

**THE EFFECTS OF A GRAPHIC ORGANIZER, STRATEGY,  
AND TEXT TYPE ON ADULT PROCESSING OF  
INSTRUCTIONAL TEXT**

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DEDICATION

This thesis is dedicated to my parents, Mary Ocnas and Martin Janega. Thanks for all your support Mom and Dad.

### ACKNOWLEDGEMENTS

"To give something is to give a part of oneself".

(Marcel Mauss, The Gift)

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ABSTRACT

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The present study examined the effects of a graphic organizer, strategy and typographical spatial and cueing aids on adult processing of instructional text. Textual organization (congruent and incongruent) was also examined. This study was designed to look at an approach which would influence the design of textbooks with respect to the learner's retention of the content. In Experiment 1, subjects read a 6 1/2 page text extracted from a management textbook that was presented in logical order or random order and had no typographical and spatial cueing aids. A graphic organizer was provided with or without a strategy. For the strategy condition, subjects performed better on a posttest than the without strategy condition. In Experiment 2, subjects read the same text. However, a cued text condition was included in addition to cueing the subjects in the "without strategy" condition as to the importance of the graphic organizer. The results produced an aptitude-treatment interaction with learner ability, strategy and cueing. High reading level learners given a strategy and cueing, performed better on the dependent measures and middle

level learners in the cueing condition performed better than those in the no cueing condition. The results of these experiments add support for the contention that retention and retrieval of instructional content is not merely a function of either the text or the reader, but in fact may be due to strategies (i.e. prompting) which exert interactive effects on text and the reader simultaneously.

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## CHAPTER 1

### Introduction

It is commonly acknowledged among educators and learners that instructional textbooks have been and still are the major source of instruction used in our schools and training centers. In view of the fact that textbooks are the primary means of instruction in all subject matter areas, considerable research has been invested in the design of instructional textbooks to improve learning. However, despite the vast amount of research in this area, there are still no prescriptive notions for building better textbooks. It is argued by Reigeluth and Sari (1980) that most of the materials on the market today are poorly designed and organized from an instructional or learning perspective and lack conceptual clarity and integration.

Furthermore, Reigeluth and Sari (1980) consider conceptually ambiguous and badly formatted instructional materials to be a major cause of poor learning. One of the reasons for this (Dwyer, 1978; Levin & Lesgold, 1978; Winn & Holiday, 1982) is that the form of instructional text has been controlled by book publishers who are interested more in attractiveness and saleability of the product than in effectiveness.

Considering that text is still a relatively cheap, accessible and flexible source of learning. . . and will probably continue to be a major source of instruction for a

long time to come? (Gagne, 1978, p.629), instructional technologists are now directing their research to isolating those variables in textual materials which contribute to improved learning (Jonassen, 1980). Among the variables which have emerged as central, are organization, textual cueing, and the strategy that the learner brings to and uses during the learning process.

However, recent research indicates that it is the interaction of these variables with the learner that is of importance in order to enhance the communicative effectiveness of textbooks (Alvermann, 1981; Reder, 1980; Bovy, 1981; Readence et al., 1981; Brody, 1981; Jonassen, 1980; Winn, Note 10 & 12). Due to the "universality of instructional textbooks" (Brody, 1981) and the fact that our educational institutions depend on textbooks for instruction, Herber (1981), Reigeluth and Sari (1980) and Shebilske and Rotondo (1981) encourage educational and instructional technologists to pursue this area of research in order to provide alternative theoretical and empirical methods of instructional design to improve the instructional quality of textbooks.

One area that has provided us with a considerable amount of research within the realm of improved text design, is the role of pictures for prose learning. This research which encompasses all aspects of pictures from size and placement to style and value shall be briefly discussed in the following section.

### Role of Pictures

Over the years, research has examined the effect and value of pictures for prose learning. However, this research seems to be more concerned with the question of whether or not pictures help, as opposed to "how pictures help" (Brody, 1981; Gombrich, 1972; Weintraub, 1966; Gellner, Note 4).

"One of instructional technology's basic tenets", states Brody (Note 2), "implies that a medium (i.e. pictures) or techniques is effective because it fulfills a basic communicative or instructional requirement, rather than as a consequence of any inherent magic" (p. 6). As of yet, little research has surfaced focusing on how pictures affect learning from instructional texts. Dwyer in 1978, reported that "there is little available evidence supporting the contention that visual illustrations in textbooks currently on the market add proportionately to learning . . ." (p. 118). Likewise, Brody in 1981, expressed the same concern, "in spite of the fact that instructional textbooks are a most common form of instructional media" (p.97). Today, the question that remains is how pictures can best be utilized to assist instructional designers and teachers (Brody, Note 2).

Brody (Note 2) has proposed one approach which would assist both researchers and practitioners with the study of pictures and text. In his view, one should examine the functions served by pictures in terms of their contributions to the instructional process.

Levin (1981), Duchastel (1978) and Levie and Lentz (1982) have provided us with some potential functions which can be applied to picture research. Levin (1981) has stated explicitly that there are seven functions served by pictures. These are: decorative, motivational, reiterative, representative, organizational, interpretational and transformational. However, only the last three functions appear to contribute to the instructional process. The organizational function assumes that well-organized text information will be better recalled than only loosely organized or fragmented text information (i.e. providing a graphic organizer of the to-be-learned material). The interpretative function basically enhances the student's understanding of the content by making difficult to comprehend information more intelligible. The transformative function assists the learner with remembering difficult and unfamiliar terminology (i.e. the graphic organizer directs the learner's attention to key vocabulary terms).

Duchastel (1978), on the other hand has suggested three major functional roles of pictures: the attentional, explicative and retentional. The attentional role is primarily motivational, while the explicative role enhances the content of the passage which cannot be explained by words alone. "Illustrations in the retentional role are presumed to act somewhat as do section headings," suggests Duchastel. In other words, he continues, "they form a conceptual plan of

the subject matter for the learner" (p. 38).

Finally, Levie and Lentz (1982) propose four possible functions of text illustrations: attentional, affective, cognitive and compensatory. The attentional function attracts attention to the material as well as directs attention within the material. The affective functions enhance enjoyment and affect emotions and attitudes. The cognitive function suggests that illustrations might function to provide a 'context' for understanding the text material by improving comprehension and improving retention. The last function is the compensatory function which basically accomodates poor readers.

Regardless of the amount of functions available that pictures can serve, the issue at hand is that educational technologists and instructional designers must be able to justify the inclusion of pictures in a text. According to Brody, (Note 2, p.4), "each function must be representative of those planned or unplanned elements of the instructional treatment which have the ability to increase instructional effectiveness (i.e. during instruction previous and appropriate knowledge and skills may be recalled, content organized, specific points emphasized and appropriate cognitive skills emphasized)".

#### Graphics as Pictures

Pictures are defined "as any relevant, two dimensional representation in which the stimulus array contains at least

one element that is not alphabetic, numeric or arithmetic" (Alesandrini, 1982, p. 125). As well, it is claimed by Duchastel (1980) that "illustrations are not a unitary set of components in instructional texts and that the term illustration or picture is a generic one which covers such diverse elements as photographs, schematic drawings, diagrams, maps, etc." (p. 2).

The term "graphics", reports Macdonald-Ross (1978) "is not exact, but it is still the best word to describe alternatives to prose" (p. 50). This is because while prose has a spatial character to it, it is processed sequentially. Graphics, particularly when the learner chooses to do so, may be processed statically as well as sequentially (Winn, 1981).

The purposes of graphics, proposed by Levie and Lentz (1982), Winn (1981b; 1982; Note 11), Merrill and Bunderson (1981), Macdonald-Ross (1978), Sless (1981) and Winn and Holliday (1981) can be summed up into three major areas:

1. they provide organization (i.e. sequencing of content) to facilitate the storage and retrieval of information,
2. they show conceptual relationships between key concepts of a content area, and
3. they convey meanings through (a) pictorial elements they contain and (b) the patterns and sequences formed by the placement of the elements on the page.



The instructional effectiveness of diagrams suggests Winn (Note 11), "can be attributed precisely to their encoding of conceptual information spatially rather than syntactically as in the case of prose" (p. 15). Support for this process of encoding information in graphics can be found within the framework of schema theory, which essentially links a reader's previous knowledge to incoming verbal information. "If designers and instructors realize that arrangement of the elements in graphics on the page or screen is itself meaningful, then they will have at their disposal a powerful instructional tool. Both learners and instructional designers will benefit" (Winn, Note 11, p. 25).

#### Graphic Organizer

Recent research indicates that one of the ways that pictures can function to aid comprehension is through providing a context for organizing textual information (Levie & Lentz, 1982; Stone et al., Note 8; Alessandrini, 1982; Merrill & Bunderson, 1981; Bernard et al., 1981; Boothby & Alvermann, Note 1; Staley & Wolf, Note 7). The mechanism which provides a context for organizing information will be referred to as a 'graphic organizer'. The term 'graphic organizer' derives from Ausubel's (1960, 1968) work on advance organizers.

In a summary of Ausubel's work (1968), Mayer and Brommage (1980) report the definition of an advance organizer as "appropriately relevant and inclusive introductory

materials . . . introduced in advance of learning . . . and presented at a higher level of abstraction generality and inclusiveness" (p. 209). For the purposes of this study, Mayer's and Brommage's (1980) broader definition of advance organizer will be used. They define an advance organizer as "a stimulus that is presented prior to learning and contains a system for logically organizing the incoming information into a unified structure" (p. 211). Winn and Holliday (1981) conclude that "diagrams can help in this respect (i.e. organization) by showing which concepts go with which others, aiding generalization and discrimination and by replacing critical verbal information with graphic devices such as lines and arrows" (p. 22).

Graphic organizers have many of the essential characteristics of diagrams (Macdonald-Ross, 1978; Levie & Lentz, 1982) in that they are schematic representations of the relationships between concepts (usually the key vocabulary terms from a text). In addition, they may perform the function of an advance organizer which is designed to activate the reader's prior knowledge (Levie & Lentz, 1982; Alvermann, 1981; Readence et al., 1981; Herber, 1978; Mayer, 1978; Snowman & Cunningham, 1975; Boothby & Alvermann, Note 1).

To further substantiate the graphic organizer as an advance organizer, Mayer (1979) has listed five characteristics of an advance organizer which can be applied to a

graphic organizer. These are:

1. it (the advance organizer) contains a short set of verbal or visual information,
2. it is presented prior to learning a larger body of to-be-learned information,
3. it contains no specific content from the to-be-learned information,
4. it provides a means of generating the logical relationships among the elements of the to-be-learned information, and
5. it influences the learner's encoding process.

The two functions in this area are (a) to provide a new general organization as an assimilative context that would not have been normally present and, (b) activate a general organization from the learner's existing knowledge that would not have normally been used to assimilate the new material.

The use of a graphic organizer as an 'instructional tool' to assist the learner with textual material is not new. Both Readence et al., (1981) and Herber (1978) recommend the use of and implementation of a graphic organizer in books written for content area teachers (i.e. as a strategy to use while reading).

Moore and Readence (Note 6) have concluded that there is a lack of evidence in support of advance/graphic organizers.

Nevertheless, many researchers continue to advocate the inclusion of an advance/~~graphic~~ organizer in instructional materials (Mayer, 1978; Mayer & Brommage, 1980; Boothby & Alvermann, Note 1; Alvermann, 1981; Weisberg, 1970).

Mayer's (1978) assimilation encoding theory supports the use of an organizer because it "provides a meaningful context (or anchors ideas) and encourages learners to integrate new information within this context" (p. 881). This theory predicts that the graphic organizer should provide the learner with the necessary skills to integrate the incoming material and to improve the overall retention (or transfer) of information.

The current study will attempt to provide additional evidence in support of the graphic organizer as an 'instructional tool' within the framework of Mayer's assimilation encoding theory.

#### Instructional Strategies

"Graphics need to be translated and abstracted in order to become useful to the learner" (Winn, Note 11, p. 5) and to assist in the retention of information. Mayer suggests two important questions to consider: (1) Is the organizer learnable (i.e. is it easy for the particular learner to acquire and use) and (2) would the learner fail to normally use an organizing assimilative set for the incoming material due to stress or inexperience?

Several methods have been suggested and used to influence a reader's learning from expository text. Of significance are those researchers who now believe that the way information is processed, depends upon what the learner perceives the task to be and the amount of effort s/he should invest in it (Winn, Note 10; Salomon, 1979; Mayer, 1979). Unless the learners are highly able, they may need to be informed of likely processing strategies by the instructional system (Bovy, 1981; Winn, Note 10). It is not sufficient simply to show a learner a diagram and expect her/him to process it (Bovy, 1981; Winn, Note 10; Levie & Lenz, 1982; Merrill & Bunderson, 1981; Gagne & Britton, 1982; Snowman & Cunningham, 1975; Reder, 1980; Dean & Kulhavy, 1981; Alessandrini, 1982).

Kosslyn (1980) suggests that bringing the mental skills associated with creating and manipulating imagery to bear on particular tasks can be initiated by giving direct instructions to learners. These direct instructions to learners are referred to as a learning strategy, which in effect is a device or condition through which the learner is informed as to the most efficient processing set. Directing the learner to create a mental image of the structure of the organizer and then to use the structure as a referent in remembering the structural characteristic of the text, should improve performance in reference to the learning task (Readence et al., 1981; Winn, Notes 11 & 12; Diekhoff, 1982;

Brezin, 1980; Rigney, 1978; Dean & Kulhavy, 1981; Bovy, 1981; Boothby & Alvermann, Note 1; Alvermann, 1981; Levie & Lentz, 1982). Moreover, supplying readers with information about the relationship of the graphic organizer and the organizational structure of the passage should facilitate the retention of that information.

Recent literature on instructional strategies has been generated from Rigney's (1978) research on cognitive strategies. A cognitive strategy, he reports, "is used to signify operations and procedures that the student may use to acquire, retain and retrieve different kinds of knowledge and performance" (p. 165). It is composed of two parts:

1. a cognitive orienting task, which designates methods for inducing the student to perform particular kinds of operations, and
2. one or more representational (i.e. reading, imagery), selectional (i.e. attention) and/or self-directional capabilities (i.e. self-programming).

Cognitive strategies (Rigney, 1978), which are performed by the learner, can emanate from either the instructional system (instruction system assigned) or from the student's self (student-assigned). As well, Rigney (1978) makes the distinction between a 'detached' and 'embedded' cognitive strategy, which refers to the relationship of the strategy to the text. A detached strategy is one that is independent of

the subject matter (i.e. instructions on how to use a cognitive process). The embedded strategy is not independent of the subject matter, but instead is incorporated within the instructional system (i.e. insertion of a question).

Recent strategy research has suggested that instructional strategies are effective in processing information effectively (Winn, Note 12; Winn & Holliday, Note Note 13; Boothby & Alvermann, Note 1; Reigeluth & Darwazeh, 1982). However, there still remains some controversy as to whether instructional strategies that employ various types of advance organizers (or graphic organizers) are effective in supplying readers with the necessary information about passage structure. (Alvermann, 1981).

Therefore, a primary focus of the current investigation is the combination of a strategy to induce spatial processing of the graphic organizer.

#### Text Design

Organization. The organizational aspect of prose is an important variable to consider when examining textbook design (Staley & Wolf, Note 7; Jonassen, 1982; Reynolds, 1966; Shimmerlik, 1978). Perlmutter and Royer (1973) discovered that well organized text information will be better recalled than only loosely organized or fragmented text information.

In addition, Shimmerlik (1978) argues that under certain conditions when to-be-remembered items are presented in a well organized manner, the level of free recall is higher

than it is when items are presented in random order.

Therefore, when the content is organized, the material to-be-remembered, will become meaningful to the learner (Wing, 1981a).

It has been proposed by Shimmerlik (1978) that when information is encoded through two different organizations, the recall of the to-be-remembered material would be higher than would the encoding of information through one form of organization. However, Mayer (1978) predicted that posttest performance should be improved by an advance organizer when the material is randomly (poorly) organized but not when it is logical. When the material is logically organized, subjects may be able to integrate the material on their own, but when the material is not presented in the optimal organization, a meaningful learning set can serve as a context for integrating and holding together the incoming material. According to Ausubel's (1968) subsumption theory, the advance organizers may be especially important for the learning of technical, unfamiliar or poorly organized material because they serve the following functions: (a) availability: meaningful context is provided to which new material may be assimilated and (b) activation: encourages encoding strategy (p. 880).

Mayer's (1979) results indicated that the advance organizer resulted in better performance when the text was in random order but not when it was in logical order. As well,



Alvermann's (1981) results confirm Mayer's findings.

Consequently, organizers aided performance when the reader was required to reorganize the information but did not help when reorganization was not needed.

Therefore, the current study will attempt to clarify these seemingly contradictory results and investigate further, if in fact information through two modes of organization (1. textual organization; congruent and incongruent and 2. a graphic organizer) do in fact lead to greater accessibility of information.

Typographical cueing. Recent research on textbook design suggests that typographical cueing and spatial cueing can facilitate learning from text (Waller, 1982; Shebilski & Rotondo, 1981; Frase & Swartz, 1979). "This", reports Waller, "may be done through text headings, contact cues, section numbers, page numbers, indexes . . . and instructions of sorts" (Guthrie, 1981, p. 556). Frase and Schwartz (1979) report five experiments which suggest that phrase segmentation and indentation can be used to facilitate comprehension.

However, there is little available research in existence that integrates typographical cueing with other variables in textual materials. Therefore, the current study will examine the effects of typographical cueing coupled with textual organization (congruent and incongruent), a learning strategy

and a graphic organizer to improve learning from instructional texts.

Statement of the Problem

The primary purpose of the studies reported here was to provide additional methods and/or approaches to designing instructional texts to improve their instructional quality. Specifically, the present study (1) attempted to clarify the conditions under which a graphic organizer was a useful design option; (2) compared the effectiveness of employing a strategy (informing the learner as to a likely strategy to apply in fully utilizing the graphic organizer) versus no strategy (procedure of not informing the learner); (3) explored the effectiveness of providing students with typographical cues embedded in the text and; (4) evaluated the function of the graphic organizer, strategy and typographical cues when combined with congruent and incongruent text.

