of the students. There were extreme variations in age, prior education level, teaching subject, geographic location, etc. Their reactions to the course, which will be included in the concluding section, would be typical of beginning vocational teachers.

The course was taught at the Nova Scotia Teachers College in Truro, Nova Scotia. Approximately two-thirds of the students were in residence for the summer, while one-third commuted on a daily basis.

#### A. RATIONALE

Although the students in this course are acknowledged to be competent in their individual trade areas, they must be equipped with the proper skills to achieve success in their new job - teaching. This course is primarily a survey course designed to provide a range of basic skills and essential knowledge for the beginning teacher. It covers a broad range of techniques, methods and skills required for good classroom management. The primary focus of the course is on the teacher as a facilitator of learning and is, therefore, a student centered course.

As there are no prerequisites for the course other than the requirements needed to obtain a teaching position in a vocational school, there are no assumptions as to prior knowledge for the students. The evaluation system of the course, and especially the reading assignments, is designed to allow success for effort and achievement during the course rather than allowing the student to rely on prior knowledge. The course has a secondary function which is designed to help the student establish habits of study that may be used in further courses. The introductory methods course should be closely coordinated with the other first-year courses. The Introductory Psychology and the Tests and Measurements courses combine with this course to form an integrated first year. Many of the problems encountered and solutions used by the students are addressed by all three courses but each uses a different focus.

## B. INTRODUCTORY COURSE DESCRIPTION AND TOPICAL OUTLINE

The Methods of Technical/Vocational Training I course is a 60-hour course in the basics of teaching. Thirty hours are devoted to instruction as outlined on the topical outline while thirty hours are of micro-teaching sessions using the remainder of the class as teaching subjects. The format of instruction has been established for a thirty-day program with one hour per day of instruction and one hour of micro-teaching but it is flexible so that other time allocations may be considered. For example, a five-week session would require two hours twenty-five minutes per day of instruction and micro-teaching.

Students are evaluated on an individual basis based on achievement during the course rather than on previous knowledge or achievement.

Following is the course description as given to the students and the topical outline for the course.



## METHODS OF TECHNICAL/VOCATIONAL TRAINING I

The purpose of this course is to provide a broad survey of the essential knowledge and skills necessary for the beginning teacher to function effectively in the classroom. You will study the methods, techniques and skills required for successful classroom and shop instruction. In addition to the "mechanics" of teaching, you will study the requirements for planning, administration and discipline which constitute effective classroom and shop management. Also, you will examine the factors affecting learning and the basis of learning evaluation.

An additional 30 hours will be devoted for practice teaching. You will be required to do three formal presentations in addition to several informal or impromptu presentations. The formal presentations are:

1. An Introduction to Your Course -  
Time: 10 - 15 minutes
2. A Demonstration of an Aspect of your Trade -  
Time: 20 minutes
3. A Classroom Lecture -  
Time: 30 minutes

The formal lessons will be accompanied by full lesson plans and will include the skills learned in the methods section of the program. The student will be taped on video tape during the presentation and will have the opportunity for self-evaluation after the presentation.

There will be several written assignments, due at various stages of the program. You will be required to develop course objectives, lesson plans and comments and to participate in group presentation on a teaching method. In addition to course information sheets, supplementary readings will be

assigned from time to time. Also, there will be two tests, tentatively scheduled for July 26th and August 11th.

The final mark will be composed of the following components:

40% for Practice Teaching

30% for Tests

20% for Assignments

10% for Participation

## TOPICS FOR METHODS I

1. Learning - Definition and discussion.
2. Planning the Instructional Unit -
  - (a) Develop program goals and objectives.
  - (b) Determine student needs.
  - (c) Define performance objectives.
  - (d) Program planning and evaluation.
3. The Lesson -
  - (a) Developing the instructional unit.
  - (b) The lesson plan.
  - (c) Selection of instructional materials.
4. Teaching the Lesson - Techniques -
  - (a) Methods of group instruction.
  - (b) Questioning techniques.
  - (c) Simulation techniques.
  - (d) Problem-solving techniques.
  - (e) Reinforcing techniques.
5. Teaching the Lesson - Presentation -
  - (a) Introduction of lesson.
  - (b) Presentation of lesson.
  - (c) Summary of lesson.
6. The Student - An Individual -
  - (a) Individual differences.
  - (b) Individual instruction techniques.
7. Aids to Teaching -
  - (a) Instruction sheets.
  - (b) Demonstration of a concept and a skill.
  - (c) Audio-visual instruction aids.
8. Evaluation -
  - (a) Establish student performance criteria.
  - (b) Assess student performance -
    - i. skills
    - ii. knowledge
    - iii. attitude
  - (c) Assign student marks.
  - (d) Teacher self-evaluation.
9. The Covert Curriculum

### C. COURSE REQUIREMENTS, ASSIGNMENTS AND EVALUATION

This course is funded by the Nova Scotia Department of Education for vocational and technical teachers in Nova Scotia. In addition to tuition and books, the Department also pays a boarding or travelling allowance for students. One of the prime course requirements established by the Department is full attendance. While there is not a firm policy on the number of allowable days, any absences must be supported by reasonable documentation.

The course is open to teachers contracted for employment in the vocational training system of the province. This includes teachers in vocational schools under the Minister of Education and under the District School Boards, teachers employed at the Adult Vocational Training Centers or Modules and teachers at the Nova Scotia Institute of Technology, the Nautical Institute and the Fisheries School. If additional space is available, persons not employed as teachers may take the course on speculation and at their own expense.

Assignments are designed to compliment the classroom activities of the student. While not excessive, they do require constant work on the part of the student. It is expected that one hour of outside study and work would be the average for each hour of classroom work. This would be in addition to the time required for preparation of the micro-teaching sessions. In addition to the normal preparation and review required for the classroom activities, the course requirements require several formal assignments. They are:

- I. The student is required to select a broad topic area of his trade and analyze it. From the analysis, a minimum of ten objectives must be selected. These objectives will become the basis for teaching lessons.

2. During the instructional sessions, the student will be presented with many lesson plan components, terms and formats. The student is required to select those parts of the lesson plan that are best suited to his individual situation and to draw up an individualized lesson plan format.
3. Throughout the course, the student is required to read and comment on the points contained in pamphlets on teaching. Several hundred different copies of **The Master Teacher**, authored and published by Robert L. DeBruyn, Manhattan, Kansas, are used for this purpose. These are one page pamphlets, each containing a major and minor point concerned with the teaching profession. The student is required to read a minimum of 20 of the pamphlets and write a one or two sentence summary of the main point covered and write a one or two sentence opinion as to the value of the point to them.
4. The class will be separated into five presentation groups. Each group is required to select a topic from Topic 4 - Teaching the Lesson - Techniques and prepare for and conduct a class seminar on that topic.

The value of the assignments is 20% of the final mark.

The practice teaching sessions are an important part of the program. A total of thirty hours is devoted to this effort. The students are required to select topics for the presentations from within their own trade area and to present the lessons within the guidelines provided as to time and type of lesson. The remainder of the class serves as the teaching subjects and they are presumed to have the necessary background to accept the instruction. Evaluation of the lessons presented will be joint between the instructor and a peer group randomly selected. The presentations will be video taped and the students will be required to view the tapes after the teaching sessions. The tapes are used for self-evaluation only and do not enter into the evaluation system.

The amount of time to be devoted to each student for practice teaching sessions is determined by class size. Each student should have a

minimum of 1 1/2 hours total time for the micro-teaching lessons. This effectively limits the class size to 20. The following are considered to be the minimum required topics.

1. Introduction -

Each student is required to give an introduction of himself to the class. This occurs on the first day and serves as an icebreaking lesson. There is no assigned value for this presentation. A variation is to have the students interview and introduce a previously unknown class member.

2. Mini "How To ...." Lesson -

This again is an introductory, non-evaluation lesson. The students are asked on the first day to submit two "How To ...." topics. These may range from the ridiculous to the sublime. During the second day, the students are required to give impromptu presentations using these topics. The topic selection is random and done immediately prior to the presentation. There is a three-minute minimum and four-minute maximum time limit on their presentation.

The following presentations are scheduled and evaluated according to the attached evaluation forms and supported by full lesson plans.

3. Course Introduction - Time Limit 10 to 15 Minutes

The student is to prepare and present an introduction to the course that he will be teaching in the fall. The class is assumed to be new to the school and to the trade area. Special regard is made of the presenter's enthusiasm for his own trade.

4. Demonstration - Time 20 Minutes

The student is to demonstrate the functions of an activity associated with his trade. He is expected to supply the tools and equipment necessary for the activity. Special regard is made to the involvement of the class in the activity.

5. Lecture - Time 30 Minutes

The student is required to give a formal presentation on a topic area of his trade. The style and format is open and the student is allowed full leeway in use of teaching aids. As this presentation occurs towards the end of the course, the student is expected to demonstrate skills learned throughout the course.

These are the minimum required presentations and may be added to if class size permits. The practice teaching sessions comprise 40% of the final evaluation.

Two tests are included in the program - one at the approximate mid-point and one at the end. The mid-term test has a value of 10% towards the final mark and the final test is 20%. Sample test copies are included at the appropriate points in the description of outline topics.

To encourage meaningful discussion and comments, 10% of the final evaluation is based on class participation. Teachers must be the class leaders and this mark is designed to promote leadership qualities of the students.

# LESSON EVALUATION

STUDENT: \_\_\_\_\_

TOPIC: \_\_\_\_\_

| LESSON PART                   |                       |      |      |           | POSSIBLE MARKS | MARK |
|-------------------------------|-----------------------|------|------|-----------|----------------|------|
| Statement of objective, scope |                       |      |      |           | 5              |      |
| Motivation                    |                       |      |      |           | 10             |      |
| Review                        |                       |      |      |           | 5              |      |
| ITEM                          |                       | WEAK | GOOD | VERY GOOD | 50             |      |
| PRESENTATION                  | Appearance            |      |      |           |                |      |
|                               | Mannerism             |      |      |           |                |      |
|                               | Voice                 |      |      |           |                |      |
|                               | English               |      |      |           |                |      |
|                               | Use of Chalkboard     |      |      |           |                |      |
|                               | Teaching Aids         |      |      |           |                |      |
|                               | Questioning Technique |      |      |           |                |      |
|                               | Answering Questions   |      |      |           |                |      |
|                               | Clarity               |      |      |           |                |      |
|                               | Timing                |      |      |           |                |      |
|                               | Content               |      |      |           |                |      |
|                               | Organization          |      |      |           |                |      |
| SUMMARY                       |                       |      |      |           | 10             |      |
| APPLICATION, ASSIGNMENT       |                       |      |      |           | 10             |      |
| LESSON PLAN                   |                       |      |      |           | 10             |      |

COMMENTS: \_\_\_\_\_

MARK: \_\_\_\_\_



STUDENT: \_\_\_\_\_ TYPE OF LESSON: \_\_\_\_\_

PEER EVALUATION FORM

1. PREPARATION

- (a) Objectives, as per lesson plan. \_\_\_\_\_
- (b) Interest created and attention maintained. \_\_\_\_\_
- (c) Purpose clear. \_\_\_\_\_

2. PRESENTATIONS

- (a) Materials arranged in logical sequence. \_\_\_\_\_
- (b) Clarification of difficult areas by examples, illustrations, etc. \_\_\_\_\_
- (c) Use of appropriate aids (charts, overheads). \_\_\_\_\_

3. STIMULUS VARIATION

- (a) Eye contact. \_\_\_\_\_
- (b) Physical movement, gestures. \_\_\_\_\_
- (c) Voice
  - i) volume and pitch
  - ii) speed-pauses
  - iii) expression-articulation\_\_\_\_\_
- (d) Change in Interaction Style (teacher-class, etc.). \_\_\_\_\_

4. QUESTIONING SKILLS

- (a) Distribution of questions. \_\_\_\_\_
- (b) Use of probing technique. \_\_\_\_\_
- (c) Use of open-ended questions. \_\_\_\_\_

5. SUMMARY

- (a) Main points emphasized. \_\_\_\_\_
- (b) Attempt to assess student understandings.
  - i) oral questioning
  - ii) appropriate assignment\_\_\_\_\_

Use reverse side for general comments about the students - including such items as enthusiasm, sense of humor, creativity, attitude towards criticism and advice, maturity of judgement, etc.

RATING \_\_\_\_\_

#### D. DESCRIPTION OF COURSE OUTLINE TOPICS

This section includes the presentation of the topics covered in the course outline, copies of the information sheets and handouts used in the course and the additional reference material supplied to the students.

While attempting to illustrate some of the considerations which should be involved with each topical point, I will not present the material in lesson plan format. This, I believe, should be the prerogative of each individual teacher of this course:

While the organization and construction of the course is original, some of the handout material has been previously published. Wherever possible proper acknowledgement has been made. Some material has been adopted from the outlines of previous instructors of this program and the source of this material has been lost. I do, however, wish to acknowledge the contribution of several authors and their texts. There is no single text used on this course, but the concepts developed by these authors have been incorporated into the program. In order of importance to this work, they are:

Louis Cinci and Gilbert C. Weayer, Teaching Occupational Skills

W.R. Miller and H.C. Rose, Instructors and Their Jobs

Dennis C. Nystrom, G. Keith Bayne and L. Dean McClellan, Instructional Methods in Occupational Education

William E. Blank, Handbook for Developing Competency-Based Training Programs

It should be noted that each lesson included in the package is not an individual session for the students. Quite frequently, two or more lessons may be combined during one time period.

Lesson No.: 0

Topic: Course Introduction.

Presentation: As in any course, it is important to get off on the right foot. The introductory session of the course will set the tone for the following lessons. Since one of the basic precepts of this course is that learning and teaching are planned events, the concept of planning, planning and planning will be stressed throughout this lesson.

The following format is suggested for this session:

1. Introduction of the instructor - who, where from, background, etc.  
(The students will introduce themselves fully during the first Practice Teaching session and are now required only to give their name and school.)
2. Distribution and discussion of the course outline and topical outline.
3. Distribution of Lesson Evaluation Forms and discussion of Marking Methods.
4. Overview of Workload, Assignments, etc.  
It should be stressed that while the assignments are not individually great, if they are not completed according to a schedule, they may become very heavy.
5. Conduct the test, "Can You Follow Directions?"  
Upon completion explain that in order to be a good leader, you must first be a good follower.

Information Sheets: Methods of Technical Instructional Training I  
Topics for Methods I  
Can You Follow Directions?

### CAN YOU FOLLOW DIRECTIONS?

Can you follow directions? Of course you can. Or can you? Just concentrate. Time for the test is three minutes.

1. Read everything before doing anything.
2. Put your name in the upper right-hand corner of this paper.
3. Circle the word "name" in sentence two.
4. Draw five small squares in the upper left-hand corner of this paper.
5. Put an "X" in each square.
6. Put a circle around each square.
7. Sign your name under the title.
8. After the title write "Yes, Yes, Yes".
9. Put a circle around each word in sentence seven.
10. Put an "X" in the lower left-hand corner of this paper.
11. On the reverse side of this paper multiply 730 by 9805.
12. Draw a rectangle around the word "paper" in sentence number 4.
13. Write your first name when you get to this point in the test.
14. If you think you have followed directions up to this point, write "I have".
15. Add 8950 and 9850.
16. Put a circle around the answer. Put a square around the circle.
17. Count aloud in your normal speaking voice backwards from ten to one.
18. Now that you have finished reading this carefully do only sentences one and two.

Lesson No.: 1

Topic: Learning - Definition

Presentation: The beginning teacher must realize that teaching and learning are two sides of the same coin and can only be accomplished together. The emphasis of the course is that instruction is centered on the learner not the teacher.

The following are suggestions for using the information sheet.

1. Prior to giving out the information sheet, have the class develop a common definition of learning.
2. Pass out the information sheet and discuss the definitions of learning and teaching. Reconcile the definition given with the definition developed. Stress the role of the teacher as a facilitator of learning.
3. Review the principles covered in the information sheet stressing points #1, 4, 5 and 6.
  1. We learn best when we are ready to learn.
  4. We learn better from the known to the unknown.
  5. We learn better one step at a time.
  6. We learn by doing.
4. Remind the students that all too often the student is forgotten in the educational process and that all instruction must be centered on the learner.
5. As an assignment have the students select their individual six (6) most important points. Stress that these points must be used during the practice teaching sessions.

Information Sheet: Some Principles for Effective Teaching

### SOME PRINCIPLES FOR EFFECTIVE TEACHING

Teaching has been defined as "making efficient learning possible". Learning has been said to be, "Thinking into ones own understanding a new idea or truth, or working into a habit a new idea or skill". When one considers definitions carefully, the importance of purposeful student activity becomes obvious. To be effective, instruction must be pupil centered rather than teacher centered.

It is essential, therefore, that we know in constructing a vocational course some of the conditions when learning takes place.

1. We learn best when we are ready to learn, as is the case when we recognize the need, the purpose and the value of what we are learning.
2. The more often we use what we have learned, the better we can do it and understand it.
3. We learn better what we have learned and we are more likely to learn more when the things we have learned are useful and beneficial to us.
4. We learn better when we learn from the known to the unknown.
5. We learn better when we learn one step at a time.
6. We learn by doing. Learning becomes complete only after we put into practice what we are attempting to learn.
7. The learner is more important than the subject.
8. Activities should be centered around the learner rather than around the teacher.
9. We must recognize individual differences.
10. We should provide ample opportunity for study, critical thinking and practice.
11. We should vary teaching methods and use appropriate teaching aids.
12. We should limit the use of lecture methods.

13. We should introduce theory as it fits the practice.
14. We should check the learner's progress frequently.
15. We should implement application as soon as possible after presentation.
16. We learn better when what we learn is meaningful to us.
17. We know better when we have practiced more recently.

Lesson No.: 2

Topic: Learning - Discussion

Presentation: Review and updating of previously learned material is essential to reinforcing learning. This technique must be used throughout the course. In this lesson the points presented from the previous lesson are to be examined and expanded upon.

Points to be included are:

1. People learn because they need the learning. They learn by doing and in a logical step-by-step process.
2. The student learns best by activity. The activity must be performed when the student is prepared to learn.
3. The use of a multi-sensory approach to learning appears to work best because the various ways of learning build on each other.
4. The senses (sight, hearing, touch, smell, taste) combine to "make" a tradesperson. The teacher must use as many senses as possible when promoting learning.
5. Remember that learning begins with the learner and the learner's knowledge not with the teacher.

Information Sheet: How People Learn



### "HOW PEOPLE LEARN"

There are three main principles of learning. People learn best (1) by doing, (2) when there is a need for learning and (3) when new things are presented in terms of the old. By doing, we mean that the student must do "something" about the thing that is taught, if he/she is going to learn it well. Next, we want to know why we are doing things. We want reasons, explanations, connections and correlations. The teacher must recognize this and be prepared to make the best possible use of the student's natural inquisitiveness or be prepared to create curiosity and need. The need for knowledge may be intrinsic, extrinsic or stimulated by the teacher, but it must be present. Lastly, the student can only learn with the equipment he/she has. This equipment consists of a certain amount of manual dexterity, previous education, limited experiences and whatever natural aptitudes or abilities he or she may possess. It is up to the teacher to ensure that material is presented within both the physical and mental capabilities of the student.

Learning occurs through use of the five senses. It has been estimated that 75 percent of all learning occurs through the sense of sight, 13 percent through hearing, 6 percent through touch, 3 percent through smell and 3 percent through taste. These figures are averages and may differ depending on the subject being taught. The teacher must be expert in:

1. Utilizing those senses that are most important to the student in relation to the specific lesson at hand.
2. Stimulating these senses as often as possible for retention.
3. Utilizing a combination of as many of the senses as possible.

When the teacher stimulates a special sense in relation to an operation or other teaching point, he/she is giving the student another key to learning and recalling. There are practical ways in which a teacher can apply the skills of teaching to sense appeal.

Sight - The teacher may draw, sketch, diagram, demonstrate, show, write; use tools, equipment and materials. The teacher can have the students read, use books, label, color and observe industrial processes and machinery.

Hearing - The teacher must speak well, clearly, simply, distinctly, pleasantly, audibly, with change of tone and pitch. He or she must become skilled in the art of explaining.

Touch - The teacher must ensure that students feel, weigh, handle and use tools, equipment and materials.

Smell - The teacher must associate characteristic odors with trades, processes and materials.

Taste - The teacher must correlate the particular taste with the trades, processes and materials.

The teacher must be sure that all can use as many of the senses as possible in order to facilitate learning. In addition to performing operations, the senses can be used in detecting danger symptoms. Various smells, certain appearances, specific tastes are often warnings of impending breakdown.

The use of more than one sense in teaching is called the multiple sense appeal. Senses form the paths of communication between the teacher and the student. Students learn by:

Action - Participating, doing, applying what they have learned. The student may do the job, draw the diagram, practice the skill or perform the experiment.

Observation - Students watch as the operation is skillfully and successfully performed. The more observant the student, the more he or she will learn of the techniques of the job. The more the teacher stimulates thinking as the students observe, the more they will learn.

Imitation - This is the following of instruction in a step-by-step fashion. This means taking the student by the hand until the student masters the skill being taught.

Imagination - The ability to picture mentally, visualize and have abstract conceptions helps students learn. The process can be aided by sketches, drawings and explanations.

Reasoning - The ability to reason helps the student solve problems. This is the skill that allows students to reach conclusions and make comparisons.

Repetition - Repetition of the thing learned makes the learning more permanent, leads to greater skill in the operations of an occupation and by that proficiency instills confidence in the student.

"Learning starts with what the student knows, not with what the teacher knows."

Lesson No.: 3

Topic: Planning the Instructional Unit

(a) Developing Program Goals and Objectives

**Presentation:** It is essential to be able to properly plan the lesson. Many teachers have improperly planned a half-hour lesson that, when presented, lasted five minutes (or two hours). A thorough trade analysis is necessary in order to teach any subject (including teaching).

The following should be highlighted during this lesson:

1. All trades have major divisions and categories that can be readily identified. The automotive trade, for example, can include brakes, transmission, electrical, etc. These are the first components to be listed when doing a trade analysis. Point out that there is a sequence to the lesson development.

