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Preinstructional Treatments as Motivators and Reinforcers in Traditional Teaching Situations.

Jay Irving Rubinstein

A Thesis

in

The Department

of

Education.

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
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ABSTRACT

Preinstructional Treatments as Motivators and Reinforcers in Traditional Teaching Situations

Jay Irving Rubinstein

This study tested two treatments, pre-testing after prestudy, and the use of behavioral objectives during teaching. The treatments, and no treatment, were applied over fifteen class sessions in three different classes taught by two teachers. The course and types of students selected had in the past, exhibited low motivation. The measure-ment was through post-tests held subsequent to treatment. It was expected that this study would determine that pre-testing before teaching would prove superior to the use of behavioral objectives and that both of the preinstruct-ional treatments would be superior to no pre-instructional treatment. It was further expected that neither the individual teacher nor the individual teaching style would effect the outcome.

Results indicated that no clear advantage of one method over another could be determined.

ACKNOWLEDGEMENTS AND DEDICATION

When you decide late in life to persue a dream, you need the help of many people. You need the encouragement and support of your family to help withstand the various traumatic experiences you will be forced to go through.

You also need the help and advice of a mentor on the faculty to help you avoid the pitfalls and dangers. If he turns out to be your thesis advisor, it really makes it so much easier. If he becomes a friend it becomes icing on the cake.

This thesis is therefore dedicated to my wife, Anne and my children, Robin, Andrea, and Leslie and to my friend from the first day I ever planned to enter the Ed.Tech Graduate Program, Dr. Robert Bernard.

Much thanks should also go to my esteemed colleague, Michael Hockenstein, the teacher of the third class, for cooperating fully in this experiment and not deviating from the designed instrument.

Finally thanks must go to the students in Office Systems Technology for their cooperation and participation in this experiment. They behaved like typical students.

Could a researcher have asked for more ?

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RATIONALE

If all students were highly motivated during an individual course and were of above average ability, learning would be greatly enhanced. In practical terms however, most classes have random assignment of student with the resultant variance in motivation and learning ability. For students whose motivation is low, learning may possibly come from teacher's lectures alone. The synergy of the teacher-student collaboration is absent. Thus teaching would be expected to be enhanced if students could be motivated to participate.

In some cases individual teacher's styles can motivate many, if not all, the students in a class at some time during the semester but clearly such situations are neither guaranteed nor predictable. Prior preparation of some kind by students would be expected to enhance learning.

This project then was the search for and testing of two pre-instructional devices as possible extrinsic motivators which could enhance individual teacher's teaching styles. It was hypothesized that pre-instructional treatment designed to encourage motivation and concommittant preparation for class would enhance learning.

One of the more traditional and popular styles of teaching adults consists of asking students to read the lesson for the following class before the class. The presumption is that the students are able to familiarize themselves with the material prior to the lecture. Hopefully the student would identify areas requiring teacher clarification in advance, as well as alerting them to areas where they might be weak. In any case, theory has it that the lesson would be reinforced and that learning would occur.

To date, neither the effects of prelearning (reading) nor a method of determining whether the students do prepare for class, as required, has been properly verified. A literature search would seem to bear this out.

While behavioral objectives generally head the chapters in most modern texts, it is generally felt that neither students nor teachers systematically use them. Where they are used, a survey of research studies by Hartley and Davies (1976) offer contradictory findings on the effects of the uses of behavioral objectives in improving learning.

In the CEGEP system, in pre-university courses and in core courses of career programs, we can assume a certain amount of motivation. However, some of the compulsory courses in the careers grid are often

resisted by students who do not view them as essential. This type of course lends itself ideally to research of this type. We can reasonably expect that students in such a course would resist any additional work unless forced to do so.

PRACTICAL EVOLUTION OF THE STUDY

The researcher came into teaching late in life. He had no formal teaching education but did have extensive experience in communication having served as a professional marketer and communicator in the package goods area of business. This type of business lends itself to the practice of Marketing which to many is synonymous with communication. While the main thrust of Marketing is based on the giving the consumer what they want, clearly communication of ideas and convincing them that they are getting what they want can be paralleled in teaching.

Thus when the researcher was engaged as a teacher, it was the marketing techniques rather than the pedagogical techniques which shaped his teaching methods - in other words, the researcher had to transfer his knowledge to the students as directly as possible, with a minimum of dissonance and in a way that would assure accurate perception.

In business, time is money and training must be swift and efficient. The principles can be communicated through the written material and the practical training could be carried out either in classroom discussion, role playing or through on-the-job training.

This then was the technique adopted.The researcher was however tied in many ways to the conventional text Books, which because of the publisher's need to offer a percieved valuable product in order to charge high prices, contained too much academic material, as well as an excessive number of application examples. Many teachers felt that because of the high cost of the text, they should cover as much of the material as possible.

The opportunity to remedy this situation presented itself to the candidate who was offered the opportunity of preparing the Learning Aid to Contemporary Canadian Business published by Holt, Rinehart, Winston, Toronto.

Within the limits of freedom offered by the publisher, a "Learning Aid" was devised that was able to stand alone provided it was used by a teacher prepared to supplement the academic material with "real life" examples. A teacher's manual was prepared providing ideas and suggestions on where this supplementary material could be obtained.

In addition, the candidate produced and hosted a series of TV shows prepared in the studios of CFCable. Thirteen shows were prepared illustrating the material contained in the chapters through graphics, interviews with business leaders, etc. Since the course is a survey course in business fundamentals, it is modular in design with each chapter and videotape able to stand on its own. In 4 years, 10,000 books have been sold and 7 sets of films have been sold to colleges and universities across the country. While many teachers are reluctant to abandon the main text (Cost $42.95), there are many teachers who have adopted the "Learning Aid" (Cost $12.95) as the sole text. While this is not the subject of this thesis, examination results of students using the traditional text have been compared with those using "Learning Aid" only with no one text proving more advantageous over another. Thus it can be informally concluded that the savings of approximately $30.00 would indicate a major advantage of the "Learning Aid" vs. the conventional text.

More germaine to this thesis, however, was the use of behavioral objectives in the "Learning Aid" as well as the presentation of the chapter material in such a way as to make it relatively simple for students to read the material in advance of their class (Sample pages are included in Appendix C). Rather than reading a typical

30 page chapter before class, they had only to grapple with a three to four page synthesis of the material. Armed with this advance information, they would be better able to incorporate the supplementary material and explanations provided by the teacher in class. The only problem it seemed was to get the student to read the chapter, however small. It is in this context that the thesis hypothesis was formulated.

Formative Evaluation was conducted for two semesters by the author using the main text in one of his sections and the "Learning Aid" in the other section. Both groups wrote the same examinations and on an informal and unofficial basis neither group showed superiority over the other. Thus we knew students could save at least $30. in textbook costs.

Summative Evaluation was conducted during the three year period of the first edition of the text and in preparation for the second edition of the book. What was left to test was whether pre-reading more easily assimilated and digested materal would result in superior scholastic achievement.

LITERATURE REVIEW

An exhaustive literature search using "Pre-test" and "Behavioral Objectives" as both primary and secondary descriptors indicated that no published research had been conducted in the last decade. While there were 175 citations for the descriptors as secondary, this only indicated that pre-tests and behavioral objectives were only used as part of a teaching module, but without being intended as motivational tools.

The definitive review of research articles on the use of pre-tests and presentation of behavioral objectives as an aid to learning was conducted by Hartley and Davies (1976). Surprisingly, few authors have studied the subject and the research has a predictable range of flaws and inadequacies of design (Hartley, 1976). Nowhere, in the entire body of work, are there any clear-cut results from which solid conclusions can be drawn.

It is possible that when the first study revealed less than significant results (Hartley & Davies,1976), few researchers were willing to pursue the subject further. Notwithstanding, the literature does contain some possible clues and interesting implications. A re-thinking of the original hypothesis, as well as the test design, was considered worth the effort for this thesis.

Pre-test

Hartley defines "pre-test" as any set of related questions given before instruction that is directly relevant to the knowledge, attitude or skill domain to be acquired.

Hartley and Davies (1976) found that a number of studies carried out over the years indicate that four kinds of results are characteristically obtained in using pre-tests:

1. In the majority of studies, pre-test effects have not been discernible. (Welsh & Walberg,1970; Campbell & Stanley, 1963). However these findings do not necessarily imply that pre-test effects have not been present, only that they have not been detected. One effect may be masking another.