## CHAPTER 2

Review of the Literature

The Stanford Learning Assistance Center has reported that one of the most common deficiencies of students is an inability to select the important passages from textual materials (Rigney, 1978). These results may be attributed to the learner's lack of skills required for "selective attention" (Rigney, 1978) and/or the design of textual materials. Despite the abundance of information "in the form of isolated principles of instructional design and better strategies to make instruction more effective, efficient and appealing", Reigeluth and Sari (1980, p. 5) criticize the potential and usefulness of this information for textbook writers and instructional designers. Perhaps one factor that has influenced these seemingly inconclusive results is the direction or focus the research has taken. Adapting the instruction to the learner has thus far not proven effective. Recent research has concentrated its efforts on the interaction of the learner, the text and the task. Winn (Note 9) for example, has focused his efforts on instructional strategies to enable the learner to process information and/or pictures more effectively. These instructional strategies, reports Winn (Note 12) can be used to (a) help the learner develop the mental skills they will need in order to learn, or (b) indicate to the learners, directly or indirectly, which learning strategy to use, or (c) help

learners develop their own metacognitive skills.

In addition, text design research has shifted its emphasis from the format of the content to strategies and the structure of the content as well as the format (Jonassen, 1980). It is the psychological approach to instructional development (cognitive psychology) that can provide us with a foundation on which to build a theory of instruction and/or guidelines for the design of text (Bovy, 1981; Jonassen, 1980). Adapting instruction to the learner is the wrong approach. Instead, we should direct our efforts to the interactive processes between the learner and the text (Winn, Note 12).

Of specific interest is the question of how we can design textbooks to aid students to use selective reading strategies (Waller, 1982). One approach that reflects this new dimension to developing guidelines for the design of text is suggested by Waller (1982). He proposes that these guidelines will most likely result from a combination of approaches; specifically, "an appreciation of the cognitive processes used by the readers in tackling the study of text, and a literary tradition of practical experience and experiment with real texts and innovative formats" (p. 165).

#### Cognitive Approach

The cognitive approach to learning emphasizes the psychological processes that intervene between the stimulus display and learning (Bovy, 1981). In other words, the

cognitive approach is concerned with the interaction of the learner's information processing skills with the instructional material. Many respected researchers (Rigney, 1978; Winn, Note 10; Bovy, 1981) now believe that it is possible to improve the manner in which learners process information by gaining better control over the kinds of information processing they do while acquiring, retaining, and retrieving information. It is suggested that this control might be achieved by (1) instructing the learner on effective processing strategies so that they are more aware of her/his learning operations, (2) instructing learners on how to use these operations and/or (3) activating a particular processing skill (already present in the learner), directed through the instructional material (Rigney, 1978; Bovy, 1981; Brezin, 1980; Readence et al., 1981). Bovy (1981) suggests that the 'directed' cognitive processing may be operationalized not only by use of various orienting tasks (i.e. adjunct questions) but in a more subtle way by manipulation of features in the instructional display (material) itself. Certain researchers have found some evidence that learners could be better equipped to become independent learners if they developed a sense of structure (Shavelson, 1972; Herber, 1978; Reynolds, 1968; Moreira & Santos, 1981; Winn 1980). These studies have resulted in further research within this paradigm of cognitive psychology and the design of textual materials. However, Winn (1980) reports that

there is still a need to apply these 'techniques' to the study of diagrams if their ability to help learners organize concepts is to be understood.

#### Advance/Graphic Organizer

Advance/graphic organizer research, like the picture prose research, has in the past, examined advance organizers within the context of (1) organizers verses no organizer, (2) organizer before the prose, after the prose or with the prose, and (3) types of organizers, such as written verses pictorial versus graphic. This realm of research has produced positive results as well as contradictory results.

Barnes and Clawson (1975) for example, have reported that "the efficacy of advance organizers has not been established. Of the 32 studies reviewed, 12 reported that advance organizers facilitate learning and 20 reported that they did not" (p. 651). However, it has been argued by others (Luiten et al., 1980; Mayer, 1978; Jackson, 1980) that Barnes and Clawson's analysis of advance organizers does not substantiate their conclusions that "advance organizers as presently constructed do not facilitate learning" (p. 651). Upon examination of their evidence, Jackson (1980) indicated that Barnes and Clawson did not report how many of the 20 studies that reported no effect yielded each type of finding; statistical (+) findings, zero differences, nonsignificant (-) findings and perhaps significant (-) findings. If these studies had statistically significant (-) findings, reports

Jackson (1980), then Barnes and Clawson's data would suggest that advance organizers do have a small positive effect on learning.

Moore and Readence (Note 6) in a metaanalysis of graphic organizers found that subjects in a graphic organizer condition do achieve about two-tenths of a standard deviation better than those in the no organizer condition. As well, Luiten et al.'s (1980) findings indicate that graphic organizers do in fact facilitate learning in all content areas. They do however suggest that the seemingly small positive findings could be the result of the short duration of treatment. Nonetheless, researchers in this area are disposed to the notion that advance/graphic organizers do act as an assimilative tool to aid in the learning and retention of prose.

Organizer verses no organizer. Researchers have examined whether or not the presence of an organizer facilitates learning. Staley and Wolf (Note 7) for example, tested the effects of an outline as a means of an organizational aid. In the first phase of the experiment, half of the subjects received the outline and half did not, while studying the passage. These subjects were then randomly divided into two more conditions for the second phase of the experiment such that half of the outline condition and half of the no outline condition received the outline as they attempted to recall the passage. The remaining two halves

(outline and no outline) did not receive the outline during recall. Their results encourage the use of an organizational aid in the learning and retention from prose. Those subjects provided with a meaningful context of the structure remembered more from the study than those not provided with the structure. Performance was even greater when the outline was provided at the time of retrieval. Upon visual examination of the means of the four conditions, all groups given an outline (before or after) performed better than those not receiving the outline. (see also Bernard et al., 1981).

One very extensive study conducted by Mayer (1980) suggested that elaboration techniques, such as advance organizers, when applied to 'real world' materials can result in more integrated and broader learning outcomes. In a series of five experiments, Mayer examined the effects of reading a text on computer programming when engaged in one of the following learning strategies: advance organizer, model elaboration, comparative elaboration and normal reading (control). The advance organizer group was given a concrete model prior to reading, for use in reading the text. The model elaboration condition was given a sheet (after each page) asking the reader to explain in writing how the new material related to a concrete model of the computer. The comparative elaboration condition was given a sheet of paper asking the reader to explain in writing how the statement



Just learned was learned similar to and different from some other statement. The last condition, the control group, received only the text. The first two experiments resulted in an overall effect in which the advance organizer group performed better than the control group (60% v.s. 41% respectively). His results of the recall tests (on all 5 experiments) indicated a greater proportion of the conceptual idea units recalled in the groups containing elaborative techniques than those in the control groups.

Organizer before verses organizer after. The results of studies on the placement of the organizer before or after the prose material has yielded positive results for placement of the organizer in the precondition as well as the postcondition. Mayer and Brommage (1980) conducted two experiments with subjects who read a text concerning computer programming language, with an advance organizer given either before or after reading. The data of both experiments supported the idea that qualitatively different recall patterns were produced by subjects given the model (organizer) before verses after learning.

Contrary to Mayer and Brommage's results, Brody and Legenza (1980) reported that the picture (organizer) position was also a significant variable. However, their findings indicated that placing the picture after reading the passage seemed to be more beneficial than placing it before the passage. This suggested that this process helped or

encouraged the reader to review materials that were related to but not necessarily included in the picture (organizer).

Written organizer verses visual organizer. In addition to the placement of the organizer and its use, picture (organizer) types have also been examined. Various types of organizers have been constructed: expository and outline form, map-like features and graphic, and pictorial realistic and unrealistic. As well, the results are indicative of the other areas of organizer research, mainly no conclusive support in favour of one organizer type over the other. Bernard et al., (1981) tested two types of organizers, an image and its verbal counterpart. No support was found for the distinction between the two types. However, earlier research conducted by Weisberg (1970) compared the use of three types of advance organizers, two of which were visual in nature (a graph and a map) and one written. His study performed on 8th graders, indicated that learners in the visual organizer conditions performed better than those in the written organizer condition.

Graphic organizer research today. Despite the contradictory results of previous advance/graphic organizer research, it is apparent and suggested by researchers that advance/graphic organizers do play a significant role in the assimilative process of learning from prose. However, the notion of providing organizers or not (as with earlier picture prose research), does not provide instructional

designers with substantial prescriptive notions in the design of instructional materials. Instead, this area of research has taken on a new dimension, mainly one in which instructional designers or teachers can best use advance/graphic organizers as an organizational aid or assimilative tool, to facilitate learning. Recent researchers (Alvermann, 1981; Boothby & Alvermann, Note 1; Mayer, 1980; Dean & Kulhavy, 1981), have accepted the advance/graphic organizer as an assimilative tool. Their research has now focused on combining the organizer with other variables, such as strategies and textual organization (see strategy and organization).

Therefore, this study assumes that advance/graphic organizers do facilitate learning. Of primary importance, is how the instructional designer or teacher can implement the organizer to produce the most positive results in recall of material. Hence, the graphic organizer is not to be a manipulated variable, but will be present in all conditions, used before and during the studying process.

#### Assimilation Encoding Theory

Recent research on advance organizers offers a great deal of evidence in support of Mayer's (1979) assimilation encoding theory. The assimilation theory, as reported by Mayer, suggests that meaningful learning depends on the following conditions: the material to be learned must be received (reception), the learner must have a meaningful set

of past experiences that can be used as an assimilative context (availability), and the learner must actively use an assimilative context during learning (activation). The key to assimilation theory revolves around the active integration of new information with the learner's existing knowledge. The organizer would then trigger the learner's prior knowledge (if present) and integrate the new material with the old, or act as an assimilative tool to conceptualize the information to be learned. The theory predicts that broader learning outcomes would result from the inclusion of the organizer before the learner encodes the new information. As per Mayer's condition of activation, the organizer must encourage the learner to actively integrate the new information. For example, if an organizer is constructed in such a way that it is unfamiliar to the learner, then the learner may fail to realize that the organizer is part of the subsequent material. Consequently, the learner needs to be informed of the purpose of the organizer as well as instructed in its use, in order for the organizer to be effective. For the purpose of this study, providing the learner with the aforementioned information will be referred to as "instructional strategies" (see Winn, Note 12).

#### Instructional Strategy Research

Instructional strategies can be either visual in nature or non-pictorial. Those that are visual in nature would allow the learner to process the information "visually

internally". Those that are non-pictorial in nature, would serve as verbal instructions to the learner to form images so as to help the learner integrate features of the to-be-learned information (see perceptual strategies, Winn, 1982a).

There is a body of research that supports the contention that instructional strategies (i.e. cognitive strategies) can facilitate acquisition, retention and retrieval of information when properly used (Rigney, 1978; Winn, 1981a & Note 9; Reder, 1980; Herber, 1978; Diekhoff, 1982; Boothby & Alvermann, Note 1; Alvermann, 1981; Levie & Lentz, 1982).

In two experiments conducted by Winn (Note 9), the interaction of knowledge of task, learning strategy and mental ability were studied. All instructions and the material (geometric figures constructed from line segments) were presented on the screen of a Commodore computer. In the first experiment, subjects were instructed to either draw (using the computer) a figure created from line segments, or they were instructed to draw each line separately in the order it was shown on the screen. Strategy instructions were given next, according to the group the subject was in. The results of this study suggested that knowing what was expected (precueing) facilitated learning of the material. The precued subjects scored significantly higher than the postcued subjects.

The results of the second experiment also indicated that

precueing subjects to the task improved their performance and when learning strategies were modelled in addition to precueing, performance was improved even further. Winn's results support the research on pre-instructional strategies (Ausubel, 1963; Mayer, 1979) and confirm that appropriate learning strategies can be taught to learners so that their performance will improve.

Similarly, Dean and Kulhavy (1981) tested the effectiveness of a strategy and a map-like organizational device, in the comprehension of an extended prose passage on an imaginary African tribe. The strategy employed, was in the form of a forced-processing strategy (telling the subjects to fill in a composite map from the projected map). Three groups were formed; the forced processing group, the self-processing group which had the features already filled in, and a control group which had an unrelated map. Their results indicated that the forced-processing group outperformed both of the other groups and that map-like organizational devices facilitated the comprehension and remembering of prose materials. It is most likely the combination of the map-like organizer and the instructional strategy that cognitively linked the knowledge structures already present to the incoming verbal information. There were no differences found between the no organizer group and the self-processing group.

Alesandrini (1981) tested the effects of having learners

use a holistic or analytic strategy while drawing pictures or writing paraphrases to study scientific material. She found that the learners were apparently able to follow directions to draw pictures and write sentences, but were not able to successfully draw the analytic or holistic version. This study further substantiates that learners cannot process a strategy unless instructed in its use and purpose.

One of the few studies to instruct students (in a classroom situation) on a strategy is the experiment conducted by Boothby and Alvermann (Note 1). They tested the effectiveness of the graphic organizer as a strategy for facilitating comprehension and retention of information in 4th graders social studies text. Two conditions were established, one with graphic organizer instruction and practice and the other without. Both groups read the same material and took the same tests. Their results indicated that the group which received the graphic organizer instruction recalled a greater number of total idea units (the dependent measure) than the control group for both the immediate testing and 48 hours later.

In summary, the research in the area of instructional strategies is encouraging. There are indications that retention and retrieval of instructional materials is not exclusively a function of the text or the reader. Conversely, other experimental variables such as strategies, can interact with the text and the reader to influence the

learner's performance.

### Text Design Research

Organization. Comprehension of textual materials involves the organization of the text in some way which can relate the new information to existing knowledge already present in the learner (see graphic organizer and strategy). In addition, the structure of the text, its clarity of purpose and salience, combine to produce more efficient learning from text (Guthrie, 1981). "The importance of organization of text cannot be denied, the stronger the organization of text, the more likely it will be assimilated by the reader" (Jonassen, 1982, p. 10).

Shavelson (1972) looked at the correspondance between content structure and cognitive structure in physics instruction. He designated cognitive structure as a hypothetical construct which refers to the organization (relationships) of concepts in memory. He concluded that the content structure of the passage, considerably changed the cognitive structure of the subjects.

Moreira and Santos (1981) also investigated the influence of content organization on the learner's cognitive structure. They took the Ausubelian approach to content organization (hierarchically) on the student's cognitive structure to provide evidence that this approach enhanced concept learning. Two approaches were used: the traditional (found in most textbooks) and the Ausubelian. Their results



for the traditional approach showed little difference before and after instruction. However, the Ausubelian approach did produce some differences in the way in which the concepts were clustered. They found that the student's cognitive structure was altered by the content structure of the Ausubelian approach, in such a way that their conceptual hierarchies were more coherent with the basic laws and the conceptual structure of physics.

Mayer (1978) on the other hand, pursued the idea that poor text organization could be compensated for by supplying an advance organizer to integrate the incoming material. He examined the effects of a graphic organizer (placed before and after the passage) with textual organization (in logical or random order). No differences were found in the overall performance between subjects who were given the advance organizer and subjects who were not. However, there was a significant interaction between text organization and the advance organizer, with the before group performing better than the after group on random organization, but worse when the text was presented in logical organization. Mayer suggests that the advance organizer allowed the subjects to assimilate the new material thus forming a broader learning outcome.

The second experiment examined the effect of the advance organizer with text that had a good means of remembering the information and text that was organized differently from the

test. These results supported experiment one and suggested that when information is presented in a logical manner and the test questions reflect the presentation organization, an advance organizer has no positive effect. But when the material is presented in an order inconsistent with the test question, then advance organizers do have a facilitative effect. As well, Mayer found that organizers tended to aid low ability learners more than high ability learners.

In conjunction with Mayer's study, Alvermann (1981) investigated the use of graphic organizers to compensate for text that was less than optimal in its organization. Two versions of text were designed; a comparison version (considered well organized) and a descriptive version (listing of ideas of the topic) on the subject of the loss of body water for 10th graders. Each of these groups was given a graphic organizer with a verbal strategy (classroom instruction) for two conditions and the control condition had the same material but with no graphic organizer or verbal strategy. Her results confirm Mayer's (1978) findings that organizers facilitated recall performance when readers were required to reorganize information found in text, but had no effect when reorganization was unnecessary. Contrary to Mayer's (1978) findings with learner ability, Alvermann found that both the upper and lower levels of the reading comprehension continuum appeared to benefit from the use of graphic organizers.

To the best of the author's knowledge, there is still an absence of research available within this paradigm of textual design; the manipulation of not only text variables, but organizers and strategies combined. Therefore, this present study is intended to contribute to the literature on text design to improve the clarity and efficiency of instructional texts.

Typographical cueing. The way in which a text is perceived by the reader is just as important as the information contained in it. This theme, pursued by researchers today (Shebilske & Rotondo, 1981; Jonassen, 1982; Frase & Schwartz, 1979; Pepper, 1981) has provided significant evidence to warrant giving special consideration to the typographical design of textbooks and materials.

In a series of five experiments, Frase and Schwartz (1979) examined two typographical manipulations, segmentation and indentation, to see if either of these manipulations could facilitate the comprehension of text. They found that both indenting and meaningful segmentation affected performance, with segmentation being a more powerful factor in format improvement. As well, they confirmed that effective cues can be designed into meaningful prose materials.

A second study which concerned itself with typographical and spatial cues was conducted by Shebilske and Rotondo (1981). They compared a standard typographical layout to one containing typographical and spatial cues. Their results

Indicated that students who read the special layout learned and remembered the text better without spending more time studying, and improved learning and memory of important information without reducing the learning and memory of unimportant information. On all dependent measures, paraphrastic recall, multiple-choice and an attitude questionnaire, learning and memory were facilitated by typographical and spatial cues.