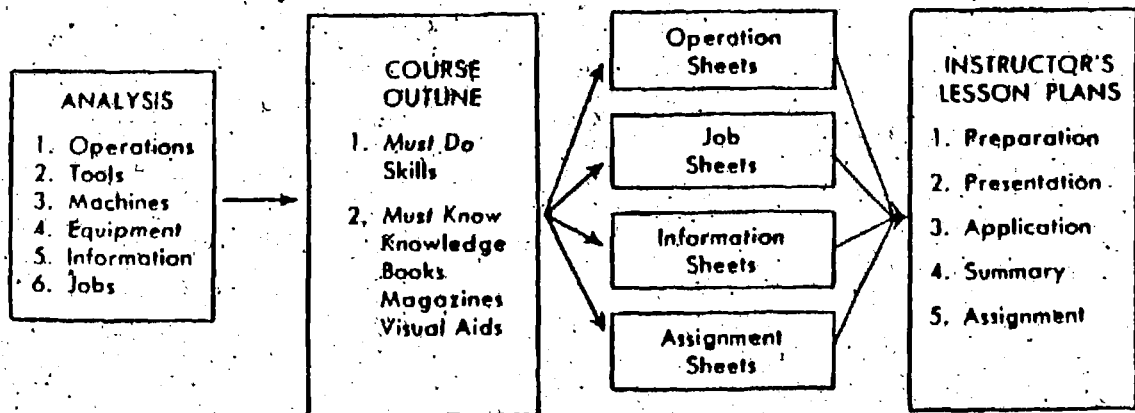
Major Division - Objectives - Teaching Aids - Lesson Plans

2. After the major trade divisions have been identified, the subdivisions can be identified. These subdivisions form objectives when they become the Topic or Aim of a lesson. (At this point it would be useful to refer to an established vocational course outline or Department of Labour trade outline.)
3. This lesson forms the basis for the assignment on trade analysis. He/she is required to select a trade area and select a minimum of ten objectives.

Information Sheet: Analyzing for Teachable Content

## ANALYZING FOR TEACHABLE CONTENT

It is important for the instructor to thoroughly understand what he/she must teach. Instructors in occupational subjects must teach the actual occupational techniques. There can be no make-believe -- real tools, equipment, materials, machinery, and practices must be used. The vocational students cannot simply be told what to do, they must be required to do the jobs. The shop experience must be as realistic as possible; therefore, the instructor must make an inventory of his occupation.



### THE BREAKDOWN OF AN OCCUPATION

- STEP 1 - Break down the occupation or subject into its most suitable division or categories.
- STEP 2 - Break down each division into the component parts that are best suited to the subdivision.
- STEP 3 - Break down each subdivision into teaching points by listing operational skills and operational information. List steps and skills.
- STEP 4 - Select suitable jobs that will include skills and operations to be found in the various subdivisions.
- STEP 5 - Develop a selected list of related information topics (Math, Science, Drawing, etc.) that must be taught to supplement the manual skills for intelligent performance and thorough understanding of the job.

The next step is to organize the results of the analysis.

- STEP 1 - Organize the operational or manual skills and jobs into a sequential arrangement in which the skills and jobs become increasingly difficult.
- STEP 2 - Arrange the related information units to complement the learning of skills, processes and jobs.
- STEP 3 - Develop instructional aids such as job sheets, information sheets, operation sheets and other work sheets to round out the use of occupational or subject analysis.
- STEP 4 - Develop lesson plans for effective teaching of the operation and information units.

Lesson No.: 4

Topic: Planning the Instructional Unit

(b) Determine Student Needs

**Presentation:** Once the lesson objectives have been determined, the selection of the method of teaching the material is determined. Remember that the trade topics and objectives are established by agencies outside the classroom, but that the teacher decides how to present the material.

At this point, information from the previous lessons is combined. This session should integrate the principles of learning and the lesson objectives into a basis for forming a teaching strategy.

The information sheet on Organizing Teaching Content should be reviewed and analyzed.

The teacher of this lesson must be aware of the constraints and problems involved in operating a teaching shop. This physical plant, for example, may not be exactly the same as the job situation. The machinery may be much older than that in current use or, indeed, may be much newer and of a higher technology than that in use in industry. The information sheet suggests that teaching must take priority over production, but often problems arise in this area. What happens when the Principal arrives at the shop door with plans for a pet project?

Information Sheet: Principles for Organizing Teaching Content

## PRINCIPLES FOR ORGANIZING TEACHING CONTENT

There are three basic principles to be observed in organizing teaching content:

1. Present material from the simple to the complex.
2. Present material step by step.
3. Present material in the best teaching sequence.

The teacher must be aware of the procedures of good course content organization. The list of things to be taught for an occupation is called a trade analysis and is arranged in a step-by-step sequence of difficulty.

The teacher must:

1. Develop and follow aims and objectives that are clearly understood.
2. Recognize those things that the trade analysis indicates the student should learn.
3. Know and understand fully the implications of the principles of teaching, which apply to organization.
4. Be aware of the resources and devices for learning and must put them to use.
5. Be aware of and implement the principles of learning and teaching.

Organizing teachable content is a major problem confronting a new teacher. He or she must develop new concepts and reorient his or her thinking in terms of the student's learning requirements. Quite often, the sequence of performance cannot be applied to the school situation in the same manner as the craftsman without some modification. The shop teacher has constraints such as: the age of the learner, safety



of tools and machinery, sequence according to the psychology of learning, physical limitations of supplies and job opportunities in the community. These factors tend to influence the development of a course of study.

Competent teachers are well organized. They know what must be taught and plan the effective use of shop jobs. They have developed the ability to approach the material to be taught in many ways such as:

1. Accuracy required in the finished job or product.
2. Speed with which the job must be done.
3. Number of operations or steps required to complete the job.
4. Degree of trade judgement required.
5. Calculations needed for the job.
6. Number, size and complexity of tools required for the job.
7. Material - quantity, type and cost.
8. Technical background information required such as blueprint reading and related science and math.
9. Machinery required.
10. Safety precautions to be observed.
11. Familiarity and dexterity required for the job.

The jobs developed by some instructors will be on the borderline of acceptability when compared to the above criteria. Questionable jobs may be included, but the instructor must plan to do part of the operation or preparation. As the learner gains confidence and skill, the teacher will need to do less and the student will do more. The ideal practice is to plan jobs which are within the ability of the student at the time the work

is requested. The instructor must take care not to supercede instruction with production. In addition to emphasizing student incapacillities, the instructor loses valuable teaching time by having to actually do the work himself. The shop should not become a repair department for doing jobs with questionable educational value.

Lesson No.: 4 (a)

Topic: Planning the Instructional Unit

(b) Determine Student Needs (Cont'd.)

**Presentation:** The operation of any piece of machinery or the performance of any task is dependent on a number of steps which are necessary to do the job. These are the **IMPORTANT STEPS** and they are the only things that are totally essential to the lesson. They are the fundamental common sense operations that must be learned in order to further the job.

The **KEY POINTS** are the make-or-break factors of the job, the hazards of the job or the tricks of the trade. These must be included as an integral part of the lesson.

**Instruction Sheet:** Important Steps and Key Points

## IMPORTANT STEPS AND KEY POINTS

### THE FIRST STEP:

What is an "Important Step"?

--- An important step is that "lump" of the operation in which something actually happens in furthering the operation itself.

For example:

"Take hold of the wing nut" is NOT a step.

"Screw down wing nut" IS a step.

"Adjust the tension" is the IMPORTANT STEP. Adjustment of the tension is fundamental to the operation at this point and is what actually happens when the wing nut is screwed down.

--- These breakdowns do NOT go into hair-splitting details. They are SIMPLE, COMMON SENSE analyses of the important steps in "putting over" a job.

What is a "Key Point"?

--- A large portion of every job is easy and can be done by almost anyone in a few hours or days.

--- It is 5 or 10 percent of the total that requires a real skill and takes time to learn.

--- "Key Point" is the term for whatever is the "key" to the "right doing" of a step.

--- Key Points cover (in order of importance):

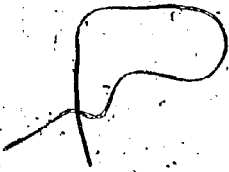
1. Factors that "make or break" the job.
2. Hazards (in many jobs these rank first).
3. Pointers that make the job easier to do - "knack," "trick," "feel," "savvy," "special timing," "bit of special information".

--- Key points do not cover every conceivable detail that should be watched or that might go wrong.

- Knowing what key points are and how to pick them out quickly is perhaps the most important single thing in Job Instruction.

Examples of "Key Points":

- FEEL - When putting a micrometer on a piece of stock, the key point is "how tight," a matter of "feel".
- KNACK - When riveting, it is important to know when to remove the pneumatic riveter. The "key" to this point is to listen to the riveting. The sound will change when the pieces are solidly together.
- TIMING AND PLACING OF HEAT - When welding there are, among others, two key points: (1) apply the flame ahead of the weld and (2) get the metal to the right temperature by observing the color and behavior of the metal.
- HAZARD - When using a knife, a key point is to "cut away from you". When lifting a load with an overhead crane, a key point is to pull the chains or cables up taut, then hesitate for a moment to check the hitches before lifting the load.
- SPECIAL MOTION - When catching hot rods rushing out of rolling mills, the key point is to swing the flowing rod in an arc away from you quickly before inserting the end in the next set of rolls.
- SPECIAL INFORMATION - On some kinds of electrical wiring, the key point is to attach the identified negative wire to the tinned screw and the positive wire to the brass screw.
- KNACK IN JUDGING SOUND - In mines, the strength and safety of the roof is determined by tapping the roof rock with a steel bar. Judging by the sound made as the bar strikes the roof is the key point in determining the safety of the mine roof.



Lesson No.: 5

Topic: Planning the Instructional Unit

(c) Define Performance Objectives

**Presentation:** In writing the lesson, we must remember that the student must have clearly defined objectives. Remember that learning is an activity and thus must be written as such. Remember that in writing the objectives, the learning activity must be described in action verb terms such as, "The learner will .....".

The verb list for this lesson should be analyzed and discussed.

**Information Sheets:** Good and Bad Examples of Verbs and Imperatives.  
Typical Learner Performances for Job Tasks.

# GOOD AND BAD EXAMPLES OF VERBS AND IMPERATIVES

## THE FUZZY, FOGGY, FIFTY-FIVE

### Become:

able to  
acquainted with  
adjusted to  
capable of  
cognizant  
conscious of  
familiar with  
interested in  
knowledgeable about  
mature  
self-confident

can't  
comprehend  
conceptualize  
cover the content

Create a Classroom:  
atmosphere  
climate

### Evidence:

appreciation for  
attitude of  
awareness of  
comprehension of  
enjoyment of  
feeling for  
interest in  
knowledge of  
understanding of

### Exhibit:

capacity  
depth  
emotional maturity  
intelligence  
purpose

### Experience

Hear

Interest

Know

Listen

Memorize  
Mind

Perceive

Realize  
Recall  
Recognize  
Reduce:

anxiety  
immaturity  
insecurity

Review

Satisfy:  
drives  
needs

See  
Self-actualize  
Study

Think

Understand

Won't

# THE FRIGHTFULLY, FOUL FIFTEEN

|          |          |       |        |           |
|----------|----------|-------|--------|-----------|
| Bludgeon | Choke    | Forge | Maim   | Steal     |
| Bomb     | Destroy  | Kill  | Poison | Strangle  |
| Cheat    | Embezzle | Lie   | Stab   | Suffocate |

## THE FUNCTIONAL, FORCEFUL FOUR HUNDRED FORTY-FIVE

### "CREATIVE" BEHAVIORS

|            |            |              |             |             |
|------------|------------|--------------|-------------|-------------|
| Alter      | Modify     | Re-Combine   | Re-Order    | Revise      |
| Ask        | Paraphrase | Re-Construct | Re-Phrase   | Re-Write    |
| Change     | Predict    | Re-Group     | Restate     | Simplify    |
| Design     | Question   | Re-Name      | Restructure | Synthesize  |
| Generalize | Re-Arrange | Re-Organize  | Retell      | Systematize |
|            |            |              |             | Vary        |

### COMPLEX, LOGICAL, JUDGEMENTAL BEHAVIORS

|          |           |          |           |            |
|----------|-----------|----------|-----------|------------|
| Analyze  | Conclude  | Deduce   | Formulate | Plan       |
| Appraise | Contrast  | Defend   | Generate  | Structure  |
| Combine  | Criticize | Evaluate | Induce    | Substitute |
| Compare  | Decide    | Explain  | Infer     |            |

### GENERAL DISCRIMINATIVE BEHAVIORS

|          |               |          |       |          |
|----------|---------------|----------|-------|----------|
| Choose   | Detect        | Identify | Match | Place    |
| Collect  | Differentiate | Indicate | Omit  | Point    |
| Define   | Discriminate  | Isolate  | Order | Select   |
| Describe | Distinguish   | List     | Pick  | Separate |

### SOCIAL BEHAVIORS

|        |             |          |             |           |
|--------|-------------|----------|-------------|-----------|
| Accept | Communicate | Discuss  | Invite      | Praise    |
| Agree  | Compliment  | Excuse   | Join        | React     |
| Aid    | Contribute  | Forgive  | Laugh       | Smile     |
| Allow  | Co-Operate  | Greet    | Meet        | Talk      |
| Answer | Dance       | Help     | Participate | Thank     |
| Argue  | Disagree    | Interact | Permit      | Volunteer |



### LANGUAGE BEHAVIORS

|             |            |           |       |             |         |
|-------------|------------|-----------|-------|-------------|---------|
| Abbreviate  | Capitalize | Print     | Say   | Summarize   | Whisper |
| Accent      | Edit       | Pronounce | Sign  | Syllabicate | Write   |
| Alphabetize | Hyphenate  | Punctuate | Speak | *Tell       |         |
| Articulate  | Indent     | Read      | Spell | Translate   |         |
| Call        | Outline    | Recite    | State | Verbalize   |         |

### STUDY BEHAVIORS

|            |          |         |      |           |           |
|------------|----------|---------|------|-----------|-----------|
| Arrange    | Classify | Follow  | Look | Organize  | Sort      |
| Categorize | Compile  | Gather  | Map  | Quote     | Underline |
| Chart      | Copy     | Itemize | Mark | Record    |           |
| Cite       | Diagram  | Label   | Name | Reproduce |           |
| Circle     | Find     | Locate  | Note | Search    |           |

### MUSIC BEHAVIORS

|      |           |      |          |       |         |
|------|-----------|------|----------|-------|---------|
| Blow | Compose   | Hum  | Pluck    | Sing  | Tap     |
| Bow  | Finger    | Mute | Practice | Strum | Whistle |
| Clap | Harmonize | Play |          |       |         |

### PHYSICAL BEHAVIORS

|       |       |       |       |            |       |
|-------|-------|-------|-------|------------|-------|
| Arch  | Climb | Hit   | March | Ski        | Swim  |
| Bat   | Face  | Hop   | Pitch | Skip       | Swing |
| Bend  | Float | Jump  | Pull  | Somersault | Throw |
| Carry | Grab  | Kick  | Push  | Stand      | Toss  |
| Catch | Grasp | Knock | Run   | Step       | Walk  |
| Chase | Grip  | Lift  | Skate | Stretch    |       |

### ARTS BEHAVIORS

|           |       |            |       |        |         |
|-----------|-------|------------|-------|--------|---------|
| Assemble  | Cut   | Frame      | Mold  | Roll   | Stamp   |
| Blend     | Dab   | Hammer     | Nail  | Rub    | Stick   |
| Brush     | Dot   | Handle     | Paint | Sand   | Stir    |
| Build     | Draw  | Heat       | Paste | Saw    | Trace   |
| Carve     | Drill | Illustrate | Pat   | Sculpt | Trim    |
| Color     | Fold  | Melt       | Pour  | Shake  | Varnish |
| Construct | Form  | Mix        | Press | Sketch | Wipe    |
|           |       |            |       |        | Wrap    |

### DRAMA BEHAVIORS

|        |         |         |           |              |       |
|--------|---------|---------|-----------|--------------|-------|
| Act    | Display | Express | Pantomime | Proceed      | Sit   |
| Clasp  | Emit    | Leave   | Pass      | Respond      | Start |
| Cross  | Enter   | Move    | Perform   | <u>*Show</u> | Turn  |
| Direct | Exit    |         |           |              |       |

### MATHEMATICAL BEHAVIORS

|           |             |           |             |        |          |
|-----------|-------------|-----------|-------------|--------|----------|
| Add       | Count       | Extract   | Interpolate | Plot   | Square   |
| Bisect    | Derive      | Graph     | Measure     | Prove  | Subtract |
| Calculate | Divide      | Group     | Multiply    | Reduce | Tabulate |
| Check     | Estimate    | Integrate | Number      | Solve  | Tally    |
| Compute   | Extrapolate |           |             |        | Verify   |

### LABORATORY SCIENCE BEHAVIORS

|           |             |          |            |         |            |
|-----------|-------------|----------|------------|---------|------------|
| Apply     | Decrease    | Increase | Manipulate | Replace | Straighten |
| Calibrate | Demonstrate | Insert   | Operate    | Report  | Time       |
| Conduct   | Dissect     | Keep     | Plant      | Reset   | Transfer   |
| Connect   | Feed        | Lengthen | Prepare    | Set     | Weigh      |
| Convert   | Grow        | Limit    | Remove     | Specify |            |

### GENERAL APPEARANCE, HEALTH AND SAFETY BEHAVIORS

|        |           |        |       |          |      |
|--------|-----------|--------|-------|----------|------|
| Button | Cover     | Empty  | Lace  | Unbutton | Wait |
| Clean  | Dress     | Fasten | Stop  | Uncover  | Wash |
| Clear  | Drink     | Fill   | Taste | Untie    | Wear |
| Close  | Eat       | Go     | Tie   | Unzip    | Zip  |
| Comb   | Eliminate |        |       |          |      |

### MISCELLANEOUS

|          |        |         |          |         |         |
|----------|--------|---------|----------|---------|---------|
| Aim      | Do     | Hold    | Peel     | Send    | Strike  |
| Attempt  | Drop   | Hook    | Pin      | Serve   | Suggest |
| Attend   | End    | Hunt    | Position | Sew     | Supply  |
| Begin    | Erase  | Include | Present  | Share   | Support |
| Bring    | Expand | Inform  | Produce  | Sharpen | Switch  |
| Buy      | Extend | Lay     | Propose  | Shoot   | Take    |
| Come     | Feel   | Lead    | Provide  | Shorten | Tear    |
| Complete | Finish | Lend    | Put      | Shovel  | Touch   |
| Consider | Fit    | Let     | Raise    | Shut    | Try     |

|            |       |       |         |         |       |
|------------|-------|-------|---------|---------|-------|
| Correct    | Fix   | Might | Relate  | Signify | Twist |
| Crease     | Flip  | Make  | Repeat  | Slip    | Type  |
| Crush      | Get   | Mend  | Return  | Slide   | Use   |
| Detonate   | Give  | Miss  | Ride    | Spread  | Vote  |
| Determine  | Grind | Offer | Rip     | Stake   | Watch |
| Develop    | Guide | Open  | Save    | Start   | Weave |
| Discover   | Hang  | Pack  | Scratch | Stock   | Work  |
| Distribute | Hand  | Pay   |         | Store   |       |

\*NOTE THAT ALL OF THE VERBS IN THIS ENTIRE LIST COULD BE  
SUBSUMED UNDER EITHER SHOW OR TELL.

# TYPICAL LEARNER PERFORMANCES FOR JOB TASKS

|             |           |             |             |              |
|-------------|-----------|-------------|-------------|--------------|
| Accept      | Dismiss   | Hit         | Order       | Service      |
| Adjust      | Dispense  | Hoist       | Organize    | Set          |
| Align       | Drag      | Inspect     | Originate   | Set Up       |
| Alter       | Drape     | Install     | Override    | Sew          |
| Analyze     | Draw      | Instill     | Package     | Sharpen      |
| Answer      | Dress     | Instruct    | Paint       | Shape        |
| Apply       | Drill     | Insure      | Patch       | Shoot        |
| Arrange     | Elevate   | Involve     | Perform     | Sit          |
| Assemble    | Establish | Issue       | Pick        | Site         |
| Assist      | Evacuate  | Jack        | Pick Out    | Slice        |
| Attach      | Evaluate  | Jar         | Pick Up     | Slide        |
| Bake        | Examine   | Jerk        | Pin         | Slip         |
| Balance     | Execute   | Judge       | Pinch       | Solder       |
| Bend        | Expose    | Kick        | Place       | Sort         |
| Bleed       | Fabricate | Knit        | Plan        | Splice       |
| Boil        | File      | Knurl       | Plant       | Split        |
| Bore        | File Down | Label       | Plot        | Square       |
| Braze       | Fill      | Ladle       | Plow        | Stand        |
| Build       | Fill In   | Level       | Polarize    | Start        |
| Calibrate   | Fill Out  | Light       | Pop         | Sterilize    |
| Call        | Fill Up   | Lighten     | Position    | Stitch       |
| Cast        | Finalize  | Listen      | Post        | Store        |
| Change      | Find      | Locate      | Pour        | Straighten   |
| Check       | Fit       | Loosen      | Practice    | String       |
| Clean       | Fix       | Lube        | Prep        | Supervise    |
| Cleanse     | Flip      | Lubricate   | Prepare     | Take         |
| Climb       | Flush     | Maintain    | Press       | Tap          |
| Collect     | Follow    | Make        | Quarter     | Tell         |
| Comb        | Follow Up | Make Up     | Quench      | Test         |
| Combine     | Free      | Mark        | Raise       | Thin         |
| Compensate  | Free Up   | Mark Off    | Rebuild     | Transfer     |
| Complete    | Freeze    | Mask        | Receive     | Transport    |
| Condition   | Frisk     | Measure     | Recondition | Treat        |
| Conduct     | Fry       | Measure Off | Re-do       | Trim         |
| Connect     | Get       | Measure Out | Remain      | Troubleshoot |
| Construct   | Give      | Meet        | Remove      | Turn         |
| Correct     | Go        | Mill        | Repair      | Turn Off     |
| Cook        | Grate     | Mist        | Replace     | Turn On      |
| Curl        | Greet     | Miter       | Resist      | Type         |
| Cut         | Grind     | Mix         | Rework      | Unlock       |
| Darken      | Hand      | Moderate    | Rinse       | Untangle     |
| Design      | Handcuff  | Modify      | Roll        | Ventilate    |
| Determine   | Handle    | Mount       | Run         | Visit        |
| Diagnose    | Haul      | Mow         | Saw         | Wash         |
| Diagram     | Heal      | Negotiate   | Scrape      | Wax          |
| Direct      | Help      | Obtain      | Seat        | Weigh        |
| Disassemble | Hem       | Open        | Sell        | Weld         |
| Disinfect   | Hide      | Operate     | Serve       | Yield        |

Lesson No.: 6

Topic: Planning the Instructional Unit

(d) Program Planning and Evaluation

Presentation: The lesson serves to give an overview and wrap-up to the general topic of Planning the Instructional Unit.