2. In some studies, pre-test effects were discernible (Welsh & Walberg,1970; Campbell & Stanley,1963) and in some of these studies a distinction was made between specific and general effects (i.e., subjects scoring higher than control subjects on post-test questions which they have seen previously,but not higher than control subjects on questions which they have not seen previously) (Hartley, Holt & Swain ,1970).

3. In other studies, pre-test effects had generalized, (i.e.subjects usually score highest on post-test items

that have appeared in the pre-test but they also score higher on other questions than do control subjects who do not take a pre-test (Warr,Bird, & Rachman,1970).

4. One or two studies indicate that pre-tests have an adverse effect on post-test (Walsh & Walberg, 1970).

Hartley's final conclusion was that the use of pre-tests increased students awareness of what was expected of them, helped students to organize related material, and thus made the material easier for students to remember. Pressey (1926), found that a pre-test can alert students to material they may not have noticed.

It should be pointed out that the pre-tests reviewed in the literature were used by the researchers in the traditional sense, that is, to determine prior learning. The proposed research for this thesis hoped to test the use of the pre-test as a motivator and reinforcer by encouraging students to prepare themselves for traditional teaching.

In summary, a pre-test might best be used when students or teacher need to be alerted to what it is students don't know. Positive results are more likely to occur after relatively short instructional periods. Students may also do better on post-tests if they have a reasonable acquaintance with the topic prior to the initial presentation of the material.

Behavioral Objectives

Behavioral Objectives are statements of explicit behaviors which students must demonstrate after being exposed to a learning module. It is important to test the effects of these objectives in order to evaluate the effectiveness of student's progress, and to provide information about the effectiveness of the material to the instructor (Dick & Carey;1978).

Behavioral Objectives are deliberately designed to facilitate and help generate expectation or learning set towards the task (Hartley & Davies,1976). It is argued that when presented at the beginnning of a course, they provide students with clear goals that can be used to organize learning activities, help students to study more efficiently,and reduce the time wasted on irrelevancies, as well as provide a bench mark against which students can objectively evaluate their own progress (Gagne,1965).

Reviewing the research on behavioral objectives, Hartley and Davies (1976) found three key variables :

1.Teaching Strategies

Several studies (Kaplan, 1975) have demonstrated that there is a greater recall of prose when instructional objectives are used by the subjects as directions to learn specific subsets of material.

The research also suggests that presenting objectives to students prior to traditional types of teaching is more advantageous than disclosing them prior to non-traditional teaching situations like programmed instruction, CAI, etc. (Sink,1973).

2.Task Characteristics

Based on a review of seven studies, the use of behavioral objectives does not appear to be useful in learning tasks calling for knowledge and comprehension but appears more useful in higher level learning tasks calling for analysis,synthesis and evaluation (Hartley & Davies, 1976).

3.Learner characteristics

It was found, for example, that students of middle ability appear to profit more from being given behavioral objectives than students of higher or lower ability (Cook, 1969). Also, it would seem that the possession of objectives can reduce anxiety (Merrill & Towle,1972). The general attitude of undergraduates to receiving lists of objectives are explained by Cowan (1972). Male students from a high socio-economic background achieved significantly more when given objectives than students from other backgrounds or of the opposite sex (Etter, 1970).

Another study, (Keuter, 1971) found that objectives were less effective with students who were submissive, self-controlled, considerate, and conscientious. It seems that more independant and less conscientious students would benefit more from the perspective and structure that objectives can give to a task. These findings might be useful for the design of future research, although, learner characteristics appear to be unactionable in the normal classroom and therefore not under the control of studies such as this one.

Hartley and Davies (1976) concluded that the presentation of behavioral objectives is a useful pre-instructional strategy, and that the level of education involved does not appear to affect the efficacity, nor does the length of the succeeding instruction, nor even the topics or type of subject matter involved.

In Summary, behavioral objectives might best be used where students should be precisely informed of what it is they have to accomplish. The use of objectives may be more suitable prior to long periods of instruction and in learning situations calling for analysis, synthesis, and evaluation.

Welch and Walberg (1970) studied pre-test sensitization effects and they could draw no conclusions, and thus were inclined to believe that the effects are more likely to be found in shorter units of instruction.

In a study by Apter and Boorer (1971) on the effects of pre-tests on programmed instruction, no statistically significant effect was found. They suggested that age and ability may both be factors, and/or there were two effects operating at the same time, one masking the results of the other. The multiple-choice questions may have been both increasing motivation and increasing confusion or incorrect learning, an idea supported by the fact that there was a significant relationship between taking a pre-test and enjoying the program. Further study was indicated, and the authors speculated that both constructed response and multiple choice pre-tests would increase motivation, but that the constructed response pre-test would result in improved post-test performance, while this would not occur with multiple choice tests. It must be kept in mind that this study was for a linear program with factual subject matter.

Hartley (1973) concluded from his study on the effects of pre-tests that "where instruction is efficient-where all students learn to criterion-the effects of doing a pre-test on post-test performance

cannot manifest themselves. However, where the students involved may be older or of higher ability (e.g. different and/or where the instruction is less efficient), it may be profitable to do a pre-test" (p.211). His findings suggest, in situations where the pre-test effects are produced, that the pre-test alerts the learner's expectations about what is required and that this seems to help students organize other related material.

An assumption in the work of Hartley, Holt and Swain (1970) is that any pre-testing effect must be positive, using constructed response questions. However, if multiple-choice questions were used, a pre-test may interfere with, rather than aid, learning.

A study by Bird (1968), conducted on a safety training program with foremen, showed that doing a pre-test led the foremen to perform significantly better on the post-test than those that did not do a pre-test. Doing half the post-test as a pre-test helped those trainees on that part of the post-test. Doing half the post-test as a pre-test helped those trainees on the other half.

It was concluded that the pre-tests served to alert students to key topics that will be presented in instruction and that this generalizes to other related areas. This is referred to as "the set effect", in other literature.

In his review of the Bird-study, Hartley (1973) points out that the efficiency of the instruction needs to be considered. If the instruction is first class it can be argued that all trainees will learn, and thus no differences in the performance on the post-tests will appear (despite any difference in pre-knowledge and/or differences in the meaningfulness of pre-test questions). A pre-test can only have a training function in the sense implied by Warr, et al, (1968), if the instruction is not satisfactory. Hartley also points out that pre-testing can provide information which can be used to improve instruction. Training officers should evaluate courses using pre as well as post-tests. It appears that pre and post-tests might be used as a technique for comparing different teacher's performances as well.

Slavin (1980) gave students points based on weekly quiz performance and a base score derived from a pre-test. The points were reported in a weekly newsletter. Students in the experimental class achieved more on a final standardized test.

RESEARCH PROBLEM/HYPOTHESIS

The following problem statements (hypotheses) were developed to guide the research effort:

Does some type of pre-instructional treatment affect the outcome of teaching as measured in post-test and if so in what form?

It was hypothesized that in general, pre-instructional treatment would be effective and that pre-reading will prove most effective because of the prompted nature.

It was further hypothesized that neither the teacher nor the teaching style will effect the outcome.

METHOD

Sample

The Sample consisted of three classes of a total of 75 (N= 75) first year CEGEP students enrolled in Office Systems Technology (Secretarial Science). The consistently high Vanier College admission standards, as well as completely random computer scheduling allowed us to assume that classes would be equal in learning ability. Therefore in spite of the fact that this study could be classified as a "non-equivalent control group design " (Campbell & Stanley, 1963), selection bias was adequately controlled. An examination of Quebec High School Leaving Results and reading and comprehension scores administered by the english department at Vanier tended to bear this out.

Materials

1. Teaching materials used were from Rubinstein, Learning Aid to Contemporary Canadian Business, Holt -- Rinehart Winston, 1983. Samples are included in Appendix C. In general, this material consisted of the essential chapter content facts presented in a strictly numbered, organized fashion. To the majority of students this material would be considered sufficiently clear.

To the remainder of the class, some teacher explanation was required to assist learning.

2. Behavioral objectives were created for each of the fifteen modules. The objectives were placed on overhead projector transparencies for discussion at the start and finish of each class. They were to identify specific learning goals and material the student was expected to assimilate at the end of the module review. A sample forms part of Appendix D.