Contrary to Frase and Schwartz (1979) and Shebilske and Rotondo (1981), Johnson and Otto (1982) in studying the effects of altering prose style (word frequency and sentence structure), found no significant differences with the treatment of style of text. However, their results appear to be indicative of the fact that subjects did not understand the text, nor was it relevant to the subjects' curriculum. Thus, their conclusions, that the readability of textbooks may be unresponsive to changes in style, is unwarranted.

Finally, Pepper (1981) approached the problem of text design from the student's perspective. In the first of two experiments, comprehension was tested on two different styles of programming textbooks on Pascal, an outline format approach and an informal conversational approach. In addition, subjects were asked to rate the style of the text as to what they liked and disliked and how they would change the format and content if they could. The results indicated no preference for either condition, but the student's

evaluation did suggest that neither of the two styles provided them with the necessary skills to understand the material (i.e. examples).

The second experiment conducted was based on the students' preferences for what makes a better text. Pepper chose a new text on programming, which was popular and intended to be easy to read. As well, since this text lacked specifications provided by the students in the first experiment, he rewrote the same text according to those specifications. Incorporated within this experimental text was an extensive use of graphical and textual aids, as well as an outline and brief introduction in the beginning. A third text was used which was clearly written and contained lots of examples, but lacked textual and graphical aids. His results confirm Frase and Schwartz's (1979) and Shebliske and Rotondo's (1981) results of the importance of typographical aids. Pepper found that the group reading the experimental chapter performed better and rated the chapter higher than the other groups.

Collectively, these findings reinforce some common beliefs in the field of textbook design; namely, that "a text will be more readable and more effective if one avoids technical jargon, writes in a clear and unpretentious style, and incorporates various graphical and textual aids into the body of the text" (Pepper, 1981, p. 267).

### Summary of Hypotheses

The primary purpose of this experiment was to examine the effects of a strategy combined with a graphic organizer and typographical cueing aids embedded in the text, on the retention of expository text. A secondary purpose was to investigate those effects with textual organization (congruent and incongruent). The following hypotheses were generated from the above literature to guide the experiment:

- H<sub>1</sub> : It was expected that the strategy treatment groups would display greater overall learning than the no strategy conditions. The notion of informing the learner as to a likely processing strategy (Bovy, 1981; Winn, Note 10) was expected to ensure superiority as well as the combination of the graphic organizer and strategy that would cognitively link the knowledge structures already present to the incoming information (Dean & Kulhavy, 1981).
- H<sub>2</sub> : It was expected that the typographical cueing would have a significant effect on all treatment groups. The notion that what a reader sees in a text is as important as what the author writes in it (Shebilske & Rotondo, 1981; Jonassen, 1982; Pepper, 1981) provides support for this prediction.
- H<sub>3</sub> : A significant interaction was expected between

the strategy treatment groups and the textual organization treatment groups (congruent and incongruent). This hypotheses was derived from the studies by Mayer (1978) and Alvermann (1981), which have shown that the facilitative effects of advance/graphic organizers are best seen when the textual material is in random order (incongruent).

H<sub>4</sub>: It was expected that there would be a significant main effect for strategies, organization (incongruent) and typographical cueing on an immediate posttest.

These hypotheses were formulated to determine the source of the interaction hypothesized in H<sub>3</sub>. Post hoc analysis was planned in the event the hypotheses were accepted.

CHAPTER 3  
EXPERIMENT 1

Method

Sample

The experimental sample consisted of 92 subjects, enrolled in a first year management course at Vanier College in Montreal, Quebec. Subjects consisted of English speaking males and females ranging in age from 18-25 years. Participation in the experiment was on a volunteer basis.

Experimental Design

The design of the experiment constituted a 2x2 factorial with 2 between group variables. The levels were strategy (with strategy vs. without strategy) and textual organization (congruent vs. incongruent). The dependent measures consisted of a cued recall and multiple-choice test to assess student performance in terms of recall and comprehension.

Instrumentation

Multiple-choice test. The instructional material was to be evaluated by a multiple-choice recognition test composed of 30 items. Two different randomized versions of the test were produced (A & B) from a pool of 30 question items created by the author. Each test had 15 identical items and 15 different items that seemed to best evaluate the learning text. All multiple-choice questions consisted of a main stem with four options including only one correct choice.



Coefficient alpha for the tests were .38 and .50. Due to the low level of reliability, the multiple-choice test was eliminated from further analysis, and instead redesigned for experiment 2.

Cued recall. A cued recall test of 11 items was produced and administered to all subjects. These questions preceded the administration of the multiple-choice test and were worded in such a way that subjects were required to write a specific answer.

Scoring of the recall protocols was carried out by the main experimenter. One other judge was contracted to score the protocols, without the assistance of the main experimenter. An analysis of variance approach to interrater reliability (Winer, 1971) was used to assess the reliability of the raters. The reliability was calculated to be .96.

Nelson-Denny reading test (Nelson & Denny, 1973). In view of the fact that the experiment was concerned with the learning of expository text material, the Nelson-Denny test was administered. It was felt that these test results would serve as good predictors of subsequent reading performance. The vocabulary section (Special Adult Cut-time Version - 7 1/2 minutes) and the Comprehension section (cut-time version - 15 minutes) was completed.

#### Materials

Expository text. The six and one-half page text was a chapter entitled "Budgeting" extracted from the textbook

Hospitality Management Accounting(Michael Coltman, 1978).

It was typed double spaced on seven 8 1/2 x 11 inch pages of white paper with typographical cueing strategies removed, displaying a strictly narrative style. Information for the text content discussed the kinds of budgets, the purposes of budgeting, who prepares the budget and when, the advantages and disadvantages of budgeting and the budget cycle.

The text was then divided into the aforementioned sections and subsequently randomly disordered to produce two conditions of textual organization (congruent vs. incongruent).

Instructional strategy. The instructional strategy was a set of three concise prose paragraphs typed double-spaced on white 8 1/2" x 11" paper. At the top of the page in bold lettering were instructions to "Read This First". The strategy stated the purposes of the graphic organizer and included instructions on how to use it. The importance of the graphic organizer was emphasized.

A placebo instructional strategy was produced to ensure that the total amount of time spent reading the strategy by each subject was not varied from condition to condition. That is, when subjects in the with strategy condition were being asked to read the instructional strategy, the subjects in the without strategy condition were spending the same time reading the placebo. In that manner, they were both equally occupied before they began to read the text.

The placebo produced, was about the same length as the with strategy condition and was identical in format. It was not expected to provide any useful information in addition to the main text, nor material which would distress or otherwise distract the learners.

Graphic organizer. A graphic organizer entitled "Budgeting" was designed by the author and printed on 8 1/2" x 11" blue paper. It resembled a flow chart in that it used boxes, lines and arrows to depict visually the main topics to be covered in the text. The sequence of the topics was identical to the congruent text. All conditions received the graphic organizer which was inserted after the instructions, unattached, intended to enable quick accessibility for the learners perusal.

Evaluative questionnaire. The evaluative questionnaire consisted of 20 questions to indicate subject's subjective response to the condition they were in. It was typed double-spaced on 8 1/2" x 11" yellow paper. In total there were 20 questions related to the study, 13 of which pertained to the use of the graphic organizer. The responses were rated on a 1-5 scale with 1 being strongly agree, 3 agree and 5 strongly disagree. Several items had negative polarity to discourage response set. These items were analyzed by the analysis of variance.

Interpolated task. In order to ensure that subjects in the experiment were not using merely short-term memory to

respond to the posttest questions, an interpolated task was administered immediately following the reading/studying of the text. This task consisted of a series of demographic questions and personal study habits. It was typed double-spaced on blue 8 1/2" x 11" paper.

Experimental package. For the experiment, each subject received four pre-coded envelopes stapled together at one end and numbered from 1 to 4. The contents of each package are indicated below:

<u>Envelope</u>	<u>Contents</u>
1 . . . . .	Nelson Denny Answer Sheet
2 . . . . .	Expository Text
3 . . . . .	Interpolated Task and Part I: Cued Free Recall
4 . . . . .	Test Part II: Multiple- Choice Test and Evaluative Questionnaire

The contents of envelope #2 were specifically determined by the treatment condition randomly assigned to each subject.

#### Procedure

Experiment 1. Experiment 1 was conducted approximately one month prior to Experiment 2. This study was used to try out experimental procedures and materials and to assess the reliability of the multiple-choice test and the cued recall test to be used in the posttest of Experiment 2. Particular attention was paid in this study to establishing the

approximate timings necessary for the various tasks.

The experiment took place during normal class time on three successive days. The experiment began with the researcher providing a brief general introduction to the research area that she was currently investigating. Subjects were advised at that time that scores collected would in no way influence their mark in their class.

Packages were distributed in random order. The pre-coded packages were previously separated into eight conditions and randomly collected to maximize the numerical equality of treatment conditions for those who did take part.

The Nelson-Denny Reading Test was administered first using the directions laid down in the examiner's manual. The reading booklets were then handed out and subjects were instructed to remove the answer sheet from envelope #1 and fill in their name or student number. Upon completion of the two tests, subjects were orally briefed on what was about to happen specifically during the experiment. The experimenter emphasized in her commentary that subjects should not continue to another envelope unless instructed to do so. The reading booklets were collected and the subjects were instructed to put their answer sheet back into envelope # 1 and wait for further instructions.

Subjects were then directed to remove the contents from envelope # 2. They were told to read the instructions first (to ensure that those who had the instructional strategy read

it) and then proceed to the textual material. They were told that they could have as long as they needed, but when finished to note the time completed and to place all the material back into envelope # 2. The 'time completed' was written clearly on the chalkboard at the front of the class. Subjects who finished early were asked to wait quietly while the remainder of the class was still working. When all were finished, subjects were instructed to remove only the blue sheet from envelope # 3, entitled, "Demographic Information" and to fill it out. When completed, they were instructed to replace the blue sheet in envelope # 3 and to remove the cued recall sheet. Again they were told that there was no time limit, but to note the time completed at the bottom of the sheet.

Upon completion of this task, subjects were informed that they were on the last section. They were told to work on their own time (noting the time for completion of the multiple-choice test). They were instructed to remove the multiple-choice questionnaire and answer sheet from envelope # 4 and when it is completed, to fill out the evaluative questionnaire located on the yellow paper. Subjects were thanked for their participation and were told they could leave as they finished.

## CHAPTER 4

## EXPERIMENT 1

Results and Discussion

The purpose of the study was to determine the effectiveness of the combination of a strategy and a graphic organizer and; the organization of text (congruent and incongruent) on adult learning of expository instructional text.

Analysis of covariance. Analysis of covariance was used to account for variation due to individual differences in reading ability. The Nelson-Denny Reading Test was used for this purpose. Prior to conducting the analysis, a check was made of the assumption of homogeneous regression coefficients within treatment conditions (Huitema, 1980). This test ascertains whether an interaction has occurred between levels of the independent variable and the interval level measurement scale of the predictor. Violation of this assumption would invalidate the adjusted means which are produced as an outcome of the analysis. This preliminary test indicated that the assumption of equal regression slopes was tenable (see Table 1), thus permitting the use of analysis of covariance. The dependent variable for this analysis was the cued recall test. The first independent variable, Strategy, consisted of two levels: with strategy and without strategy. The second independent variable was textual organization which consisted of two levels: congruent organization and

Table 1

Test of Parallelism:  
Regression of Reading Ability on Cued Recall  
Across Treatment Level

Experiment 1

Source	SS	df	MS	F	<u>p</u>
Within & Residual	3430.37	82	42.83		
Nelson-Denny	458.63	1	458.63	10.96	.001
Organization	.09	1	.09	.002	.963
Strategy	265.94	1	265.94	6.36	.014
Organ x Strat	3.10	1	3.10	.074	.786
N.D. x Organ x Str	57.45	1	57.45	1.37	.245

N = 87



incongruent organization. The analysis of covariance was conducted to test the significance of the main effects, strategy and organization and their interaction. Neither the interaction nor the main effect for organization were statistically significant (see Table 2). However, strategy was significant, as predicted,  $F(1,93)=6.33$ ,  $p = .014$ . The observed and adjusted means and standard deviations of the cued recall test and the means and standard deviations of the Nelson-Denny Test are given in Table 3.

Evaluative questionnaire. Follow-up analysis was conducted using an analysis of variance on the evaluative questionnaire. Twenty-one cases were invalid due to missing data, and therefore were eliminated. In total, 61 cases were analyzed. The results of the analysis of variance disclosed (see Table 4) that there was no significant interaction between strategy and organization and no main effect for organization. However, there was a significant main effect for strategy, in favour of the strategy condition,  $F(1,61)=11.98$ ,  $p = .001$ .

One purpose of the present study was to determine whether a strategy and a graphic organizer serve to counteract the effects of poor text organization. For example, if the organizer and strategy served as a context for integrating and unifying the incoming material (as an assimilative tool, Mayer, 1978), then one would predict that the graphic organizer and strategy would have no positive

Table 2  
 Analysis of Covariance  
 Experiment 1

Source	SS	df	MS	F	p
COVARIATES	458.63	1	458.63	10.91	.001
N. Denny	458.63	1	458.63	10.91	.001
MAIN EFFECTS	266.03	2	133.01	3.17	.047
Organ	.54	1	.54	.01	.910
Strat	265.94	1	265.94	6.33	.014
2-WAY INTERACTION	3.10	1	3.10	.07	.786
Organ x Strat	3.10	1	3.10	.07	.786
EXPLAINED	727.77	4	181.94	4.33	.003
RESIDUAL	3487.82	83	42.02		
TOTAL	4215.59	87	48.46		

N = 87

Table 3

Observed and Adjusted Means and  
Standard Deviations

## Experiment 1

	CONGRUENT			INCONGRUENT		
	$\bar{X}$	sd	$\bar{X}$ adj	$\bar{X}$	sd	$\bar{X}$ adj
<u>With Strategy</u>	12.13	7.99	12.06	11.62	9.01	11.53
<u>Without Strategy</u>	8.58	5.17	8.22	7.85	3.80	8.45

Table 4  
 Analysis of Variance of  
 Evaluative Questionnaire  
 Experiment 1

Source	SS	df	MS	F	<u>p</u>
<b>MAIN EFFECTS</b>	<b>541.657</b>	<b>2</b>	<b>270.829</b>	<b>6.006</b>	<b>.004</b>
Organ	1.512	1	1.512	.034	.855
Strat	540.145	1	540.145	11.979	.001
<b>2-WAY INTERACTION</b>	<b>27.013</b>	<b>1</b>	<b>27.013</b>	<b>.599</b>	<b>.442</b>
Organ x Strat	27.013	1	27.013	.599	.442
<b>EXPLAINED</b>	<b>568.670</b>	<b>3</b>	<b>189.557</b>	<b>4.204</b>	<b>.009</b>
<b>RESIDUAL</b>	<b>2615.217</b>	<b>58</b>	<b>45.090</b>		
<b>TOTAL</b>	<b>3183.887</b>	<b>61</b>	<b>52.195</b>		

N = 61

effect for logically organized text, rather, they would have an effect for randomly organized text, resulting an interaction between organization and strategy.

The results (see Table 2) do not coincide with Mayer's (1978) findings that the facilitative effects of a graphic organizer are most prominent with randomly organized text, mainly because Mayer was testing the effects of including an advance organizer versus not including it. This study concerned itself with the inclusion of a strategy which was different from Mayer's (1978) advance organizer research. It was however, presumed that the strategy would only "encourage emphasis on selecting conceptual information that fit in with the context (selection)" (Mayer, 1980, p. 782). Thus, similar results could be expected with Mayer's (1978) findings on randomly organized text. Perhaps the uncued format of the textual material in this experiment resulted in poor processing of the text so that the graphic organizer and strategy added no additional facilitation to either of the text treatment conditions.

Another purpose of this study was to investigate whether the strategy in combination with the graphic organizer had a facilitative effect on learning from instructional text. As expected, the subjects in the 'with strategy' condition scored significantly higher than those in the 'no strategy' condition. These results support Mayer's (1978) assimilation encoding theory, which in effect states that the organizer

encourages the learner to actively integrate the new information and Winn's (Note 13) notion of instructional strategies, which inform the learner (through direct instructions) as to a likely processing strategy to use while studying the text. This main effect for strategy supports the results of previous studies (Winn, Note 9; Mayer, 1979; Dean & Kulhavy, 1981). As in those studies, a reasonable conclusion is that a strategy can help the learner to integrate features of the incoming information (i.e. the graphic organizer) that they receive, to facilitate acquisition, retention and retrieval of the incoming information.

A similar pattern of results was obtained on the evaluative questionnaire, which measured subjects' attitudes or opinions as to the effectiveness of the strategy instructions across the design of the experiment. The self-report ratings indicated that the use of the graphic organizer did effect the groups as expected. Learners reported that they were able to integrate the graphic organizer when they were instructed to do so by the strategy.

One problem with this study was that the format of the textual material was unlike that found in most instructional texts; the absence of typographical and spatial cues. As well, it is conceivable that the strategy effect (similar to instructions) was due to cueing the learners as to the importance of the graphic organizer instead of providing the

learner with an effective strategy for using the graphic organizer. Therefore, a second experiment was conducted to test the effects of the strategy and the effects of the strategy and graphic organizer with more 'text-like' instructional materials. In addition, the no strategy group's introductory statement (i.e. similar in length and format to the organizer strategy statement) was modified to include a statement which was expected to provide a cueing function. In the subsequent experiment, no differences between strategy and no strategy conditions would indicate that the strategy effect observed in Experiment 1 was due primarily to cueing.

CHAPTER 5  
EXPERIMENT 2

Method

Sample

The experimental sample consisted of 158 subjects, enrolled in a first year hotel/business management course at Algonquin College in Ottawa, Ontario. Subjects consisted of English speaking males and females ranging in age from 18-24 years. Participation in the experiment was on a voluntary basis.

Experimental Design

The design of the experiment constituted a 2x2x2 factorial with three between group variables. The independent variables were Strategy (with strategy vs. without strategy), Textual Cueing (cueing vs. no cueing) and Organization (congruent and incongruent). The dependent measures consisted of a cued recall and multiple-choice test to assess student performance in terms of recall and comprehension, as well as a self-report inventory.

Instrumentation

Three instruments served as dependent measures in this study. A description of the development of these instruments follows.