The principle theme for the course is planning and this topic is key in developing well thought out and effective lessons.

Some points to consider for this lesson include:

1. The student is first and only. Remember that the primary objective of any course is "To prepare the student for employment in the ..... trade". This primary objective establishes and defines the student need and the overall area. These, in turn, lead to the general topics from which we develop the specific objectives which form the basis of the individual lessons.
2. The responsibility of the instructor is to the student not the trade; not the administration. In saying that, realize that a properly planned and executed course can fulfill the requirements of all: the teacher, the student, the administration and the trade.
3. Planning is essential in all areas of teaching. In fact, proper planning can anticipate and eliminate many problems. Our success on the first day can set the tone for the whole year. Hence, the opening day must be a fully planned event. Problems with discipline can be reduced with effective planning.

Information Sheets: The First Day

Maintaining Discipline

Safety in the Shop

## THE FIRST DAY

The initial reaction of the students to the teacher can be very important to the success of the year. The student comes ready to do something and the teacher must be prepared. The planning of the first meeting should be done well in advance. The following guidelines may be helpful in planning that first meeting:

1. Visualize the class as fully as possible as to age, training, temperament, aptitudes and the like.
2. Be certain that tools and equipment are in as good condition as possible.
3. Have a definite plan for the work for the term (if not the entire year).
4. Have tools and materials for the first job or task ready.
5. Have the lesson plan for the first class meeting prepared.
6. Have available any required materials for the first meeting.
7. Be ready to assign students' working places and lockers.
8. Have a definite plan for getting acquainted with the class.
9. Be enthusiastic about beginning the year.
10. Have an overall plan for setting and maintaining standards of order and discipline.
11. Be on time and be ready for action. As the class leader, the teacher should initiate the activity of the first day.
12. Use the name of the student as much as possible.
13. Be specific on your requirements and purposes.
14. "Wow" them with your professionalism.

## MAINTAINING DISCIPLINE

The maintenance of discipline is one of the most difficult things for the new teacher to effectively practice. The ability to organize and utilize the students' natural motivation for a vocational subject is the most effective skill a teacher can use to prevent discipline problems. Remember, the student is there to learn and, if you provide the proper environment for learning, many problems simply do not develop. In the same way that undesirable work habits are unacceptable in the shop, poor behavior habits should not be tolerated. A prescribed conduct pattern for dealing with student-teacher and student-student interactions should be established and reasonably enforced.

The keyword of this course is planning and planning for class control is no different from any other aspect of teaching. Planning can remove some causes of discipline problems before they cause trouble. These points may help:

1. Begin the class promptly and with authority. Do the necessary attendance and announcement chores as quickly as possible.
2. Start the class with definite instructions. As class leader you must initiate action and focus the attention of the class on the job at hand.
3. Check closely and frequently on students work. Become involved with the problems that may occur for all class members. Divide your most precious commodity, time, between all persons in the class. The student seeks and needs your comments and advice.
4. Evaluate students' work often. This will increase student interest, thus preventing discipline problems before they begin.

5. Stay in the shop. Avoid the temptation to leave the learning area, even for good and justifiable reasons. In addition to the legal aspect of responsibility for the class, your absence may be seen as a license by some to misbehave.
6. Limit shop clean-up time. Five to ten minutes in most vocational shops will allow for adequate clean-up without allowing for disruptive group gatherings.
7. Acquire habits of good supervision. The good supervisor can work with one class member while still being aware of the actions and problems of all other class members.



## **SAFETY IN THE SHOP**

The teacher of vocational subjects is responsible for the safety of his/her students. An effective program of safety consciousness can reduce the possibility of accidents happening. Accidents that happen generally fall into two classes: (a) those caused by faulty shop design or equipment, and (b) those caused by insufficient instruction and management. An analysis of these general causes appears in the following:

### **(A) CONDITIONS OF SHOP AND EQUIPMENT**

1. Low ceilings.
2. Poor Light
3. Badly located machinery causing interference between operators.
4. Failure to mark safety zones around hazardous equipment.
5. Unguarded belts, pulleys, gears and cutters.
6. Dull tools and cutting edges.
7. Unguarded switches.
8. Waste and stock on the floor.
9. Wrong type of clothing worn.
10. Inadequately protected stairways and ladders.
11. Poorly constructed stock racks.
12. Lack of ventilation in painting areas or other areas where fumes may be present.

### **(B) INSUFFICIENCY OF INSTRUCTION WHICH MAY CAUSE ACCIDENTS**

1. Lack of teacher knowledge of how to safely use tools and machines.
2. Failure to give preliminary instruction.
3. Failure to follow up on such instruction and to supervise the initial efforts of the students.
4. Allowing students to play in the laboratory.

5. Overtime work without supervision.
6. Allowing guards to be removed.
7. Failure to provide goggles and insist upon their use.
8. Allowing experimentation in the use of equipment.
9. Failure to establish proper attitudes towards the problem of accidents.
10. Failure to check the set-up of each machine before allowing operation.
11. Failure to provide adequate ventilation.
12. Teacher absences from the shop.

Lesson No.: 7

Topic: The Lesson

(a) Developing the Instructional Unit

**Presentation:** After the trade has been analyzed for lesson plan topics, the individual lessons are developed. This consists of two functions: (a) selection and development of the instructional aids such as information sheets, guides, etc. and (b) preparation of the lesson plan. This section will focus on the lesson plan.

The presentation of this lesson should include:

1. There are two primary types of vocational subject lessons: (a) the operation lesson which focuses on the performance of an occupational skill and (b) the information lesson which teaches the theoretical background and related information.
2. We define a lesson as "a single complete unit of learning" and it has the following characteristics:

It is a unit of learning.

It contains something new and something old.

It is reasonable in scope.

It is designed for the student.

It has a definite beginning, middle and end.

It requires some effort of the student.

3. Sometimes a sheet, called the Lesson Breakdown and Plan Sheet, can be effective in lesson preparation. This is different from the formal lesson plan in that it is more detailed and comprehensive. This system can at times be used as a substitute for formal lesson plans but, this is not advised. The enclosed information sheet on Breakdown Sheets illustrates the format and flow of a typical lesson presentation.

**Information Sheets:** Characteristics of a Lesson  
Suggestions for Preparing and Using the Lesson  
Breakdown and Plan Sheet

## CHARACTERISTICS OF A LESSON

There are two main types of lessons:

1. Operation type of lesson - A lesson in which the main focus is on the teaching of physical occupational skills.
2. Information type of lesson - A lesson in which the main focus is on the teaching of technology, theoretical background and various related information.

The type of lesson to be used will depend on the objective of the lesson. The operation lesson is used wherever skill training is required. The emphasis is on "doing something". If the intent of the lesson is to "explain and tell about something", then the information type of lesson should be used. The information lesson may be broader than the operation lesson because of the related information that may be taught.

What is a lesson? A lesson is a single complete unit of learning. It is part of a coherent and sequential series, clear-cut in aim, which constitutes a program.

The requisite characteristics of a lesson are:

**The lesson must be a unit of learning.** - What is to be learned should be made apparent to the students in the title of the lesson. The aims and objectives of the lesson must be clear to the instructor.

**Each lesson should contain something new.** - Exclusive of review, a lesson should contain something old for connective tissue and something new for progress in learning the subject.

**The lesson should be reasonable in scope.** - It should be balanced, interesting and neither too simple nor too complex.

**The lesson should be adapted to the needs of the students -** The material should be within the capabilities of the learners. It should be consistent with the needs of the student. It should not be given simply on the whim of the teacher or the dictation of the timetable.

**The lesson should have a clear-cut beginning, a presentation and an end -** The language of the teacher should enable the student to follow the teacher when he begins to comprehend the presentation and to absorb the material with a feeling of understanding and accomplishment.

**The lesson should require a measureable standard of achievement -** One of the most vital and difficult tasks of the teacher is in setting standards of evaluation. High standards of performance should start at the beginning and continue throughout the lesson.

## SUGGESTIONS FOR PREPARING AND USING THE LESSON BREAKDOWN AND PLAN SHEET

Lesson plans are outlines of the important points of a lesson arranged in the order in which they are to be presented by the instructors. They may be considered blueprints that the instructor follows in putting over his lessons, whether trade technology or manipulative and are used only by the instructor, not by the student.

This Lesson Breakdown and Plan Sheet was developed especially for teachers of public service occupations and trade extension classes. Much of their instruction consists of teaching people how to do a specific job or operation in a trade or presenting related information pertinent to the job or operation.

One of the chief difficulties encountered by part-time instructors is in "breaking down" the job at hand in order to determine the teaching content of the lesson. The format of the sheet under discussion was purposely designed to help overcome this difficulty.

It will be remembered from your previous instruction that Step II contains the "new things" which are to be "tacked on" to the things the learner or group already knows about the job or lesson at hand. In order, however, to determine the "new things" to be taught, the job or lesson must be broken down into its "important steps" along with their "key points". The format of the sheet under discussion provides for such a breakdown. In addition, space has been provided for making a "demonstration", if one is needed, to put across any of the "new things" being taught by the instructor.

In preparing the Lesson Breakdown and Plan Sheet, the instructor first fills in Step I. He/she then "breaks down" the lesson and lists the "steps" and

"key points" for Step II. This breakdown provides him/her with the "teaching content and order of presentation" for the lesson. Steps III and IV are completed and the instructor now has his/her entire plan for presenting the lesson.

In the following paragraphs, each element of the Lesson Breakdown and Plan Sheet is briefly discussed for the benefit of the new instructor, and it is hoped that they contain ideas and suggestions which will be of value, at least in the instructor's "first few attempts" to use the Lesson Breakdown and Plan Sheet.

**TITLE** — The title of the Lesson Breakdown and Plan Sheet should be so phrased that when the instructor announces it, the group will know exactly what the instructor is to cover. The title for a trade technology lesson, taken from the automotive trade, could read, "VALVE SPRINGS AND LIFTER MECHANISM - Principles of Design and Operation", with the corresponding manipulative title reading, "CHECKING AND ADJUSTING VALVE CLEARANCES".

**STEP I - Preparing the Learner or Introducing the Lesson** - The purpose of Step I of the Lesson Breakdown and Plan Sheet for either a trade technology or skill lesson is to establish what may be called a "foundation" for the instruction that the instructor is going to give the learner or group. In laying this "teaching base", it is not necessary to present any material which will add to the learner's knowledge or skill, but it is essential:

- (a) That the learner or group be put at ease.
- (b) That the instructor find out what the learner or group already knows about the lesson at hand.
- (c) That the learner or group become interested in learning the material to be presented by the instructor.
- (d) That the group be in the correct position to receive the instruction.

One of the most successful and most frequently used techniques in establishing the teaching base is the "suggestive" question. The purpose of this type of question, which should be listed on the lesson plan, is not to secure information but to arouse and direct the learner's thinking. By use of such questions, "new things" may be associated with what the learner already knows.

Likewise, statements that will acquaint the learner or group with what the new instruction is all about and why, how it will be of value to the learner in the future and how it is associated with previous instruction received by the learner or group should be listed on the plan and presented by the instructor.

Another technique commonly used by instructors to arouse interest is to relate experience of others or his own to the instruction at hand. The instructor should use any technique that, in his opinion, will make the learner or group "want to learn".

**STEP II - Presenting the Lesson** - Having brought the learner or group to the point where the thinking is about such portions of previous experiences or knowledge as will be of value when presenting the lesson at hand, the next step is to lead the learner or group "to get" the "new ideas" and the "new things" that the instructor desires to "tack on" to what is already down. The instructor now carries out this step by using some, or all, of the following techniques:

- (a) Make a demonstration.
- (b) Cite illustrations and have exhibits to put the instruction across.



- (c) Present the lesson by using the 4-Step Method of Instruction, which is a combination of telling, showing, illustrating, and questioning. Stress the "key points" clearly and patiently. The learner should know "why" the job or operation is being performed in this manner. Safety considerations are a part of all instruction and should be included in every lesson taught.
- (d) Show film slides or movies, if available, to clinch the presentation step.

The distinction between the aims of Steps I and II must be clearly understood. As stated in a previous paragraph, it is not essential to add new skills or knowledge in Step I. It is the aim of Step II to impart additional knowledge or skills to the learner or group. At the close of Step II, the instruction should have been put across.

**STEP III - Application or Tryout** - In Step I, the instructor lays the teaching base; in Step II, he presents new material; in Step III, he puts the learner or group through a "tryout" of the new material. That is, he puts the learners to work on the instruction presented in Step II and checks up to determine: (1) "Do they know it?" and (2) "Can they do it?"

If the instruction has been manipulative in character, the instructor should now have the learner or group "do" the job, correcting all errors along the way, until the instructor knows that the learner(s) "Knows". Notes suggesting jobs or operations that can be done by the learner or group in the tryout period should appear on the lesson plan.

**STEP IV - Checking, Testing and Follow-Up** - The learner or group is put on its own at the completion of Step III. This is the point in the lesson at which the instructor is satisfied that the learner or group "can do" the job or operation at hand or that they have acquired the additional knowledge expected.

If the instruction has been manipulative, the instructor usually inspects the job or operation; if not, a written or oral test can be given. In either case, "how" the test or follow-up is to be accomplished should be noted on the lesson plan.

In addition to the written or oral test, the instructor may assign additional work to the learner or group. The purpose of the assignment would be:

- (a) To give the learner practice or information which will increase his/her skill or knowledge beyond that provided by the lesson presented.
- (b) To provide the essential background or base upon which the next lesson will be built.

The purposes stated above may be accomplished in Step III by assigning additional jobs which require the use of the operations, skills or knowledge presented in the lesson or in the reference texts, instruction sheets, trade publications, handbooks or manuals. Lists of pertinent questions to be answered either orally or in writing may be prepared and distributed to the learner or group. A sample of an Assignment Sheet is included in this manual and may be found by consulting the table of contents. If the instructor so desires, Assignment Sheets can be made a part of the total instructional procedure.

As the lesson progresses, especially in Steps III and IV, the instructor should evaluate the teaching content of his/her plan and also the presentation technique. He/she should make notations regarding apparent weaknesses and revise the plan before presenting the lesson again.

**Tools, Equipment and Supplies** - All tools, materials, exhibits and other teaching aids required to put the lesson across should be listed on the lesson plan. There is no better way for an instructor to "lose" the attention

and interest of a group of learners than to go look for tools or materials after starting a lesson. The listing of stock or tools should be as specific and complete as possible.

Common teaching aids used by vocational instructors for teaching trade technology and skill lessons are:

- (a) Blackboard
- (b) Chalk and Erasers
- (c) Posters and Wall Charts
- (d) Models
- (e) Mock-ups
- (f) Cut-aways
- (g) Exhibits of Materials
- (h) Actual Apparatus
- (i) Motion Pictures
- (j) Slide Films
- (k) Photographs

Lesson No.: 8

Topic: The Lesson

(b) The Lesson Plan

**Presentation:** It has been said that the teaching of a lesson without a lesson plan is equivalent of a dressmaker making a dress without a pattern.

The points to be covered with this lesson include:

1. As with areas of human endeavour, we must have reasons for making lesson plans. We have defined teaching and learning as planned activities where the outcome is predetermined, desirable results. To achieve these goals, we must plan and execute the plan; hence, the formal lesson plan.
2. Present the format and reasoning for inclusion of the points of the lesson plan. The plan must indicate the major features of the lesson: the beginning (where you say what you are going to say), the middle (where you say it) and the end (where you say what you said). It should be stressed that lesson plans can and should be individualized and that many formats are acceptable. (Refer to sample lesson plans.)
3. At this point, the parts of the lesson plan should be reviewed. It should be noted that the lesson plan is presented in point form with key phrases, key questions, etc. highlighted. It is not a speech that is to be delivered to the class.
4. As an assignment, the students are required to develop an individualized lesson plan format that covers the requisite points. Stress that within the guidelines, an almost infinite variety of formats are available.

**Information Sheets:** Teacher Planning  
Lesson Planning  
Lesson Plans  
Sample Lesson Plans (4)  
A Checklist for Lesson Planning

**Note:** It is anticipated that this lesson will cover two teaching sessions.

## TEACHER PLANNING

The best environment for learning is based on good teacher planning, a well-disciplined class and a good presentation. In organizing the lesson, we might look at the steps for a successful speaker.

1. Get everyone's attention.
2. Introduce the main idea.
3. Develop the idea.
4. Make it important to the listener.
5. Sum up the main points.

The experienced teacher does the same thing; whether he or she is giving a presentation to a group of one or one hundred. Our blueprint for success is called the lesson plan:

The lesson plan is a pattern for a logical method of information presentation. Individual variations may occur but the main parts of a lesson should be planned on the basis for including:

- |                |                 |               |
|----------------|-----------------|---------------|
| 1. Topic       | 4. Motivation   | 7. Summary    |
| 2. Aim         | 5. Presentation | 8. Assignment |
| 3. Preparation | 6. Application  | 9. Reference  |

Throughout the lesson, the teacher should check learning by asking questions, stimulating participation and inviting discussion.

In detail, the parts of the lesson plan are:

1. **Topic** - The general area of which the specific lesson is a part. This would be the same for many lessons.
2. **Aim** - More specific. It is the actual, immediate purpose or goal of the lesson. It is the label of the unit lesson. It is the thing to be taught and the thing to be learned.

3. **Teacher Preparation** - The teacher lists the supplies, tools, material and equipment which will be needed to teach the lesson. This may include charts, tables, diagrams, books and material for demonstration. Student preparation should also be noted such as reading assignments, graph paper, etc.
4. **Motivation** - The stimulation of learning is one of the prime tasks of teaching. It should be constant and should not stop at any given point. We must ensure that the motivation draws the student to the lesson being given. Motivation should show the need for the lesson and serve as the connecting link between the present lesson and previous work.
5. **Presentation** - The actual presenting of the thing to be learned. In information lessons this will be an explanation. The presentation should proceed, step-by-step, simple-to-complex with teaching points interspersed in the proper sequence. The procedure or explanation should be thought out beforehand with key questions developed.
6. **Application** - Practicing the thing to be learned is the keynote of successful learning. This area of the lesson provides an opportunity for the student to do something about the thing being learned. Application may be as simple as taking notes or copying a diagram or as complex as the performance of an operation or completion of an experiment. It should involve the students of the class in the lesson.
7. **Summary** - The summary terminates the formal instruction. The teacher brings together and emphasizes the main points made during the presentation. It crystallizes the aim and highlights the presentation.
8. **Assignment** - This may be considered as a continuation of the application. The assignment is an aid to retention. The difference is that the assignment may be used as direct preparation of the next lesson.
9. **Reference** - We all are the chief reference for our lessons. Even so, the names of texts, booklets and trade manuals should be listed in the form of a ready reference in the event that the teacher or the student wishes to pursue a subject further.

## LESSON PLANNING

The reasons for planning include the following:

1. Thinking done before teaching is unhurried thinking.
2. A plan ensures a good sequence.
3. Learning to plan a lesson will help develop competency in planning anything.
4. A plan is a visual presentation of the teacher's thinking and helps him or her to check effectiveness.
5. Plans prevent forgetting of essential material.
6. A plan serves as a good record of what has been taught.
7. A plan provides a basis for improvement.
8. To learn to plan to to learn to organize and an organized teacher is a good teacher.

"PLAN YOUR WORK - WORK YOUR PLAN"

## LESSON PLANS

All lesson plans should have the following characteristics:

1. Are written in outline form.
2. Have a clear aim and purpose.
3. Are easy to read, not crowded.
4. Consist of motivating factors.
5. Include essential points and details.
6. Contain key phrases.
7. Provide for student participation.
8. Indicate key questions.
9. Summarize clearly.
10. Use a variety of teaching aids and techniques.
11. Include an assignment.



TEACHER'S NAME

LESSON NO.:

TOPIC:

AIM:

PREPARATION:

TEACHER'S

STUDENT'S

MOTIVATION:

PRESENTATION:

APPLICATION:

SUMMARY:

ASSIGNMENT:

REFERENCE:

Lesson Plan

Laboratory Plan

DEPARTMENT:

SUBJECT:

TOPIC:

OBJECTIVES:

INSTRUCTIONAL MATERIALS:

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PRESENTATION:

APPLICATION & CHECKING:

ASSIGNMENT:

LESSON PLAN

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TITLE

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OBJECTIVE:

TEXTS AND AIDS:

PRESENTATION:

SUMMARY:

ASSIGNMENT:

# LESSON PLAN

COURSE:..... YEAR:..... TEACHER:.....

LESSON NO.:..... BLOCK:..... NO. OF PERIODS:.....

TOPICS:.....

AIM: (a) General

(b) Specific

AIDS:

PRESENTATION:

TESTING:

KEY POINTS:

APPLICATION:  
(Class or Shop)

ASSIGNMENT:  
(Homework)

REFERENCE:

## A CHECKLIST FOR LESSON PLANNING

### TOPIC:

1. Is the topic related to the general area of the course?
2. Does the topic relate to a division of the occupational analysis?
3. Has the topic been fully developed?