3. Fifteen pre-tests for each of the fifteen modules were prepared. Each pre-test consisted of ten multiple-choice questions covering the entire module with a restatement of the behavioral objectives. Samples are in Appendix E.

4. Three post-tests were prepared each consisting of ten multiple-choice questions from each of the five modules for a total of fifty questions. The questions were scrambled into six versions of the same test to prevent cheating. Questions were also based on behavioral objectives. They are contained in Appendix F.

Design:

This study employed a "non-equivalent control-group design" to test the effects of preinstructional strategies administered systematically in a realistic classroom setting. The dependent variable was learning achievement from the content modules and was operationalized as scores on a posttest administered immediately after the last content module. The independent variable, pre-instructional strategies consisted of three levels: no strategy, pre-test strategy and behavior objective strategy. The no strategy condition formed the control group.

Normally in designs of this kind, selection bias, defined by Campbell and Stanley (1963) as pre-existing non-equivalence of treatment levels, is of great concern because selection is perfectly confounded with the treatments, that is, non-random assignment makes it difficult, if not impossible, to ascribe treatment differences unambiguously to the presumed causal agents under study.

It was believed that selection bias had been controlled in two ways. First, while subjects resided in intact classrooms at time of testing, they had originally been scheduled to their classrooms at random. Second, a rotational design was employed to expose selection bias should it be present. Figure one depicts this rotational design.

Treatments were randomly assigned to classes for a period of five modules (five class sessions). After the post-test for that unit what is administered, a different class by treatment designation was made. In the end, all classes had been exposed to all treatments. Therefore, consistency of effect over exposures rather than a simple finding of significant differences, would represent support for the research hypotheses.

A second outcome of this control mechanism was that it allowed for the replication of the treatments with other groups. Consistent findings in favour of one treatment, therefore, might be thought of as providing stronger evidence of effectiveness than similar findings with one group.

The disadvantage of using group repeatedly in this fashion is the carry-over effect that might result. The presence of behavioral objectives in Unit one, for example, might influence the effect of pre-tests administered in Unit two. It is likely, however, that such effects, if they exist, are different in nature and would show up in the final results as inconsistency in effect over the replications. Only under the unlikely condition that there is a carry-over by order effect that exactly duplicates the hypothetical results of the experiment could the problems of external validity result in a misinterpretation.

Figure 1

Treatment Application Plan.

Treatment	Class #1	Class #2	Class #3
Modules 1-5	No treatment	Pre-test	Behav.Obj.
Modules 6-10	Behav.Obj	No treatment	Pre-test
Modules 11-15	Pre-test	Behav.Obj.	No treatment

PROCEDURE

The course in which this experiment was conducted is called "Principals of Organization and Techniques in the Automated Office". This is a compulsary course for students in Office Systems Technology. Generally this course is resisted since it differs from their core courses which center around the various office skills. The material, however, is simple and is offered in an expanded version to other programs with generally better results. The official study plan forms part of Appendix B.

Each session is a module on a specific business topic and is complete in itself. The modules do not generally overlap. Thus the material is non-cumulative.

All exams were multiple-choice and were scored using optic scan. Thus additional data became available from an analysis of the findings.

Initially students provided their Quebec High School Leaving marks on a questionnaire (See Appendix G). Because the resulting answers were highly suspect, it was determined that such official figures existed with the college Director of Admissions.The students gave permission for these results to be made available.

In addition, all student are required to take reading and comprehension tests in order to be placed in classes within the English department.

These results were obtained and were used to determine that the classes were reasonably balanced.

While both teachers attempted to teach at the rate of one chapter/module per class, one to two extra sessions were allocated before each post-test for teacher make-up, snow cancellations, interesting videos, illness, etc. The specific teaching schedule is in Appendix A.

The research was conducted on fifteen modules over a period of approximately twenty three sessions. The two teachers decided to conclude the balance of the semester individually.

All three classes used the same post-test administered at approximately the same time. The tests consisted of 10 questions from each module for a total of 50 multiple-choice questions. The questions were scrambled to avoid cheating since students were seated in close proximity to one another.

Student Evaluation Scheme for the Semester

Pre-tests (4 tests at 5 points)	20%
Post-test 1	20%
Post-test 2	20%
Post-test 3	20%
Final Event(Individual teacher)	20%
Total	100%

Administration of Treatments

Students were not told which phase of the program was being administered. The phases were:

Pre-test Phase

Five Pre-tests at five marks each were administered during the period to the group when pre-testing was used. This relatively high value for pre-tests attempted to impress upon the students the seriousness of preparation for class. The four highest scores were actually used in the student evaluations. The pre-tests consisted of 10 questions.

Behavioral Objectives phase

During this phase of treatment, students were told the behavioral objectives for the module at the start of the class. This was emphasized by using an overhead transparency. Each classroom session concluded with a summary of the behavioral objectives and the reuse of the overhead transparency.

Control phase (No Treatment)

The control treatment covered the same material without pre-test or discussion of behavioral objectives. Students were, however, urged to pre-read/study the chapter/module and read the behavioral objectives.

Special Analysis

Both teachers maintained a journal or notes to determine whether major teaching style differences were affected. These were analysed after the experiment and found to be similar.

Timing

Testing was conducted during February and March, 1987 with raw data available by May,1987.

It should be mentioned that due to scheduling, union and assignment complexities, it was very fortunate that the test was arranged as easily as it was.

The advantages of conducting the study at that time was that the researcher was the class teacher for two of the classes and that a teacher whose methods were compatible with the researcher's was the teacher for the third class.

The teacher of the third class had agreed to cooperate fully in this experiment by replicating all treatments, exams, etc. so that as little contamination as possible would result from individual teaching style.

The treatments were applied throughout most of the semester rather than in one or two sessions. Thus we were able to provide a rare quantitative study.