Multiple-choice. The test of 25 questions consisted of a main stem with four options including only one correct choice. The 25 questions were chosen from the pool of 30



questions in experiment #1, based on indexes of discrimination and difficulty. The standardized alpha for the multiple-choice test was .61.

Cued recall. This test, administered before the multiple-choice test, consisted of 11 items. These questions were worded in such a way that subjects were required to write a specific factual answer (e.g. List two disadvantages of preparing a budget).

Scoring of the recall protocols was carried out by the main experimenter. Two other judges were contracted to score the recall protocols without the aid of the experimenter. The interrater reliability for the cued recall test for the two judges was .95 and the estimate of a single judge's reliability was .90. The reliability coefficient for the evaluative questionnaire was also calculated. The standardized item alpha was .84.

Nelson-Denny reading test (Nelson & Denny, 1973).

(Refer to this section in Chapter 3, Experiment 1).

Materials

The 6 1/2 page text was a chapter entitled "Budgeting", extracted from the textbook Hospitality Management Accounting (Michael Coltman, 1978). It was typed double-spaced on seven 8 1/2" x 11" pages of white paper. Information for the text content addressed the kinds of budgets, the purposes of budgeting, who prepares the budget and when, the advantages and disadvantages of budgeting and the budget cycle. Two

types of text were created; the uncued text (used in experiment 1) and a cued text with exactly the same content and of the same length as the uncued text. The cued text was a restructured version of the uncued text which employed typographical cues such as indentation, spacing, point form, underlining, headings, etc., (see Appendix B). These two types of texts were then placed in two additional conditions; congruent and incongruent organization (i.e. organized congruently and incongruently with the organizer). The incongruent text was formulated by randomly disordering the sections of the congruent text.

Instructional strategy. The instructional strategy was the same as in experiment 1, with one exception. It was felt from the results of experiment 1 that the subjects in the strategy condition were given in addition to the strategy, a cue as to the importance of the graphic organizer. Therefore, to remedy this situation a cue was also added to the placebo condition, informing the no strategy conditions of the importance of the graphic organizer (see Appendix B). It was hoped that differences that arose between the effects of these two conditions (strategy with cueing and placebo with cueing) would then be based on the effectiveness of the strategy and not the cueing.

Graphic organizer. (Refer to this section in Chapter 3, Experiment 1).

Evaluative questionnaire. (Refer to this section in Chapter 3, Experiment 1).

Interpolated task. (Refer to this section in Chapter 3, Experiment 1).

#### Procedure

The experiment took place during normal class time (approximately 2 hours), for one class period. The procedure followed the same pattern of events as described in experiment #1, with one exception; the time completed was not asked for. The average times for completion were 20 minutes for the textual material and 12 minutes for the cued recall and for the multiple-choice test, totalling 24 minutes for the testing period. After completing the tests, subjects completed the evaluative questionnaire and left as soon as they were finished.

## CHAPTER 6

## EXPERIMENT 2

Results and DiscussionResults

The purpose of the study was to determine the effectiveness of the combination of a strategy and a graphic organizer and typographical cueing on adult processing of expository text. A secondary purpose was to test the effect of textual organization (congruent and incongruent) with the strategy and graphic organizer.

Analysis of covariance. Prior to using analysis of covariance, a check was made of the assumption of homogeneous regression coefficients. The preliminary test on both the multiple-choice and cued recall tests indicated that the assumption of equal regression slopes was not tenable (see Table 5 & 6); that is the regression lines for the treatment conditions were not parallel. This suggested that an aptitude x treatment interaction existed in the data. The test of homogeneity of regression indicated  $F(1,147) = 5.165, p < .05$  for the cued recall and  $F(1,143) = 5.179, p < .05$  for the multiple-choice. Cronbach and Snow (1977) argue that when such a condition occurs, the interaction should be investigated using either step-wise

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1 Degrees of freedom differ for these tests of homogeneity of regression because the multiple-choice test included all possible main effects and interactions while the cued recall test did not (n is 158 in both cases).

Table 5  
 Test of Parallelism for Nelson-Denny  
 and Cued Recall

## Experiment 2

Source	SS	df	MS	F	p
Within & Residual	10473.48	147	71.25		
Nelson-Denny	1889.57	1	1889.57	26.52	.001
Organ	7.30	1	7.30	.10	.75
Strat	48.24	1	48.24	.68	.41
Cueing	1386.43	1	1386.43	19.46	.002
Organ x Strat	9.12	1	9.12	.12	.72
Organ x Cueing	33.17	1	33.17	.46	.50
Strat x Cueing	6.46	1	6.46	.09	.76
ND x Strat x Organ	137.08	1	137.08	1.92	.17
ND x Organ x Cueing	.83	1	.83	.01	.91
ND x Strat x Cueing	369.39	1	369.39	5.18	.02
ND x Organ x Strat x Cue	46.75	1	46.75	.66	.42

N = 159

Table 6  
 Test of Parallelism for Nelson-Denny  
 and Multiple-Choice  
 Experiment 2

Source	SS	df	MS	F	p
Within & Residual	1370.67	143	9.59		
Nelson-Denny	424.04	1	424.04	44.24	.001
Organ	.23	1	.23	.02	.87
Strat	13.64	1	13.64	1.42	.23
Cueing	38.19	1	38.19	3.98	.04
Organ x Strat	18.79	1	18.79	1.96	.16
Organ x Cueing	.21	1	.21	.02	.88
Strat x Cueing	.75	1	.75	.08	.78
Nelson-Denny x Organ	10.52	1	10.52	1.09	.30
Nelson-Denny x Strat	17.42	1	17.42	1.81	.18
Nelson-Denny x Cueing	46.83	1	46.83	4.88	.03
ND x Organ x Cueing	4.85	1	4.85	.51	.48
ND x Organ x Strat	.005	1	.005	.00	.98
ND x Strat x Cueing	49.65	1	49.65	5.18	.02
ND x Organ x Strat x Cue	7.11	1	7.11	.74	.39

N = 159

regression or post hoc blocking, because of the probability of meaningful interpretation. It was determined that blocking of the Nelson-Denny test was the most appropriate means of determining the locus of the interaction.

Therefore, three levels were formed by dividing the sample into thirds to the nearest whole number on the Nelson-Denny test, designating these low, medium and high. In addition to the blocking, it was evident (see Tables 5 & 6) that the organization variable and its interaction with other variables accounted for virtually no variance. Therefore, for simplicity sake, the design was collapsed across it. The means and standard deviations for the cued recall and multiple-choice tests are given in Tables 7 and 8.

Since post hoc blocking on the design of the experiment cannot be assumed to produce equal variance in all cells of the newly formed design, a test of homogeneity of variance was deemed appropriate before the design was actually analyzed. Two tests were performed; F max (Kirk, 1968) in which largest and smallest variances within the design

$F \max = \frac{\hat{\sigma}_{\text{largest}}^2}{\hat{\sigma}_{\text{smallest}}^2}$  are compared and a test designed by

Cochran (1941) in which largest variance within cells is compared with the total variance of all cells,  $C = \frac{\hat{\sigma}_{\text{largest}}^2}{\sum_{j=1}^k \hat{\sigma}_j^2}$

The hypothesis of no significant differences among cell variances is accepted if F or C fail to reach the critical tabled value. Both tests resulted in no significant

differences among cell variances (F max = 3.88, p > .05 and

Table 7  
Means and Standard Deviations  
for Cued Recall

## Experiment 2

	CUED			NOT CUED		
	$\bar{X}$	SD	n	$\bar{X}$	SD	n
LEVEL 1						
Strat	8.50	5.84	14	9.93	7.13	14
No Strat	12.20	5.51	10	5.40	5.78	10
LEVEL 2						
Strat	18.87	9.81	15	11.00	6.89	18
No Strat	17.54	10.06	13	11.00	6.50	16
LEVEL 3						
Strat	30.00	10.14	10	15.33	7.48	9
No Strat	19.18	9.92	17	15.77	6.33	13



Table 8  
Means and Standard Deviations  
for Multiple-Choice  
Experiment 2

	CUED			NOT CUED		
	$\bar{X}$	SD	n	$\bar{X}$	SD	n
LEVEL 1						
Strat	9.43	3.96	14	10.14	2.18	14
No Strat	10.00	2.21	10	8.20	2.35	10
LEVEL 2						
Strat	12.80	3.45	15	11.22	2.67	18
No Strat	12.77	4.21	13	11.88	1.96	16
LEVEL 3						
Strat	16.30	3.34	10	13.33	2.98	9
No Strat	13.29	3.62	17	13.15	3.02	13

$C' = .14, p > .05$ ). It was assumed, based on these results, that the cell variances for the cued recall test across the new blocked design were homogeneous. Likewise, a test of homogeneity of variance for the multiple-choice test produced very similar results ( $F_{max} = 4.60, p > .05$  and  $C = .16, p > .05$ ).

#### Test of Aptitude x Treatment Interaction

As a result of the blocking, the design became a  $3 \times 2 \times 2$ , where all factors were between groups. Reading ability had three levels; high, medium and low. Cueing had two levels; cued and uncued text. Strategy had two levels; with strategy instructions and without strategy instructions. This design applied to both the cued recall and the multiple-choice dependent variables.

Cued recall. The omnibus test of the design produced a significant three-way interaction of level by cueing by strategy, and a main effect for level and a main effect for cueing (see Table 9). There was no significant main effect for strategy. Means and standard deviations for the 12 cells in the design are shown in Tables 7 and 8 and the interaction is graphically represented in Figure 1.

Post hoc analysis of the cued recall data for each level (see Figure 1) revealed that there was no significant effect for strategy verses no strategy at cueing for level 1. There was a significant effect for cueing verses no cueing at level 2, and for strategy verses no strategy at cueing for level 3.

Table 9  
Analysis of Covariance  
3-Way Main Hypothesis for Cued Recall

Experiment 2

Source	SS	df	MS	F	p	w
MAIN EFFECTS	4266.68	4	1066.67	17.22	.001	
Strat	161.94	1	161.94	2.62	.108	
Cueing	1318.37	1	1318.37	21.28	.001	.09
Level	2779.92	2	1389.96	22.43	.001	.19
2-WAY INTERACTIONS	482.30	5	96.46	1.56	.176	
Strat x Cueing	19.05	1	19.05	.31	.580	
Strat x Level	206.96	2	103.48	1.67	.192	
Cueing x Level	267.31	2	133.65	2.16	.119	
3-WAY INTERACTIONS	550.68	2	275.34	4.44	.013	
Strat x Cue x Lev	550.68	2	275.34	4.44	.013	.03
EXPLAINED	5299.65	11	481.79	7.78	.001	.37
RESIDUAL	9108.17	147	61.96			
TOTAL	14407.82	158	91.19			

N = 159

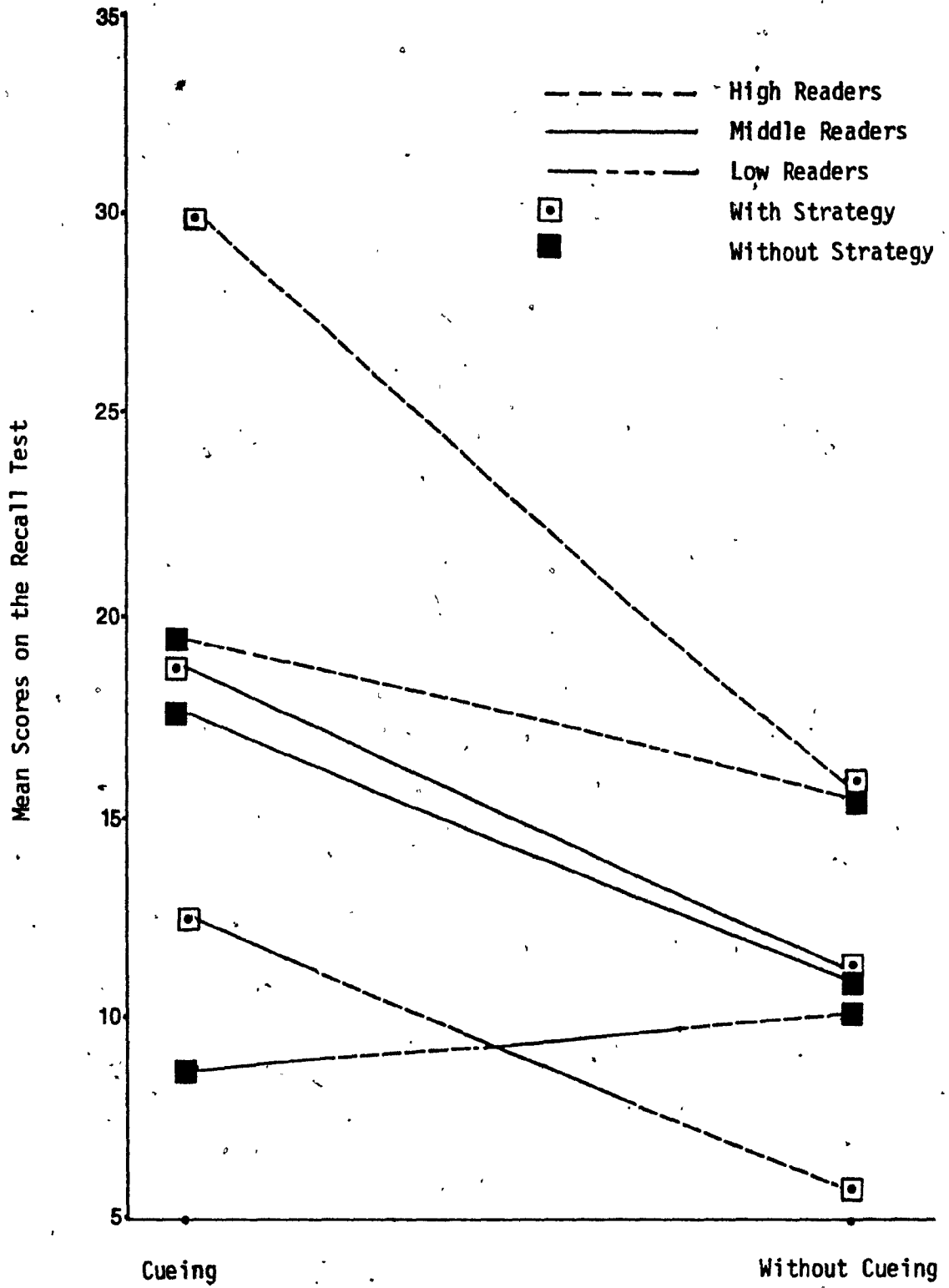


Figure 1: Three way interaction of reading level x textual cueing x strategy conditions

Multiple-choice. Analysis of variance was conducted to test the significance of the main effects, cueing and level and their interaction. The results of the analysis of variance on the multiple-choice test disclosed that there was a main effect for level and cueing (see Table 10). There were no significant interactions. The means and standard deviations for each of the levels is reported in Table 8.

Evaluative questionnaire. Follow-up analysis was conducted using an analysis of variance on the evaluative questionnaire. Seven cases were invalid due to missing data, and therefore eliminated. In total 152 cases were analyzed. The results of the analysis of variance disclosed (see Table 11) that there was no significant interaction between strategy, organization and cueing and no main effect for organization or cueing. However, there was a significant main effect for strategy, in favour of the strategy condition,  $F(1,151) = 6.05, p = .01$ .

### Discussion

The hypothesis that learners would learn more from an instructional text when provided with a strategy, graphic organizer and typographical cueing aids than from no strategy and no typographical cueing aids received some support. A significant aptitude-treatment interaction showing superior performance of high level learners in the with cueing with strategy condition was unexpected. These results suggest

that high level learners benefit more from 'external schema modification' (i.e. strategy and cueing) than middle or low level learners. Essentially, external schema modification, reports Bovy (1981), "provides a link between the instruction and the cognitive structure of the learner" (p.210).

Further, typographical cueing alone seemed to be sufficient for middle level learners to improve their performance, but not sufficient for low level learners. Since there was a significant difference between strategy verses no strategy at cueing for high level learners, it seems that strategy instructions to utilize a graphic organizer in conjunction with typographical and spatial cues was successful in improving the performance of only high level ability learners. This could be because high level learners can "successfully apply more previously acquired cognitive skills to solve specific learning tasks" than low or middle level learners. "It is presumed," reports Bovy (1981, p.206) "that the actual stages of information processing during instruction and learning vary considerably with learning task and learner". It may be that learners of middle and low level ability did not have the adequate cognitive processing skills to manipulate the graphic organizer to increase their retention of the to-be-learned material. In addition, it seems that low level learners, who have poor or little 'internal idiosyncratic processing methods' (Bovy, 1981, p. 206), do not benefit from instructional strategies,

whether they are 'detached' and/or 'embedded' strategies.

The hypothesis that the presence of typographical and spatial cueing would improve the retention of expository text received support from high and middle level learners.

Typographical cueing was unquestionably the most active variable in this experiment next to reading level. The results of this study and previous studies (Fraser & Swartz, 1979; Shebilske & Rotondo, 1981; Pepper, 1981) support the text design hypothesis, which states that the way in which a text is perceived by the reader is just as important as the information contained in it (Shebilske & Rotondo, 1981). As with the strategy, low level learners do not appear to benefit from the use of typographical and spatial cueing. This as well, may be due to inadequate cognitive processing skills, enabling the learner to synthesize the incoming material.

The final hypothesis which stated that the combination of the strategy and the graphic organizer might serve to counteract the effects of poorly organized textual material (congruent and incongruent) was not supported. The lack of a significant interaction for organization (congruent and incongruent) and strategy could be explained by the 'type' of textual material used. In other words, the chunks of text that were randomly ordered into the incongruent condition were large enough to stand alone as individualized units. Therefore, it is presumed that because the text had no

sequential orientation to it, randomization of the text had virtually no effect on the learner. This is evidenced by the lack of interaction and effect the variable organization had on any of the other variables.