### AIM:

1. Does the lesson have a single-purpose aim?
2. Is the aim in keeping with the topic?
3. Does the aim lend itself to a clear, simple lesson title?
4. Can the aim be achieved within the lesson period?
5. Does the aim indicate the type of lesson?
6. Does the lesson aim fit in with the continuity of the preceding lesson?
7. Will the aim be readily understood when written on the chalkboard?

### PREPARATION:

1. Have you listed all the materials, tools, equipment, and teaching aids you will need for the lesson?
2. Have you checked to be sure that all things are available and in sufficient quantity?
3. Have you listed materials which students should have available for the lesson?
4. Have you listed the special equipment needed such as electrical extension cords, projectors and colored chalk?

### MOTIVATION:

1. Have you planned for a means of getting attention?
2. Have you made use of any stimuli which motivate people to learn?
3. Will the motivation help develop a clearly understood lesson aim?
4. Will the motivation emphasize the significance of the lesson?
5. Will the motivation introduce the lesson and bring the group to a common starting point?
6. Will your motivation be educational rather than entertaining?
7. Does the motivation lead naturally and smoothly into the presentation?

### PRESENTATION:

1. Has the presentation been developed in a step-by-step sequence?
2. Does the presentation include key sketches and diagrams?

3. Are key questions included?
4. Have necessary safety precautions been included?
5. Has each lesson point been noted in the form of key phrases or short, simple sentences?
6. Have appropriate reminders been included for use of aids at the proper times?
7. Has sufficient details been included to satisfy the needs of the learner?
8. Have the techniques of explaining and showing been utilized?
9. Has provision been made for individual differences?

#### **APPLICATION:**

1. Have you developed the best possible means for the group to put the new knowledge to use during the lesson?
2. Have you decided the number of students to be utilized if you plan to have student participation?
3. Have you clearly indicated what material should be copied into the notebook, if you use this device?
4. Have you considered the use of some prepared instructional material?
5. Have you provided for student chalkboard work?
6. Have you considered the use of the chalkboard?
7. Have you tried to develop some new and novel way of student application of the lesson?
8. Have you estimated the time required for application of the new material?
9. Will your students spend the greater part of their time learning and applying new information rather than taking unnecessary notes and making complicated and irrelevant sketches?

#### **SUMMARY:**

1. Have you planned a summary which will bring out the highlights of the lesson?
2. Have you considered having the students develop the summary?
3. Will you supplement the students' summation?
4. Have you listed the essential points of the lesson?
5. Have you considered carefully whether an oral or chalkboard summary is best for the lesson given?

#### **ASSIGNMENT:**

1. Have you thought of the assignment as a continuation of the application of the lesson?
2. Does the assignment put newly learned material to use?
3. Does the assignment have real value to the learner?
4. Have you provided for an explanation of the assignment so that all the students will know what to do?
5. Is the assignment reasonable in length, scope and achievement?

### REFERENCES:

1. Have sources of authority for your material been noted?
2. Have you listed further sources of information relative to the lesson for student's use?
3. Does your reference give text, chapter and page, if necessary?
4. Have you provided for use of references by the students to broaden their knowledge of occupational material and other texts?

### GENERAL:

1. Does your plan show evidence of careful analysis of the unit to be taught?
2. Has the information or operation to be taught been analyzed completely enough so that another teacher could work from the plan and do a creditable job?
3. Have you anticipated questions, problems, or other common shop incidents which might arise during the lesson?
4. Does the completed plan present a neat, professional appearance?
5. Is there space on the plan for revision?
6. Have you remembered to introduce variety into your teaching of the lesson?
7. Have you remembered to include definitions of new and difficult terms?
8. Have you identified the plan by course and index number for future use?
9. Have you prepared any problem sheets, work sheets, or other instructional material which would enhance the lesson?
10. Do you plan to use some of the lesson material for a quiz or test?
11. Does overall inspection of the plan reveal a development approach utilizing the principles of learning and good organization?
12. Does the plan meet the needs of the students?

Lessons Nos.: 9 through 13

Topic: Teaching the Lesson - Techniques

Presentation: The following topics are assigned to groups formed from class members:

- (a) Methods of Group Instruction
- (b) Questioning Techniques
- (c) Simulation Techniques
- (d) Problem-Solving Techniques
- (e) Reinforcing Techniques

The object is to have each group present a seminar based on their topic. To allow for the necessary research to be done, these topics should be assigned well in advance of the expected presentation. As well, early in the second week of the course, a tour of the Library facilities of the College should be arranged. Most of the students in the class have not used a library for research previously.

In addition to the points raised by the groups during the seminar, the teacher, in his role as discussion leader, interjects supplementary information in order to ensure that the topic is sufficiently covered. Also, Information Sheets on various techniques may be used. For example, the Information Sheet, "Teaching Adults", was developed to illustrate points raised by a group presentation on Methods of Group Instruction.

Information Sheets: Teaching Adults

Questioning - Why?



## TEACHING ADULTS

### INTRODUCTION - How do Adults Learn?

1. Teacher motivated.
2. Self-motivated.
3. Constant re-motivation (Encouragement).
4. Experience - Past experience and desire to relearn.

### Blocks to Learning

1. Boredom - Ineffective teaching. Lack of ability.
2. Confusion - Lack of direction. Poor organization.
3. Anxiety - Teacher's attitudes. Personality conflict.
4. Fear - Insecurity. Possibility of failure.

### CREATING GOOD CLASSROOM ATMOSPHERE

1. Degree of informality - warm, friendly, helpful, not overdone.
2. Class grouping -
  - (a) **WHY** - People learn from each other - interpersonal.  
Different rates of learning.
  - (b) **HOW** - According to prior skills and general background.  
Varied interests and desires.  
Individual preferences.
  - (c) **FLEXIBLE SYSTEM** -  
Allow for different rates of learning ability.  
Make changes in groups as course progresses.
3. Physical conditions -
  - (a) Temperature - Ventilation - Lighting.
  - (b) Seat arrangement - Rearrange if necessary.
  - (c) Room layout - Practical and functional.

## PLANNING THE LESSON - TYPES OF PRESENTATION

- Demonstration - Use of equipment, models, charts, etc.  
Try to have them participate.
- Lecture - Possibly more acceptable to adults.  
Use chalkboard, transparencies, etc.  
Avoid necessity for taking down too many notes.  
Pass out typed notes on duplicated sheets preferably.
- Discussion - Encourages and improves chance for self-expression.  
Involves students both in thinking and speaking.  
Helps to build up or restore an adult's confidence.
- Project - Building a model or project singly or in a group.  
Enables teacher to follow up with individual instruction.
- Length of Presentation - Keep the lesson reasonable in length.  
Vary the presentation. Experiment a little.  
Observe their reactions, or lack of.
- Assignments - Reasonable in length and content.  
Plan to take up previous assignment.  
Start each new assignment in class.
- Review - Have frequent reviews - Backtrack if necessary.  
Reteach if necessary. Don't lose them.

## THE LESSON PRESENTATION

1. Keep it simple. Get down to their level. Start and stop on time.
2. Involve the adults. Exploit their contacts and experience.
3. Be cautious with questioning techniques. Work at this. Avoid embarrassment. Don't pounce. Be tactful.
4. Repeat questioning or statements as you deem it necessary. Adults may have hearing disabilities or slower reaction rates.

## AVOIDING DROPOUTS - SIGNS OF DISSATISFIED STUDENTS

1. Irregular attendance. Continually late.
2. Erratic attention. Poor concentration.
3. Failure to do assignments.

### **Course of Action**

1. Outline the Course of Study at the beginning.
2. Make enquiries of class, phone calls, letter.
3. Periodic class surveys.
4. Offer individual help and advice.
5. Invite constructive criticism.

**SUMMARY** - Course Must Be Well Planned. Be flexible, anticipate the possibility for change in format to meet the needs of this particular time for this particular group of people.

- REMEMBER:**
1. Adults are more perceptive, more critical and sensitive.
  2. Their time is valuable. Make the best of it.
  3. Many of them have very good learning potential.
  4. Many of them have to regain their confidence. This takes time. You can be a great help.

Discuss the techniques which you, the teacher, may outline to adult students so that they may learn effectively. Consider the following techniques:

1. How to concentrate.
2. How to listen.
3. How to read.
4. How to tackle reading assignments.
5. How to train the memory.
6. How to find time to study.
7. How to prepare for examinations.

### QUESTIONING - WHY?

Teachers have many reasons for questioning. The following are some of the more important ones:

1. To provoke and stimulate thought.
2. To give the student the opportunity for expression.
3. To act as a springboard for further discussion and participation.
4. To serve as a guide to reasoning.
5. To help the teacher determine his/her progress.
6. To aid the teacher in checking the students' progress.
7. To assist the student in determining his/her own progress.
8. To arouse curiosity, thereby motivating further interest.
9. To cause a student to use previous knowledge in learning new things.
10. To attract attention to and encourage participation from all students.

Questions may be divided into two broad categories: the memory question and the thought provoking question.

The memory question is used to have the students recall information, to emphasize facts, to drill for retention, to summarize main points and to obtain some measure of achievement.

The thought provoking question calls for in-depth knowledge and understanding. The student must be able to explain, expand, think about the subject and produce a logical correct answer. Guessing is held to a minimum and real learning will result. Thought provoking questions call for the use of problem-solving techniques. They, typically, challenge the student for more effort than the memory question and command greater attention and

reflection. They call for judgement analysis, organization, comparison, understanding, insight and logical thinking.

## QUESTIONING TECHNIQUES

Good questioning begins with good grammar and language that is familiar to the student. Questions should be simple, carefully framed, easy to follow and readily understood. The intent of the question must be clear to the learner. Be specific with the question and have a clear aim and objective. Avoid, as a rule, questions which invite general, personal opinions or attitudes. Frame the question so as to insure the answer or type of answer you want. Vague answers are usually the result of vague or poor questioning.

Avoid suggestions of the answer when you compose the question.

Instead of:

Are there 36 or 46 inches in a yard?

Use:

How many inches are there in a yard?

Questions should include only one idea or concept. It is difficult to follow questions which contain double requirement. It is much better to divide double questions into two separate questions, one based on the answer of the other.

Example: How and why does a carburetor work?

Should be: How does a carburetor work?  
Why?

Questioning is a powerful tool for interactive class participation when used properly. When used improperly, it can be a detriment to learning.

The following techniques should be used for questioning:

1. Address the question to the class, hesitate, then call on a specific student to answer. This stimulates the whole class for thought. If you call a specific student first, the tendency is for the rest of the class to ignore the question.
2. Scatter questions over the entire class. Avoid any consistent, regular procedure of questioning. Such as alphabetical order, seating arrangement, etc. This ensures also that the entire class thinks of the answer before the question is answered.
3. Allow a reasonable time for answering. If the question asked and the answer expected are worthwhile, then time is needed to formulate an answer.
4. Actively promote students to answer questions. Questioning techniques should not include factors which may embarrass a student. This is why many students will not respond when asked a question.
5. Pose questions within the ability of the student to whom the question is directed. The teacher who recognizes the differing abilities of his students and uses this knowledge in his/her questioning will stimulate all students without embarrassing or wasting the time of any student.
6. Ask questions of the inattentive. Many teachers have started a confrontation with a student by pointing out inattention. A better way to bring the dreamer back into the learning situation is to phrase a question for the class and direct it to the inattentive student.
7. Require students to give complete answers. Do not answer for them by adding to their answers. Also, do not repeat the answer as this promotes inattention. If a student has difficulty in answering, allow another student to give assistance, details, etc.
8. Encourage the students to ask questions. Keep the questions from the students relevant, demand good English and help the students formulate their questions. A good practice may be to have another student answer the question.
9. Do not permit frequent group responses. Individual answers are often unintelligible and errors are hard to pick up.
10. Do not ask questions which can be answered by guessing. A guessed answer is of no value to either the student or the teacher. It promotes bad study habits, solves nothing, wastes time and proves only that some students are good guessers.

11. Learn to use the "key words" of questioning - HOW - WHY - WHICH - WHERE - WHAT - WHEN.

The time to question is whenever a question can do more good than a mere statement. If the question is within the ability of the student and when he/she will learn better by thinking out the answer, you should use a question rather than simply giving the answer in a statement. Good questioning techniques involve good planning. Questions may be used at the start of a lesson to create interest and arouse curiosity; they may be used when presenting the development of a concept; they may be used when presenting a principle or demonstrating a skill; they may be used to check the progress of a lesson; or they may be used to summarize a lesson. In short, questions can be used in any part of the lesson.



Lesson No.: 14

Topic: Teaching the Lesson - Presentation

(a) Introduction of Lesson

Presentation: There are two reasons for concentrating on the introduction of the lesson. The first is the review of material which leads into the lesson and the second, and by far the most important, is to establish motivation on the part of the students for the lesson.

Motivation is simply the stimulation of learning and, if the student is motivated learning will occur more easily. Motivation is the key aspect of teaching. Although we include the discussion of motivation in the introduction of the lesson, we must be conscious of the need for motivation throughout the lesson.

Motivation may be internally oriented within the student, externally oriented by outside forces or teacher developed; but, it must be present for the learner. Motivation is more easily developed if the student is physically and mentally ready. It arouses curiosity and interest and moves and sustains movement towards the goal. In short, motivation is essential to effective lesson presentations.

Information Sheet: Motivation

## MOTIVATION

In order to teach the lessons that you have been organizing in your Course of Study, it is necessary to prepare lesson plans. Perhaps one of the most difficult parts of lesson planning is to develop "MOTIVATION" -- that is, to stimulate the student, to arouse interest and to physically and mentally involve the student in the lesson. Motivation has to be a continuing process. It is possibly the most necessary ingredient in a lesson and many times it is the most difficult part to create and then apply. One should always be conscious of the need for good motivation. It is the one factor which, more than any other, can make the learning situation more worthwhile for the student and a more satisfying and rewarding experience for the teacher.

NOTE: Always be conscious of the need for good "MOTIVATION".

MOTIVATION is the personal internal process that determines the strength and direction of a person's behaviour or line of action.

### Effect of Readiness on Learning

1. Types of Readiness
  - Physical - personal and ambient
  - Intellectual - capacity and development
  - Social
  - Emotional
2. Principles of Readiness
  - Interest
  - Curiosity
  - Intellectual preparation
3. Problems due to lack of Readiness -
  - Difficult to motivate student if he/she is not ready
  - Little learning will take place
  - Student will be farther behind in next new learning situation
  - In time student becomes disinterested, possibly a discipline problem
  - Makes teaching more difficult and time consuming

### **Effect of Motivation on Learning**

1. Elements - an energy change takes place in the neurophysiological system of the learner.
  - feelings (psychological tensions) about the goal are aroused (INTEREST).
  - the learner makes those responses that will lead to the desired goal. (CURIOSITY).
2. Affect of Motivation -
  - begins the movement towards the desired goal.
  - determines the direction of the movement.
  - sustains a goal-directed behaviour.

- MOTIVATION** -
1. **EXTRINSIC** - outside forces acting on the learner. (praise - rebuke - sound - visual)
  2. **INTRINSIC** - internal forces that drive an individual towards a goal. (Personal needs - anxieties - interest - fear)

### **Methods required to achieve MOTIVATION.**

- carefully selected text, selected readings
- pupil participation
- relating certain aspects of the course content to the life of the student
- using course related projects geared to the student's interest
- interesting narratives, anecdotes, etc.

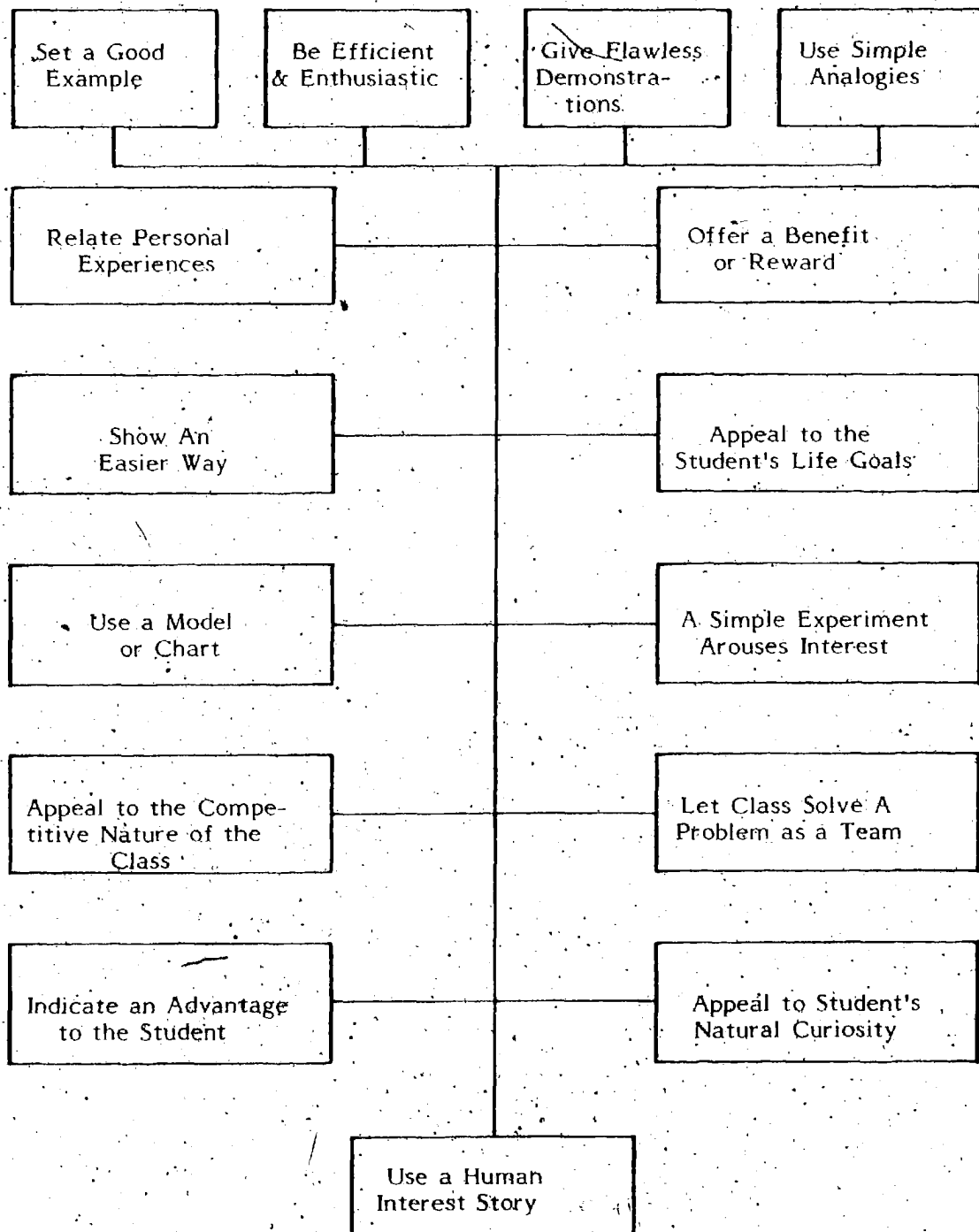
### **Factors that influence MOTIVATION**

- student interests and desires
- environment
- success
- goals
- incentives

### Suggestions for good MOTIVATION

- an awareness of the basis of MOTIVATION and student progress
- establishment of proper rapport
- meaningful lessons - well prepared - interesting
- create interest in your course
- surround student with stimuli
- identify the incentives that seem to motivate different classes
- minimize student frustration
- balance between positive and negative criticism
- help students to identify personal and academic goals
- self satisfaction in experimentation

# MOTIVATION



Lesson Nos.: 15 and 16

Topic: Teaching the Lesson

(b) Presentation of the Lesson

**Presentation:** The presentation of the lesson is, of course, the make or break area of teaching. We succeed or fail on our ability to teach to class-size groups. Even with the advent and increased use of individualized training systems, the ability to work with a group will remain paramount.

The following areas will be covered during this lesson:

1. Explaining - Although many points on the information sheet have been seen before, it is useful to review the entire list as this will serve as a reinforcement of these points.
2. Types of Lessons - Again, in some ways a review of previously touched on material. However, this information does include new information on the Information and Operation lesson types.
3. Characteristics of a Good Lesson - As in all lists, this listing of characteristics is subject to some discussion. In fact, it may be useful to have the class determine the most important steps and the least important steps as a class assignment. This may be done in the groups that were previously established.
4. Habits and Mannerisms - The list of mannerisms is by no means complete. Ask the class for additional suggestions. Ask them to be aware of and comment on mannerisms that arise during the remainder of the course.
5. The Chalkboard - The chalkboard is the most used and most abused teaching aid. Review the teaching points to good chalkboard use. The good and bad points of chalkboard use should be illustrated by the instructor.

**Information Sheets:** Tips on Explaining

The Information versus the Operation Lesson

Characteristics of a Good Teaching Performance

Habits and Mannerisms

The Chalkboard

### TIPS ON EXPLAINING

1. Use simple language. Use the language of the learner.
2. Be patient and resourceful.
3. Make liberal use of analogy, comparison, example and illustration.
4. Use visual aids as much as possible.
5. Develop a good sequence of simple-to-difficult, step-by-step techniques in explaining.
6. Use students' knowledge as a base on which to build.
7. Explain and define new terms as they are introduced.
8. Use the technique of "show and tell".
9. Point out the relationships of parts and process.
10. Use logic and reasoning in explaining.
11. Develop concepts, history, and uses in explaining.
12. Be sure there is a goal to the explanation and that the group understands this goal.
13. Make use of the chalkboard in developing an explanation.
14. Keep eye contact with the class as you explain.
15. Encourage questions as well as ask them.
16. Call attention to highlights.
17. Use a point-by-point summary to strengthen your explanation.

The secret of mastering the art of explaining lies in the ability of the teacher to clearly define and understand the aim, the purpose, the very core of the thing he/she is attempting to explain. When this is understood, the teacher can simplify it in terms of the learner, then explain the operation, theory, principle or process in good, plain language. Again, the requirement of proper presentation of an explanation demands good English. In fact,

the good teacher will introduce new terms, define them as he/she uses them and attempt to enlarge the students' vocabularies whenever possible. This is in addition to the prime function of the explanation, that is the teaching of the lesson in accordance with the aim which has been selected.