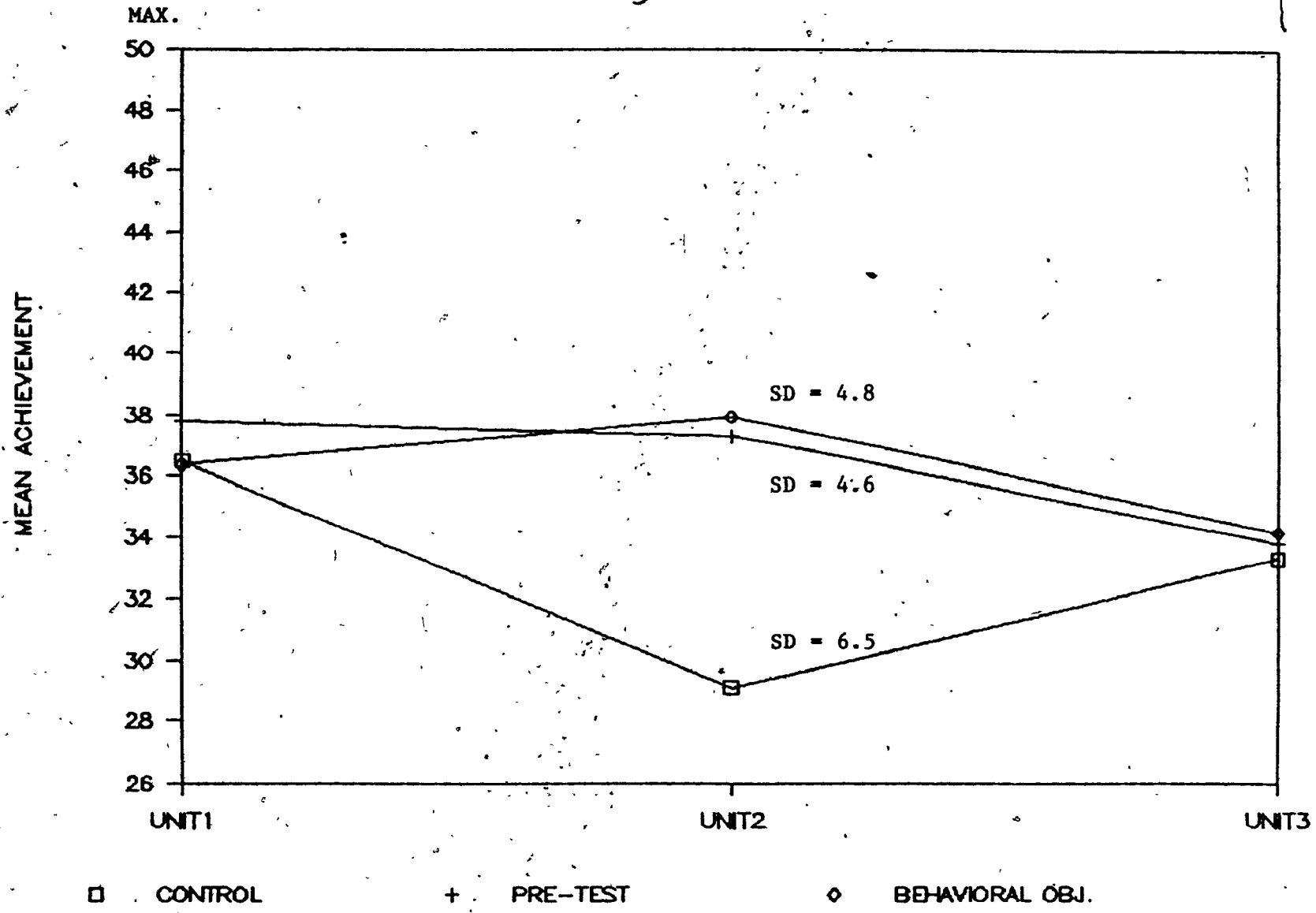
RESULTS

The purpose of this study was to test the relative effectiveness of two forms of pre-instructional strategies-pre-tests and behavioral objectives administered prior to classroom instruction. These conditions were tested against a control group.

A unique aspect of the design of this research study was the opportunity to rotate instructional treatments among three intact classes of college-level subjects over three units of instruction. These classes were felt to be homogenious samples due to random assignment of students to class, (done by the college) but the counter-balancing procedure used in this design ensured that if differences in the same direction emerged due to treatments across units of instruction, these differences could be considered real.

The counter-balancing of treatments across classes (C_1 to C_3) and units of instruction (U_1 to U_3) is shown in Figure Two.

Figure 2.



COUNTERBALANCING OF TREATMENT ACROSS CLASSES

One of the potential problems of such a design is the probability of differential carry-over effects due to order of treatment administration, that is , a group receiving pre-tests as a treatment in unit one might react to the receipt of Behavioral Objectives or no pre instructional strategy in unit two. However, because treatments were counterbalanced in each class across units, carryover effects, if they exist, were expected to be minimal and as previously mentioned would not be confused with actual treatment effects.

Analysis of Individual Units of Instruction.

This analysis involved performing one-way analysis of variance across each unit of instruction seperately. Means and Standard Deviations for each treatment group and unit of instruction are shown in Table One.

Table One

Mean and Standard Deviation for each Treatment Group and Unit of Instruction.

	TREATMENTS		
	Control	Pretest	Beh. Obj.
		Unit 1	
M	36.5	37.8	36.3
SD	7.1	6.0	6.0
N	22	29	24
		Unit 2	
M	29.1	37.3	37.9
SD	6.5	4.6	4.8
N	29	24	22
		UNIT 3	
M	33.3	33.8	34.1
SD	6.5	5.7	1.2
N	24	22	29

Results from this analysis are shown in the Analysis of Variance summary table in Table Two. Only one of three one-way Analysis of Variances revealed any significant difference. The difference among means in unit two reached significance, F (2,72)=21.498, p .01. Subsequent post hoc analysis (Scheffe) revealed two significant differences in group means. The pre-test condition and Behavioral Objective conditions both outperformed the Control Condition. This lends tentative support to the assertion that preinstructional strategies when applied consistently within a classroom environment lead to superior acheivement results. However, the failures in the other two units to replicate unit two suggest that this condition may be unstable and dependant upon factors not considered or suitably controlled in this study.

Table Two

Analysis of Variance Summary Table for Each Unit

SOURCE	SS	df	MS	F	P
		Unit 1			
Treatments	35.12	2	17.56	.4	.65
Error	2887.55	72	40.11		
Total	2922.67	74			
		Unit 2			
Treatments	1278.54	2	639.27	21.50	.001
Error	2141.01	72	29.74		
Total	3419.55	74			
		Unit 3			
Treatments	9.47	2	4.73	.13	.88
Error	2651.68	72	36.83		
Total	2661.15	74			

Replication Analysis

To further investigate the consistency of results across units of instruction, units of instruction were treated as a replication factor in a two-way analysis of variance (Keppel,1973). This approach has the advantage over the previous analysis of utilizing the entire sample in the experiment. (Unit One plus Unit Two plus Unit Three) as a combined sample thus increasing the power and sensitivity of the test of differences. A further advantage is the two-way interaction between replication and treatments which can suggest whether the results of treatments are consistent across replication.

Two of the three hypothesis tests are interpretable in their design. The test of treatments is conducted on the combined mean for each unit of instruction and is of the same nature as that discussed in the first analysis. The interaction, if not significant, suggests that treatment differences remain the same across units of instruction. Significant differences on the interaction term, on the other hand, suggest inconsistency and confounding of treatment main effects. In this case the replication factor is not interpretable since it simply tests the differences among units of instructions, an effect which is confounded by type of test.

Results of two-way interaction of treatments and units of instruction (replication) appear in Table Three.

Table Three

Results of Treatment X Replication-Analysis of Variance

SOURCE	SS	df	MS	F	p
A Treatments	521.96	2	260.98	7.34	.05
B Units of Instruction (Replication)	367.72	2	183.86	5.17	.05
A X B	685.58	4	171.40	4.82	.05
S/AB ERROR	7680.23	216	35.56		
TOTAL		225			

As mentioned earlier, the significant interaction observed in Table Three suggests that an inconsistency of results exists in regards to treatment differences across the three replications. Their interaction is shown in Figure Two. The locus of their interaction is the extremely low mean attributable to the control condition in unit two. As a result of the significant interaction, the significant main effect for treatments was not considered interpretable.

It appears from this graph that the control mean for unit two fell, relative to the other two groups, rather than pre-treatment mean rising above the other two. Another interpretation, of course, is that some uncontrolled factor in the design allowed control subjects in unit one and three to perform as well as subjects in unit two.

Summary of Results

In summary, some evidence exists in this study to suggest that the preinstructional strategies applied in this design caused groups so treated to outperform groups not treated. However, the inconsistency of results across the replication reduce the certainty of the positive results which may have resulted from either:

1. confounding within the design that led to uncontrolled and differential carry-over effects;

2. inconsistency in effect resulting from uncontrolled differences in the application of treatments (e.g. teacher, time of term, content, etc.);

3. chance-only significant findings.

Given the nature of this design, it is impossible to determine the exact cause of the inconsistency observed in the results.

DISCUSSION

After 1976, it was difficult to find any replications or studies testing the effects of pre-instructional treatments on learning. It would appear that there were valid reasons for this. Constructing a flawless research design can often be difficult in practical terms. This was consistent with the findings of Hartley and Davis (1976). Sadly therefore, our replication adds little to the literature.

As a reminder, the experiment reported here was not intended to study the use of pre-tests and behavioral objectives as an aid to learning but as a motivator to learning. It was expected that the pre-test would motivate (encourage) additional learning and that the behavioral objectives would motivate (interest, prepare, pre-condition) the student to improved mastery of the material.

The use of the pre-test then was solely to effect the condition of additional study prior to teaching. Thus, most of the studies conducted and reviewed by Hartley and Davies, (1976) tested the use of pre-tests and behavioral objectives as devices for additional learning and constructed these pre-instructional devices very carefully to trace specific facts through to post-test (Warr, Bird, & Rackman,1970).

Accordingly there was much in the literature on the tracing the effects of the material contained in the pre-tests and its retention by the student as measured by the post-test.

While the results indicated that there was limited evidence that pre-instructional strategies were of some value in that the groups so treated outperformed those not treated, the inconsistency of the results across the replication reduced the efficacy of the result. Unfortunately this appears to continue the infamous tradition of design error which has continued to haunt the various studies conducted over the years.

Possible reasons for this inconsistency are discussed now. These include:

1. Confounding Within Design:

The students were very quickly able to discern a pattern. (i.e.-five weeks of one treatment, followed by five weeks of another, etc.) By the third unit of instruction through a process of elimination, they were well aware of what type of treatment would be administered. In addition, soon after the first post-test the students in the three groups could compare notes and thus know what to expect in the second and third units. This "dispersion of treatment" could have caused controls to perform more like treatments.