Table 10  
 Analysis of Variance  
 3-Way Main Hypothesis for Multiple-Choice  
 Experiment 2

Source	SS	df	MS	F	p
MAIN EFFECTS	519.13	4	129.78	13.57	.001
Strat	13.06	1	13.06	1.37	.244
Cueing	36.22	1	36.22	3.79	.054
Level	474.70	2	237.35	24.82	.001
2 WAY-INTERACTIONS	36.16	5	7.23	.76	.583
Strat x Cueing	1.22	1	1.22	.13	.721
Strat x Level	27.15	2	13.58	1.42	.245
Cueing x Level	7.62	2	3.81	.39	.672
3-WAY INTERACTIONS	42.03	2	21.02	2.20	.115
Strat x Cue x Lev	42.03	2	21.02	2.20	.115
EXPLAINED	597.33	11	54.30	5.68	.001
RESIDUAL	1405.63	147	9.56		
TOTAL	2002.96	158	12.68		

N = 159

Table 11  
 Analysis of Variance  
 for Evaluative Questionnaire

## Experiment 2

Source	SS	df	MS	F	p
MAIN EFFECTS	554.12	3	184.71	2.98	.034
Organ	175.80	1	175.71	2.84	.094
Strat	374.83	1	374.83	6.05	.015
Cueing	9.97	1	9.97	.16	.689
2-WAY INTERACTIONS	225.94	3	75.31	1.22	.307
Organ x Strat	14.44	1	14.44	.23	.630
Organ x Cueing	178.72	1	178.72	2.88	.092
Strat x Cueing	31.65	1	31.65	.51	.476
3-WAY INTERACTIONS	10.86	1	10.86	.18	.676
Organ x Strat x Cue	10.86	1	10.86	.18	.676
EXPLAINED	790.97	7	112.99	1.82	.087
RESIDUAL	8929.13	144	62.00		
TOTAL	9720.09	151	64.37		

N = 152

## CHAPTER 7

General Discussion

The results of the two experiments lead to the following conclusions: Strategy instructions which inform the learner of a likely processing strategy to use (Winn, Note 13) combined with a graphic organizer and typographical cueing aids can facilitate the recall of textual information. The results of these experiments confirm what other researchers have reported; that retention and retrieval of instructional content is not merely a function of either the text or the reader, but in fact may be due to strategies (i.e. prompting) which exert interactive effects on text and the reader simultaneously. The outcome of such effects is found in the learner's performance (Alvermann, 1981; Reder, 1980; Bouy, 1981; Readence et al., 1981; Brody, 1981; Jonassen, 1980; Winn, Notes 10 & 12). The type of strategy prompting used in this study appears to help good readers achieve more successful retention without unduly handicapping middle and low level readers. The results of experiment 2 also confirm that by incorporating various typographical cueing aids into the body of instructional text retention can be facilitated, a proposition that has been frequently studied (Fräse & Swartz, 1979; Shebilske & Rotondo, 1981; Pepper, 1981). It is not particularly surprising to find that typographical cueing was the most active variable (next to reading ability) in experiment 2. This may be explained by the fact that

typographical spatial and cueing aids are the most commonly encountered forms of organizing structure for textual materials. The most striking result of this study has to do with the way learner ability interacted with both the strategy and cueing. In the second experiment, the level by strategy by cueing interaction was significant for all levels. However, post hoc analysis revealed that high ability readers profitted significantly from the combination of strategy prompting and cueing. This suggests that high level ability learners can capitalize on their aptitudinal strengths when they are provided with strategies to improve their retention of textual information. The strategies used in this study (an instructional or directional strategy and typographical cueing), worked simultaneously to increase the learners' recall of the information presented. The failure of low level learners in the "with strategy with cueing" condition to score better on the dependent measures than learners in the "without strategy without cueing" condition was unexpected. This result seemed to contradict Bovy's (1981) suggestion, that low level learners require more external support (i.e. strategies) from the instructional system than high level learners. Because high level learners have developed adequate 'internal idiosyncratic processing methods', it is argued, they should exhibit a decrease in performance when directed to use a specific processing strategy (Bovy, 1981). The differences found in this study,

with low level readers, perhaps do reflect Bovy's suggestion "that the actual stages of information processing during instruction and learning vary considerably with learning task and learner . . . so that the success or failure of individual learners depends to a great extent on whether they can successfully apply previously acquired skills to solve specific learning tasks" (p.206).

Visual processing skills may be one of many previously acquired skills learners possess. It may be that high level learners have more effective skills to process visual information. One study by Thorndyke and Stasz (1980) on training in visual strategies, revealed that high visual learners were better able to use the strategies. However, their level variable, unlike that in the present study, was verbal ability rather than reading ability. In another study, Sternberg and Weil (1980) looked at training in the use of visual learning strategies. Their results produced an aptitude-treatment interaction between verbal and spatial abilities, types of strategies used and the speed with which the solution to the problems were found. They found that spatial subjects tended to use the visualization strategy most effectively.

Another possible explanation for the aptitude-treatment interaction in this study, is provided in a study by Winn (1981). The results of his study suggests that high verbal learners process spatial information more effeciently than

low verbal learners. He taught subjects to identify and classify insects at different stages of metamorphosis by highlighting criterial attributes of the animals on slides accompanied by a taped narration identifying the highlighted areas. Results suggested that high level learners can process embedded strategies more effectively. Following this speculation, it may be that the typographical and spatial cueing aids incorporated into the textual materials for this study acted as 'embedded strategies', thereby allowing the high level learners to improve their performance. As well, one might consider the possible effects of prior knowledge. It is conceivable that performance on the posttest could be related to the learners having already been familiar with the content. If this is the case, then the organizer did not merely trigger the learners' prior knowledge, as Mayer's (1979) assimilation encoding theory would predict (see p. 25) but was in fact a reinforcement of material already learned instead of an 'assimilative tool'.

Another explanation for the results found in this study is the redundancy of the information presented in the graphic organizer and the textual material. Winn (1980) reports that low level learners have greater difficulty handling redundant and information-laden presentations than high level learners. This interpretation may reflect the poor performance of the low level learners in the "with strategy with cueing" condition.

The finding that middle level learners in the cueing condition performed better than those in the no cueing condition suggests that these learners are able to profit from embedded typographical cueing. Why they were unable to process the strategy with the graphic organizer, may be due to the fact that they lacked the relevant cognitive strategies that presumably were present in the high level learners, enabling them to capitalize on their learning capabilities. "It appears that once they know what is expected, high ability learners bring to bear relevant learning strategies in which, by virtue of their high ability, they are skilled. Low ability learners, lacking skill in relevant strategies are unable to do this" (Winn, Note 9, p. 25).

In contrast to the findings of this study and Winn's (Note 9), other researchers (Dean & Kulhavy, 1981; Mayer, 1980) have found facilitative effects for low or middle level learners when they are given a strategy, but not for high level learners, as predicted by Bovy (1981). An explanation can be taken from Dean and Kulhavy's (1981) study on the potential of maps as an organizational device to influence textual recall. They employed a forced-processing condition which in effect required the learners to process a spatial organizer. Their results indicated that the learners with low verbal scores in the forced-processing condition performed equal to the high verbal learners in the same

treatment condition. It appears that the low verbal ability learners benefited more from the external support provided by the strategy than the high verbal ability learners. In addition to Dean and Kulhavy's study, Mayer (1980) applied various elaboration techniques in learning new technical information. As with Dean and Kulhavy's, Mayer's results indicated that low ability subjects consistently produced a pattern of superior performance in applying learned knowledge to novel problems when they were instructed in elaboration techniques. Therefore, the studies of Dean and Kulhavy (1981) and Mayer (1980) support Bovy's prediction for the facilitative effects of instructionally directed metacognitive methods for low level learners. The current study failed to support this contention.

It is clear from this discussion that more questions were generated than were answered by this study in relation to prior research. It must be remembered, however, that the current research is not a replication of any of the previously mentioned studies, and as such stands on its own merit. It is probable that an extremely complex relationship exists among task variables (nature of the learning), the ability of students, material variables and conditions which prompt, direct or require students to process information in a particular way. The conflicting findings presented here and earlier in the Review of Literature suggest that it may be too early to express global



explanations involving these variables. Clearly, more research is indicated.

#### Implications and Conclusions

In summary, this study has suggested the apparent usefulness that a strategy and typographical cueing can have on adult processing of expository text. It is suggested that this study be replicated, but with some modifications. These modifications would include blocking for aptitude before testing and selecting textual materials in which the content is sequential in nature (i.e. learner must learn A before B etc.).

Further research could be conducted to teach more effective processing strategies to students and to instruct them in their use (Rigney, 1978; Herber, 1978). One such strategy, suggested by Winn and Holliday (1982), is to teach students in some form of 'diagram literacy'. This, they report, would probably help students who are less familiar with diagrams. Another suggested approach, is to teach students to isolate those aspects of the text that are important (Reder, 1980). Whatever approach is taken, however, we as instructional designers and educational technologists, must continually direct our attention to providing alternative strategies for learners to process information more efficiently. Which strategies learners of various aptitude levels and grade levels possess or are capable of possessing remains unanswered. More research

needs to be conducted within this paradigm, to instruct learners how to apply their skills to materials that are designed for their particular level of ability. It is suggested that studies similar to this one be pursued at an elementary level (similar to Boothby & Alvermann, 1983), allowing time for students to actually learn a strategy for comprehending complex textual materials. Delayed testing would also be an asset to such designs. Due to administrative difficulties, a delayed test of retention was not conducted here, and so the long-term effects of these manipulations are not known.

In conclusion, this study along with those included in this paper, have shed some light on some of the key issues that educational technologists, instructional designers and educators have been concerned with; namely the need for the development of better textbooks and instructional materials to facilitate learning, and most importantly, an awareness of the cognitive strategies that a learner brings to and uses during the learning process. Despite the number of textbooks available that do employ typographical and spatial cueing techniques, one can still find numerous texts used within our educational institutions which are clearly written by content experts who have a clear understanding of the content but not of the learner. As Pepper (1981) points out, "texts need to be written for the student at the student's level" (p. 268). A team effort is needed in the publishing industry (Waller,

1982; Pepper, 1981; Reigeluth & Sari, 1980), with the educational technologist and/or the instructional designer working together with the subject matter expert. Saleability of the text and its attractiveness should not be the sole criterion that publishers should apply when designing instructional textbooks. One cannot deny the role that this aspect serves in the publishing industry, but what one can begin to do and/or continue to do (as there are now some excellent textbooks available) is to encourage publishers and textbook writers to work together with educational technologists and instructional designers to continually update and improve the instructional quality of the textbooks on the market today. The importance of formative and summative evaluation cannot be overlooked. As Connors (in Moss, 1983), of the Open University's Institute of Educational Technology reports, "evaluation and improvement are the driving force for the design of self-instructional materials" (p. 116). "Teamwork between professionals with different training and responsibilities", reports Moss (1983), "relies on mutual respect and a carefully planned schedule: formative evaluation can be built into such a schedule if it is accepted as an essential contribution to effective design from the outset of a team's cooperation" (p. 117).

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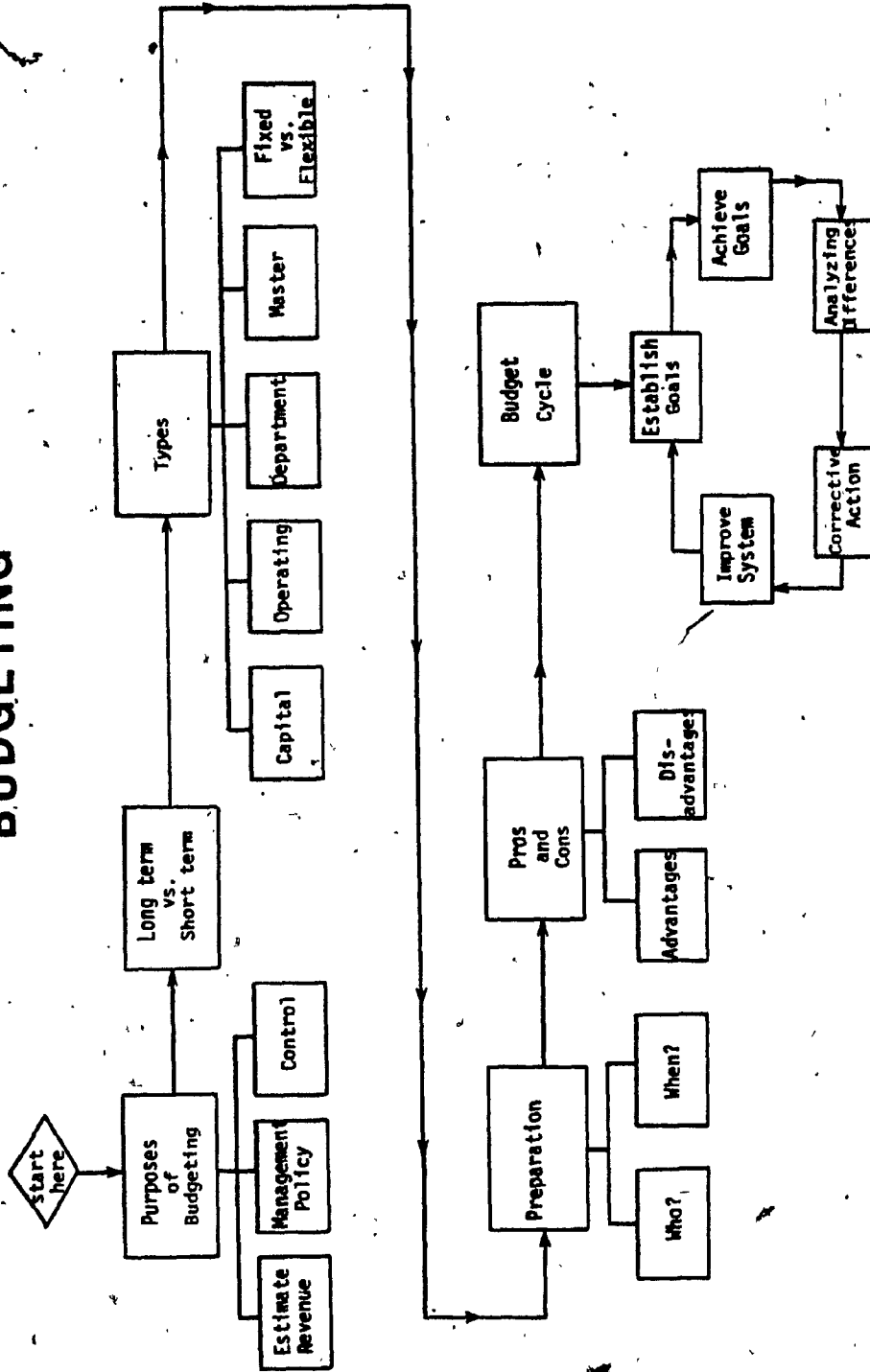
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## APPENDIX A

- I. . . . . Graphic Organizer
- IIa. . . . . Strategy
- IIb. . . . . No Strategy
- III. . . . . Uncued Congruent Text
- IV . . . . . Uncued Incongruent Text
- V. . . . . Demographic Information
- VI . . . . . Cued Free Recall
- VII. . . . . Multiple-choice Test A & B
- VIII. . . . . Multiple-choice Answer Sheet
- IX . . . . . Evaluative Questionnaire

# BUDGETING



## READ THIS FIRST

On the next page, you will find a graphic organizer (blue sheet) that is designed to help you remember the text you are about to read. Each large box represents a major topic within the text. The arrowed line joining these large boxes shows how these topics might best be organized. The smaller boxes underneath the large boxes show the subtopics of the text. The following tips will help you use the organizer more effectively to remember the contents of the text.

Before you read: Familiarize yourself with the organizer. Trace the arrowed line through each large box, reading the topics and subtopics as you go. Notice the organization of the topics. The topics are more general at first and become more specific later on. By the time you are ready to read, you should have a very clear picture of the organization in your mind.

As you read: You may keep the organizer beside you as you read (it is not attached). You will find that each topic from the organizer is included in the text. When you have identified a topic in the text, find its location on the organizer. Try to remember the specific details in the text as clustered around the appropriate organizer topic.

After you read: Later, you will be asked to remember what you have read. Try to keep the image of the organizer in your mind as you answer the questions. Try to locate each question on your "mental organizer". This will help you recall the correct answer.

## READ THIS FIRST

The term hospitality embraces not only hotels, motels, and restaurants, but also resorts, clubs, cocktail bars, industrial and institutional feeding operations and many similar and related businesses.

Most, if not all, of these businesses have been affected over the past several years by the worldwide growth in tourism. As governments of virtually all countries realized the economic benefits to them of tourism, they encouraged and actively promoted it. As tourism grew so did the demand for hotel rooms, restaurants, bars, and related facilities and services.

With the growth in tourism came an expansion in the scale of hospitality industry operations. This did not only occur at the local and national level, for many organizations in the hospitality industry are now multi-national corporations, operating around the world. With the growth in sales, the well-recognized inflationary trend has been a problem in the hospitality industry no less than in any other.

For these and other reasons the industry has had to become increasingly profit and cost conscious, paying much more attention than perhaps it previously did, not only to maximizing sales, but also minimizing costs to maintain traditional profit levels. It has had to adopt techniques of control that other industries have been using successfully for many years, and devise other controls of its own because of the industry's uniqueness.

Budgeting is planning. In order to make meaningful decisions about the future, a manager must look ahead. One way to look ahead is to prepare budgets or forecasts. Budgets are not necessarily always expressed in monetary terms. They could involve number of customers to be served, number of rooms to be occupied, number of employees required, or some other unit as opposed to dollars. The purposes of budgeting are:

1. To provide organized estimates of future revenues, expenses, manpower requirements, or equipment needs, broken down by time period and/or department.
2. To provide a coordinated management policy both long-term and short-term, expressed primarily in accounting terms.
3. To provide a method of control so that actual results can be evaluated against budget plans and adjustments can be made. (if necessary)

Budgets can generally be considered to be either long term or short term. A long term, or strategic budget would be anywhere from one year to five years ahead. Such a budget concerns the major plans for the organization (expansion, creation of a new market, financing, and other related matters). From such long term plans evolve the policies concerning the day-to-day operations of the business, and thus the short term budgets.