### THE INFORMATION LESSON VERSUS THE OPERATION LESSON

The information lesson has for its goal the teaching of such things as principles, functions, occupational and industrial information, related mathematics, science and other occupational information ranging from the use of handbooks to occupational guidance. Whether a teacher demonstrates or illustrates does not determine the type of lesson; the intent and objective does. The teacher should use the type of lesson which is appropriate for his/her specifically defined aim. The operation lesson, by its very name, implies the teaching of a manual skill. Only if the skill is incidental to the information does the possibility of combining the two types of lessons exist.

The teacher should be aware of which type of lesson is to be used. This requires the establishment of a clear aim and objective. This does not imply rigidity on the part of the teacher; in fact, quite the opposite. The teacher must be flexible in order to take advantage of situations that arise in the shop or classroom and also in order to cope with problems that inevitably will arise. A model, prepared for a demonstration, that fails to work opens the opportunity to use diagrams, sketches and other visual techniques to understand the principle. On the other hand, it allows the teacher the option of switching the demonstration to illustrate techniques.

### CHARACTERISTICS OF A GOOD TEACHING PERFORMANCE

1. Use of good English
2. Delivery in a pleasant tone of voice.
3. Change of voice with intonations and inflections.
4. Observation of good speaking techniques, posture, and poise.
5. Wearing of appropriate apparel.
6. Display of enthusiasm.
7. Demonstration of occupational skill.
8. Attention to good seating arrangement.
9. Arrangement of good lighting and ventilation.
10. Consideration of students' physical difficulties - hearing, seeing and so on.
11. Evidences of good practices of shop organization and management.
12. All materials necessary for the lesson within reach.
13. Distracting or extraneous materials removed.
14. Smooth, skillful presentation of new materials.
15. Expert handling of questions and problems.
16. Ability to stick to the aim.
17. Skillful handling of questions and problems.
18. Adequate use of good questioning techniques.
19. Good group control.
20. Quick and efficient handling of clerical details.
21. Efficient and effective use of the chalkboard.
22. Adequate student participation.
23. Display of patience, understanding and a touch of humor.
24. Ability to talk to students at their level.

25. Setting of a good example to stimulate student improvement.
26. Relaxed, pleasant atmosphere which reflects mutual respect and desire to learn.
27. Pace of the lesson fits the majority of the students.
28. Frequent checking to assure student understanding and learning.
29. Use of example, analogy, comparison and "for instance" in explaining.
30. Ability of the teacher to think on his feet.
31. Display of fact and patience in avoiding controversy and argument.
32. Freedom for students to ask questions or offer constructive criticism.
33. Successful completion of the lesson within the time allotted.
34. ENJOY YOUR WORK!

## HABITS AND MANNERISMS

While not wanting to infringe on other courses that you will be taking, a discussion of habits and mannerisms is necessary for this course. Psychologists state that our habits are patterns of conduct we have established by reacting repeatedly to certain stimuli so that our reactions have become virtually unconscious or automatic. Although some habits are useful or beneficial, others that are formed unconsciously can be irritating to an audience. The impression people form of us is to a large extent a reaction to the peculiarities of our mannerisms. Some distracting mannerisms have been identified as follows:

- |                   |                        |
|-------------------|------------------------|
| 1. Chin rubbing   | 11. Fidgeting          |
| 2. Nose pulling   | 12. Floor pacing       |
| 3. Ear pulling    | 13. Tie adjusting      |
| 4. Cuff pulling   | 14. Toe balancing      |
| 5. Pencil tapping | 15. Key chain swinging |
| 6. Brow wiping    | 16. Chalk tossing      |
| 7. Coin jingling  | 17. Eyeglass adjusting |
| 8. Palm rubbing   | 18. Throat clearing    |
| 9. Ceiling gazing | 19. Paper waving       |
| 10. Floor gazing  | 20. Hair smoothing     |

Are you guilty of any of these mannerisms that may cause a shift of student focus from the topic to your quirk? "The repetition of mannerisms causes the speaker to be known by his faults rather than his virtues."

## THE CHALKBOARD

One of the most effective means of visually involving the student in the lesson is through the correct use of the chalkboard. The proper techniques of chalkboard use are similar to other forms of visual messages: Work from left to right, observe proper margins, exercise neatness, keep the lines as straight as possible without upward or downward curves, use necessary drawing implements such as the straightedge, triangle and compass and remember to address remarks to the class not to the board.

The following are useful techniques that may be considered when using the chalkboard.

1. Keep the board clean.
2. Ensure that the board is clearly visible, without dark spots or glare, from each seat.
3. Check your lettering and diagrams from the back of the room to make sure all work is legible and clear.
4. Develop drawings rather than initially completing the diagram. This will help maintain student interest.
5. Stand to one side as the diagram is developed. The student cannot see through you and you will avoid the temptation to "talk to the board".
6. Use explanations and questions as to the drawing being developed.
7. Use a pointer to draw attention to special points.
8. Keep the material on the board relevant. Unnecessary material should be erased.
9. Use an underlining technique to emphasize key points and headings. Accents can also be made using colored chalk.
10. As in all visual material, arrange chalkboard work in a neat, orderly, sequential fashion.
11. Sharpened chalk will permit the drawing of fine lines.

12. Construct plywood or masonite stencils for frequently used sketches. (Human heads, circles, ellipses, special symbols, etc.)
13. Use a small, segregated section of the board as a notice and assignment reminder.
14. Score or paint a section of the board as a visual graph pad.
15. Observe the same requirements as you would for keeping good notebooks. Students will be trained for neatness and order.
16. Maintain a good sense of balance and proportion when making drawings and sketches.
17. Place the aim of each lesson on the chalkboard.
18. Use a straightedge to draw all lines.
19. Use an oversized yardstick with scaled dimensions to transpose measured units to the board.
20. Train students in good chalkboard techniques to enable them to explain, illustrate and solve problems when sent to the board.
21. Plan your work with the chalkboard in mind. It should never be left completely blank.

Other methods of visually involving the students in the lesson such as the overhead projector, the 35mm slide projector and various film and filmstrip projectors will be dealt with in future courses.

Lesson No.: 17

Topic: Teaching the Lesson - Presentation

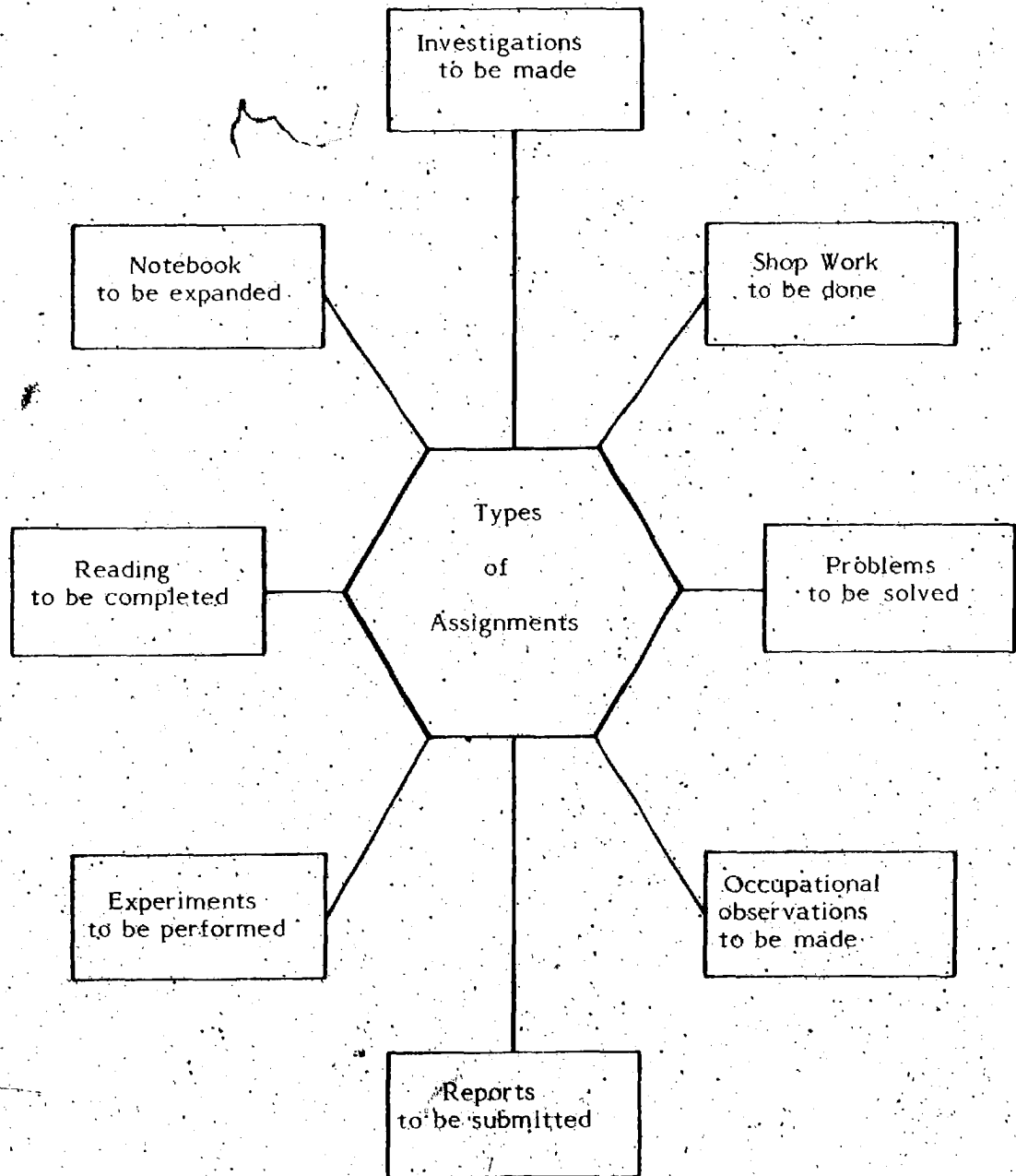
(c) Summary of the Lesson

Presentation: The close of the lesson is usually characterized by a summary and assignment. These aspects of the lesson are, all too often, treated in a very casual manner. They must be planned as carefully as any other portion of the lesson. The use of the various types of assignments can supplement the instruction with meaningful activity.

Some points to consider on the use of assignments are:

- (a) Completion of notes. Since the notes taken during class time are in outline form only, completion of notes, on the same day, forces the student into a nightly review of the day's work.
- (b) Problem solving is a very useful assignment type because again, the emphasis is on doing something. The activity to be performed reinforces the learning that has occurred. Many of the other assignments, in effect, are the same as problem solving in that they are activity oriented.
- (c) Be careful with the use of readings. The typical vocational student may not have a reading level which allows effective use of reading assignments.
- (d) Avoid unleashing your class on an unsuspecting outside agency. If, for example, you say, "Go down to the ABC Company for that information," make sure that the ABC Company is prepared for your class to ascend on them en masse.
- (e) Be reasonable in both the quantity and time limits of assignments given to your class. Many vocational students must have outside jobs in order to stay in school. If you assign work to be done immediately, this may cause a conflict with the job. Rather than cause this frustration, it may be best to allow a longer time frame for completion of assignments.

Information Sheet: Types of Assignments





Lesson No.: 18

Topic: The Student - An Individual

(a) Individual Differences

**Presentation:** The main criteria for establishing a proper base for teaching is the establishment of a disciplined learning environment. Discipline must be established on an individual basis in order to be successful. The type of discipline we are attempting to establish comes from within the student; it is not externally imposed. If we are successful, the student will maintain the discipline outside the shop or classroom.

The points listed on the information sheet should be reviewed and the students should discuss the relative merit of each.

**Information Sheets:** Some Do's in Discipline

Some Don'ts in Discipline

### SOME DO'S IN DISCIPLINE

1. Be in room on time, ready to start when the bell sounds.
2. Attempt to have the room properly heated, lighted and ventilated.
3. Have your work prepared, materials ready, etc.
4. Try to keep in good health and have a réserve of strength.
5. Be friendly to students, yet be somewhat reserved and, when necessary, be firm.
6. To the greatest degree possible, know your students and their home and community environment. A visit to their homes is excellent if you have the time to do so. If not, try to contact their parents at some community or school function.
7. Listen to their protests and suggestions and, when it seems advisable to do so, accept them.
8. Be consistent and just in your dealings with students. Also, attempt to be the same from day to day.
9. Be master of yourself and of situations as they arise. Have confidence in your ability to deal with situations.
10. Teach pupils what good order is. As illustrative, let them know that they should become quiet when the bell rings, that you will not tolerate prolonged conversations during study periods or discussions.
11. Be alert. See and hear all but reserve action for that which is significant.
12. Nip disturbances in the bud. As an automobile coasting downhill gains momentum, so do minor disturbances tend to become major.
13. Maintain good order in the school as a whole. Islands (classrooms) of good order are difficult to maintain in an ocean (school) of chaos.
14. Discipline the offender or offenders. Then forget and forgive. The case is over.
15. Keep students active on material which is meaningful.
16. Grade instruction and discipline to maturity level.

17. Also, adapt instruction to the type of work being done. The conditions desired vary as students go from one type of activity to another.
18. Make few commands. Be sure that those made are understood. Then enforce them.
19. When necessary to admonish a student or students, keep the voice calm, low, yet forceful.
20. Use group pressures to the greatest degree possible. Student government is an excellent aid, but keep it under supervision and control. Students are citizens in the process of becoming. Moreover, you the teacher, are the responsible agent of society and are being paid to ensure the maintenance of certain conditions and the performance of certain activities.
21. Expect good order.

### SOME DON'TS IN DISCIPLINE

1. Don't use sarcasm.
2. Don't lose your temper and throw things, either objects or words.
3. Don't lose control of your voice.
4. Don't plead with the students to be good.
5. Don't cry - at least not publicly.
6. Don't make threats.
7. Don't be brutal if you should administer physical punishment.
8. Don't punish to be seen of men.
9. Don't blindly administer mass punishment.
10. Don't spy. Morale cannot be secured in an atmosphere of distrust.
11. Don't attempt to crush a student's personality.
12. Don't make it a practice to send offenders to the principle's office. Desirable order cannot be secured through remote control.
13. Don't clash with the wills of your students. It is much better to prevent the crisis from arising than it is to meet it head on.
14. Don't argue endlessly. Arguments tend to result in rationalizations rather than reasonable conclusions.
15. Don't worry. The worst that can be imagined happens rarely.
16. Don't discipline by rule of thumb. Every situation involves new elements and hence must be dealt with as a somewhat unique case.
17. Don't feel that every misdemeanor must be dealt with directly. Often, to catch the offender is punishment enough.
18. Don't react to situations too hastily. You may have misunderstood the action or expression. Communications are not infallible.
19. Don't criticize the administration of the school or the work of other teachers when in the presence of the pupils. Such action does not lead to reform but does undermine the morale of the school and therefore encourages insubordination.

20. Don't brood over past mistakes. They cannot be undone. But do reconcile them and profit from your experience.
21. Don't take these do's and don'ts too seriously. They are merely suggestions, not Eternal Truths.

Lesson No.: 19

Topic: The Student - An Individual

(b) Individual Instruction Techniques

**Presentation:** The modular training system for vocational students is not coming in the future; it is here and in use now. Many courses in the province are now using the modular training system for their students. The circular from the Dept. of Labour and Manpower explains the function of the modular system in apprenticeship training. In fact, there are various types of learning activity packages. Some are commercially available (but very expensive) and some can be teacher developed.

Some types are:

- (a) The student direction sheet provides a simple sheet list of student directions for accomplishing a learning task. This is the simplest and most easily developed system. The main advantage is that it is easily written and followed. The prime disadvantage is that it is frequently dependent on group-oriented activities such as lectures.
- (b) The learning guide is a complete package that directs a student through a series of materials, media and tasks. It includes self checks and tests. While more complete and individualized than the student direction sheet, the learning guide needs a trained person to develop it.
- (c) The self-contained module is more formalized than other learning packages. All learning resources are included within the module. It is very comprehensive and detailed and usually provides a variety of learning activities which can be used to achieve the goal of the module. Learning modules allow the student to learn without reference to outside materials. They are, however, very expensive and time consuming to develop.

**Information Sheet:** Modular Training in the Apprenticeship System

**Note:** When presenting this lesson, use of reference material on the various types of learning packages is suggested. In particular, The Handbook for Developing Competency-Based Training Programs by William E. Blank, Unit 6, Pages 180-260 may be very useful.

## MODULAR TRAINING IN THE APPRENTICESHIP SYSTEM

During the 1960's and 1970's, the Apprenticeship Training Program achieved considerable success in training apprentices to the standards required of that era. Even though the program was successful in the past, changing times have presented problems which will make it more difficult for the program to reach this same success level during the 1980's and 1990's. Changing technology, changing economic conditions, changing lifestyle and changing ways of doing things will all contribute to the problems faced by the program. In an effort to cope with future requirements and to produce competent workers to satisfy the manpower demands expected later in the decade, the Modular Training Program has been developed for apprenticeship training.

### What is Modular Training?

Modular Training is a program which emphasizes practical skill development while the apprentice learns the theory related to the skill. The program is performance based to meet the skill requirements of industry and, whenever possible, industry rates the skill development of the apprentice. This assures that the apprentice's competency is rated by acceptable industrial standards. The program makes provision for the apprentice to learn each of the many skills that make up a trade and to obtain credit for each skill mastered.

### How does the program work?

To reach Journeyman level in a trade, an apprentice must acquire proficiency in, and knowledge of, the two elements that comprise the trade; the manual skills and the trade theory. In the modular system,

the skills of the trade are grouped together in modules which contain all the skills required to reach the objective of the module. For instance, the module, "To install a door", requires an apprentice to learn how to fit a door and layout and install hinges and door locks each of which requires separate skills. The module contains any related theory knowledge necessary for completion of the module. An apprentice may acquire these skills either on the job or in the training institution.

While attending the training institution, the apprentice will complete a number of modules which include practical projects and a theory test related to the module. The institute will rate the apprentice according to the skill level reached. Where possible, a final rating will be required from the industry.

On the job, the employer may rate the skill level reached; but the apprentice will be required to take the theory test for the module while at the institute to acquire full credit for the module.

The apprentice will be eligible to write the journeyman exam when all the necessary modules have been successfully completed and the required employment experience has been attained. In the institution the program is self-paced and the time required for completion will depend on the apprentice's ability to proceed.

What are the advantages to the Apprentice?

1. The speed of progress through the apprenticeship program can be geared to the apprentice's capabilities to learn the necessary skills.
2. Practical skills which may not be available through the employer may be acquired in the training institution.
3. The apprentice will receive credit for the skills of the trade as they are mastered.



4. Industry will rate the apprentice's progress wherever possible.
5. The apprentice may learn modules when they are required on the job.
6. The apprentice is assured of a well-rounded coverage of all the skills of the trade during the apprenticeship term.
7. An apprenticeship counsellor will monitor and guide the apprentice's progress throughout the term of the apprenticeship.

What are the advantages to the employer?

1. The employer will have a better knowledge of the competency of the apprentice.
2. The time required of the foreman to train the apprentice will be reduced.
3. The costs of training the apprentice will be reduced at the outset of employment.
4. The apprentice can be placed in situations where there is a need for training.
5. The apprentice will have a better all-round skill development of the skills of the trade.

Where Do I Obtain Further Information?

Director of Apprenticeship  
Department of Labour and Manpower  
P. O. Box 697  
Halifax, Nova Scotia  
B3J 2T8

Published by The Department  
of Labour and Manpower

Lesson No.: 20

Topic: Aids to Teaching

(a) Instruction Sheets

Presentation: Next to the blackboard, the instruction sheet is the most valuable form of teaching aid. Instruction sheets permit clarification and reinforcement of the material being presented. This also permits the information to be re-written so as to adapt the presentation to specific situations.

The types of instruction sheets are:

1. Job Sheet
2. Operation Sheet
3. Information Sheet
4. Assignment Sheet
5. Project Sheet
6. Experiment Sheet
7. Work Sheet

As with any instructional aid or technique, there are cautions to be observed. The chief one with instruction sheets is to be careful of the reading level of the class.

Much of the learning required for this lesson can be accomplished through an in-class open discussion of the assignment, which is to critique the instruction sheet on instruction sheets.

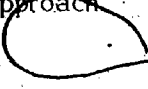
Information Sheet: Instruction Sheets

## INSTRUCTION SHEETS

If the teacher can effectively use a well-constructed information sheet, it can clarify and specify instructions, supplement verbal or skill instructions, provide a source of reinforcement and encouragement for students and permit absent students to at least pick up some of the work given to the class. Instruction sheets also permit teachers to adapt other sources of information to their own personal situation and to individualize instruction in terms of their area, class, facilities, student needs, and their own occupational experience. If the teacher can develop instruction sheets which meet the requirements of the students, following the above guidelines, then they can be valuable and should be used.

### **"INSTRUCTION SHEETS SUPPLEMENT THE INSTRUCTOR - THEY CANNOT REPLACE THE INSTRUCTOR"**

Well-developed material can be a great aid, but do not rely on the written instruction sheet as the sole or primary instruction form. The learner may not be at the reading level at which the instruction sheet is written. Instruction sheets require more careful preparation than any other type of teaching material. They must be clearly written in language that is direct in meaning and easily understood. Any student must be able to read and interpret the instructions with a minimum of difficulty. The instruction sheet and the lesson plan can be developed using a common approach.



### THE TYPES OF INSTRUCTION SHEETS ARE:

1. Job Sheet - Gives directions for doing a series of operations involved in a complete job.
2. Operation Sheet - Limited to the teaching of a single basic operation of an occupation. As a rule, it is used in the preliminary phase of a training course. Its main objective is to establish a uniform method of performance and encourage the correct habits in the performance of the particular skills.
3. Information Sheet - This type of sheet contains factual information essential to the intelligent completion of a job. It can either supplement the presentation or serve as a review or preview.
4. Assignment Sheet - A follow-up to the teacher's instruction, this consists of a number of problems, a series of questions or references. It directs the student to completion of the learning activity.
5. Project Sheet - This is a sheet which contains all the elements for doing a job or constructing a finished product.
6. Experiment Sheets - Used to give procedures to perform a series of tests to prove certain theories.
7. Work Sheets - A miscellaneous category of instruction sheets which are developed to meet certain needs. Material listings, tool lists, job costings are examples of the work sheet.