The pre-treatment that was expected to have the greatest impact in motivating learning, pre-testing served only as a motivator when used during the first unit. Its use was predictable due to the research design and thus once students had it as part of their treatment, they may have reduced their studying or pre-reading in the subsequent units of study. Pre-testing probably works best when students never know when they will be pre-tested and must be constantly alert throughout the semester. Future research might address the instructional device used in conjunction with an intermittant reinforcement schedule.

2.Uncontrolled Differences:

Teaching Techniques:

Since there were two different teachers involved, there was the possibility of two different teaching techniques. An important area for possible contamination was in the predisclosure of post-test to the other teacher. While it was necessary to do so to insure that the other teacher covered the material, it could have also encouraged the teacher to overstress the material. While it is useful to demonstrate that teaching devices are generic (i.e., will work with any teacher), it is also desireable to be able to determine when they are not. This design did not easily allow for the disentangling of teacher and treatment differences.

Class Time:

As illustrated in Appendix I, the three classes were held at different times throughout the week. There is a wide discrepancy in time and days which could have contributed to student performance according to the times which they individually find best. No information was available on course load for the balance of the days.

Post-tests:

It is clear that the identical post-test questions had to be administered. To avoid cheating the questions were scrambled. Students were never permitted to retain any portion of the post-tests. Nevertheless the possibility still existed that some students could pass some examination information on to students who had not already taken the exams.

Content response to type of treatment:

Since this course was a survey business course, each module (chapter) was on a different subject. Some material lends itself to certain methods of teaching and by extension, pre-instructional treatment. This contrasts with Hartley and Davies (1976) findings that neither the topic or type of subject matter involved appear to affect the efficacity of learning when used with behavioral objectives.

Student Business Interest:

Because the course is not a core course in "Office

Systems Technology", the view cannot be discounted that some students dislike business subjects with the resultant selective perception, course anxiety ,etc. It is unlikely, however, that this represents a systematic influence on the design as a whole.

3.Chance only significant findings.

By their very nature, research studies that are assessed through the law of probability occassionally demonstrate an effect that is the result of chance. In statistical parlance this is referred to as a Type I error and refers to the fact that in 100 replications of a set of experimental variables where alpha is .05, five will occur because of chance sampling error and as such cannot be considered indicative of the nature of the population from which the experimental subjects were drawn.

4.Material and/or Teacher Excellence:

The possibility exists that the material was not sufficiently difficult. Since the course was designed for mastery, in "bite-sized pieces" so to speak, it is possible that the concepts were sufficiently simple to be acquired without any additional pedagogical devices.

Welch and Walberg (1970) studied pre-test sensitization effects and they could draw no conclusions, and thus were inclined to believe the effects are more likely to be found in shorter units of instruction. This, of course, is an opinion or conclusion

reached by them in contradiction to the researcher's opinion.

In his review of the Bird study, Hartley(1973) points out that the efficiency of the instruction needs to be considered. If the instruction is first class it can be argued that all trainees will learn, and thus no differences in the performance on the post-tests will appear, despite any difference in pre-knowledge and/or differences in the meaningfulness of pre-test questions. By the same token, poor instruction can affect post-test performance. Who knows where an individual teacher's weaknesses might have affected the outcome.

5.Specific Testing Methodology.

It would be difficult to consider post-testing by any other method than using multiple-choice questions. The need for objectivity and a consistant method of eveluation is essential and yet the very nature and ambiguity of multiple-choice questions may confuse.

An assumption in the work of Hartley,Holt and Swain(1970) is that any pre-testing effect must be positive, using constructed response questions. However, if multiple-choice questions were used, a pre-test may interfere with, rather than aid, learning.This was further supported by Apter and Boorer (1971).

Conclusion

The researcher undertook this study to determine whether pre-instructional strategies were effective in enhancing learning. After an extensive review of the literature, he became convinced that the inconclusive and contradictory results were due to faulty research and/or design error. It was felt that with the special circumstances available (i.e., researcher teaches classes, prepares learning modules, etc.) that the research design could be vastly improved and the results thus more conclusive. To a great extent the experiment was closely controlled but as we have seen from the results, the findings were ambiguous.

The researcher has therefore concluded that to date design and research errors continue to confuse the results.

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APPENDICIES

APPENDIX A

TEACHING SCHEDULE

Session	1	Introduction
	2	Chapter 1
	3	Chapter 2
	4	Chapter 3
	5	Chapter 4
	6	Chapter 5
	7	Special Event
	8	Special Event
	9	Exam # 1
	10	Chapter 6
	11	Chapter 7
	12	Chapter 8
	13	Chapter 9
	14	Chapter 22
	15	Special Event
	16	Special Event
	17	Exam # 2
	18	Chapter 10
	19	Chapter 11
	20	Chapter 12
	21	Chapter 14
	22	Chapter 19
	23	Special Event
	24	Exam # 3

APPENDIX B

STUDY PLAN

Plan D'Etude

Principles of Organization and Techniques in the Automated Office

401-102-85

Professor	Office	Telephone No.
J.I. Rubinstein	N253	744-7233
M. Hockenstein	N250	744-7229

OBJECTIVES

To understand the organization's function in a traditional, transitional and automated context. To study different organizational models. To understand planning, coordination, organization and monitoring principles. To apply these principles in setting up the system(s) in an office work unit.

METHODOLOGY

Presentation:

By means of lectures, demonstrations, visual aids and class handouts of appropriate material, the lecturer will present conceptual and theoretical material.

Reading of Text and Home Assignments:

Students will be responsible to read all assigned texts in advance and be fully prepared to discuss same in class. In addition, sport tests for marks will be assigned regularly. These tests will precede the lectures.

Attendance:

Attendance is considered compulsory to gain a full understanding of the course content.

For each absence, lateness (more than 5 minutes) or lack of homework done in excess of once, the student will be penalized by one point retroactive to the first offence. Absences/lateness in excess of 5 times without a valid excuse will result in a loss of 20 points.

Absences due to extenuating circumstances must be accompanied by proof.

In the event you sign an attendance sheet for another student, both you and the student will lose 10 marks.

EVALUATION (Values subject to change if more class tests are required.)

3 exams - 20% ea.	60%
4 short tests (min.) - 5% ea.	20%
Individual Teacher Assignment	20%
	100%

TEXT: To be announced by teacher.

APPENDIX C

SAMPLE TEACHING MODULE

CHAPTER OUTLINE AND HIGHLIGHTS

6.1 WHAT IS ORGANIZATION?

This is a structured process in which people interact to accomplish objectives. The key elements in organization are:

- human interaction
- goal directed activity
- structure

6.2 BUILDING THE ORGANIZATIONAL STRUCTURE

The structure of an organization is based on an analysis of the three key elements.

6.2.1 Hierarchy of Objectives: These are the levels of objectives that progress from the corporation's objectives down to the individual employee's objectives. Although dependent on the size of the firm, a typical hierarchy could include the objectives of:

- the company
- the division
- the department
- the workgroup
- the individual worker

6.2.2 Departmentalization: This is the subdivision of work activities (usually production, marketing, and finance) into units within the organization. Generally it allows individuals to specialize in particular jobs and to become more efficient and expert in them. The major forms of departmentalization are:

product: organized on the basis of products

geographic: organized by regions of the country

customer: organized on the basis of customer segments

function: organized according to the various functions (production, finance, marketing, etc.) of an organization

process: organized on the basis of the various activities (cutting, heat treating, painting, etc.) of an organization

6.2.3 Authority and Responsibility: As organizations grow, managers delegate or assign parts of their job to subordinates.

If subordinates are given responsibility (the obligation to perform assigned tasks), they must also be given the authority (the power to act and make decisions) to carry out their assignments.
Even though activities have been delegated to subordinates, final responsibility for all activities generally rests with the top manager.

6.2.4 Span of Control: This is the optimum number of subordinates that a manager can effectively manage. It usually depends on the type of work, the training of the workers, the ability of the manager, and the effectiveness of communications within the company. If communications are poor then a large span of control may result in chaos, as information will be garbled as it goes down the line.

6.2.5 Centralization versus Decentralization

Centralization: There is very little authority is given to subordinates. Top managers feel they maintain better control by retaining authority.

