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Production and Evaluation of an A-V Supplementary Kit, for Distance Education in perception psychology.

Cheryl Zimmerman

A Thesis Equivalent

in

The Department

of

Education

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ABSTRACT

PRODUCTION AND EVALUATION OF AN A-V SUPPLEMENTARY KIT, FOR DISTANCE EDUCATION IN PERCEPTION PSYCHOLOGY.

Cheryl Zimmerman

The intent of this media kit was to provide distant learners with appropriate and relevant materials to enhance their learning experience. The underlying instructional problem was that the identified target audience (students registered in the Alberta Correspondence School, Personal Psychology 20 course) was receiving all of its instructional materials through a print format, (textual information only).

The rationale to supplement these materials with illustrations was based on the premise that the concepts themselves were too abstract to understand without the presence of illustrations.

The outcome of the two group (control, experimental) pre-post design, did not yield statistically significant results. Analysis of the attitudinal questionnaire (experimental group) did find the kit to be both useful and enjoyable to use.

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I wish to dedicate this thesis to my Grandfather, Dr. James (Yasha) Zimmerman, in loving memory.

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PART I: MEDIA PRESENTATION

Introduction

The purpose of the media kit, which forms the basis for this thesis equivalent was to provide distant learners with appropriate and relevant visual and auditory illustrations to enhance their learning experience. The underlying instructional problem was that the identified target audience, students registered in the Alberta Correspondence School, was receiving all of its instructional materials through a print format, textual information only. At the time the course was produced audio-visual materials were not included. Later it was learned the concepts were too abstract to understand without the aid of visual and auditory illustrations. In support of this conclusion, a recent study, Bernard, R. M., & Petersen, C. (1981) indicates that "illustrations fulfilling the explicative role directly portray aspects of the content which are not clearly defined or explained by words alone" (p. 37).

The evaluation of this kit (designed as a prototype) was to provide evidence to the Alberta Correspondence School that providing visual and auditory illustrations will enhance student motivation and

thereby increase their knowledge of perception principles. The implications of this prototype kit stress the importance of an appropriate media selection procedure in the instructional design of a typical distance education course.

Educational Context

ACCESS Alberta is a provincially funded media producing agency whose mandate is to provide educational materials and resources for the people of Alberta. Its principal role is to provide educational services which support the provincial education system. Supplementary to that role, is the responsibility for providing a broad range of educational services to Albertans of all ages.

ACCESS is accountable to the Alberta Legislature through the Alberta Educational Communications Authority. This body is composed of representatives of the Minister of Education; the Minister of Advanced Education and Manpower, and the Associate Minister of Utilities and Telephones. These ministries work closely with ACCESS in meeting the educational media needs of four main groups in Alberta:

- Very young children, their parents and specialists in early childhood education;
- Students and teachers in elementary, junior high and senior high schools;
- Students and educators in universities, colleges, vocational schools and technical institutes;
- Members of the general public who are not enrolled in an educational institution but who may benefit from special information or educational programs.

ACCESS programming is driven by the clientele it serves. The role that the client plays is profound in the creation of new programming as it serves in a way analogous to the "input" function in a typical systems model. Essentially, their responsibility is to identify a need which may be met through mediated instruction or material. The client is asked to submit a proposal outlining specific needs, pending review by ACCESS. The proposal identifies the rationale, goals, objectives, scope and sequence of content, recommended treatment, and evaluation suggestions. It is then screened before the ACCESS proposal committee.

The committee's responsibility is to provide a preliminary budget and review existing materials both

internally, within existing inventory, and outside to other producing agencies. The budget review serves to determine the funding needed to produce the proposal. The greater the demand from the production pool fund, the more closely scrutinized is the proposal to fill a gap in the production inventory. Accordingly, the marketing department may wish to review the extent to which funding for the proposal may be re-covered by future sales.

The review of existing materials is done in order to avoid repetition, as it is far more cost-effective to simply acquire materials, or re-structure existing ACCESS materials than produce them. Computer searches may be undertaken from such databases as NICEM (National Information Center for Educational Materials) in order to access names of other producing agencies who may have produced similar projects. Alternatively, there may be existing materials in the ACCESS inventory which may serve to fulfill the identified proposal needs.

The preceding corporate model will now be applied to a specific client whose proposal has been reviewed and accepted by the proposal committee. In addition, the following review will address the criteria employed in accepting the proposal as a project.