Much has been said about the value of instruction sheets, and equally as much has been said about the disadvantages of them. Critics of instruction sheets are quick to point out that: They do not explain how to perform the steps in a procedure, they are difficult for the student to read, some people have difficulty interpreting written instructions, the students simply do not read the information, when they are read, the sheets provide no allowance for student initiative, students rely on the instruction sheet for information rather than on the instructor and, through misinterpretation mistakes are inevitable. While these are valid criticisms, are the faults ones of instruction sheets or poor training and instruction at some previous point of learning?

A well-constructed and well-executed instruction sheet will greatly supplement the teacher's instructions. If you take the required time for development of an instruction sheet, high dividends will result. It may be best for the beginning instructor to invest a significant amount of additional time in the practice of writing definite instructions for operations involved in their trade in clear, simple, unequivocal English. While not wishing to reinvent the wheel, the teacher, new to a teaching situation may find it valuable to review instruction sheets left by the previous teacher with a view to rewriting them to suit his/her own teaching system.

The suggestions below are valuable in developing the various kinds of instruction sheets.

1. Use language that is simple and easily understood by an adolescent student. Do not use phrases or words that are unusual or ambiguous.
2. Supplement the words with sketches and illustrations for greater clarity.
3. Avoid crowding the sheet.
4. Give specific directions that are clear and concise.
5. Limit each instruction sheet to one piece of paper, if possible.  
Hint: This also applies to lesson plans.
6. Be consistent in terminology.
7. Avoid including irrelevant material.
8. Separate points, items or paragraphs by numbers or letters.
9. Formulate questions which challenge the thinking of the student.
10. Space the various divisions of the sheet to produce a well-balanced and attractive aid.
11. Vary the typing between upper and lower case and use underlinings to emphasize points.

12. Remember: The chief purpose of instruction sheets is to aid the student in doing the work and to increase his/her knowledge and ability to exercise judgement.

ASSIGNMENT: Critique this instruction sheet. Include in your answer such information as type, aim, good points, bad points, etc. Suggest ways of improving the presentation of this material.

Lesson No.: 21

Topic: Aids to Teaching

(b) Demonstration of a Concept and a Skill

(c) Audio-visual Instruction Aids

**Presentation:** The demonstration is one of the most effective ways of initiating the skill development process. Remember that the goal of a demonstration is to have the student learn the procedure or concept being demonstrated to the point of being able to do the task himself.

The demonstration, like any other lesson, must be a planned event and, therefore, must have a lesson plan developed. In fact, it is a wise idea to have a full run through of the demonstration before the performance before the class. It is very easy to forget an important step or a key part of the demonstration.

Of all the teaching techniques, the demonstration requires the most care and detail in preparation. All elements necessary for the demonstration must be present in order for success.

When teaching the lesson, a good way to summarize the points on giving a demonstration is to actually perform one. A good suggestion would be to demonstrate the correct procedure for connecting the cabling on the video equipment. Since all the students have been using the equipment throughout the course, they are familiar with the various components and their interconnections and can, thus, concentrate on the techniques of the demonstration.

**Information Sheet:** The Demonstration

## THE DEMONSTRATION

The demonstration is the performance by the teacher of an occupational skill, scientific principle or experiment. It may be as simple as showing the correct way to use a screwdriver or as complex as machining a thread. It includes, in addition to manual skills, operational skills such as how to use a calculator, meter, etc. Remember that the two most important senses are sight and hearing. Demonstrations should include both of these senses. Good demonstrations are also good motivators. Students acquire new knowledge and observe the completion of a project. It is an attention-getter and provides the students with a valuable source of imitation. Remember to adapt the size of the group to the type of demonstration. Demonstrations for small, complex operations require a smaller audience than demonstrations of large, simple operations. Demonstration teaching is concrete teaching. It deals with real things and tangible objects.

### Preparation:

Proper preparation of a demonstration is essential. As in all good teaching, a good command of the language, the proper use of terms and words and an awareness of the problems of group teaching are prerequisite for the demonstration. One principle of teaching which must be remembered is to teach according to a planned sequence. The demonstration must fit in with the planned activity and be followed by the application as soon as possible. The demonstration must be followed with information. It is easier to understand something after observation than to visualize an abstract description.



The demonstration must be step-by-step analyzed by the instructor before actually performing it. Things that an expert would do unconsciously must be carefully laid out and explained to the beginner. Lesson plans for demonstrations are an absolute must. The list of teaching points which must be taught for the object of the demonstration must include all the important material for learning the specific thing being taught. The following tips should be observed when planning a demonstration:

1. A good teaching performance demands preparation. Run through the demonstration in order to identify and anticipate difficult steps. A smooth performance will result in a more successful lesson.
2. Obtain all necessary equipment, tools and materials before the lesson period.
3. Arrange all material in advance and have them within easy reach.
4. Check all parts, aids, machines and equipment to be sure that they are in working order (or not in working order as the case may be).
5. Present all background or extraneous material before the lesson is presented.
6. Time your demonstration during the run-through. If it runs much more than 15 minutes, review the demonstration. It is possible that you have included too much material.
7. Check for student visibility and grouping. Check for proximity to various facilities, such as gas, electrical or water outlets.
8. Prepare the chalkboard with preliminary headings and sketches. Have colored chalk on hand.

As the demonstration proceeds, include pertinent information.

Remember, stick to the lesson plan and do not include "nice to know" information at this point.

The teacher should present the demonstration in a relaxed and friendly manner. You are a trades teacher and, as such, you should be confident in what you are doing. It is sometimes a good practice to go through the demonstration twice: once at normal speed and a second time at a pace which can be absorbed by the learner. Be enthusiastic, speak clearly and make your performance both expert and interesting. Ensure both your and your students safety by following proper safety precautions. The following checklist may be of help:

1. Give a good performance without being theatrical.
2. Explain each step or process as you proceed.
3. Make sure that the students see the demonstration from the angle at which they will do the job itself.
4. Follow the Lesson Plan - stick to your aim.
5. Be sure everyone can see and hear.
6. Prepare key questions beforehand and ask them as you go along.
7. Put yourself in the learners' place as you go along.
8. Observe all safety rules and procedures.
9. Emphasize key points.
10. Supplement your demonstration with the proper instructional aids whenever possible.
11. Use the chalkboard for new terms, explanations, listing steps of procedure.
12. Provide for student participation where possible.
13. Demonstrate the correct way only. First impressions are important so make them the correct ones.
14. Remember that students learn by example. Let your demonstration be a good example.

15. Try to plan a demonstration which will develop the skill being taught. Remember the principles of presenting new material: from the simple to the complex and one step at a time.
16. Develop a good motivating device to create immediate attention and interest.

An important adjunct to the demonstration is the chalkboard. If the equipment or material for a demonstration is not available, you can illustrate. Also, an illustration is a valuable addition to a demonstration. Use whatever material is available such as charts, diagrams, models to support your illustration. Sequential diagrams can further enhance the demonstration. Films, filmstrips, slides and videotape may be used, whenever available, to enhance the demonstration. In short, use all the tools at your disposal to build up the demonstration. The best way to teach "how" is to show "how".

Lesson No.: 22

Topic: Evaluation

- (a) Establish student performance criteria
- (b) Assess student performance
- (c) Assign student marks

**Presentation:** One of the most difficult tasks facing the vocational teacher is the assignment of shop marks. These marks tend to become subjective measures of student progress instead of objective evaluations based upon substantive criteria.

While it is not the purpose of this lesson to impinge on other courses (Tests & Measurements), we must examine shop evaluation both from an application viewpoint and an attitudinal viewpoint.

The sample evaluation sheet (enclosed) may be used to "rate" a student's project. The criteria may be modified to suit particular situations by increasing and decreasing individual marks. You will notice that the ratings are grouped into areas of demonstrated performance and work habits or attitudes. In addition, an overall evaluation is given in the remarks section.

In addition, we may use very elaborate systems to identify and quantify and justify a student evaluation. The information sheet, "Rating Student Performance and Progress", should be reviewed pointing out that this system is too cumbersome for actual use in a teaching situation but can be easily modified by the students for use in their classes.

**Information Sheets:** Evaluation Sheet

Rating Student Performance and Progress

# EVALUATION SHEET

Student's Name \_\_\_\_\_ Class \_\_\_\_\_ Teacher \_\_\_\_\_ Dates \_\_\_\_\_ to \_\_\_\_\_

For each item shown below, circle the number indicating the points which you feel the student has earned.

|  | HIGH | AVERAGE | LOW |
|--|------|---------|-----|
| 1. <u>Knowledge, Acquired and Applied</u>              |      |         |     |
| (a) Ability to use required information                | 4    | 3 2     | 1   |
| (b) Ability to follow instructions                     | 4    | 3 2     | 1   |
| (c) Ability to use working drawings                    | 4    | 3 2     | 1   |
| (d) Discusses problems intelligently                   | 4    | 3 2     | 1   |
| 2. <u>Effort and Desirable Work Habits</u>             |      |         |     |
| (a) Perseverance, finishes projects and assignments    | 4    | 3 2     | 1   |
| (b) Ability to work "on his own"                       | 5    | 4 3     | 2 1 |
| (c) Dependability                                      | 4    | 3 2     | 1   |
| (d) Industrious, does not waste time                   | 4    | 3 2     | 1   |
| (e) Attendance and punctuality                         | 5    | 4 3     | 2 1 |
| (f) Uses good English in speaking and writing          | 4    | 3 2     | 1   |
| (g) Shop dress, clean coveralls, proper footwear, etc. | 4    | 3 2     | 1   |
| (h) Personal duties                                    | 4    | 3 2     | 1   |
| 3. <u>Desirable Attitudes</u>                          |      |         |     |
| (a) Co-operation with students and teachers            | 5    | 4 3     | 2 1 |
| (b) Attitude toward work                               | 5    | 4 3     | 2 1 |
| (c) Uses equipment properly                            | 5    | 4 3     | 2 1 |
| (d) Good behavior, obeys rules                         | 5    | 4 3     | 2 1 |
| (e) Observes safety precautions                        | 5    | 4 3     | 2 1 |
| (f) Care of materials                                  | 5    | 4 3     | 2 1 |
| 4. <u>Quality of Work</u>                              |      |         |     |
| (a) Quality of finished work                           | 10   | 8 6     | 4 2 |
| (b) Accuracy of finished work                          | 10   | 8 6     | 4 2 |

## CONVERSION OF SCORES TO REMARKS

80 - 100 VERY SATISFACTORY

60 - 79 SATISFACTORY

Less than 60 UNSATISFACTORY

TOTAL SCORE: \_\_\_\_\_

## RATING STUDENT PERFORMANCE & PROGRESS

When rating individual student characteristics, it is necessary to establish rating factors such as cooperation, appearance, aptitude, promptness, and ability to get along with people. It is evident that a careful and valid evaluation of the student's characteristics and work necessitates a breakdown of the factors involved. Specific rather than general criticisms of the student's work and attitudes should be made. Such criticism should help to remove the difficulties and improve the quality and quantity of the work as well as improve the individual's work attitudes. It is not sufficient to rate a student A, B, C, D, or E in any one characteristic without an explanation. Adverse student reaction to grades may be reduced or eliminated if students understand the meaning of the factors on which they are rated. Furthermore, an arbitrary rating, without comment, may be destructive to the student's self-respect and self-confidence. The symbols used should designate a specific gradation of the characteristic or attitude on which the rating is based. This point is exemplified in the following table.

### SYMBOLS AND GRADATIONS

|             | 90-100<br>A         | 80-90<br>B     | 70-80<br>C        | 60-70<br>D       | Below<br>60<br>E |
|-------------|---------------------|----------------|-------------------|------------------|------------------|
| Aptitude    | Very<br>Industrious | Good<br>Worker | Usually<br>busy   | Idle<br>at times | Lazy             |
| Reliability | Trust-<br>worthy    | Reliable       | Satis-<br>factory | Irregular        | Unre-<br>liable  |
| Application | Very<br>quick       | Apt            | Average           | Slow             | Very<br>Slow     |

The rating factors or characteristics to be selected depend on the type of work, the subject, and the point of view of the teacher. Some teachers may choose to divide the factors into work traits and character traits as a matter of convenience. In this case, a random classification may be as follows:

Work Traits

1. Accuracy
2. Speed
3. Safety
4. Care of tools & equipment
5. Neatness
6. Workmanship
7. Dexterity

Character Traits

1. Aptitude
2. Industriousness
3. Reliability
4. Resourcefulness
5. Cooperation
6. Interest
7. Conduct

Although it may be desirable to use most of the traits listed above, it is not advisable. If too many factors are used, the system becomes cumbersome and consequently a burden to the teacher. Therefore, an individual teacher or a particular school or a department within the school should select the factors on which the students are to be rated. After the factors or characteristics to be used are selected, the various gradations of the characteristics or factors should be decided. This step is necessary in order to establish a rating scale.

It was indicated above that a grade of A, B, C, or D, or 90, 83, 72, or 60 means little in itself. If a descriptive word can be used to represent each of these letters or numerical values, then the grade is more meaningful to students and parents. Usually a five-point scale is sufficient for all practical purposes. Listed below are a number of rating factors or characteristics with corresponding gradations. Sometimes it may be difficult to

select suitable words that give the desired shade of meaning and that avoid an overlapping of terminology. However, after considerable thought a satisfactory scale may be evolved. The following suggestions may be helpful:

Aptitude: very slow to learn - learns with effort - learns readily - unusually bright.

Quality of work: poor - fair - good - above average - superior.

Knowledge of work: lacking - meager - moderate - well-informed - complete.

Industry: lazy - needs urging - fairly steady - plodder - hard worker.

Confidence: timid - overconfident - self-reliant - excellent.

Interest: not interested - mildly interested - quite interested - enthusiastic.

Reliability: unreliable - irregular - satisfactory - dependable - trustworthy.

Cooperation: rebellious - antagonistic - self-centered - tolerant - very cooperative.

Manner: unpleasant - indifferent - agreeable - gracious - winning.

Judgement: bad - lacking - reasonable - sound - unusual.

The succeeding step is the assignment of values to each of the factors according to one's judgement. Assume a situation in which it is decided to use the following factors with maximum point values assigned to each as indicated:

|                    |                  |
|--------------------|------------------|
| Accuracy           | 30 points        |
| Speed              | 20 points        |
| Neatness and order | 15 points        |
| Care of tools      | 15 points        |
| Attitude           | 10 points        |
| Aptitude           | 10 points        |
|                    | <hr/> 100 points |



If a five-point rating scale is to be established, it is necessary to assign point values for each division of the scale. In this case, the five divisions might be as follows:

---

|          |       |       |       |        |
|----------|-------|-------|-------|--------|
| Below 60 | 60-69 | 70-79 | 80-89 | 90-100 |
| E        | D     | C     | B     | A      |

---

This rating scale will enable the teacher to assign grades according to letters A, B, C, D, E, or in numerical values within each point on the scale; for example, 65, 76, 85, 92, 96, etc. When the meaning of the grades is understood, it makes little difference whether they are expressed in the form of letters or numbers. In most cases, numbers are more convenient because of the ease with which individual differences may be indicated. It is then necessary to assign a given number of points to each factor in the division it falls under on the scale. These will be arbitrary figures scaled down from the maximum point values listed above. The result of this operation will produce the following rating scale:

| NUMERICAL<br>EQUIVALENTS | Below<br>60      | 60-70                    | 70-80                   | 80-90              | 90-100              |
|--------------------------|------------------|--------------------------|-------------------------|--------------------|---------------------|
| RATING<br>FACTORS        | E                | D                        | C                       | B                  | A                   |
| Speed                    | Very slow.<br>10 | Slow<br>14               | Good<br>16              | Rapid<br>18        | Very Rapid<br>20    |
| Accuracy                 | Inaccurate<br>15 | Careless<br>24           | Average<br>26           | Accurate<br>28     | Very Accurate<br>30 |
| Neatness<br>and order    | Slovenly<br>8    | Unsatis-<br>factory<br>9 | Satisfac-<br>tory<br>11 | Very<br>Neat<br>13 | Extra Neat<br>15    |
| Care of<br>tools         | Wasteful<br>7    | Negligent<br>9           | Average<br>11           | Good<br>13         | Excellent<br>15     |
| Attitude                 | Indifferent<br>5 | Passive<br>7             | Interested<br>8         | Eager<br>9         | Enthusiastic<br>10  |
| Aptitude                 | Unfit<br>5       | Slow<br>7                | Fair<br>8               | Capable<br>9       | Adept<br>10         |
| TOTALS                   | 60               | 70                       | 80                      | 90                 | 100                 |

In the table above, there is a greater point spread between the D and E column of the factors speed and accuracy than between the other columns. This provision was made because the least capable students in manual activities invariably are inaccurate and are particularly deficient in the amount of work accomplished.

If a greater number of rating factors are used than are indicated in the table above, then a different distribution of point values must be made. A satisfactory way of testing such a rating scale is to rate two students in the old-fashioned way by saying one is a "B" student and the other a "C" student. Then carefully check these students on each of the

factors on the rating scale.

The first student is given the following ratings:

|                        |                  |
|------------------------|------------------|
| 20                     | Speed            |
| 26                     | Accuracy         |
| 10                     | Neatness & order |
| 12                     | Care of tools    |
| 10                     | Attitudes        |
| 9                      | Aptitudes        |
| Total 87               |                  |
| Grade "B" as per scale |                  |

The second student is given the following ratings:

|                        |                  |
|------------------------|------------------|
| 10                     | Speed            |
| 30                     | Accuracy         |
| 11                     | Neatness & order |
| 13                     | Care of tools    |
| 7                      | Attitudes        |
| 7                      | Aptitudes        |
| Total 78               |                  |
| Grade "C" as per scale |                  |

Invariably the total number of points will indicate that the student ranks about the position in which you originally placed him by subjective rating. The advantage, however, of this detailed rating scale is the teacher's opportunity to show the rating to the student or parent and to indicate definitely where improvement should be made.

The first student is evidently a rapid worker, but in his haste he sacrifices accuracy, neatness, and care of tools, as shown by the objective rating.

The second student is very slow but apparently meticulous in his work, although slow to learn and somewhat neutral in his attitude to his work. This plan also enables the teacher to take care of the shades of difference in the ability of students. Two students may be comparable in certain respects, but one is slightly better than the other. This difference may be indicated by varying the number of points granted for each of the factors involved.

Lesson No.: 23

Topic: Evaluation

(d) Teacher Self-Evaluation.

**Presentation:** The purpose of self-evaluation is to provide the teacher with information to improve instructional programs, clarify educational aims and objectives and increase professional competence. It is vital that self-evaluation is based on concrete criteria.

When completing the checklists and answering the questions in any evaluation forms, be honest. Avoid the tendency to gloss over problem areas and also avoid the even greater tendency to be hypercritical. Remember that the function of self-evaluation is to seek improvements where required, not to pick apart and destroy already strong areas.

For this topic, the students are each given a copy of:

Teacher Self-Evaluation, Published by  
The Nova Scotia Teachers' Union


They are required to complete the questions in the booklet twice: once in early December and once in early March. This post-course assignment is to be kept confidential and should be used to record perceived strong points and areas in need of improvement.

**Information Sheets:** How Good Are You? (2 sheets)

### HOW GOOD ARE YOU?

From the standpoint of shop or classroom instruction:

1. Is your course modern?
2. Are your methods up to date?
3. Are you intensely interested in your students?
4. Do you help the slow learner and give extra work to fast learners?
5. Are you always in your shop ahead of time; example, before class opens?
6. Do you usually work after quitting time?
7. Do you arrange the next day's work beforehand?
8. Do you have prominent men from industry visit your class and give talks?
9. Do you usually have demonstration material on hand to illustrate the lesson?
10. Do other teachers copy your methods?
11. Do you have various kinds of modern teaching methods and material?
12. Do you keep your department or shop in good condition, with all equipment and tools orderly and neat?
13. Is your personal grooming excellent?
14. Do you have a modern library of books, magazines and catalogues on your subject?
15. Do you move about the shop, giving aid to pupils who need it?
16. Do you couch your instructions in language your pupils understand - defining trade or occupational terms and idioms?
17. Do you make use of diagrams, pictures, charts, cutaways, and manikin equipment?
18. Do you have a sense of humour - can you smile with the pupils?
19. Do you have "eyes in the back of your head"?

- 
20. Do you make sure that every pupil is profitably busy?
  21. Do you have all materials, tools, etc. at hand before you begin a demonstration?
  22. Are you able to take care of individual differences in the pupils' ability to learn?
  23. Can you develop to the highest degree the thinking ability of each pupil?
  24. Do you encourage your pupils to ask questions?
  25. Do you look for opportunities to praise where praise is merited?
  26. Do you know where each method of teaching can be used to best advantage?

### HOW GOOD ARE YOU?

#### From the standpoint of reactions of students:

1. Do your students think you are the "greatest fellow on earth"?
2. Do your students have confidence in you?
3. Do your students brag about you to their friends?
4. Do your students bring their friends to the school to enroll in your department?
5. Do your students bring you new ideas?
6. Are your students on the lookout for newspaper clippings, articles, etc. which point out modern trends and new things?
7. Do your students work overtime?
8. Do your students take pride in the department?
9. Do the students cooperate with you in the management of the shop?
10. Do students debate subjects with you in order that they may have the benefit of your knowledge?
11. Do the students question your authority?
12. Do your students need discipline rarely, if ever?
13. Do your students attend regularly?
14. Do your students like to get into conversation with you to learn informally?
15. Do your students re-enter the school for post-graduate work of night classes with you?
16. In the event someone criticizes you, do your students defend you firmly?
17. Do the students follow your suggestions to attend meetings, lectures, etc.?
18. Are you consulted about problems on the job by your students after they have graduated?
19. Does the general behavior of the students indicate they are getting everything they need and want while they are in school?