Short term budgets could be for a day, a week, a quarter, or a year, or for any period less than a year. Such budgets involve middle management in using its resources to meet the objectives of the long term plans.

Various terms are used to define various types of budgets. Some of these terms, and how they relate to the hospitality industry, are described.

The capital budget relates to items that appear on the balance sheet. A three month cash budget for a restaurant would be a capital budget. A five year replacement schedule for hotel room furnishings would also be a capital budget.

Operating budgets concern the ongoing projections of revenue and expense items, or items that affect the income statement. For example, a forecast of sales for a restaurant for a month would be an operating budget. Similarly, in a multidepartment hotel, the forecast of total payroll expenses for the year would be an operating budget.



Department budgets would only be of concern to a restaurant complex (with a dining room, a bar, and a banquet area) where departmental income statements are prepared, or to a hotel that, by design, has a number of departments. A department budget would therefore be for specific departments and show the forecast sales, less operating expenses for that department. Generally such department budgets are prepared monthly, although they could be prepared for up to a year, month by month.

A master budget is the most comprehensive of all budgets. Generally a master budget is prepared for a year's period and would include a balance sheet for a year hence, and all the departmental income and expense statements for the next year's period.

A fixed budget is one that is based on a certain level of activity or sales. Expense estimates are based on this level of sales. No attempt is made to introduce greater or lesser levels of sales revenue, and thus different expense amounts in the budget. The disadvantage of such a budget is that, if the actual sales level differs from budgeted sales level, because there had been no plan covering this possibility, expenses can only then be adjusted in the short-run by guesswork. For example, if the operating costs (such as payroll, supplies, linen, laundry) for the rooms department are based on 70% occupancy and the actual occupancy is dropped to 60%, it would be difficult for the rooms department manager to know what the new payroll level should be, and similarly with the other expenses.

On the other hand, a flexible (or variable) budget would be prepared based on several levels of activity. In our rooms department sales could be forecast for 60 percent, 70 percent, and 80 percent occupancy levels (or as many levels as are appropriate). As the actual year progresses it can be determined at which level the operation is best going to fit, and the appropriate expense levels will have already been determined for this level. In other words, adjustment is easier. Although there are three fixed budgets within the flexible budget; the main issue is that management is prepared to adjust. Even with flexible budgeting it is possible for a particular expense item to remain fixed. A budget is prepared based on levels of revenue and expenses are calculated based on each different sales levels. A really flexible budget would show expenses that are truly variable with sales as a percentage of those sales, and fixed costs as a dollar amount.

In a small owner-operated restaurant or motel, the owner would prepare the budget. If it were a formal budget, the help of an accountant might be useful.

In a larger organization, a great many individuals might be involved in budget preparation. In such organizations budgets are prepared from the bottom up. At the very least, the department heads or managers must be involved. If their subsequent performance is to be evaluated on the plans included in the budget, then they should be involved in preparing their own departmental budgets. They in turn might well discuss the budget figures with employees within their own departments.

Above the department heads would be a budget committee. Such a committee is required for overall coordination of the budget to ensure that the final budget package is meaningful. The budget committee must ensure that the food breakfast sales are not based on an occupancy that differs from the rooms department figure.

The formal preparation of the budget is a function of the accounting department. The organization's comptroller would probably be a member of the budget committee, and his task is to prepare final budget information for submission to the general manager for approval.

Long-range budgets for up to five years forward are generally prepared annually by top-level management. They may or may not involve department managers. Each year such budgets are revised for the next period (up to five years) forward. For coordination the budget committee would be involved.

Short-term budgets are prepared annually, for the most part, with monthly projections. Each month, budgets for the remaining months of the year should be revised to adjust for any changed circumstances. Department managers should be involved in such revisions, as would the budget committee for overall coordination.

Weekly or daily short-range budgets are usually handled internally by the department heads or other supervisory staff. For example, the housekeeper would arrange her maid staffing schedule (which affects the payroll budget) on a daily basis based on the anticipated rooms occupancy day by day.

A number of advantages accrue to an organization that uses a budget planning process.

1. Since the budgeting process involves department heads and possibly other staff within the department, it encourages their participation and thus improves communication and motivation. The operating personnel can better identify with the plans or objectives of the organization.
2. In preparing the budget, those involved are required to consider alternative courses of action. For example, should the advertising budget be spent to promote the organization as a whole, or would better results be obtained if emphasis were placed more on a particular department rather than on another?
3. Budgets outline in advance the revenues to be achieved and the cost involved in achieving these revenues. After each budget period the actual results can be compared with the budget. In other words, a standard for comparison is predetermined, and subsequent self-evaluation by all those involved in the operation is possible.
4. In the case of flexible budgets, the organization as a whole, and each department within it, is prepared for adjustment to any level of activity between minimum and maximum sales, assuming that the departments have been involved in developing their budgets within these sales levels.
5. Budgeting forces those involved to be forward-looking. This is not to suggest that what happened in the past is not important and not to be considered in budget preparation; but from now on only future sales and future costs are important to future plans and profits.

There are several disadvantages to the budgeting process which should be considered:

1. The time and cost to prepare budgets can be considerable. Usually, the larger the organization the larger is the amount of time, and thus the cost of preparing budgets.
2. The unpredictability of the future. Budgets are based upon unknown factors (as well as some known factors) that can have a big bearing on what does actually happen.

3. The confidentiality of some matters that top management, for its own reasons, may want to keep confidential. Budget preparation may require that these matters be included in the budget and they are thus no longer confidential.
4. The "spending to the budget" approach can be a problem. If an expense budget is over-estimated, there can be a tendency to find ways to spend the money still in the budget as the end of the budget period approaches.

The budget cycle is a process which is described as follows:

In establishing attainable goals or objectives, the most desirable situation must be tempered with realism. In other words, if there are any factors present that limit revenue to a certain maximum level, these factors must be considered. An obvious example is that a hotel cannot achieve more than a 100 percent room occupancy for overnight purposes. In the short run, room revenue (if full every night) can only be increased by increasing room rates. But since very few hotels do run at 100 percent year-round, it would be unwise, desirable as it might be, to use 100 percent as the budgeted occupancy on an annual basis. If a restaurant is running at capacity, revenue can only be increased by increasing meal prices or increasing seat turnover. But if meal prices are increased, customers may resist, and if seat turnover is increased, customers may be rushed, thereby ending in declining sales.

Other limiting factors are a lack of skilled labor or skilled supervisory personnel. Increased productivity (serving more customers per waiter) would be desirable and would decrease our payroll cost per customer, but well-trained employees, or employees who could be trained, are often not available. Similarly, supervisory personnel who could train others are not always available.

Shortage of capital could limit expansion plans. If financing is not available to add guest rooms or expand dining areas, it would be a useless exercise to include expansion in our long term budget.

Management's policy concerning, for example, the market in which the organization will operate, may limit budgets. For example, a coffee shop department head may propose that catering to bus tour groups would help increase sales. On the other hand, the general manager may feel that catering to such large transient groups is too disruptive to the regular clientele.

Finally, customer demand and competition must always be kept in mind when budgeting. In other words, additions to the hotel do not necessarily increase the demand for rooms, and a new restaurant or addition of facilities to an existing restaurant, must compete for its share of business.

Once goals or objectives have been determined, plans must be laid to achieve them. At the departmental level, a restaurant manager must staff with employees skilled enough to handle the anticipated volume of business. A chef or purchaser must purchase food in the quantities required to take care of anticipated demand, and of a quality that meets the required standards expected by the customers and allows the food operation to match as closely as possible its budgeted food cost.

Comparing actual results with the planned results is probably the most important and advantageous step in the budget cycle. Comparing actual results with the budget allows one to ask questions such as: (a) If the sales revenue for a restaurant was \$30,000 instead of the budgeted \$33,000, is the \$3,000 difference a result of a reduction of customers, high prices, a competitive restaurant, slow service, or are people just spending less? (b) Yesterday, the housekeeper hired two more maids than were required to handle the actual number of rooms occupied. Is there a communication problem between the front office and the housekeeper? Did the front office fail to notify the housekeeper of reservation cancellations, or did the housekeeper err in calculating the number of maids required? These are just a few examples of the types of questions that can be asked, and for which answers should be sought, in analyzing differences between budgeted performance and actual performance.

Step three in the budget process points to differences and possible causes of these differences. The next step in the budget cycle necessitates taking corrective action if this is required. The cause of a difference could be the result of a circumstance that no one could foresee or predict (for example, weather, a sudden change in economic conditions, or a fire in part of the premises). On the other hand, a difference could be caused by the fact that selling prices were not increased sufficiently to compensate for an inflationary rate of cost increases; or that staff were not as productive in number-of-customers-served or rooms cleaned as they should have been according to

predetermined standards. Whatever the reason, it should be corrected if it can be, so that future budgets can more realistically predict planned operations. If the variance were a favorable one (for example, guest room occupancy was higher than budgeted), the cause should also be determined because that information could help in making future budgets more accurate.

Improving the effectiveness of budgeting is the final step in the budget cycle. All those involved in budgeting should be made aware of the constant need to improve the budgeting process. The information provided from analyzing variances between actual and budgeted figures, will be helpful. By improving accuracy in budgeting, the effectiveness of the entire organization is increased.

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Shortage of capital could limit expansion plans. If financing is not available to add guest rooms or expand dining areas, it would be a useless exercise to include expansion in our long term budget.

Management's policy concerning, for example, the market in which the organization will operate, may limit budgets. For example, a coffee shop department head may propose that catering to bus tour groups would help increase sales. On the other hand, the general manager may feel that catering to such large transient groups is too disruptive to the regular clientele.

Finally, customer demand and competition must always be kept in mind when budgeting. In other words, additions to the hotel do not necessarily increase the demand for rooms, and a new restaurant or addition of facilities to an existing restaurant, must compete for its share of business.

Once goals or objectives have been determined, plans must be laid to achieve them. At the departmental level, a restaurant manager must staff with employees skilled enough to handle the anticipated volume of business. A chef or purchaser must purchase food in the quantities required to take care of anticipated demand, and of a quality that meets the required standards expected by the customers and allows the food operation to match as closely as possible its budgeted food cost.

Comparing actual results with the planned results is probably the most important and advantageous step in the budget cycle. Comparing actual results with the budget allows one to ask questions such as: (a) If the sales revenue for a restaurant was \$30,000 instead of the budgeted \$33,000, is the \$3,000 difference a result of a reduction of customers, high prices, a competitive restaurant, slow service, or are people just spending less? (b) Yesterday, the housekeeper hired two more maids than were required to handle the actual number of rooms occupied. Is there a communication problem between the front office and the housekeeper? Did the front office fail to notify the housekeeper of reservation cancellations, or did the housekeeper err in calculating the number of maids required? These are just a few examples of the types of questions that can be asked, and for which answers should be sought, in analyzing differences between budgeted performance and actual performance.

Step three in the budget process points to differences and possible causes of these differences. The next step in the budget cycle necessitates taking corrective action if this is required. The cause of a difference could be the result of a circumstance that no one could foresee or predict (for example, weather, a sudden change in economic conditions, or a fire in part of the premises). On the other hand, a difference could be caused by the fact that selling prices were not increased sufficiently to compensate for an inflationary rate of cost increases; or that staff were not as productive in number-of-customers-served or rooms cleaned as they should have been according to predetermined standards. Whatever the reason, it should be corrected if it can be, so that future budgets can more realistically predict planned operations. If the variance were a favorable one (for example, guest room occupancy was higher than budgeted), the cause should also be determined because that information could help in making future budgets more accurate.

Improving the effectiveness of budgeting is the final step in the budget cycle. All those involved in budgeting should be made aware of the constant need to improve the budgeting process. The information provided from analyzing variances between actual and budgeted figures, will be helpful. By improving accuracy in budgeting, the effectiveness of the entire organization is increased.

A number of advantages accrue to an organization that uses a budget planning process.

1. Since the budgeting process involves department heads and possibly other staff within the department, it encourages their participation and thus improves communication and motivation. The operating personnel can better identify with the plans or objectives of the organization.
2. In preparing the budget, those involved are required to consider alternative courses of action. For example, should the advertising budget be spent to promote the organization as a whole, or would better results be obtained if emphasis were placed more on a particular department rather than on another?
3. Budgets outline in advance the revenues to be achieved and the cost involved in achieving these revenues. After each budget period the actual results can be compared with the budget. In other words, a standard for comparison is predetermined, and subsequent self-evaluation by all those involved in the operation is possible.
4. In the case of flexible budgets, the organization as a whole, and each department within it, is prepared for adjustment to any level of activity between minimum and maximum sales, assuming that the departments have been involved in developing their budgets within these sales levels.
5. Budgeting forces those involved to be forward-looking. This is not to suggest that what happened in the past is not important and not to be considered in budget preparation; but from now on only future sales and future costs are important to future plans and profits.

~~\_\_\_\_\_~~  
In a small owner-operated restaurant or motel, the owner would prepare the budget. If it were a formal budget, the help of an accountant might be useful.

In a larger organization, a great many individuals might be involved in budget preparation. In such organizations budgets are prepared from the bottom up. At the very least, the department heads or managers must be involved. If their subsequent performance is to be evaluated on the plans included in the budget, then they should be involved in preparing their own departmental budgets. They in turn might well discuss the budget figures with employees within their own departments.

Above the department heads would be a budget committee. Such a committee is required for overall coordination of the budget to ensure that the final budget package is meaningful. The budget committee must ensure that the food breakfast sales are not based on an occupancy that differs from the rooms department figure.

The formal preparation of the budget is a function of the accounting department. The organization's comptroller would probably be a member of the budget committee, and his task is to prepare final budget information for submission to the general manager for approval.

Student Number: \_\_\_\_\_

DEMOGRAPHIC INFORMATION

Please make a tick (✓) or write the response that answers the following questions.

1. Your sex: ( ) male ( ) female
2. Your age: \_\_\_\_\_
3. What is your first language? \_\_\_\_\_
4. In which language do you prefer to read? \_\_\_\_\_
5. How many years of education have you had in the following categories?

Elementary school \_\_\_\_\_  
Secondary school \_\_\_\_\_  
College \_\_\_\_\_  
University \_\_\_\_\_

6. Are you a full-time student? ( ) yes ( ) no
7. Do you study with music playing? ( ) yes ( ) no
8. Do you take notes while reading a textbook?  
( ) yes ( ) no
9. Do you underline important information in your textbook?  
( ) yes ( ) no

For each of the following questions, circle the number which best corresponds to how you feel.

10. How familiar were you with the reading material on Budgeting?

5                      4                      3                      2                      1  
very familiar                      familiar                      not at all

11. How would you describe your reading ability?

5                      4                      3                      2                      1  
Excellent                      Average                      Poor

12. Do you find it difficult to concentrate on reading material when under pressure?

5                      4                      3                      2                      1  
I find it hard                      I don't care                      I prefer it

13. When you study, does the environment have to be quiet?

5                      4                      3                      2                      1  
Definitely                      It doesn't matter                      Not at all

CUED FREE RECALL

Answer the following the questions in the spaces provided.

1. How many purposes of budgeting were presented in the text?
2. In one sentence, define 'budgeting' as it was defined in the text.
3. List three possible limiting factors that should be considered when preparing a budget for a hotel or restaurant.
4. Draw a diagram which shows the steps involved in the "budget cycle".
5. What terms were used in the text to distinguish between a daily or weekly budget and a budget of 1-5 years?
6. The time period associated with budget preparation falls into three general categories. What are they?
7. How many types of budgets are there?
8. List the purposes of budgeting presented in the text.

9. In a large organization there are a great many individuals or groups involved in the preparation of the budget. List the persons or groups normally involved in the budget process.

10. List four advantages of budgeting.

11. List all of the various types of budgets. Then list a characteristic of any three of the types of budgets presented in the text.

12. What terms were used in the text to distinguish between a budget that is based on a certain level of activity or sales, and a budget that is based on several levels of activity?

D



TEST DIRECTIONS

This test consists of thirty (30) multiple-choice questions which are based on the unit.

You should find an answer sheet included in the envelope. Please use this sheet to record your answers.

Please answer all questions. If you don't know or are not sure which is the correct response, select the one which you think is most likely to be correct.

## EXAMPLE:

Q. 1 The Prime Minister of Canada is:

- a. Gary Trudeau
- b. Margaret Thatcher
- c. Margaret Trudeau
- d. Pierre Trudeau

Obviously, the correct answer is (d) and you would indicate this by circling (d) beside the appropriate question on the answer sheet.

1. a b c (d)

Should you make a mistake and want to change your answer, just cross out your original choice with an "x" and then circle your new choice:

1. (x) a b c (d)

Before you begin..... DO YOU HAVE ANY QUESTIONS?