Decentralization: A great deal of authority is dispersed to subordinates throughout the organization. This allows subordinates to make some decisions, leaving top management free to devote their time to larger problems. Obviously such decentralization can only succeed with high quality subordinates and a great degree of trust.

6.2.6 Parkinson's Law: This theory states that work expands to fill the time available for it. It is seen in an organization's tendency to add more supervisory personnel and specialists as it grows and becomes more complex. The effects of Parkinson's Law can be minimized through an honest appraisal by top management of the need for each proposed new position.

6.3 FORMS OF ORGANIZATIONAL STRUCTURE

6.3.1 Line Organization: Authority flows directly from the chief executive to subordinates.

Advantages:

- simple and easy to understand
- clear delegation of authority
- quick decisions
- direct communication

Disadvantages:

- no specialization
- overburdens top executives with details

6.3.2 Functional Organization: Authority flows from a specialist in each work activity or function.

Advantages:

- benefits of specialization
- expert advice available
- reduced managerial workload

Disadvantages:

- worker has more than one boss at the same level
- discipline can break down if authority is not clearly defined
- conflict may arise because of overlapping authority

6.3.3 Line-and-Staff Organization: The strengths of the line organization (direct authority from the line department) and the functional organization (specialized technical support from the staff department) are combined.

Advantages:

- specialists can advise line managers
- employees report to one superior

Disadvantages:

- possible conflicts between the line and staff departments
- staff managers can only make recommendations, which the line managers are free to accept or ignore

6.3.4 Committee Organization: Authority and responsibility are held by a group rather than a single manager. Generally used for specific departments, such as a new product development committee.

Advantages:

- improved planning because of combined judgment of several executives
- improved morale because of combined decision making

Disadvantages:

- slow and conservative
- conflicting interests can produce compromises rather than the best alternative

6.3.5 Matrix Organization: Specialists from different parts of an organization are brought together to work on specific projects. This is a form of line-and-staff organization, sometimes called project management. (NASA missions, development of Expo 67)

Advantages:

- flexibility
- focuses resources on major problems or projects
- provides innovation without disrupting the regular structure

Disadvantages:

- approach violates the principle of unity of command
- project manager may encounter difficulty in bringing together the various individuals
- conflicts can arise between project managers and other company managers

6.4 THE ORGANIZATIONAL CHART

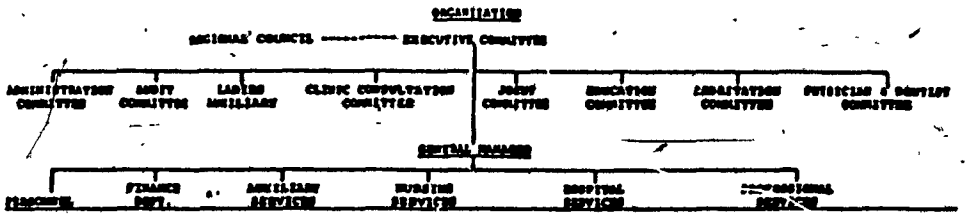
This is the blueprint of the organization, indicating the lines of authority and responsibility, and the various relationships.

The general chart design is in the shape of a pyramid extending downward from the board of directors or president to the supervisory management levels.

Another design is the "doughnut" structure, where the inner circle is top management, the second ring is key personnel used by all departments, the next ring is managers of functional areas, and any other rings are department and other supervisory managers.

6.5 THE INFORMAL ORGANIZATION

A self-grouping of employees who have informal channels of communication. This often takes the form of a grapevine, which can be used by management as a supplement to formal channels of communication.



Organization chart for a non-profit organization
(courtesy - Queen Elizabeth Hospital, Montreal)

APPENDIX D

SAMPLE-BEHAVIORAL OBJECTIVES

FOUNDATIONS OF BUSINESS

1. To explain what a business is and how it operates as part of the private enterprise system within a mixed economy
2. To define the role of competition and of the entrepreneur
3. To understand the role of government in the Canadian mixed economy
4. To understand the concept of productivity and why it is important
5. To analyze how the historical development of the Canadian economy influences contemporary business
6. To identify the different types of economic systems
7. To recognize how to study business and why
8. To analyze how contemporary business operates
9. To explain the meaning of each of the key terms introduced in this chapter

SOCIAL ISSUES AND BUSINESS

1. To explain how contemporary business faces a dynamic social environment that is often difficult to predict

2. To explain the concept of social responsibility as an accepted business policy

3. To describe the major social issues confronting business: inflation, people-oriented management, ecology and environmental protection, consumerism, and the energy crisis

4. To analyze the ethical questions facing management in its relations with consumers, with other company personnel, with business associates, and with investors and the financial community

5. To explain the meaning of each of the key terms introduced in this chapter

INTRODUCTION TO MANAGEMENT

1. To describe how management is importat in all types of organizations, whether profit-seeking or nonprofit

2. To identify the steps in the decision-making process

3. To define the basic functions performed by all managers--planning, organizing, directing, and controlling

4. To describe the three levels of managers in a firm and to analyze which of the managerial functions are likely to be important to each level

5. To explain the importance of objectives in establishing standards by which management performance is measured

6. To explain the meaning of each of the key terms introduced in this chapter

THE ROLE OF ORGANIZATION

1. To explain why a formal organization structure is needed and what is involved in building it
2. To evaluate the five basic forms of organization: line, functional, line-and-staff, committee, and matrix
3. To define authority and responsibility
4. To analyze the factors that determine how many workers a supervisor should manage
5. To describe Parkinson's Law and how to avoid it
6. To identify both the strengths and weaknesses of organization charts
7. To recognize the function of informal organizations in a firm
8. To explain the meaning of each of the key terms introduced in this chapter

PERSONNEL: MANAGING HUMAN RESOURCES

1. To explain the functions of a specialized personnel department and the continuing responsibilities of all departments for the effective use of human resources

2. To describe how each of the steps in the selection process contributes to finding the right person for the job

3. To evaluate the different methods of training operative employees and present and potential managers

4. To identify the different forms of compensation and to explain when each form should be used

5. To describe the different types of employee benefits and the changes that are likely to occur in future fringe benefit programs

6. To explain the meaning of each of the key terms introduced in this chapter

HUMAN RELATIONS IN MANAGEMENT

1. To explore different types of needs and to discover what motivates people
2. To distinguish between Theory X and Theory Y managers
3. To analyze a particular job and to point out the factors that serve as motivators
4. To explain the importance of good morale to productivity and the factors involved in achieving it
5. To enumerate the steps involved in installing a management by objectives (MBO) program
6. To explain the meaning of each of the key terms introduced in this chapter

SMALL BUSINESS AND FRANCHISING

1. To explain the vital role played by small busisness in the economy
2. To define small business and to know where most small firms are established
3. To compare the advantages and the disadvantages of small businesses
4. To describe franchising and its advantages and disadvantages
5. To analyze the small business opportunities for women and to understand the special problems faced by these entrepreneurs
6. To describe how the Small Business Secretariat functions
7. To explain the meaning of each of the key terms introduced in this chapter

FORMS OF BUSINESS OWNERSHIP

1. To explain the basic forms of business ownership and the advantages and disadvantages of each

2. To analyze how a corporation is organized and operated

3. To identify the differences among private ownership, public ownership, and collective ownership (cooperatives)

4. To explain the meaning of each of the key terms introduced in this chapter

MARKETING: PROVIDING FOR CONSUMER NEEDS

1. To identify the types of utility created by marketing
2. To distinguish between consumer and industrial markets and to identify the major characteristics of these markets
3. To explain how market targets are selected through marketing research
4. To identify the four strategies that make up the marketing mix
5. To classify products and determine their stage in the product life cycle
6. To explain the meaning of each of the key terms introduced in this chapter

MARKETING CHANNELS: WHOLESALING, RETAILING, AND PHYSICAL DISTRIBUTION

1. To explain the value created by the distribution function through primary marketing channels
2. To identify and understand the functions of the channel middlemen
3. To describe the different degrees of market coverage
4. To explain the role of the physical distribution system
5. To explain the meaning of each of the key terms introduced in this chapter

PRICES AND PRICING STRATEGY

1. To explain the social and business importance of pricing.
2. To identify the pricing objectives of different types of businesses
3. To describe how inflation is the most critical topic in pricing today
4. To describe how prices are actually determined by marketers
5. To analyze new product pricing, price lining, price-quality relationships, and psychological pricing
6. To explain the meaning of each of the key terms introduced in this chapter