Lesson No.: 24

Topic: Evaluation

(d) Teacher Self-Evaluation - Professionalism

Presentation: A professional has been defined by Webster's dictionary as:

- (a) one who practices a profession or occupation that is self-regulatory. The members of the profession, in council, set the principles and standards for practice of the profession.
- (b) an individual, in any occupation, who conducts himself in a disciplined, regulated way.

The teaching profession is a profession (albeit on the fringe of true self-regulation) and, as such, has established standards of behavior required for professionalism on the part of the members. All teachers should be aware of and adhere to these standards. The teachers' code of ethics is published annually in the Nova Scotia Teachers' Union Teachers' Handbook. Further examples of professional activity may be found by examining the resolutions of the annual council of the N.S.T.U.

In addition to the published codes of professional conduct, the points contained in the two information sheets should be reviewed and discussed. The appearance of professionalism on the part of each individual within the profession contributes greatly to the total image of the professional.

Information Sheets: What Makes a Professional Worker Professional?  
Professional Ethics



## **WHAT MAKES A PROFESSIONAL WORKER PROFESSIONAL?**

by G. B. Leighbody, Supervisor  
Industrial Teacher Training  
University of the State of New York

Frequent reference is made to a "professional attitude" and "professional conduct" on the part of persons engaged in occupations classified as professions.

Teaching is regarded as a profession. Teachers are expected to behave professionally. Professional conduct is not easy to define in a few words, but listed below are some of the characteristics associated with true professional status.

**THE PROFESSIONAL WORKER DOES NOT REQUIRE CLOSE SUPERVISION OR DIRECTION.** He directs himself. He plans his own activities. He works independently.

**THE PROFESSIONAL WORKER DOES NOT REGARD HIMSELF AS AN EMPLOYEE.** He does not consider himself to be working for a "boss". He regards his supervisors as fellow professional workers, and they regard him in the same way.

**THE PROFESSIONAL WORKER DOES NOT WORK BY THE HOUR.** He does not expect to adhere strictly to a minimum time schedule. He adjusts his working hours to meet the necessities and responsibilities of his duties, without thought as to "overtime" or "standard work week".

**THE PROFESSIONAL WORKER TAKES FULL RESPONSIBILITY FOR THE RESULTS OF HIS EFFORTS AND ACTIONS.** He makes his own decisions and acts upon them. He may seek advice and counsel but he does not attempt to transfer responsibility for his own mistakes to others.

**THE PROFESSIONAL WORKER DOES NOT EXPECT TO BE PAID BY THE HOUR.** He expects the overall sum for which he has agreed to perform his duties. This sum is based upon the responsibilities involved and the professional service rendered. It cannot be measured in hours. Professions whose members regularly demonstrate this are those where compensation is the highest.

**THE PROFESSIONAL WORKER CONTINUALLY SEEKS SELF-IMPROVEMENT.** He takes advantage of every opportunity to improve his knowledge and understanding in connection with his professional duties.

THE PROFESSIONAL WORKER CONTRIBUTES TO THE SKILL AND KNOWLEDGE OF THE PROFESSION. He develops new ideas, plans, and materials, and gladly shares them with fellow workers.

THE PROFESSIONAL WORKER RESPECTS THE CONFIDENCE OF OTHERS. The welfare of those he serves often requires that information concerning them remain confidential. He never violates this confidence.

THE PROFESSIONAL WORKER IS LOYAL TO HIS FELLOW WORKERS. He never gossips about them nor about those he serves.

THE PROFESSIONAL WORKER AVOIDS RUMOR AND HEARSAY. He does not credit or repeat information received through the "grapevine". He secures information which is important to him directly from those authorized to release it.

THE PROFESSIONAL WORKER ADJUSTS HIS GRIEVANCES THROUGH PROPER CHANNELS. He discusses them directly and privately with those authorized to make adjustments. He refrains from complaining and grumbling to others.

THE PROFESSIONAL WORKER MEETS HIS PROFESSIONAL OBLIGATIONS. He fulfills completely all agreements and obligations entered into with fellow workers, whether they are legal or moral obligations.

THE PROFESSIONAL WORKER IS SENSITIVE TO THE PROBLEMS OF HIS FELLOW WORKERS. He always considers the effect of his actions on the welfare of fellow workers.

THE PROFESSIONAL WORKER DOES NOT ADVANCE HIMSELF AT THE EXPENSE OF OTHERS. He strives for promotion and advancement in the profession only on the basis of superior preparation and worthy professional performance.

THE PROFESSIONAL WORKER IS PROUD OF HIS PROFESSION. He always reflects to those outside the profession a pride and satisfaction in the work in which he is engaged.

THE PROFESSIONAL WORKER'S CHIEF DESIRE IS TO RENDER A SERVICE. To improve men's welfare is the end toward which the professional worker devotes his career. The teaching profession should exemplify this to the highest degree.

## PROFESSIONAL ETHICS

One of the distinguishing marks of a profession is the concern of its members for their own ethical conduct. This concern has found expression in the codes of ethics of many of the older professions. To date, it appears that not too much concern has been given to the formulating and adopting of a code of ethics for teachers. If we wish to perform our duties in a professional manner, it is only reasonable to assume that we should have definite guidelines within which to operate.

In the hope of creating some thought in this direction, we offer for your consideration some ideas expressed in the codes of ethics of four well-known professions, in that each profession frequently involves a one-to-one relationship between practitioner and client. Many times teacher and student find themselves also on a one-to-one basis. The four professions considered at this time are Law, Medicine, Psychology and Social Work.

We offer herewith some items from the four codes in the hope that they will make us more conscious of the need to be aware of good ethical conduct in the discharge of our duties as professional people.

1. It is essential to the understanding of others that the teacher constantly seek a better control of himself and a greater understanding of his attitudes and prejudices which may affect his relationship with others.
2. The teacher should not base his teaching on an exclusive dogma.
3. The teacher, recognizing that he is dealing with human beings, must strive at all times to maintain the highest standards of excellence, valuing competence and integrity above personal gain.

4. The teacher should show the following characteristics: modesty, sobriety, patience, promptness to do his duty, diligence, and conscientiousness, in assisting those who seek his help.
5. The teacher in his personal life should be honest, decent, courteous, capable, and believe in a wholesome philosophy of life.
6. The teacher is expected to uphold the dignity and honor of his profession at all times.
7. The teacher should not attempt to gain favor by making personal comparisons damaging to colleagues, nor should he in any way belittle the performance of other teachers.
8. The teacher has a professional obligation to intervene in situations where a professional confidence is obviously being violated with possible harm to the individual to whom reference is being made.
9. The teacher should strive to establish the highest degree of cooperation with his colleagues within the organization.
10. The teacher should work towards improved methods of collaboration with other staff members for the purpose of improving the quality of teaching and for continued professional self-growth.
11. The teacher must respect the dignity of the individual human personality in all his relationships with students.
12. It is the teacher's obligation to respect the integrity and fundamental convictions of his students.
13. The teacher shall base his relationship with others on their qualities as individual human beings without distinction as to race, color, creed, or social and economic status.
14. The teacher shall not invade the personal affairs of another individual without his consent.
15. The teacher must have faith in the capacity of the individual to set his own goals.
16. The teacher shall base his opinion of another person on a genuine attempt to understand him - to understand not merely his works, but the man himself and his whole situation and what it means to him as an individual.

17. A teacher's relationship involves multiple loyalties - to his students, to his colleagues, to his superiors, to society. When a problem of divided loyalties occurs, careful consideration should be given to the welfare of all persons concerned and to that of the profession. When a student is involved, his welfare should receive first consideration.
18. Confidential or professional communications should not be shown to a student without the expressed consent of the writer.
19. The teacher should hold as his prime objective the service he can render to his students and to society.
20. The teacher is expected to be a good citizen and to participate in activities for the well being of the individuals of the community wherein he dwells.
21. The teacher has a responsibility to the public to provide unbiased, accurate information which will lead to a greater acceptance and appreciation of the teaching professions.
22. The teacher, in his contact with the public, should strive for objectivity, and avoid creating distrust and confusion by commenting on divergent philosophies and personalities related to his or any other profession.
23. The teacher should strive to be honest in his judgement, flexible and progressive in his thinking and humble enough to admit an honest mistake.

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Lesson No.: 25

Topic: The Covert Curriculum

**Presentation:** Be aware and beware - the student may believe what you say! Teaching involves more than simply standing before a class and spouting off. We teach our students many things in a hidden way. Some of the things we teach are good, some are bad. We must remember that we do exercise a great influence over our students.

One area of the covert curriculum that we practice is the establishment of the class as a teacher-oriented area. For example, the teacher's desk is at the front and differently oriented to the students' (or, if free form, in the centre). The teacher does most of the talking in the class. There is a formality in addressing the teacher which differs from addressing the student. The teacher is usually differently dressed than the students. All these factors contribute to the establishment of the teacher as class leader.

Teachers in vocational schools must be aware that attitudinal teaching is frequently as important to employers as are raw skills. For many students, the importance of punctuality, attendance and social behavior are attitudes that must still be learned. The best (and some say the only) way to teach attitudes is by example. The use of covert teaching methods is a technique that is effective for all teachers.

There is a caution. We must always be on the alert that all teaching (overt and covert) is that which we want to teach.

Information Sheet: The Covert Curriculum

## THE COVERT CURRICULUM

"As work shifted out of the fields and the home in the early 1800's, children had to be prepared for factory life. The early mine, mill and factory owners of industrializing England discovered, as Andrew Ure wrote in 1835, that it was "nearly impossible to convert persons past the age of puberty, whether drawn from rural or from handicraft occupations, into useful factory hands". If young people could be prefitted to the industrial system, it would vastly ease the problems of industrial discipline later on. The result was another central structure of all Second Wave societies: mass education. In one Second Wave country after another, social inventors, believing the factory to be the most advanced and efficient agency for production, tried to embody its principles in other organizations as well. Schools, hospitals, prisons, government bureaucracies and other organizations thus took on many of the characteristics of the factory - its division of labour, its hierarchial structure and its metallic impersonality.

Built on the factory model, mass education taught basic reading, writing and arithmetic, a bit of history and other subjects. This was the "overt curriculum". The other part of the education process was the "covert curriculum", which was far more basic. It consisted - and still does in most industrial nations - of three courses: one in punctuality, one in obedience, and one in rote, repetitive work. Factory labor demanded workers who showed up on time, especially assembly-line hands. It demanded workers who would take orders from a management hierarchy without questioning. And it demanded men and women prepared to slave away at machines or in offices, performing brutally repetitious operations.

Thus, from the mid-nineteenth century on, as the Second Wave cut across country after country, one found a relentless educational progression: children started school at a younger and younger age, the school year became longer and longer (in the United States it climbed 35 percent between 1878 and 1956), and the number of years of compulsory schooling irresistibly increased.

Mass public education was clearly a humanizing step forward. As a group of mechanics and workingmen in New York City declared in 1829, "Next to life and liberty, we consider education the greatest blessing bestowed upon mankind". Nevertheless, Second Wave schools machined generation after generation of young people into a pliable, regimented work force of the type required by electro-mechanical technology and the assembly line.

Taken together, the nuclear family and the factory-style school formed part of a single integrated system for the preparation of young people for roles in industrial society. In this respect too, Second Wave societies, capitalist or communist, North or South, were all alike."

The Third Wave  
Alvin Toffler



Lesson No.: Supplementary

Topic: Various

Presentation: The preceding lessons form the core of the course. Depending on individual class progress, additional topics may be included. These topics can be discussed at any point in the course and may be added to as the need arises.

The following may form the basis for additional lessons.

(a) A discussion of time management.

The beginning teacher quite frequently has the feeling of being snowed under. The requirements of keeping up with the course, the demands of the administration and need for outside study combine to exert pressure on the new teacher. This lesson will provide a means of examining the workload of the job and a way of prioritizing the task. This will allow the teacher to establish priorities and identify non-essential items which may be eliminated.

(b) Vocational Teacher License Structure

The vocational teacher is licensed according to a schedule that is significantly different from that of an academic teacher. During the third year, the students attend a seminar on licensing requirements. Unfortunately this is frequently too late to obtain required credits before the license is obtained. This lesson reviews the four criteria of the license: work experience, teacher experience, education level and teacher training. The VTC level structure is also reviewed. One important point cannot be overstressed: When dealing with the Registrar's office of the Department of Education, get it in writing.

(c) Identification of Drugs and Drug Users

A vocational teacher is in charge of a shop that usually contains potentially hazardous machinery. The purpose of this lesson is to provide an awareness of current drug usage (including alcohol). This should be done in a seminar format using outside personnel such as the R.C.M.P., workers from the Commission on Drug Dependency or other expert personnel.


(d) Shop Control and Management

This lesson would cover the various ways of shop organization. Quite often the vocational teacher is responsible for equipment and materials which exceed \$100,000. The operation of a tool crib, the organization of shop tool kits, etc., are covered by this lesson.

Lesson No.: Supplementary

Topic: Testing

Presentation: Two tests are scheduled for the course. The first, a mid-term, is given after the group presentations on instructional techniques. The final is given on the last day of classes. Attached are sample tests.



Name : \_\_\_\_\_

**METHODS OF TECHNICAL/VOCATIONAL TEACHING VCO11**

**MID-TERM TEST**

Give a brief, accurate answer for each of the following questions. All answers are to be written on the question sheet.

1. Define the following terms:

(a) Teaching \_\_\_\_\_  
\_\_\_\_\_

(b) Learning: \_\_\_\_\_  
\_\_\_\_\_

(c) Objectives: \_\_\_\_\_  
\_\_\_\_\_

(d) "Key Point": \_\_\_\_\_  
\_\_\_\_\_

(e) "Important Step": \_\_\_\_\_  
\_\_\_\_\_

(f) Lesson: \_\_\_\_\_  
\_\_\_\_\_

Value - 12 points

2. "Good teaching utilizes a multi-sensory approach." Explain what is meant by this statement.

Ans.: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Value - 5 points

3. Complete the following statements by filling the correct word or words in the appropriate blanks.

- (a) We learn better when we learn from \_\_\_\_\_ to \_\_\_\_\_.
- (b) We learn by \_\_\_\_\_.
- (c) The learner is more important than \_\_\_\_\_.
- (d) We must recognize individual \_\_\_\_\_.
- (e) We should limit the use of \_\_\_\_\_.
- (f) Activities should be centered around \_\_\_\_\_.
- (g) Application should be implemented \_\_\_\_\_ presentation.
- (h) We are more likely to learn more when the things we have learned are \_\_\_\_\_ and \_\_\_\_\_ to us.

Value - 10 points

4. When defining behavioral objectives, we must use action verbs. Explain why certain verbs cannot be used when writing objectives. Give examples.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Value - 3 points

5. List the five (5) main steps which must be performed when analyzing a trade for teachable content.

- (a) \_\_\_\_\_  
\_\_\_\_\_
- (b) \_\_\_\_\_  
\_\_\_\_\_
- (c) \_\_\_\_\_  
\_\_\_\_\_
- (d) \_\_\_\_\_  
\_\_\_\_\_
- (e) \_\_\_\_\_  
\_\_\_\_\_

Value - 10 points

6. "The shop should not become a repair department for doing jobs with questionable educational value." Using the above statement as a guide, give three considerations which must be remembered when scheduling work for your shop.

- (a) \_\_\_\_\_  
\_\_\_\_\_
- (b) \_\_\_\_\_  
\_\_\_\_\_
- (c) \_\_\_\_\_  
\_\_\_\_\_

Value - 6 points

7. Define and explain the two main types of lessons.

(a)

(b)

Value - 4 points

8. List the six (6) requisite characteristics of a lesson.

(a)

(b)

(c)

(d)

(e)

(f)

Value - 12 points

9. Develop a lesson plan. Include in your answer the necessary steps and briefly explain why each step must be included. (Note: Use the back of one of the question sheets to develop your answer.)

Value - 18 points

10. Explain the major advantages and disadvantages of one (1) of the following methods or techniques of group instruction.

- (a) Lecture
- (b) Problem-Solving
- (c) Simulation
- (d) Reinforcing
- (e) Questioning

NOTE: Select a method that was not your topic for the group presentation.

Ans.: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Value - 20 points



**METHODS OF TEACHING (VCO11) SECTION I**

**FINAL EXAMINATION**

Name: \_\_\_\_\_

SECTION A: Listed below are several statements. If the statement is true, mark "T" in the space to the left of the statement. If the statement is false, mark "F" in the space to the left of the statement.

- \_\_\_\_\_ 1. We learn better when we learn the new in terms of the old.
- \_\_\_\_\_ 2. The learner is more important than the subject.
- \_\_\_\_\_ 3. Individual differences are of little concern when group instructing.
- \_\_\_\_\_ 4. The learner's progress should be checked frequently.
- \_\_\_\_\_ 5. When teaching, we should concentrate on one sense at a time.
- \_\_\_\_\_ 6. In organizing a program, the skills or jobs should become increasingly difficult.
- \_\_\_\_\_ 7. Instructional aids, such as information sheets, should be developed before the lesson plan.
- \_\_\_\_\_ 8. The demonstration shows how to perform a complex occupational skill.
- \_\_\_\_\_ 9. The information lesson should precede the demonstration.
- \_\_\_\_\_ 10. The demonstration must have the same sequence of operation as those used by the tradesman.
- \_\_\_\_\_ 11. The demonstration should be about 20-25 minutes in length.
- \_\_\_\_\_ 12. In shops that have "live work", the productivity should take priority over the learning.
- \_\_\_\_\_ 13. All active verbs, suitable for use as objectives, can be put under either "show" or "tell".
- \_\_\_\_\_ 14. We should have a definite, positive plan for creating good discipline.

- \_\_\_\_\_ 15. The teacher is legally responsible for the safety of the students in the shop.
- \_\_\_\_\_ 16. A good lesson plan will prevent the forgetting of essential material.
- \_\_\_\_\_ 17. The method of instruction should cater to the slowest learner.
- \_\_\_\_\_ 18. Motivation should only be introduced at the beginning of the lesson.
- \_\_\_\_\_ 19. Questioning may be used to bring out the aim of the lesson.
- \_\_\_\_\_ 20. Questions may be used to diagnose weaknesses in teaching and learning.

Value - 20 points

SECTION B: Listed below are several statements. Each of the statements has one or more blanks. Fill in the blanks with the word or phrase that best fits the sentence.

- 1. The two broad categories of questions are \_\_\_\_\_ and \_\_\_\_\_.
- 2. When questioning, we should avoid any form of \_\_\_\_\_ pattern.
- 3. The use of a well-designed instruction sheet can \_\_\_\_\_ the instructor.
- 4. Instruction must be \_\_\_\_\_ centered.
- 5. Materials, that are presented, must be within the \_\_\_\_\_ and \_\_\_\_\_ capabilities of the student.
- 6. The sense of smell is mainly used in vocational programs to identify \_\_\_\_\_ factors.
- 7. The use of more than one sense in teaching is called \_\_\_\_\_.
- 8. In order to establish a good discipline policy, the student's work must be evaluated \_\_\_\_\_.
- 9. Shop clean-up time should be limited to \_\_\_\_\_ to \_\_\_\_\_ minutes.

10. Accident causes generally fit into two classes:

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_

11. The two main types of lessons are the \_\_\_\_\_ lesson and the \_\_\_\_\_ lesson.

Value - 15 points

SECTION C: Listed below are several statements or questions. In each case, there are four answers that will complete the statement or answer the question. Circle the answer that best completes the sentences or answers the question.

1. A discussion, when conducted properly, should

- (a) provide positive and correct answers
- (b) be dominated by the instructor
- (c) involve only the blabbers
- (d) involve everybody

2. The lecture, as a teaching method, is best used

- (a) when teaching adults
- (b) when student participation is necessary
- (c) when showing a skill
- (d) when principles of theory must be made clear

3. Which of the following is not an advantage of good questioning?

- (a) promotes and stimulates thought
- (b) helps to fill out the end of the period
- (c) used as a review of previous learning
- (d) encourages good student participation

4. When sequencing the lessons for a course segment, we should

- (a) list all the lessons in sequence that require the same method
- (b) list all the demonstrations together
- (c) place all the monotonous lessons at the end
- (d) none of the above

5. The "key points" of a lesson should be included in the lesson plan under
  - (a) Preparation
  - (b) Motivation
  - (c) Presentation
  - (d) Assignment
6. Which of the following statements best represent the role of the teacher?
  - (a) the teacher guides and directs the learning process
  - (b) the teacher relates information to the learner
  - (c) the teacher is the discussion leader
  - (d) the teacher is the group disciplinarian
7. In most instances learning occurs by:
  - (a) trial and error
  - (b) observation
  - (c) discussion
  - (d) doing
8. Sometimes we punish students in subtle ways without issuing statements or formal reprimands. This can cause a loss of motivation. Which of the following are subtle forms of punishment?
  - (a) giving a borderline student a passing grade
  - (b) assigning students extra work if they finish an assignment early
  - (c) causing a student to wait for assistance while you finish a job
  - (d) all of the above
9. The only real way to know something is to
  - (a) read about it
  - (b) talk about it
  - (c) teach the subject
  - (d) practice the subject at a trades level

10. In starting a discussion it is necessary to
  - (a) ask a direct question
  - (b) introduce the subject
  - (c) lecture the group
  - (d) probe to find out previous knowledge
11. The most valuable form of motivation is:
  - (a) intrinsic
  - (b) extrinsic
  - (c) teacher initiated
  - (d) all are equal
12. In questioning, words such as why, what, when, where tend to
  - (a) cut off discussion of the subject
  - (b) discourage learning
  - (c) encourage thoughtful answers
  - (d) none of the above
13. The most important sense for the vocational teacher to utilize is:
  - (a) sight
  - (b) smell
  - (c) touch
  - (d) taste
14. Which of the following must be included in the lesson plan?
  - (a) questions on the topic, prepared in advance
  - (b) a numbering system for future use
  - (c) an estimate of the time factor for the lesson
  - (d) all of the above

15. Which of the following is not an element of good discipline?

- (a) be consistent and fair in your dealings with students.
- (b) ignore minor disturbances.
- (c) have your work prepared and material ready.
- (d) teach students what good order is.

Value - 15 points

SECTION D: Listed below are several descriptions of various instruction sheets. In the space provided name the instruction sheet described.