The Alberta Correspondence School Project

The Alberta Correspondence School (client) is a distance education institution where correspondence instruction is the means by which students are able to meet their educational goals, (generally to complete their high school diploma). Students throughout the province of Alberta, (rural or urban) may receive instructional materials through correspondence.

Students are asked to submit any previous high school records in order to determine entry behavior. Appropriate courses are selected in order to meet educational objectives. There are various programs in which a student may enroll including university entrance, technical, vocational or business programs.

The Alberta Correspondence School is under the auspices of the Alberta Department of Education and as outlined earlier, may approach ACCESS to produce educational materials.

Members of the Social Studies department of the Alberta Correspondence School, identified the Personal Psychology 20 course, specifically the unit on perception, as lacking illustrations and auditory examples. The course instructors and ACCESS agreed that without illustrations the existing textual material was

too complex to be easily comprehended by distance education students. Accordingly an interim strategy was sought.

The Alberta Correspondence School submitted a proposal to ACCESS which subsequently went through the screening process described earlier. The proposal was successfully brought in to the project pool as the criteria used in judgement showed that it was specifically tailored to the curriculum, "curriculum fit"; no outside materials could be acquired, and no existing materials were available in the inventory. The proposal thereby became a working project and assigned to a Project Manager (see Personnel Internal).

Upon review of the project it was evident that supplementary materials could serve as an interim strategy until the course could be more extensively re-designed. Note that the audio-visual materials (i.e. the ACCESS produced kit) were added after the correspondence course materials were produced. In future, should any further re-design of the course be undertaken, the audio-visual materials should be developed early in the instructional design. Kemp (1968) states that "media are not supplementary to or in

support of instruction, but are the instructional input itself" (p. 7).

Kemp (1968) further states that, "Determination must be made of which media, in what form, and at what time, will most effectively and efficiently provide the most relevant experiences for learners" (p. 7). This statement is especially applicable to distant learning.

The rationale provided by the Alberta Correspondence School also supports the need to provide relevant experiences for learners. The learner goals identified within the ALberta Correspondence School's proposal included "an awareness of the components of perception to both maximize the possibilities it has in each persons life and minimize the common errors that can undermine the accuracy of one's perception."

The perception unit, (one of twelve chapters found in the Personal Psychology 20 course) was chosen to serve as a guideline for the content of the kit. The unit lent itself to being illustrated by the nature of its' content and because the existing course materials lacked real perceptual examples. In addition, the production of hands-on materials was intended to enhance the learning experience by providing realistic examples.

According to Fischer (1975), perception by definition is the "way in which people interpret information from the environment and organize it into meaningful patterns" (p.239). The Alberta Correspondence School borrows this definition and relates perception to an understanding of the factors which contribute to personality and behavior; both their own and those of others.

This course fits into a student's high school diploma program as a three credit, Grade 11 Social Studies optional course. Sixty percent of the students enrolled at the Alberta Correspondence School are high school students, whereas the remaining 40 percent are adults who wish to upgrade their education. Most students who take the Personal Psychology 20 course live in the northern half of the province, 55% percent being from urban areas and 45% percent living in rural areas. The ratio of women to men is approximately three to one (3:1).

The Alberta Correspondence School endeavors to establish an entry behavior with those students enrolled in academic subjects such as Math and English. Employment of diagnostic testing results in appropriate academic placement. Psychology 20 students are not

asked to write placement exams, rather, their learning experience is more conventional in the correspondence school system.

Upon completion of registration and receipt of all textual and/or mediated materials, students are informed of general operating procedures, such as, submitting a lesson per week. Should a question arise, a student may contact the tutor responsible for the course.

Typically, the tutor (teacher), in fielding a question, refrains from simply offering an answer to the problem but rather; provides examples or analogies to the problem, offers page references within the course material, or cites other resources or references. Only as a final alternative, does the tutor provide a specific answer. In addition, when correcting lessons, tutors will provide written comments, offer various suggestions to their work, cite references and offer encouragement. Thus, tutors serve to complement the courseware materials and provide informal feedback and diagnosis of problem areas within any given course.

The importance of the tutor becomes clear given that the original instructional design of the Personal Psychology 20 materials lacked major links between examples (in the form of illustrations) and abstract

textual materials. The role of the tutor is to complement the materials and subsequent to the production of the kits, offer links from the courseware to the kit.