1. When a budget is prepared which way do decisions normally flow?
  - a. from department heads upward
  - b. from department heads downward
  - c. from top management downward
  - d. from the accounting department and upward through department heads
  
2. A department budget is one that:
  - a. is prepared for a year's period
  - b. is concerned with items that affect the income statement
  - c. has a three month cash budget
  - d. shows the forecast sales less operating expenses
  
3. Which of the following is not a purpose of budgeting?
  - a. To provide information for corrective action
  - b. To provide estimates of future revenues and expenses
  - c. To provide individual incentive goals for employees
  - d. To coordinate short and long term goals
  
4. Which of the following is not a limitation to be considered when setting your goals?
  - a. revenue
  - b. increased productivity
  - c. shortage of capital
  - d. supply and demand
  
5. Which of the following is the best definition of budgeting?
  - a. Planning estimates of future revenues and expenses expressed in dollar amounts
  - b. Planning for as much as two years ahead as well as day-by-day management decisions
  - c. Planning for the future which can be expressed in dollar or non-dollar units
  - d. Planning for future revenues and expenses as well as the number of employees required
  
6. Which of the following is not part of the budget cycle?
  - a. taking corrective action
  - b. establishing attainable goals or objectives
  - c. improving the effectiveness of budgeting
  - d. comparing the sales and revenues

7. Which of the following is an advantage of budgeting?
- it provides an index of spending
  - it improves employee motivation
  - it makes the future more predictable
  - it ensures that performance goals will be met
8. A forecast of sales for one month or a forecast of total payroll expense for a year is called \_\_\_\_\_.
- a department budget
  - a flexible budget
  - an operating budget
  - a capital budget
9. Who normally submits the budget to the general manager for approval?
- the comptroller
  - the budget committee
  - the department heads
  - the accounting department
10. If a restaurant wants to increase its revenue, what would you advise the owner to do?
- expand the restaurant
  - increase productivity
  - increase meal prices
  - none of the above
11. Policies and day to day operations of the business evolve from \_\_\_\_\_.
- a short term budget
  - a capital budget
  - a long term budget
  - a master budget
12. A budget that is prepared month by month or up to a year, showing the forecast of sales less operating expenses is called \_\_\_\_\_.
- a department budget
  - a flexible budget
  - a capital budget
  - an operating budget

13. If a flexible budget contains fixed expenses such as advertising costs, how would the fixed portion most likely be expressed?
- as a dollar amount
  - as an adjusted dollar amount
  - as a percentage of total expenses
  - as a percentage of category expenses
14. A coffee shop manager wishes to increase sales by catering to bus tour groups. However, the idea is rejected because the general manager feels it would be disruptive to the regular clientele. Which limitation is being considered?
- revenue
  - shortage of capital
  - management's policy concerning the market
  - the answer cannot be determined from the information given
15. As a manager of a restaurant you have to prepare the budget. Which would you consider when setting your goals?
- that enough revenue is available to pay salaries until the restaurant makes money
  - that the restaurant's capacity is large enough to meet the long term budgetary demand
  - that you have enough skilled employees to handle the anticipated volume of business
  - all of the above
16. Using this type of budget makes payroll and other expense forecasts difficult.
- a strategic budget
  - a fixed budget
  - a short term budget
  - a flexible budget
17. The most comprehensive budget that is prepared for a year's period is called \_\_\_\_\_.
- a capital budget
  - a department budget
  - an operating budget
  - a master budget

18. A budget that is based on a certain level of activity or sales is called \_\_\_\_\_.
- a department budget
  - a fixed budget
  - a capital budget
  - a flexible budget
19. Who has the responsibility for formal preparation of the budget?
- the comptroller
  - the budget committee
  - the accounting department
  - the department heads
20. A three month cash budget for a restaurant or a five year replacement schedule for hotel furnishings is called \_\_\_\_\_.
- a capital budget
  - a department budget
  - an operating budget
  - a master budget
21. A budget that includes a balance sheet for a year ahead and all departmental income and expense statements for the following year is called \_\_\_\_\_.
- a master budget
  - a fixed budget
  - a capital budget
  - an operating budget
22. A cocktail lounge had sales in May of \$40,000. Budgeted sales were \$42,000. Which is the best possible answer to account for the \$2,000 difference?
- there was a reduction of customers
  - economic conditions were poor
  - a new restaurant opened next door
  - the answer cannot be determined from the information given
23. What is meant by the term control as it was used in describing the purposes of budgeting?
- protecting the profits of the establishment
  - corrective action, based on an analysis of differences
  - setting and evaluating employee performance standards
  - regulating the flow of customers in a restaurant

24. Which of the following is a disadvantage of budgeting?
- it often makes lower level employees feel manipulated
  - it creates competition among department heads
  - it tends to increase unnecessary spending
  - it tends to create unreasonable expectations for future productivity
25. When setting your budgetary goals which factor will most dramatically influence your decisions?
- last year's profits and/or losses
  - the labor force in your local area
  - the limitations of future revenue
  - the state of the general economy
26. A budget is referred to as flexible when:
- several levels of revenue activity are used in preparing it
  - a certain level of revenue or sales is used in preparing it
  - it shows the forecast sales less operating expenses
  - it is prepared monthly.
27. Long range budgets normally are:
- prepared semi-annually by top management
  - prepared up to five years in advance
  - coordinated through the budget committee
  - none of the above
28. Which budget specifies how middle management will meet its long term objectives?
- a fixed budget
  - a strategic budget
  - a short term budget
  - none of the above
29. Which of the following is not a budgeting consideration?
- number of customers to be served
  - number of rooms to be cleaned.
  - number of employees required
  - amount of supplies required
30. Which of these budget types is planned from one to five years in advance?
- a short term budget
  - a strategic budget
  - an operating budget
  - a capital budget

\* Completed Time: \_\_\_\_\_

1. What is the most important and advantageous step in the budget cycle?
  - a. setting realistic goals
  - b. improving the effectiveness
  - c. analyzing differences
  - d. none of the above
  
2. When a budget is prepared which way do decisions normally flow?
  - a. from the accounting department and upward through department heads
  - b. from top management downward
  - c. from department heads upward
  - d. from department heads downward
  
3. Which of the following is not a purpose of budgeting?
  - a. To provide individual incentive goals for employees
  - b. To provide information for corrective action
  - c. To provide estimates for future revenues and expenses
  - d. To coordinate short and long term goals
  
4. A budget that relates to the items that appear on the balance sheet is called \_\_\_\_\_.
  - a. an operating budget
  - b. a department budget
  - c. a strategic budget
  - d. a capital budget
  
5. Which of the following is not part of the budget cycle?
  - a. improving the effectiveness of budgeting
  - b. taking corrective action
  - c. comparing the sales and revenues
  - d. establishing attainable goals or objectives
  
6. Which of the following is an advantage of budgeting?
  - a. it makes the future more predictable
  - b. it ensures that performance goals will be met
  - c. it improves employee motivation
  - d. it provides an index of spending
  
7. A forecast of sales for one month or a forecast of total payroll expense for a year is called \_\_\_\_\_.
  - a. an operating budget
  - b. a flexible budget
  - c. a department budget
  - d. a strategic budget

8. If a restaurant wants to increase its revenue, what would you advise the owner to do?
- increase meal prices
  - increase productivity
  - expand the restaurant
  - none of the above
9. Policies and day to day operations of the business evolve from which type of budget?
- a department budget
  - a long term budget
  - a capital budget
  - a short term budget
10. A budget that is prepared month by month or up to a year, showing the forecast of sales less operating expenses is called \_\_\_\_\_.
- a department budget
  - an operating budget
  - a capital budget
  - a master budget
11. If a flexible budget contains fixed expenses such as advertising costs, how would the fixed portion most likely be expressed?
- as a percentage of total expenses
  - as a percentage of category expenses
  - as a dollar amount
  - as an adjusted dollar amount
12. As a manager of a restaurant you have to prepare the budget. Which would you consider when setting your goals?
- enough revenue is available to pay salaries until the restaurant makes money
  - that you have enough skilled employees to handle the anticipated volume of business
  - the restaurant's capacity is large enough to meet the long term budgeting demand
  - all of the above
13. At the end of the year it was found that sales revenue for a restaurant was \$32,000 instead of the budgeted \$30,000. What steps should the management take?
- none, because there was a profit
  - spend the extra profit
  - invest the profit
  - find out the causes for the profit



14. Using this type of budget makes payroll and other expense forecasts difficult.
- a strategic budget
  - a fixed budget
  - a flexible budget
  - a short term budget
15. A budget concerned with ongoing projections of revenue and expense items, or items that affect the income statement is called \_\_\_\_\_.
- an operating budget
  - a master budget
  - a capital budget
  - a department budget
16. You are the manager of a restaurant and have started to prepare your second year budget. You have so far established your goals and planned to achieve them. What is the next step you must take?
- analyze the differences between planned and actual results
  - communicate your plan of action to the staff
  - compare your pricing schedule with that of your competitor's
  - take necessary steps to improve your budgeting effectiveness
17. The most comprehensive budget that is prepared for a year's period is called \_\_\_\_\_.
- a master budget
  - an operating budget
  - a capital budget
  - a department budget
18. A budget that is based on a certain level of activity or sales is called \_\_\_\_\_.
- a department budget
  - a flexible budget
  - a fixed budget
  - a capital budget
19. Who has the responsibility for formal preparation of the budget?
- the budget committee
  - the department heads
  - the comptroller
  - the accounting department

20. When fluctuations in occupancy rate are the basis for staffing decisions, what time period is normally used?
- short term
  - daily short-range
  - long range
  - flexible short-range
21. A budget that includes a balance sheet for a year ahead and all departmental income and expense statements for the following year is called \_\_\_\_\_.
- a fixed budget
  - a department budget
  - a master budget
  - a capital budget
22. What is meant by the term control as it was used in describing the purposes of budgeting?
- setting and evaluating employee performance standards
  - regulating the flow of customers in a restaurant
  - protecting the profits of the establishment
  - corrective action based on an analysis of differences
23. Which of the following is a disadvantage of budgeting?
- it tends to increase unnecessary spending
  - it often makes lower level employees feel manipulated
  - it creates competition among department heads
  - it tends to create unreasonable expectations for future productivity
24. In which type of budget would you expect to find plans for the expansion and financing of the organization?
- a long term budget
  - a department budget
  - a capital budget
  - a fixed budget
25. When setting your budgetary goals which factor will most dramatically influence your decisions?
- the labor force in your local area
  - the limitations of future revenue
  - the state of the general economy
  - last year's profits and/or losses.

26. Which budget type allows the manager to choose the appropriate expense level as the budget year progresses?

- a. a master budget
- b. a strategic budget
- c. a flexible budget
- d. a fixed budget

27. A budget is referred to as flexible when:

- a. it is prepared weekly
- b. it shows the forecast sales less operating expenses
- c. several levels of revenue activity are used in preparing it
- d. a certain level of revenue or sales is used in preparing it

28. Long range budgets normally are:

- a. revised every two years
- b. coordinated through the budget committee
- c. prepared semi-annually
- d. prepared up to five years in advance

29. Which budget specifies how middle management will meet its long term objectives?

- a. a strategic budget
- b. a fixed budget
- c. a capital budget
- d. a short term budget

30. Which of the following is not a budgeting consideration?

- a. number of customers to be served
- b. amount of supplies required
- c. number of rooms to be cleaned
- d. number of employees required

\* Completed Time: \_\_\_\_\_

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

MULTIPLE-CHOICE TEST

ANSWER SHEET

- |             |             |
|-------------|-------------|
| 1. a b c d  | 16. a b c d |
| 2. a b c d  | 17. a b c d |
| 3. a b c d  | 18. a b c d |
| 4. a b c d  | 19. a b c d |
| 5. a b c d  | 20. a b c d |
| 6. a b c d  | 21. a b c d |
| 7. a b c d  | 22. a b c d |
| 8. a b c d  | 23. a b c d |
| 9. a b c d  | 24. a b c d |
| 10. a b c d | 25. a b c d |
| 11. a b c d | 26. a b c d |
| 12. a b c d | 27. a b c d |
| 13. a b c d | 28. a b c d |
| 14. a b c d | 29. a b c d |
| 15. a b c d | 30. a b c d |



\*Completed Time: \_\_\_\_\_



IX  
EVALUATIVE QUESTIONNAIRE

123

For each of the following statements, circle the number which best corresponds to how you feel.

	Disagree		Neutral		Agree
1. I spent a lot of time examining the graphic organizer.	1		2		3 4 5
2. I found the graphic organizer confusing.	1		2		3 4 5
3. I found the text confusing.	1		2		3 4 5
4. I found the graphic organizer helpful in remembering the material.	1		2		3 4 5
5. When I answered the multiple-choice test, I tried to visualize in my mind the graphic organizer.	1		2		3 4 5
6. I ignored the graphic organizer.	1		2		3 4 5
7. I did not need to study the graphic organizer to answer the multiple-choice questions.	1		2		3 4 5
8. When I answered the cued free recall test, I tried to visualize in my mind the graphic organizer.	1		2		3 4 5
9. Generally, visualizing the material helps people to remember things.	1		2		3 4 5
10. I spent more time trying to study the text than the graphic organizer.	1		2		3 4 5
11. I thought the graphic organizer was interesting.	1		2		3 4 5
12. I thought the graphic organizer was too complicated.	1		2		3 4 5
13. I have used a graphic organizer before.	1		2		3 4 5
14. I found the graphic organizer difficult to use as a memory aid.	1		2		3 4 5
15. More instruction in the use of the graphic organizer would have been helpful.	1		2		3 4 5
16. I did not need instructions on how to use the graphic organizer.	1		2		3 4 5
17. In order for the graphic organizer to be helpful, I would need more time to practice.	1		2		3 4 5
18. I found the text too difficult.	1		2		3 4 5
19. I found that the graphic organizer helped me to organize the text.	1		2		3 4 5
20. Graphic organizers should be regularly provided in textbooks.	1		2		3 4 5

**APPENDIX B**

- I . . . . . No Strategy**
- II . . . . . Cued Congruent Text**
- III . . . . . Cued Incongruent Text**
- IV . . . . . Section I: Cued Recall Test**
- V . . . . . Section II: Multiple-choice Test**
- VI . . . . . Multiple-choice Answer Sheet**

# READ THIS FIRST

The term hospitality embraces not only hotels, motels, and restaurants, but also resorts, clubs, cocktail bars, industrial and institutional feeding operations and many similar and related businesses.

Most, if not all, of these businesses have been affected over the past several years by the worldwide growth in tourism. As governments of virtually all countries realized the economic benefits to them of tourism, they encouraged and actively promoted it. As tourism grew so did the demand for hotel rooms, restaurants, bars, and related facilities and services.

With the growth in tourism came an expansion in the scale of hospitality industry operations. This did not only occur at the local and national level, for many organizations in the hospitality industry are now multi-national corporations, operating around the world. With the growth in sales, the well-recognized inflationary trend has been a problem in the hospitality industry no less than in any other.

The text you are about to read concerns a special aspect of the hotel and restaurant industry. You should read it as you would read any textbook in this course; to learn the content. A flowchart (blue sheet), is included to help you remember the material in the text.

THREE PURPOSES OF BUDGETING

Budgeting is planning. As a manager you must be able to look ahead and prepare budgets or forecasts. Budgets are not necessarily expressed in monetary terms, but may also involve numbers of customers to be served, number of rooms to be occupied, number of employees required, or some other unit as opposed to dollars. Budgeting can involve decisions concerning the day-to-day management of an operation or, on the other hand, involve plans for as far ahead as five years. The three purposes of budgeting are:

1. To provide estimates of future revenues and expenses
2. To provide short and long-term coordinated management policy
3. To provide a control by comparing actual results with budgeted plans, and to take corrective action if necessary.

LONG-TERM VS. SHORT-TERM BUDGETS

Now that you are aware of the purposes of budgeting, you must also know the various types of budgets. All types of budgets can be either a long-term or a short-term budget. They can easily be classified, as their names imply, by their length of planning time.

Long-term  
(strategic)

Short-term

- 1yr. to 5yr. ahead

- day, week, quarter, year, or less than a year

- concerns major plans for organization:
  - a. expansion
  - b. financing
  - c. creation of new market

- concerns middle management to meet objectives of the long-term plans.

- policies and day-to-day operations of the business evolve from these



TYPES OF BUDGETS

Various terms are used to define various types of budgets. As a hotel manager, you must be able to identify and describe the five types of budgets. Each of these can be easily remembered by thinking of how their name corresponds to their function. The five types of budgets are:

1. Capital Budget
2. Operating Budget
3. Department Budget
4. Master Budget
5. Fixed vs. Flexible Budget

Capital Budget: - relates to the items that appear on the balance sheet  
 (example): a 3 month cash budget for a restaurant or a 5 year replacement schedule for hotel furnishings.

Operating Budget: - concerned with ongoing projections of revenue and expense items, or items that affect the income statement  
 (example): a forecast of sales for 1 month, or a forecast of total payroll expense for a year.

Department Budget: - concerned with a specific department within a restaurant complex (dining room, bar, banquet area)  
 - shows the forecast sales, less operating expenses  
 - prepared monthly, month by month or up to a year.

Master Budget: - most comprehensive  
 - prepared for a year's period  
 - includes a balance sheet for a year ahead and all departmental income and expense statements for the following year.

Fixed Budget

vs.

Flexible Budget

- based on certain level of activity or sales (i.e. 60% of occupancy sales)
- the disadvantage is that if the actual sales level differs from the budgeted sales level, expenses can only be adjusted by guesswork (difficult to forecast payroll, supplies, etc.)

- based on several levels of activity (i.e. 60%, 70% and 80% of occupancy sales)
- the advantage is that adjustment is easier; so as the year progresses, the appropriate expense level can be chosen.

Note: You may have noticed that there are three fixed budgets within the flexible budget. The main issue is that management is prepared to adjust. Even with flexible budgeting, it is possible for a particular expense item to remain fixed. Remember, a budget is prepared based on levels of revenue. Expenses are calculated based on each different sales levels. A really flexible budget would show expenses that are truly variable with sales as a percentage of those sales, and fixed costs as a dollar amount.

### WHO PREPARES THE BUDGET?

Budgeting is an essential part of the hotel industry. If you own your own restaurant or motel you would have to prepare the budget yourself or you could hire an accountant. However, if you are working in a large organization, you will discover that many individuals are involved in the budget preparation. Because of the number of people involved, a stepping order has been devised, to ensure that everyone's contribution is included in the budget. The order is as follows:

1. First, the department heads must be involved in preparing their own departmental budgets. (They may discuss it with their employees.)
2. Next, they, the department heads discuss their budgets with the budget committee. The committee ensures that the final budget package is meaningful.
3. They in turn, give the budget to the accounting department, for the formal preparation.
4. The organization's comptroller, who is probably a member of the budget committee, would then prepare the final budget information.
5. Finally, the comptroller would submit the budget to the general manager for approval.

### WHEN ARE BUDGETS PREPARED?

The time period associated with budget preparation falls into three general categories:

1. long range
2. short term
3. weekly or daily short range

1. Long range: - prepared annually by top-level management for up to 5 years ahead.
  - each year's budget is revised
  - the budget committee is involved for coordination.
2. Short term: - prepared annually with monthly projections
  - involves department managers and budget committee.
3. Weekly or daily short range:
  - handled internally by the department heads or other supervisory staff.  
(Example: the housekeeper would arrange staffing schedule on a daily basis based on the occupancy.)