- 1. Used to give procedure to perform a series of tests to prove certain theories. Ans. \_\_\_\_\_
- 2. This type of sheet contains factual information essential to the intelligent completion of a job.  
Ans. \_\_\_\_\_
- 3. Gives directions for doing a series of operations involved in a complete project. Ans. \_\_\_\_\_
- 4. A follow-up to the teacher's instruction, this consists of a number of problems, a series of questions or references.  
Ans. \_\_\_\_\_
- 5. Limited to teaching of a single basic skill of an occupation. The main objective is to establish a uniform method of performance.  
Ans. \_\_\_\_\_

Value - 10 points

SECTION E: In addition to the established curriculum items for our courses, we teach other subjects that may be categorized as the covert curriculum. List five (5) important areas which we teach our students in such a manner.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

Value - 10 points

SECTION F: The summary of the lesson usually contains an assignment. List and briefly explain five (5) types of assignments which may be given.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

Value - 10 points

## IX. CONCLUSIONS AND EVALUATIONS

As mentioned previously, this course was developed during the summer school sessions of 1982 and 1983. Information contained in the package has been obtained from many sources such as the notes from the previous instructor in the course, my notes from courses in teaching methods, reprints of previously published material and write-ups of student presentations. During the course, topics have been modified and upgraded with the aid of the students.

At the conclusion of the course each year, the students are requested to complete course evaluations. One of the evaluations is for the administration of the Vocational and Technical Teacher Training Program, the other is for the use of the instructor only. The results, for the most part, have been positive as to the perceived value of the course.

The following are copies of the evaluation forms used with the percentage answers given for the two years. The first evaluation is for the program administration. The first section is subjective and thus had a wide variety of answers. These individual answers have not been included but the answers given were, for the most part, positive reactions to the course. The second part is an objective rating scale questionnaire. Here, the results are given as a percentage of the total students for the two years. The total number of students for the two years was 36.



**EVALUATION - VOCATIONAL/TECHNICAL TEACHER ED. PROGRAM**

You are in Year \_\_\_\_\_ of the Program.

Course Number: VOC \_\_\_\_\_ Title: \_\_\_\_\_

Instructor's Name: \_\_\_\_\_

1. Do you feel that you have benefited professionally from this course?  
In what ways? (List)

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2. Do you expect that your teaching will be influenced by your participation  
in this course? In what ways? (List)

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3. What aspect of this course did you find most helpful? (List)

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4. Have you any suggestions for improving this course? (i.e. content,  
organization, etc.)

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5. Please list up to three strengths of this instructor:

and up to three weaknesses of this instructor:

| Scale | 5            | 4 | 3 | 2 | 1         |
|-------|--------------|---|---|---|-----------|
|       | (fully       |   |   |   | (fully    |
|       | affirmative) |   |   |   | negative) |

6. Was the instructor's treatment of this subject matter thorough?

|       |     |      |    |    |
|-------|-----|------|----|----|
| 66.7% | 25% | 8.3% | 0% | 0% |
| 5     | 4   | 3    | 2  | 1  |

7. Was the instructor's preparation for the course effective?

|       |       |      |    |    |
|-------|-------|------|----|----|
| 77.8% | 16.7% | 5.8% | 0% | 0% |
| 5     | 4     | 3    | 2  | 1  |

8. Was the instructor's teaching strategy effective?

|       |       |       |      |      |
|-------|-------|-------|------|------|
| 52.8% | 22.2% | 13.9% | 5.5% | 5.5% |
| 5     | 4     | 3     | 2    | 1    |

9. Did this instructor stimulate you to further thought and study?

|       |       |       |      |    |
|-------|-------|-------|------|----|
| 55.6% | 22.2% | 13.9% | 8.3% | 0% |
| 5     | 4     | 3     | 2    | 1  |

10. Would you recommend the instructor to other participants?

|       |       |      |       |      |
|-------|-------|------|-------|------|
| 55.6% | 16.7% | 5.5% | 11.1% | 5.5% |
| 5     | 4     | 3    | 2     | 1    |

5.5% No Answer.

11. Would you like to take another course from this instructor?

|                    |                    |                   |                    |                    |
|--------------------|--------------------|-------------------|--------------------|--------------------|
| $\frac{41.7\%}{5}$ | $\frac{22.2\%}{4}$ | $\frac{8.3\%}{3}$ | $\frac{11.1\%}{2}$ | $\frac{13.9\%}{1}$ |
|--------------------|--------------------|-------------------|--------------------|--------------------|

2.8% No Answer

12. Was your instructor's evaluation of your work for his class thorough and fair?

|                    |                    |                   |                   |                 |
|--------------------|--------------------|-------------------|-------------------|-----------------|
| $\frac{61.1\%}{5}$ | $\frac{33.3\%}{4}$ | $\frac{2.8\%}{3}$ | $\frac{2.8\%}{2}$ | $\frac{0\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-----------------|

13. Have you any suggestions for improvements?

### METHODS (VCO11) EVALUATION

The primary objective of the methods course is to give the beginning teacher the essential knowledge and skills to function effectively in the classroom. We have covered many of the methods, techniques and skills of teaching and have given you the opportunity to practice those skills in a classroom setting. In order to improve the course, your comments would be very much appreciated. Listed below are several statements. Please indicate, by circling the appropriate number, your feelings on the statements.

- The numbers indicate:
1. Agree strongly
  2. Agree somewhat
  3. No opinion
  4. Disagree somewhat
  5. Disagree strongly

(a) The material presented was appropriate to my needs as a new teacher.

|                    |                    |                   |                 |                   |
|--------------------|--------------------|-------------------|-----------------|-------------------|
| $\frac{52.8\%}{5}$ | $\frac{36.1\%}{4}$ | $\frac{5.5\%}{3}$ | $\frac{0\%}{2}$ | $\frac{2.8\%}{1}$ |
|--------------------|--------------------|-------------------|-----------------|-------------------|

(b) The material was presented in a logical order.

|                    |                    |                   |                   |                   |
|--------------------|--------------------|-------------------|-------------------|-------------------|
| $\frac{55.5\%}{5}$ | $\frac{33.3\%}{4}$ | $\frac{2.8\%}{3}$ | $\frac{5.5\%}{2}$ | $\frac{5.5\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-------------------|

(c) The use of the video equipment aided me in seeing myself as my students will see me.

|                    |                    |                   |                   |                 |
|--------------------|--------------------|-------------------|-------------------|-----------------|
| $\frac{72.0\%}{5}$ | $\frac{19.4\%}{4}$ | $\frac{2.8\%}{3}$ | $\frac{5.5\%}{2}$ | $\frac{0\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-----------------|

(d) The in-class workload was appropriate for this course.

|                    |                    |                 |                    |                   |
|--------------------|--------------------|-----------------|--------------------|-------------------|
| $\frac{36.1\%}{5}$ | $\frac{33.3\%}{4}$ | $\frac{0\%}{3}$ | $\frac{27.8\%}{2}$ | $\frac{2.8\%}{1}$ |
|--------------------|--------------------|-----------------|--------------------|-------------------|

(e) The homework workload was appropriate for this course.

|                    |                    |                   |                    |                    |
|--------------------|--------------------|-------------------|--------------------|--------------------|
| $\frac{27.8\%}{5}$ | $\frac{27.8\%}{4}$ | $\frac{5.5\%}{3}$ | $\frac{27.8\%}{2}$ | $\frac{11.1\%}{1}$ |
|--------------------|--------------------|-------------------|--------------------|--------------------|

(f) The assignments were matched to the objectives of the course.

|                    |                    |                   |                 |                   |
|--------------------|--------------------|-------------------|-----------------|-------------------|
| $\frac{50.0\%}{5}$ | $\frac{38.9\%}{4}$ | $\frac{8.3\%}{3}$ | $\frac{0\%}{2}$ | $\frac{2.8\%}{1}$ |
|--------------------|--------------------|-------------------|-----------------|-------------------|

(g) The use of the Master Teacher, as a reading assignment, should be continued.

|                    |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| $\frac{22.2\%}{5}$ | $\frac{27.8\%}{4}$ | $\frac{19.4\%}{3}$ | $\frac{16.7\%}{2}$ | $\frac{13.8\%}{1}$ |
|--------------------|--------------------|--------------------|--------------------|--------------------|

(h) The evaluation system used was a fair measure of student achievement.

|                    |                    |                   |                   |                 |
|--------------------|--------------------|-------------------|-------------------|-----------------|
| $\frac{52.8\%}{5}$ | $\frac{36.1\%}{4}$ | $\frac{2.8\%}{3}$ | $\frac{8.3\%}{2}$ | $\frac{0\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-----------------|

(i) The critical comments of the instructor on the practice teaching sessions caused an improvement in my teaching practices.

|                    |                    |                   |                   |                 |
|--------------------|--------------------|-------------------|-------------------|-----------------|
| $\frac{63.4\%}{5}$ | $\frac{36.1\%}{4}$ | $\frac{2.8\%}{3}$ | $\frac{8.3\%}{2}$ | $\frac{0\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-----------------|

(j) The instructor gave adequate demonstration of the various methods of instruction.

|                    |                    |                   |                   |                 |
|--------------------|--------------------|-------------------|-------------------|-----------------|
| $\frac{55.5\%}{5}$ | $\frac{27.8\%}{4}$ | $\frac{8.3\%}{3}$ | $\frac{8.3\%}{2}$ | $\frac{0\%}{1}$ |
|--------------------|--------------------|-------------------|-------------------|-----------------|

(k) I would like to take another course from this instructor.

|                    |                    |                    |                    |                 |
|--------------------|--------------------|--------------------|--------------------|-----------------|
| $\frac{55.5\%}{5}$ | $\frac{13.9\%}{4}$ | $\frac{13.9\%}{3}$ | $\frac{11.1\%}{2}$ | $\frac{5.5}{1}$ |
|--------------------|--------------------|--------------------|--------------------|-----------------|

(l) The three first-year courses are closely linked to form an integrated, introductory program.

|                    |                    |                    |                 |                   |
|--------------------|--------------------|--------------------|-----------------|-------------------|
| $\frac{55.5\%}{5}$ | $\frac{27.8\%}{4}$ | $\frac{13.9\%}{3}$ | $\frac{0\%}{2}$ | $\frac{2.8\%}{1}$ |
|--------------------|--------------------|--------------------|-----------------|-------------------|

The preceding statements are limited in their scope and thus represent areas that the instructor would like your comments on. On a separate sheet or on the back of this sheet, please feel free to comment on any other aspect of this course. Please be assured that your comments will be read and carefully considered. You may sign your name or remain anonymous. (These comments will not be read until after the final mark from the course has been submitted.)

This course has been constructed with the mature, beginning teacher in mind. It is designed to be part of a comprehensive program to develop the teaching potential of tradesmen as they start into a new career. As can be seen from the evaluation results, the course is perceived to assist in providing teachers with the tools of their new trade. Follow-up discussion with the course participants indicate that material and information gained from the course has greatly assisted in their teaching situation. In most cases, they have indicated that even material initially thought to be of lesser value has proven to be invaluable. The overall reaction of the students has been that the course fulfills the established objectives.

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# APPENDIX A

## REGIONAL VOCATIONAL SCHOOL COURSES

The numbers below indicate the length in years of each program and the vocational school at which the courses are offered. An entry such as "1-2" indicates that the course may require from one to two years for completion, depending on the student's level upon beginning the course. An entry such as "1&2" indicates that two programs of different durations are available.

|                                    | Annapolis | Burridge | Canso | Cape Breton | Colchester | Cumberland | Dartmouth |
|------------------------------------|-----------|----------|-------|-------------|------------|------------|-----------|
| Accounting                         | 1         | 1        | 1     |             |            |            | 1-2       |
| Appliance Repair                   |           |          |       |             |            |            | 2         |
| Banking & Finance Clerk            |           |          |       |             |            |            |           |
| Bricklaying                        | 2         |          | 2     | 2           | 2          |            | 2         |
| Building Technology                |           |          |       |             |            |            | 2         |
| Business Administration            |           |          |       |             |            |            |           |
| Business Administration Technology |           |          |       |             |            |            | 2         |
| Business Computer Programming      |           |          |       |             |            |            |           |
| Business Equipment Technology      |           |          |       | 2           | 2          |            | 2         |
| Bus & Transport Repair             |           |          |       |             |            |            |           |
| Cabinet Carpentry                  |           |          |       |             |            |            | 2         |
| Carpentry                          | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Clerk Typist                       |           | 1&2      | 1     |             |            |            |           |
| Commercial Baking                  |           |          |       |             |            |            | 1         |
| Cooking                            | 2         |          | 1     |             | 2          |            | 2         |
| Cosmetology                        | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Data Processing                    |           |          |       |             |            |            | 2         |
| Denture Technology                 |           |          |       |             |            |            | 2         |
| Dining Room Services               | 1         |          |       |             |            |            | 1         |
| Drafting - Architectural           | 2         | 2        | 2     |             | 2          | 2          |           |
| Drafting - Mechanical              |           |          | 2     | 1           |            | 2          |           |
| Early Childhood Studies            |           |          |       |             |            |            |           |
| Electrical Construction Wiring     | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Electronics                        | 2         |          | 2     | 2           | 2          | 2          | 2         |
| Farm Equipment Repair              |           |          |       |             | 2          |            |           |

|                                    | Annapolis | Burridge | Canso | Cape Breton | Colchester | Cumberland | Dartmouth |
|------------------------------------|-----------|----------|-------|-------------|------------|------------|-----------|
| Food Service Technician            |           |          |       |             |            |            |           |
| Forestry                           |           |          |       |             |            |            |           |
| Graphic Design                     | 2         |          |       | 2           | 2          |            | 2         |
| Heavy Duty Equipment Repair        |           |          |       | 2           | 2          |            |           |
| Home Health Aide                   |           |          |       |             |            |            |           |
| Horticultural Maintenance Services |           |          |       |             |            |            |           |
| Horticulture - Ornamental          |           |          |       |             |            |            |           |
| Hotel-Motel-Restaurant Management  |           |          |       |             |            |            | 2         |
| Industrial Electricity             | 2         |          | 2     | 2           |            |            | 2         |
| Industrial Instrumentation         |           |          | 2     |             |            |            | 2         |
| Industrial Mechanics (Millwright)  |           |          | 2     |             |            |            |           |
| Intermediate Industrial            | 1         | 1        | 1     | 1           | 1-3        | 1          |           |
| Introductory Electrical            |           |          |       | 1           |            |            |           |
| Machine Shop                       | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Marine Electronics                 |           | 2        |       |             |            |            |           |
| Marine Fitter                      |           | 2        |       |             |            |            |           |
| Meat Cutting                       |           |          |       |             |            |            |           |
| Meat Packing                       |           |          |       |             |            |            |           |
| Merchandising                      | 1         | 1        | 1     | 1-2         | 1          | 1          |           |
| Motor Vehicle Repair - Body        | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Motor Vehicle Repair - Mechanical  | 2         | 2        | 2     | 2           | 2          | 2          | 2         |
| Nursing Assistant                  | 1         | 1        |       | 1           |            |            | 1         |
| Offset Printing                    |           |          |       |             |            |            |           |
| Offset Printing - Four Colour      |           |          |       |             |            |            |           |
| Painting & Woodfinishing           |           |          |       |             |            |            |           |
| Photography                        | 2         | 2        | 2     | 2           | 2          |            | 2         |
| Plumbing                           | 2         | 2        | 2     | 2           | 2          |            | 2         |
| Quality Control Food Tester        |           |          |       |             |            |            |           |
| Radio & T.V. Broadcasting          |           |          |       |             |            |            |           |
| Receptionist                       |           |          |       |             |            |            |           |
| Refrigeration & Air Conditioning   |           |          |       | 2           | 2          |            |           |
| Retail Management                  |           |          |       |             |            |            | 2         |
| Secondary Industrial               |           |          |       |             | 1-3        | 1-3        |           |
| Secretarial                        | 1         | 1-2      | 1     |             |            | 2          | 1&2       |
| Secretarial - Dicta Typist         |           |          |       |             |            |            | 1         |
| Sheet Metal                        |           |          |       | 2           |            |            |           |
| Shipwright                         |           |          |       |             |            |            |           |
| Small Engine Equipment Repair      |           | 2        |       |             | 1          |            |           |
| Stationary Engineer                | 2         |          | 2     |             |            |            | 2         |
| Steamfitting - Pipefitting         |           |          | 2     |             |            |            | 2         |
| Stock Control Clerk                |           |          | 1     | 2           |            |            |           |
| Welding                            | 2         | 2        | 2     | 2           | 2          | 1          | 2         |
| Welding (High Pressure)            |           |          |       | 1           |            |            |           |

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|                                    | Halifax | Hants | Kings | Lunenburg | Memorial | Pictou | Shelburne |
|------------------------------------|---------|-------|-------|-----------|----------|--------|-----------|
| Accounting                         |         |       | 1     | 2         |          |        | 1         |
| Appliance Repair                   |         |       |       |           |          |        |           |
| Banking & Finance Clerk            |         |       | 1     |           |          |        |           |
| Bricklaying                        |         |       |       |           |          |        |           |
| Building Technology                |         |       |       |           |          |        |           |
| Business Administration            | 1       |       |       |           |          | 1      |           |
| Business Administration Technology |         |       |       |           |          |        |           |
| Business Computer Programming      |         |       | 2     |           |          |        |           |
| Business Equipment Technology      | 1       |       |       |           |          |        |           |
| Bus & Transport Repair             |         |       | 2     |           | 3        | 2      |           |
| Cabinet Carpentry                  |         |       |       |           |          |        |           |
| Carpentry                          | 2       | 2     | 2     | 2         | 3        | 2      | 2         |
| Clerk Typist                       |         | 2     |       | 1         | 2        |        | 2         |
| Commercial Baking                  |         |       |       |           |          |        |           |
| Cooking                            | 2       |       | 2     | 1         | 3        |        |           |
| Cosmetology                        | 1       | 2     | 1     | 2         | 2        | 1      |           |
| Data Processing                    | 2       |       |       |           | 2        | 2      |           |
| Denture Technology                 |         |       |       |           |          |        |           |
| Dining Room Services               |         |       | 1     |           | 1        |        |           |
| Drafting - Architectural           | 2       |       |       | 2         |          | 2      |           |
| Drafting - Mechanical              |         | 2     |       | 2         |          | 2      |           |
| Early Childhood Studies            |         |       | 1     |           |          |        |           |
| Electrical Construction Wiring     | 1       |       | 2     | 1-2       | 3        | 2      |           |
| Electronics                        | 2       |       | 2     |           |          | 2      |           |
| Farm Equipment Repair              |         |       | 2     |           |          |        |           |
| Food Science Technician            |         |       | 1     |           |          |        |           |
| Forestry                           |         |       |       | 1         |          |        |           |
| Graphic Design                     |         |       |       |           |          |        |           |
| Heavy Duty Equipment Repair        |         |       | 2     |           | 3        | 2      |           |
| Home Health Aide                   |         |       |       | 1         |          |        |           |
| Horticultural Maintenance Services |         |       | 1     |           |          |        |           |
| Horticulture - Ornamental          |         |       | 1     |           |          |        |           |
| Hotel-Motel-Restaurant Management  |         |       |       |           |          |        |           |
| Industrial Electricity             |         |       | 2     |           |          |        |           |
| Industrial Instrumentation         |         |       |       |           |          |        |           |
| Industrial Mechanics (Millwright)  |         | 2     | 1-2   | 2         |          | 2      |           |
| Intermediate Industrial            |         | 1     | 1-2   | 1         | 1        | 1      | 1         |
| Introductory Electrical            |         |       |       |           |          |        |           |
| Machine Shop                       |         | 2     |       |           |          | 2      | 2         |
| Marine Electronics                 |         |       |       | 2         |          |        |           |
| Marine Fitter                      |         |       |       | 2         |          |        | 2         |
| Meat Cutting                       |         |       | 1     |           |          |        |           |
| Meat Packing                       |         |       | 1     |           |          |        |           |
| Merchandising                      |         | 1-2   |       |           | 2        |        | 1         |
| Motor Vehicle Repair - Body        |         | 2     | 2     | 2         |          |        | 2         |

|                                   | Halifax | Hants | Kings | Lunenburg | Memorial | Pictou | Shelburne |
|-----------------------------------|---------|-------|-------|-----------|----------|--------|-----------|
| Motor Vehicle Repair - Mechanical | 2       | 2     | 2     | 2         | 3        | 2      | 2         |
| Nursing Assistant                 |         | 1     |       | 1         |          |        |           |
| Offset Printing                   |         |       | 1     |           | 3        |        |           |
| Offset Printing - Four Colour     |         |       | 1     |           |          |        |           |
| Painting & Woodfinishing          | 1       |       |       |           |          |        |           |
| Photography                       | 1       |       |       |           |          |        |           |
| Plumbing                          | 1       | 2     | 2     |           | 3        |        |           |
| Quality Control Food Tester       |         |       | 1     |           |          |        |           |
| Radio & T.V. Broadcasting         |         |       | 1     |           | 3        |        |           |
| Receptionist                      |         |       | 1     |           |          |        |           |
| Refrigeration & Air Conditioning  | 1       |       | 1     |           |          |        |           |
| Retail Management                 |         |       | 1-3   |           | 1-3      |        | 1-3       |
| Secondary Industrial              |         |       | 1     |           | 2        | 1&2    | 1         |
| Secretarial                       | 1       |       | 1     | 1         | 2        | 1&2    | 1         |
| Secretarial - Dicta Typist        |         |       |       |           |          |        |           |
| Sheet Metal                       | 2       |       |       |           |          |        |           |
| Shipwright                        |         |       |       | 2         |          |        |           |
| Small Engine Equipment Repair     |         |       | 1     |           |          |        |           |
| Stationary Engineer               |         |       |       |           |          |        |           |
| Steamfitting - Pipefitting        | 2       |       |       |           |          |        |           |
| Stock Control Clerk               |         |       | 1     | 1         | 2        |        |           |
| Welding                           | 1       | 2     | 1&2   | 2         |          | 2      |           |
| Welding (High Pressure)           |         |       |       |           |          |        |           |

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