Holmberg (1981) has found that submitting assignments was a student's only means of communicating with a tutor. Therefore, this makes it "imperative that the tutor encourage spontaneous viewpoints from the students on relevant topics and provide stimulating and informative comments" (p.28)

Similarly, the kit serves to complement the tutor, as an extension of the teacher. For example, the audio tape found in the kit provides both cognitive information and a delivery mode which may enter into the affective realm. That is to say, from an affective perspective, the distant learner may find hearing a voice speak about auditory perception a source of comfort. Holmberg (1981) further postulates that "if a distance study course is felt to have a character of a conversation, then the students will be more motivated, and more successful than if the course studied has an impersonal textbook character" (pg. 32)

Perhaps one of the greatest concerns regarding distance education as an institution for instruction is

its high attrition rate compared with the traditional classroom setting. According to Pantages (1978) "attrition rates are generally very high, both in absolute terms and in comparison to traditional institutions" (pg. 33)

In the Personal Psychology 20 course, the completion rate is approximately 50%, and the failure rate is approximately 15%. This failure rate is considered low relative to other courses. The grade average range is between 50 and 70%. The course breakdown cites individual lesson tests (quiz) as 30% of the final grade, and a comprehensive exam as 70% of the final grade. It should be noted that the distance education students and the students enrolled in a traditional classroom both receive the same exam.

Tutors who have taught this course in the past have identified the following three deficiencies in the course as it presently exists. First, there is a lack of emphasis on visual/auditory and kinesthetic (learning through motion/emotion) values. In the past the learning materials have appealed to abstract learners, rather than providing concrete illustrations/materials. Secondly, there is an increasing need to provide concrete illustrations which have greater applications

to the real world. Finally, and perhaps as an concern for future consideration, there has been an absence of matching characteristics of content to appropriate media.

Educational Objectives of Media Presentation

1. To design materials which are more concrete, thereby presenting the learner with opportunities to perceive information from a variety of vantage points.
2. To provide illustrations (visual and auditory) which will potentially increase motivation and learner interest, thereby decreasing student attrition rate.
3. To provide greater flexibility in the organization of instruction, in order to appeal to the variety of learning styles.
4. To isolate specific content elements for purposes of sharpening powers of observation.
5. To examine specific principles of organization in perception in relation to: a) definition of perception; b) factors affecting attention; c) how errors in perception may occur; d) identifying components of illusions.

Affective Objectives

In order to determine how students enjoyed the Psychology 20 kit, the following affective objectives were identified. These objectives will serve as a guideline in developing a questionnaire, and thereby serve as a measurement tool in learning how the students enjoyed or disliked the kit.

Upon completion of utilizing the media kit, students will indicate:

1. Specific components which were considered helpful in completing the multiple choice tests, (pre - and post-tests.)
2. Areas of improvement for the kit.
3. How useful the pictorial illustrations were to the course material.
4. Whether they felt the kit contributed to their understanding of perception principles.
5. Whether they felt the kit was easy to use in terms of relating the course material to components of the it.
6. Whether similar types of kits should be included for other chapters and/or courses.

Intended Target Audience, Users or Participants

Students: The content, format and packaging variables were intended to motivate Alberta Correspondence School students from both rural and urban centers. The majority of the target audience (60%) are Grade Eleven students, with the remainder (40%) being adults wishing to upgrade their education. Students are equally split between male and female. The Grade 11 students either attend public schools who do not offer a course in General Psychology 20 or cannot fit such a course into their schedule. The target audience is almost equally divided between urban and rural schools.

Outline of Content

Outline for Auditory Perception Script - Psychology 20

I. Brief introduction to program - (i.e., provide a auditory advance organizer as to what will follow in the program).

II. What is Sound?

Transcripts from Research	Consultants Outline
a) Definition	What is Sound?
	Characteristics of Sound
b) Properties of Sound	
Frequency	Frequency and Pitch
Pitch	Sound Pressure and Amplitude
Vibration and Resonance	Decibel Scale
Intensity	Loudness
Loudness	
c) Desirable and Undesirable Sounds	
	Effects of Noise on Hearing