PROMOTIONAL STRATEGY

1. To describe how most organizations use some type of promotional strategy in order to reach their goals
2. To enumerate the objectives of promotion
3. To identify the basic elements of promotional strategy
4. To distinguish among the alternative promotional strategies
5. To explain the meaning of each of the key terms introduced in this chapter

PRODUCTION AND OPERATIONS MANAGEMENT

1. To be able to explain how production creates utility for the firm's customers
2. To be able to identify the three components of production and operations management: production and operations planning, installation of necessary inputs, and coordination of the production processes
3. To enumerate the major factors involved in making plant location decisions
4. To be able to explain the costs involved in maintaining inventory
5. To identify each step in the production control process
6. To explain the meaning of each of the key terms introduced in this chapter

THE ROLE OF COMPUTERS

1. To identify the elements and functions of a computer system
2. To describe what software is and identify the most commonly used programming languages
3. To explain the major limitations of computers
4. To explain how binary arithmetic works and why it is appropriate for computers
5. To explain the meaning of each of the key terms introduced in this chapter

APPENDIX E

SAMPLE-PRE-TEST

MULTIPLE CHOICE
IN THE SPACE PROVIDED, RECORD THE LETTER OF THE CHOICE WHICH BEST COMPLETES OR ANSWERS THE STATEMENT

____ 1. Management is the achievement of organizational objectives through:
A. money and machinery.
B. natural resources.
C. profit-seeking activities.
D. people and other resources.

____ 2. Which level of management would be involved in evaluating hourly performance?
A. top
B. supervisory
C. staff
D. middle

____ 3. Once plans for a business objective have been developed, the next step typically is one of:
A. motivating.
B. directing.
C. controlling.
D. organizing.

____ 4. Directing is the management function most involved with:
A. computer operations.
B. machinery.
C. people.
D. paperwork.

____ 5. One of the basic steps in the controlling function of management is:
A. collecting information to discover any deviations from standards.
B. determining specific work activities.
C. assigning specific work activities.
D. motivating personnel.

____ 6. Three traits of a good leader are:
A. sex, race, and height.
B. education, money, and extravertism.
C. empathy, self-awareness, and objectivity.
D. empathy, education, and money.

____ 7. Making decisions on their own is a characteristic of _____ leaders.
A. free-rein
B. democratic
C. autocratic
D. staff

____ 8. Leaders who follow a policy of leaving workers on their own are:
A. autocratic.
B. democratic.
C. production.
D. free rein.

____ 9. Leadership is most often associated with:
A. new ideas learned in school.
B. the ability to motivate others toward specific goals.
C. young people.
D. experience that comes with age.

____ 10. Two steps of the management function of controlling are:
A. setting standards and taking corrective action.
B. hiring and firing.
C. collecting information and issuing orders.
D. explaining procedures and setting standards.

APPENDIX F

POST-TESTS

OFFICE SYSTEMS
EXAM 033

1. If products were sold directly to consumers, without using marketing intermediaries:
   a. consumers would be able to buy goods much more conveniently.
   b. producers could sell their goods at much lower prices.
   c. producers would need to make investments in distribution facilities.
   d. costs would be lower because of the elimination of the middlemen.

2. A distribution warehouse is used to:
   a. store finished goods to meet seasonal demand changes.
   b. stockpile raw materials in case of shortages.
   c. hold agricultural commodities to meet seasonal price changes.
   d. hold finished goods for rapid shipment to retail stores.

3. Publicity is defined as:
   a. personal stimulation of demand for a product by planting commercially significant news about it in a published medium.
   b. obtaining favorable presentation for a product on radio or television that is paid for by the sponsor.
   c. personal stimulation of demand for a product by planting commercially insignificant news about it in a published medium.
   d. obtaining favorable presentation for a product on radio or television that is not paid for by the sponsor.

4. Advertisers try to stimulate primary demand by using _____ advertising.
   a. comparison
   b. persuasive
   c. reinforcement
   d. informative

5. The MOST creative type of sales position is for:
   a. creative selling of intangibles.
   b. technical consultants.
   c. creative selling of tangible goods.
   d. missionary sales.

6. The use of marketing middlemen allows producers to:
   a. operate with a lower level of investment.
   b. generate more profit by raising their prices.
   c. have more control over the way in which the products are sold.
   d. lower their rate of return on investment in their business.

7. A specialty store carries:
   a. a wide product line with a deep assortment within that line.
   b. a wide product line with a shallow assortment within that line.
   c. a narrow product line with a shallow assortment within that line.
   d. a narrow product line with a deep assortment within that line.

8. Which of the following is one of the stages in the AIDA Model?
   a. determination
   b. interest
   c. aversion
   d. adoption

9. Which kind of advertising is more important after the consumer buys the product, rather than before?
   a. persuasive
   b. informative
   c. confirmation
   d. reinforcement

10. The LAST major decision in building and managing the sales force is:
   a. recruiting and selecting sales representatives.
   b. evaluating sales representatives.
   c. designing sales force strategy.
   d. supervising sales representatives.

11. Which of the following is NOT one of the functions performed by members of the distribution channel?
   a. franchise
   b. financing
   c. risk taking
   d. matching

12. Department stores have attempted to increase their sales by:
   a. increasing the level of customer services, such as delivery and credit.
   b. putting increased emphasis on their downtown locations.
   c. hiring more employees in order to present a more personal image to their customers.
   d. investing heavily in new locations in suburban mails.

13. Which of the following is NOT a device used by advertisers to attract attention to print advertisements?
   a. novelty and contrast
   b. message size and position
   c. color and shape
   d. vocalizations

14. In making the advertising media decision, once the major media types have been chosen, the next step is to:
   a. select the target audience
   b. decide on media timing
   c. select specific media vehicles
   d. decide on reach, frequency, and impact

15. Which of the following is not a possible sales-force objective?
   a. measuring market potential.
   b. analyzing sales data.
   c. gathering market intelligence.
   d. manufacturing the product.

16. Which of the following is one of the functions performed by members of the distribution channel?
   a. franchise
   b. control
   c. research
   d. production

17. The term "scrambled merchandising" refers to:
    a. disorganized store displays
    b. stocking unrelated lines of merchandise
    c. planned confusion in the store layout
    d. continual changes in the items a store carries

18. Word-of-mouth influence is also called a(n) _____ channel of communication.
    a. expert
    b. referrent
    c. advocate
    d. social

19. The number of times the average person in the target audience is exposed to an advertising message is called the:
    a. frequency
    b. confirmed total
    c. impact
    d. reach

20. A company's sales-force objectives may include all of the following EXCEPT:
    a. developing marketing strategies.
    b. developing advertisements.
    c. producing customer satisfaction.
    d. measuring market potential.

21. Distribution channel functions:
    a. are most costly when performed by middlemen.
    b. should be performed by the producers.
    c. prevent the producer from having sufficient knowledge of the consumers' needs.
    d. must be performed by someone, whether producers, middlemen, or consumers.

22. Which of the following is NOT one of the forms of nonstore retailing discussed in the text?
    a. in-house parties
    b. corporate chains
    c. buying services
    d. telephone-order retailing

23. Personal influence would have the most importance to the buyer when:
    a. the product is a routine purchase.
    b. the product is used privately by the buyer.
    c. the product is a status symbol.
    d. the buyer is quite confident about the purchase.

24. Which of the following advertising media has the greatest "clutter" from competing advertising messages in the same medium?
    a. magazines
    b. television
    c. newspapers
    d. radio

25. Murphy Manufacturing Company makes nearly 1,500 different products which it sells in the Toronto area. Murphy should use a(n) _____-structured sales force.
    a. territorial
    b. product
    c. executive
    d. management

26. Which of the following is a kind of vertical marketing system?
   a. coercive
   b. intentional
   c. descriptive
   d. contractual

27. A voluntary chain is a:
   a. group of retailers which is sponsored by a wholesaler.
   b. group of chain stores who agree to do their own wholesaling.
   c. loose association of wholesalers who buy the same merchandise.
   d. group of retailers which are owned by their customers.

28. The advantage of publicity over advertising is that the manufacturer:
   a. has greater control over the presentation of the message.
   b. can aim the message better at specific target markets.
   c. can present his message in a manner that people are less likely to reject.
   d. can present the same message to the audience a greater number of times at less cost.