#### ADVANTAGES OF BUDGETING

- They involve participation of employees in the planning process, thereby improving motivation and communication.
- Those involved in preparing the budget are required to consider alternative courses of action.  
(Example: is it better to place emphasis on the advertising or on another department instead?)
- They allow a goal and a standard of performance to be established, so the results can be compared with the budget. It creates a standard for comparison.
- Flexible budgets permit quick adaptation to unforeseen, changed conditions.
- Budgeting forces those involved to look to the future sales and future costs.

#### DISADVANTAGES OF BUDGETING

- The time and cost to prepare budgets.
- The unpredictability of the future for budgets are prepared upon unknown factors.
- Budget preparation may require that confidential information be included in the budget

- If an expense budget is overestimated, there can be a tendency to find ways to spend the money still in the budget as the end of the budget period approaches.

### THE BUDGET CYCLE

The budget cycle is a five-part process that can be summarized as follows:

- 5 steps
1. Establishing attainable goals or objectives
  2. Planning to achieve these goals or objectives
  3. Comparing actual results with those planned, and analyzing the differences
  4. As a result of step three, taking any corrective action if required
  5. Improving the effectiveness of budgeting

Each of these five steps will be discussed in turn.

#### 1. Establishing attainable goals or objectives:

When you are setting your goals it is important to set them realistically. In other words, setting your budgeted occupancy at 100% would be unrealistic, for very few hotels run at a 100% occupancy year-round. When setting your goals you must keep in mind the limitations. There are five limitations that you should be aware of. These are:

- Limitations
- a. Revenue: If a restaurant is running at capacity, the revenue can only be increased by increasing meal prices or increasing seat turnover. But if meal prices are increased, customers may resist, and if seat turnover is increased, customers may be rushed, thereby ending in declining sales.
  - b. Lack of skilled labour or skilled supervisory personnel: Increased productivity (serving more customers) would be desirable and decrease payroll cost per customer, but well-trained employees and supervisory personnel who could train others are often not available.
  - c. Shortage of capital: If financing is not available, it would be useless to include expansion in the long-term budget.

- d. Management's policy concerning the market: A coffee shop manager wishes to increase sales by catering to bus tour groups. However, the idea is rejected because the general manager feels it would be disruptive to the regular clientele.
- e. Supply and demand: Customer demand and competition must always be kept in mind when budgeting. In other words, additions to the hotel do not necessarily increase the demand for rooms. Also, a new restaurant, or addition of facilities to an existing restaurant must compete for its share of business.

## 2. Planning to achieve goals or objectives:

Once you have set your goals, you must devise a plan to achieve them. At the departmental level, a restaurant manager must have skilled employees who can handle the anticipated volume of business. The chef or the purchaser must also purchase food in accordance with the anticipated demand and the quality must meet the standards expected by the customers. All of these must be considered when planning your budget.

## 3. Analyzing differences between planned and actual results:

This is probably the most important and advantageous step in the budget cycle. Comparing actual results with the budget would allow you to ask questions such as:

"If the sales revenue for a restaurant was \$30,000 instead of the budgeted \$33,000, is the \$3,000 difference a result of a reduction of customers, high prices, a competitive restaurant, slow service or are the people just spending less?"

"Yesterday the housekeeper hired two more maids than were required to handle the actual number of rooms occupied. Is there a communication problem between the front office and the housekeeper? Did the front office fail to notify the housekeeper of reservation cancellations, or did the housekeeper err in calculating the number of maids required?"

These are just a few examples of the kinds of questions you should ask and seek for when you are involved in budgeting. Analyzing the difference between budgeted performance and actual performance, as you can see, is an important part of the budget cycle.

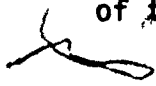
**4. Taking any necessary corrective action:**

This step necessitates taking corrective action from the results of step 3. The cause of a difference could be the result of a circumstance that no one could foresee (a change in economic conditions). However, a difference could be caused by the fact that selling prices were not increased sufficiently to compensate for an inflationary rate of cost increases, or that the staff were not as productive in number of customers served or rooms cleaned. Whatever the reason, you should correct it, if possible, so that future budgets can more realistically predict your planned operations.

If the differences were a favorable one (for example, guest room occupancy was higher than budgeted), the cause should also be determined to make your future budgeting more accurate.

**5. Improving the effectiveness of budgeting:**

This is the final step of the budget cycle. All those involved in budgeting should be made aware of the constant need to improve the budgeting process. The information provided from analyzing variances (differences) between the actual and budgeted figures will be helpful to you. By improving the accuracy in budgeting, the effectiveness of the entire organization is increased.



### DISADVANTAGES OF BUDGETING

- The time and cost to prepare budgets.
- The unpredictability of the future for budgets are prepared upon unknown factors.
- Budget preparation may require that confidential information be included in the budget
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  - handled internally by the department heads or other supervisory staff.  
(Example: the housekeeper would arrange staffing schedule on a daily basis based on the occupancy.)

TYPES OF BUDGETS

Various terms are used to define various types of budgets. As a hotel manager, you must be able to identify and describe the five types of budgets. Each of these can be easily remembered by thinking of how their name corresponds to their function. The five types of budgets are:

1. Capital Budget
2. Operating Budget
3. Department Budget
4. Master Budget
5. Fixed vs. Flexible Budget

Capital Budget: - relates to the items that appear on the balance sheet  
 (example): a 3 month cash budget for a restaurant or a 5 year replacement schedule for hotel furnishings.

Operating Budget: - concerned with ongoing projections of revenue and expense items, or items that affect the income statement  
 (example): a forecast of sales for 1 month, or a forecast of total payroll expense for a year.

Department Budget: - concerned with a specific department within a restaurant complex (dining room, bar, banquet area)  
 - shows the forecast sales, less operating expenses  
 - prepared monthly, month by month or up to a year.

Master Budget: - most comprehensive  
 - prepared for a year's period  
 - includes a balance sheet for a year ahead and all departmental income and expense statements for the following year.

<u>Fixed Budget</u>	vs.	<u>Flexible Budget</u>
<ul style="list-style-type: none"> <li>- based on <u>certain</u> level of activity or sales (i.e. 60% of occupancy sales)</li> <li>- the <u>disadvantage</u> is that if the actual sales level differs from the budgeted sales level, expenses can only be adjusted by guesswork (difficult to forecast payroll, supplies, etc.)</li> </ul>		<ul style="list-style-type: none"> <li>- based on <u>several</u> levels of activity (i.e. 60%, 70% and 80% of occupancy sales)</li> <li>- the <u>advantage</u> is that adjustment is easier; so as the year progresses, the appropriate expense level can be chosen.</li> </ul>



Note: You may have noticed that there are three fixed budgets within the flexible budget. The main issue is that management is prepared to adjust. Even with flexible budgeting, it is possible for a particular expense item to remain fixed. Remember, a budget is prepared based on levels of revenue. Expenses are calculated based on each different sales levels. A really flexible budget would show expenses that are truly variable with sales as a percentage of those sales, and fixed costs as a dollar amount. <sup>135</sup>

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Each of these five steps will be discussed in turn.

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These are just a few examples of the kinds of questions you should ask and seek for when you are involved in budgeting. Analyzing the difference between budgeted performance and actual performance, as you can see, is an important part of the budget cycle.

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This step necessitates taking corrective action from the results of step 3. The cause of a difference could be the result of a circumstance that no one could foresee (a change in economic conditions). However, a difference could be caused by the fact that selling prices were not increased sufficiently to compensate for an inflationary rate of cost increases, or that the staff were not as productive in number of customers served or rooms cleaned. Whatever the reason, you should correct it, if possible, so that future budgets can more realistically predict your planned operations.

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ADVANTAGES OF BUDGETING

- They involve participation of employees in the planning process, thereby improving motivation and communication.
- Those involved in preparing the budget are required to consider alternative courses of action.  
(Example: is it better to place emphasis on the advertising or on another department instead?)
- They allow a goal and a standard of performance to be established, so the results can be compared with the budget. It creates a standard for comparison.
- Flexible budgets permit quick adaptation to unforeseen, changed conditions.
- Budgeting forces those involved to look to the future sales and future costs.

THREE PURPOSES OF BUDGETING

Budgeting is planning. As a manager you must be able to look ahead and prepare budgets or forecasts. Budgets are not necessarily expressed in monetary terms, but may also involve numbers of customers to be served, number of rooms to be occupied, number of employees required, or some other unit as opposed to dollars. Budgeting can involve decisions concerning the day-to-day management of an operation or, on the other hand, involve plans for as far ahead as five years. The three purposes of budgeting are:

1. To provide estimates of future revenues and expenses
2. To provide short and long-term coordinated management policy
3. To provide a control by comparing actual results with budgeted plans, and to take corrective action if necessary.

LONG-TERM VS. SHORT-TERM BUDGETS

Now that you are aware of the purposes of budgeting, you must also know the various types of budgets. All types of budgets can be either a long-term or a short-term budget. They can easily be classified, as their names imply, by their length of planning time.

<u>Long-term</u> (strategic)	<u>Short-term</u>
- 1yr. to 5yr. ahead	- day, week, quarter, year, or less than a year
- concerns major plans for organization: <ul style="list-style-type: none"> <li>a. expansion</li> <li>b. financing</li> <li>c. creation of new market</li> </ul>	- concerns middle management to meet objectives of the long-term plans.
- policies and day-to-day operations of the business evolve from these	

#### WHO PREPARES THE BUDGET?

Budgeting is an essential part of the hotel industry. If you own your own restaurant or motel you would have to prepare the budget yourself or you could hire an accountant. However, if you are working in a large organization, you will discover that many individuals are involved in the budget preparation. Because of the number of people involved, a stepping order has been devised, to ensure that everyone's contribution is included in the budget. The order is as follows:

1. First, the department heads must be involved in preparing their own departmental budgets. (They may discuss it with their employees.)
2. Next, they, the department heads discuss their budgets with the budget committee. The committee ensures that the final budget package is meaningful.
3. They in turn, give the budget to the accounting department, for the formal preparation.
4. The organization's comptroller, who is probably a member of the budget committee, would then prepare the final budget information.
5. Finally, the comptroller would submit the budget to the general manager for approval.

SECTION 1

Answer the following questions in the spaces provided.

1. The text and graphic organizer (blue sheet) presented several purposes of budgeting.
  - a. How many purposes were listed? \_\_\_\_\_
  - b. Describe as many as you can remember.
  
2. Pros and cons of preparing a budget were discussed in the text and shown on the graphic organizer.
  - a. List two advantages of preparing a budget.
  
  - b. List two disadvantages of preparing a budget.
  
3. Which step of the budget cycle was considered the most important and advantageous?

4. What terms were used in the text to distinguish between a daily or weekly budget and a budget of 1-5 years?

5. Various terms were used to define various types of budgets. Both the text and the graphic organizer listed these.

a. How many types of budgets were listed?

b. What were their names?

c. Identify one characteristic of three of them.

6. The time period associated with the budget preparation falls into 3 general categories. Name them and describe one characteristic of each.

(i)

(ii)

(iii)

7. Budgets are not necessarily expressed in monetary terms. Name two other ways that a budget can be expressed.

(i)

(ii)

8. Within the text and on the graphic organizer a budget cycle was described. Draw the diagram which shows only the steps involved in the budget cycle and label each.
9. Budgeting is an essential part of the hotel industry. If you are working in a large organization, you would discover that many individuals are involved in the budget preparation. What does the text list as the "stepping order" which has been devised to ensure that everyone's contribution is included in the budget?
- a. List them.
- b. Of the above list, which comes first in the budget preparation sequence and which comes last?
10. In one of the steps of the budget cycle five limitations were listed that you as a hotel manager should be aware of. List three of them.
- (i)
- (ii)
- (iii)



11. Which step of the budget cycle would allow you to ask a question such as the following one?

" If the sales revenue for a restaurant was \$30,000 instead of the budgeted \$33,000, is the \$3,000 difference a result of a reduction of customers, high prices, a competitive restaurant, slow service or are people just spending less? "

TEST DIRECTIONS

This test consists of thirty (30) multiple-choice questions which are based on the unit.

You should find an answer sheet included in the envelope. Please use this sheet to record your answers.

Please answer all questions. If you don't know or are not sure which is the correct response, select the one which you think is most likely to be correct.

## EXAMPLE:

Q. 1 The Prime Minister of Canada is:

- a. Gary Trudeau
- b. Margaret Thatcher
- c. Margaret Trudeau
- d. Pierre Trudeau

Obviously, the correct answer is (d) and you would indicate this by circling (d) beside the appropriate question on the answer sheet.

1. a b c (d)

Should you make a mistake and want to change your answer, just cross out your original choice with an "x" and then circle your new choice:

1. ~~a~~ b c (d)

Before you begin..... DO YOU HAVE ANY QUESTIONS?

1. When a budget is prepared which way do decisions normally flow?
  - a. from department heads upward
  - b. from department heads downward
  - c. from top management downward
  - d. from the accounting department and upward through department heads
  
2. A department budget is one that:
  - a. is prepared for a year's period
  - b. is concerned with items that affect the income statement
  - c. has a three month cash budget
  - d. shows the forecast sales less operating expenses
  
3. Which of the following is not a purpose of budgeting?
  - a. To provide information for corrective action
  - b. To provide estimates of future revenues and expenses
  - c. To provide individual incentive goals for employees
  - d. To coordinate short and long term goals
  
4. Which of the following is not a limitation to be considered when setting your goals?
  - a. revenue
  - b. increased productivity
  - c. shortage of capital
  - d. supply and demand
  
5. Which of the following is the best definition of budgeting?
  - a. Planning estimates of future revenues and expenses expressed in dollar amounts
  - b. Planning for as much as two years ahead as well as day-by-day management decisions
  - c. Planning for the future which can be expressed in dollar or non-dollar units
  - d. Planning for future revenues and expenses as well as the number of employees required
  
6. Who normally submits the budget to the general manager for approval?
  - a. the comptroller
  - b. the budget committee
  - c. the department heads
  - d. the accounting department

7. If a restaurant wants to increase its revenue, what would you advise the owner to do?
- expand the restaurant
  - increase productivity
  - increase meal prices
  - none of the above
8. If a flexible budget contains fixed expenses such as advertising costs, how would the fixed portion most likely be expressed?
- as a dollar amount
  - as an adjusted dollar amount
  - as a percentage of total expenses
  - as a percentage of category expenses
9. The most comprehensive budget that is prepared for a year's period is called \_\_\_\_\_.
- a capital budget
  - a department budget
  - an operating budget
  - a master budget
10. A budget that is based on a certain level of activity or sales is called \_\_\_\_\_.
- a department budget
  - a fixed budget
  - a capital budget
  - a flexible budget
11. Who has the responsibility for formal preparation of the budget?
- the comptroller
  - the budget committee
  - the accounting department
  - the department heads
12. A three month cash budget for a restaurant or a five year replacement schedule for hotel furnishings is called \_\_\_\_\_.
- a capital budget
  - a department budget
  - an operating budget
  - a master budget

13. A budget that includes a balance sheet for a year ahead and all departmental income and expense statements for the following year is called \_\_\_\_\_.
- a master budget
  - a fixed budget
  - a capital budget
  - an operating budget
14. A cocktail lounge had sales in May of \$40,000. Budgeted sales were \$42,000. Which is the best possible answer to account for the \$2,000 difference?
- there was a reduction of customers
  - economic conditions were poor
  - a new restaurant opened next door
  - the answer cannot be determined from the information given
15. Which of the following is a disadvantage of budgeting?
- it often makes lower level employees feel manipulated
  - it creates competition among department heads
  - it tends to increase unnecessary spending
  - it tends to create unreasonable expectations for future productivity
16. A budget is referred to as flexible when:
- several levels of revenue activity are used in preparing it
  - a certain level of revenue or sales is used in preparing it
  - it shows the forecast sales less operating expenses
  - it is prepared monthly
17. Which budget specifies how middle management will meet its long term objectives?
- a fixed budget
  - a strategic budget
  - a short term budget
  - none of the above
18. Which of the following is not a budgeting consideration?
- number of customers to be served
  - number of rooms to be cleaned
  - number of employees required
  - amount of supplies required

19. Which of the following is not part of the budget cycle?
- taking corrective action
  - establishing attainable goals or objectives
  - improving the effectiveness of budgeting
  - comparing the sales and revenues
20. What is the most important and advantageous step in the budget cycle?
- setting realistic goals
  - improving the effectiveness
  - analyzing differences
  - none of the above
21. A budget that relates to the items that appear on the balance sheet is called \_\_\_\_\_.
- an operating budget
  - a department budget
  - a strategic budget
  - a capital budget
22. At the end of the year it was found that sales revenue for a restaurant was \$32,000 instead of the budgeted \$30,000. What steps should the management take?
- none, because there was a profit
  - spend the extra profit
  - invest the profit
  - find out the causes for the profit
23. A budget concerned with ongoing projections of revenue and expense items, or items that affect the income statement is called a \_\_\_\_\_.
- an operating budget
  - a master budget
  - a capital budget
  - a department budget
24. When fluctuations in occupancy rate are the basis for staffing decisions, what time period is normally used?
- short term
  - daily short-range
  - long range
  - flexible short-range

25. In which type of budget would you expect to find plans for the expansion and financing of the organization?

- a. a long term budget
- b. a department budget
- c. a capital budget
- d. a fixed budget

Student Number: \_\_\_\_\_

MULTIPLE-CHOICE TESTANSWER SHEET

- |             |             |
|-------------|-------------|
| 1. a b c d  | 14. a b c d |
| 2. a b c d  | 15. a b c d |
| 3. a b c d  | 16. a b c d |
| 4. a b c d  | 17. a b c d |
| 5. a b c d  | 18. a b c d |
| 6. a b c d  | 19. a b c d |
| 7. a b c d  | 20. a b c d |
| 8. a b c d  | 21. a b c d |
| 9. a b c d  | 22. a b c d |
| 10. a b c d | 23. a b c d |
| 11. a b c d | 24. a b c d |
| 12. a b c d | 25. a b c d |
| 13. a b c d |             |