III. Transmission of Sound

a) How We Hear	
How we hear	The Process of Hearing

IV. Reception and Perception of Sound

a) Auditory Threshold

Absolute Threshold — Sensitivity of Hearing

Acoustic Reflex

b) Directional Hearing

Cocktail Party Effect — Binaural Hearing, Directional Hearing

Doppler Effect

c) Auditory Localization

Auditory Localization

d) Psychoacoustics

Cocktail Party Effect — Cocktail Party Effect

Doppler Effect — Doppler Effect

Unfair Hearing Test — Psychoacoustics

Masking

V. Characteristics of the Transmission of Sound

a) Generation of Sound — Generation and Propagation of Sound

b) Acoustics

Acoustical Explanation

c) Sound Reverberation and Echo

Reverberation C.B.C. — Reverberation and Echo

Echo and Reverberation

d) Sound Absorbtion and Reflection

Accoustical Explanation — Sound Absorption

VI. Cultural Parameters of Sound in our Society

Effects of Noise on Hearing

Electronic Sounds

Outline of Content for Illustrations

The concept descriptions are found on the reverse side of the actual illustrations. (For more complete information see Appendix A). These descriptions use a similar language to that found in the Correspondence School course book.

I. Concept: Afterimage — Illustrations: Bird in the Cage

Definition: When the image continues for an interval after perception.

The Hermann Grid

Color Afterimage

Green-Red Canadian Flag

II. Concept: Closure

Illustrations:

. Horse and Rider

Definition: When a gap occurs in the perceived object, one tends to perceive the object as a whole.

III. Concept: Color Perception"

"Brightness"

Illustrations:

Simultaneous Color Contrast

The Bezold Effect

IV. Concept: Subjective Colors

Illustrations:

The Benham Top

V. Concept: Figure-Ground

Illustrations:

Cubes - Star

Telephone - Dogs

Levi - Strauss Jeans

Definition: The figure and ground are perceived as interchangeable.

VI. Concept: Irradiation Illusion

Definition: Same stimulus is seen in two different surroundings, thus displaying a variation in perception.

Illustration: Helmholtz

Irradiation

VII. Concept: Mental Imagery

Illustration: "Can You Visually Imagine."

VIII. Concept: Optical Illusions

Definition: False perceptions of stimuli.

Illustration: Top Hat

Contradictory Triangle

IX. Concept: Oscillation

Illustrations: Ames Window
Moire Pattern
Shroder's Staircase
"Here's the Limit"

X. Concept: Patterns

Definition: On the basis of similarity, separate elements are grouped together into wholes.

Illustrations: Swirling Patterns

XI. Concept: Camouflage

Illustration: Drawing of Jesus

Definition: Contours have been lost by another dominant pattern.

XII. Concept: Perceptual Contrast

Illustration: Circles Large and Small

XIII. Concept: Perspective

Illustration: Three Tall Men

XIV. Concept: Linear Perspective

Illustration: Railroad Ties

Definition: Converging lines give an impression of distance.

XV. Concept: Distance Perspective

Illustration: Moon Illusion

XVI. Concept: Stereoscopic Vision

Illustration: Stereoscopic Photos (with stereoscopic glasses)

Definition: Both eyes work in conjunction to improve depth perception.

Form of Presentation

The media kit, designed for the Psychology 20 course for the Alberta Correspondence School, contains information with many features in mind. The most important of these are described below.

To keep the information organized in an orderly fashion, the actual illustrations and photographs were housed in a binder. All illustrations were laminated in order to protect them against excessive wear.

The auditory component included a tape of specific auditory perception principles and an accompanying transcript of the tape. According to Fleming and Levie (1979) "two-channel research indicates that the 'capacity' (or learners ability to process information) appears to be larger where two modalities are utilized" (p.63).

Fleming and Levie (1979) noted that there is a definite weakness in the auditory channel to allow for the learner to retain information. Problems associated with these failings encompass an inability on the part of a learner to critically examine stimuli as they are presented. In effect, "auditory sensations fade rapidly," due to brief exposure. Ordinarily, auditory

stimuli require repeated presentation for any retention to occur. Further, "choice of words, rate of delivery, and technical audio quality" act to enhance comprehension (p.48).

Accordingly, in order to overcome these inherent problems some operational safeguards were established. First, the tapes must use simple straight forward language, and the quality of the tapes must be of the highest technical fidelity. Each tape was in fact manually taped, as opposed to the high speed machine quality generally used.