29. Maintaining a steady schedule of advertising for a product over an extended period of time is referred to as:
   a. steady-state
   b. continuity
   c. absorption
   d. carryover

30. In order to stimulate the greatest selling incentive on the part of the sales force, the best compensation plan would be:
   a. straight salary.
   b. salary with a bonus for going over quota.
   c. straight commission.
   d. salary with a commission for sales over the quota.

31. The basis of a corporate vertical marketing system is:
   a. a contract between the producer and the wholesaler.
   b. ownership of more than one level of the distribution channel.
   c. market power used to influence the retailer into behaving in desired ways.
   d. a franchise agreement between the producer and the retailer.

32. The basic distinction between merchant wholesalers and agents is that:
   a. agents carry inventory, while merchants do not.
   b. agents provide credit terms, while merchants do not.
   c. merchants carry inventory, while agents do not.
   d. merchants take title to the goods, while agents do not.

33. An advantage of advertising over publicity is that:
   a. the same number of people can be reached at less cost than by using publicity.
   b. the manufacturer has greater control over the manner in which the information is presented.
   c. the message may be more believable to most people than if publicity were used.
   d. the message is more likely to reach people who would deliberately ignore publicity.

34. Free goods, cooperative advertising, push money, and buying allowances are forms of:
   a. trade promotion
   b. consumer promotion
   c. illegal promotion
   d. sales-force promotion

35. A sales representative no longer needs sales training when:
   a. he or she completes the training program.
   b. he or she has been on the job for two years.
   c. he or she is no longer selling.
   d. he or she has been the leading sales representative in the district for two consecutive years.

36. An advantage of intensive distribution is that:
   a. retailers will give the product an aggressive sales push.
   b. retail outlets are conveniently located for the customers.
   c. retailers will maintain the manufacturer's suggested retail prices.
   d. retail outlets can charge higher markups for the product.

37. Which of the following terms refers to a kind of merchant wholesaler?
   a. drop shipper
   b. manufacturers' representative
   c. resident buyer
   d. commission merchant

38. Which of the following is correct with regard to push vs. pull marketing strategies?
   a. A pull strategy involves using an aggressive sales effort to move the product through the distribution channels.
   b. A push strategy relies upon heavy promotion to the final consumers to induce them to demand the product of their retailers.
   c. A pull strategy requires the manufacturer to have the willing cooperation of the wholesalers to promote the product to the next level of the distribution channel.
   d. A push strategy involves the establishment of good working relationships with wholesalers in order to be successful.

39. Which of the following statements is INCORRECT about publicity and public relations?
   a. Publicity is used to promote persons, ideas and countries.
   b. Publicity is used to reverse an organization's unfavorable image.
   c. Lobbying of legislators is part of public relations.
   d. Companies usually put as much emphasis into their efforts to obtain publicity as they do into their advertising.

40. Which of the following is NOT a step in the selling process?
   a. redirection
   b. preapproach
   c. handling objections
   d. presentation and demonstration

41. Which of the following is NOT one of the elements which should be considered in designing a physical distribution system?
   a. computing
   b. order processing
   c. transportation
   d. warehousing

42. Which of the following is INCORRECT about brokers?
   a. Brokers are paid on a commission basis.
   b. Brokers offer credit terms to the buyers.
   c. Brokers do not take title to the goods.
   d. Brokers are used to locate buyers for a seller.

43. A full-service advertising agency typically receives payment for its services by:
   a. sending the client an itemized invoice for the services rendered.
   b. adding a commission to the bill sent to the advertiser for advertising space bought.
   c. taking a percentage of the payment from the advertiser to the advertising medium.
   d. sending the advertising medium a bill for services rendered.

44. Which of the following media would be WORST for an advertisement depicting a mouth-watering pizza?
   a. newspapers
   b. television
   c. direct mail
   d. magazines

45. Which of the following is INCORRECT about closing the sale?
   a. Buyers often provide signals to the sales representative that they are ready to close the sale.
   b. If a sales representative does not ask the customer to buy the product, he is likely to lose the sale.
   c. One way of closing the sale is to ask which of two choices of the product the buyer wants.
   d. Buyers will usually close the sale themselves if the sales representative does not ask for the order.

46. An advantage to a company of using public warehouses, rather than private warehouses, is that the company:
   a. will have greater control over its inventory.
   b. can take tax credits on its investment in the warehouses.
   c. can select warehouse employees who will do a good job.
   d. can change warehouse locations quickly.

47. Manufacturers usually use manufacturers' agents:
   a. to serve as a substitute field sales force.
   b. to manage their production operations.
   c. to assist with the design of the products.
   d. to help them buy their raw materials.

48. An advertiser:
   a. can use the services of an advertising agency for relatively little cost.
   b. should regard the typical agency payment system as an outright overcharge, since it could do the same job itself, and pay a lower total cost.
   c. must pay 15 percent additional to the media cost in order to use the services of a full-service advertising agency.
   d. has no reason to be dissatisfied with the traditional advertising agency payment system.

49. Which of the following is INCORRECT about evaluating advertising messages?
    a. The message must raise the recipient's anxiety level.
    b. The message must indicate that the product is different than its competition.
    c. The message must raise the recipient's level of interest in the product.
    d. The message must be believable to the recipient.

50. Which of the following is correct about evaluating sales performance?
    a. Sales representatives should be compared in terms of their total sales per year.
    b. Sales territories are much the same with regard to total sales potential.
    c. Sales are not the only measure of success for sales representatives.
    d. Sales representatives should be compared in terms of their percentage of sales over quota.

APPENDIX G

STUDENT QUESTIONNAIRE

Student Profile

NAME : (LAST NAME) (FIRST NAME)

ADDRESS :

CITY :

POSTAL CODE :

TELEPHONE NO.: DAY :

EVENING:

COURSE : Principles of Organization and Techniques in the Automated Office
401-102-85

SECTION : _____

QUEBEC HIGH SCHOOL LEAVING MARK : _____

CURRENT EMPLOYMENT (IF APPLICABLE): _____
COMPANY AND TITLE

_____

_____

I have read the Plan d'Etude given to me by my teacher. I understand all parts and agree to abide in full with all conditions outlined.

Signed: _____ Date: _____

NAME: _____ Student No.: _____
(Please Print)

APPENDIX H

POST-TEST RAW DATA

APPENDIX H
POST-TEST RAW DATA

	Time Block #1			Time Block #2			Time Block #3		
Treatment	Pre	BO	No	No	Pre	BO	BO	No	Pre
Class	C1	C2	C3	C1	C2	C3	C1	C2	C3
1	37	46	31	36	46	34	27	45	24
2	42	40	28	31	36	33	34	33	34
3	32	28	40	23	32	43	30	27	35
4	33	33	30	33	32	41	20	25	37
5	41	28	42	33	40	41	39	32	38
6	42	41	28	31	37	36	32	40	32
7	40	38	25	31	37	25	20	37	25
8	42	35	43	37	34	45	31	24	39
9	28	24	38	26	27	21	21	21	32
10	36	40	33	41	38	43	32	32	29
11	37	31	43	39	35	37	33	29	31
12	34	35	46	32	36	41	23	30	38
13	42	40	46	31	40	40	23	35	43
14	38	33	31	30	32	37	30	30	29
15	37	37	42	27	38	39	22	44	42
16	31	46	45	33	41	37	19	34	39
17	39	41	37	27	43	36	23	43	29
18	23	40	36	26	41	33	22	37	36
19	48	34	30	43	36	34	41	35	24
20	34	26	42	34	32	42	29	29	35
21	34	43	42	36	45	43	25	42	42
22	35	40	46	36	42	40	28	37	43
23	36	34		39	35		26	27	
24	30	39		29	29		34	31	
25	40			40			34		
26	45			40			36		
27	33			31			35		
28	47			46			41		
29	42			43			33		
30	49			42			35		

APPENDIX I

SPECIFIC SCHEDULE

APPENDIX) I

SPECIFIC SCHEDULE

C-1	Sect 1135 - Rubinstein	Mon - Wed - 1:30-3:00
C-2	Sect 1136 - Rubinstein	Mon - Wed - 3:00-4:30
C-3	Sect 1137 - Hockenstein	Wed - Fri - 8:00-9:30