Secondly, the inclusion of the transcript was thought to serve as a redundant feature in helping the student to retain specific auditory perception principles.

The dual-modality principle identified by Fleming and Levie (1979) states that "two tasks involving the visual modality, for instance, will interfere more than where one involves the visual and one the auditory modality" (p 61). In essence, this principle describes the separation of auditory and visual mental processing. Posner (1973) states "the left hemisphere appears specialized for serial information, especially languages (speech), and the right hemisphere for simultaneous

information, especially spatial stimuli (pictures)" (p.61). In this particular way, separate modalities serve to complement each other.

The serial character of speech, is thought to be processed with smaller pieces of information. In order to produce higher retention among learners, the redundant element would serve to reinforce the audio component.

Finally, as suggested by Fleming and Levie (1979) "of all possible combinations of modality and sign, the one that appears to be most compatible and to permit the highest information load is the auditory modality" (p. 58). In effect, the auditory component with its complementary transcript serves the designer well as a flexible media form for the dissemination of information.

Rationale for Media Selection

According to a definition by Romiszowski (1981) "media" are considered the carriers of messages from some transmitting source to the receiver of the message" (p. 339). The basis of this transmission should be one which is concerned with choosing an appropriate medium,

given an analysis of the content, its learner and expected outcomes.

It is this type of analysis which brings forth a mixed media design, namely, a media kit. Its contents include an audio tape cassette, and accompanying transcripts, visual illustrations, photographs and assorted apparatuses.

In deriving this particular selection, there was an examination of generalized and accepted principles of media selection and use. From the outset, it is worth noting that no one medium is necessarily best in learning a particular skill or developing a desirable attitude. This is largely due to the fact that student preferences, individual interests and capabilities, and learning styles are likely to influence the results of using media.

It is the intent of this media kit to provide sufficient flexibility, in its present form, for a variety of individual learning styles. Thus, it will meet specific learning needs over a greater cross-section of the target audience.

According to Kemp (1977) the chosen medium should be "made consistent with the objectives and content of the instructional materials" (p 75). Here, the intent

is to illustrate that the chosen medium is well-suited for the message it seeks to communicate. In the case of the media kit, the objectives and content were focussed to provide the learner with illustrative examples of specific perception principles.

It was thought that the best means to reach this objective was to allow the student to carefully examine illustrations through a combined mixed media approach, one which would provide sufficient flexibility so as to permit close-up detailed study at an individual's own pace.

In addition to the concern for ease of use in cognitive learning aspects, there are some practical principles in selection which warrant some discussion. Romiszowski (1981) suggests that "one must analyze certain quantitative aspects in understanding the circumstances of use. For example, how many people will use the kit? And with what frequency? How geographically dispersed is the target audience?" (p. 343). This final question certainly has a great deal of bearing on the choice of design, especially for self-study materials.

Knowledge that educational materials should be designed for a correspondence school student body who

are dispersed throughout the province, forces a more narrowed pool of media alternatives. This is largely due to he fact that all learning materials must be self-contained. That is, all appropriate learning materials must be packaged in such a way so as to fulfill the specific learning objectives of the lesson or course.

Specific components of the design were based on a careful review of the content itself. The inclusion of transcripts linked to the audio-cassette was based on two independent reasons.

First, it was thought that 'two-channel capacity' research outlined in Instructional Message Design, by Fleming and Levie (1979) is complementary in nature, where "vision is specialized for making spacial distinctions but relatively poor for temporal. Audition is specialized for making temporal distinctions but relatively poor for spatial" (p. 47).
(Note: The distinction between a digital sign and a iconic sign is that a digital sign may be a printed word or number and an iconic sign includes pictures, maps, and globes. The word pear and the picture of a pear both refer to a particular fruit.)

Secondly, because auditory sensations are thought

to fade rapidly, the transcripts serve to reinforce the auditory concepts. As Fleming and Levie (1979) explain, "sign types differ in regard to initial apprehension. Speech apprehension is limited by the brevity of the stimulus (generally no repetition nor going back)." However in combination "print and picture apprehension is typically more dependable, for the stimulus can generally be repeated, reviewed and studied" (p. 50).

Certainly the fleeting nature of auditory perception must demand a safeguard, namely a transcript for additional perusal and reinforcement. From a technical standpoint, this 'safeguard' might be warranted if the technical aural quality was poor or if the choice of words or rate of delivery was difficult to understand.

The graphic illustrations found in the kit are to be used in direct conjunction with course materials. Specific illustrations were chosen (or designed) for their ability to enhance or further communicate the concept at hand. In addition to simple line drawings, there was an explanation of the intended meaning of the visual found on the other side of the illustration. This was designed to provide immediate understanding of the illustration.

The inclusion of both 'iconic' and 'digital' signs was based on a principle outlined by Fleming and Levie (1979) which states that the effect of information processing is not necessarily limited by the sign type of the stimulus. "Pictorial stimuli can be and (frequently are) recoded into mental words, and verbal stimuli can be recoded into mental images" (p. 51).

Pavio (1970) has stated that a picture may "arouse imagery and verbal processes in the perceiver. Similarly, words can arouse imagery in the mind of the reader, and may improve memory for words" (p.9).

The decision to use simple line drawing illustrations was based on the notion that too much stimuli might detract from its most salient features. The visuals, therefore, were intended to enhance the textual information by focussing on major features described by the text.

It should be noted that this decision was made quite arbitrarily, as at present there are few guidelines available for making such decisions. According to Dwyer (1978) "there is very little evidence for instructors to use when selecting specific types of visuals that will be most effective in facilitating student achievements of designated learning objectives"

(p. 4). He goes on to state that "highly realistic illustrations may contain so much stimuli that a student may have difficulty identifying the essential learning cues. Worse yet, he/she may experience difficulty attending to, and interacting with, the essential learning cues for the amount of time necessary to understand the information being presented" (p. 6).

On the other hand, simple line drawing illustrations may be interpreted to contain little instructional stimuli. Thus, the question becomes one which addresses the method of presentation, specifically, is the medium externally paced or self-paced? In effect, is there sufficient flexibility built into the learning materials so as to provide the students with longer periods of time to interact with the materials? Is there sufficient time to make necessary discriminations for achievement on the criterion measure?

In summation, the potential benefit of utilizing this mixed media kit has been rationalized based on its ability to meet intended objectives, given a explanation of the chosen media characteristics and components.

Production Design

The actual design of production was based primarily on a series of answers to why, what and how questions. The 'why' of design (beyond the rationale previously stated) concerns the internal goals of the kit; in essence the objectives of the kit. The 'what' refers to the micro planning elements of the kit. This component contained the content analysis for the kit. Finally, the 'how' of design was focussed towards the macro level, that is, how was the kit to be used in an instructional setting.

The objectives outlined for the media presentation were two-fold in nature: a) to provide greater flexibility in the organization of instruction, and b) to choose relevant illustrative materials to enhance their understanding of specific perceptual concepts.

This particular production design met these objectives through carefully chosen planning elements illustrated in the kit. Certainly the 'what' of production or content answered how the content, which was later to be mediated, was analyzed. According to Holmberg (1981) "the structuring of any contents presentation in a distance-study course must necessarily

be based on the objectives, the character of the learning concepts, and the general types learning aimed at" (p. 37).

The basis of the content analysis for the kit was based on student expectations to be able to; identify and provide an explanation of specific audio and visual perception illustrations; and learn the definition of perception.

Of the eighteen perceptual concepts described in the courseware materials, the kit illustrated ten of these concepts, with reinforcement illustrations on five of the ten concepts. The remaining concepts, which were not illustrated, were deleted largely due to an inability to provide a concrete visual or auditory example. For instance, concepts such as sensory deprivation, thresholds, and perceptual experience did not lend themselves to concrete example.

Table #1 - shows a complete breakdown of the concept included/excluded from the kit.

Table 1 Presence and Absence of Concepts Illustrated in Personal Psychology 20 Course

Concepts found in Lesson 12	Media Kit	Title
Perceptual Experience	Absent	
Veridical Perception	Absent	
Perceptual Contrast	Present	Circles
	Large and Small	
	Present	Irradiation Helmholtz
Phenomenal Absolutism	Absent	
Contour	Present	Various pictures
Binocular Disparity	Absent	
Thresholds	Absent	
Sensory Adaptation	Absent	
After-image	Present	Bird in the Cage
	Present	The Hermann Grid
Sensory Deprivation	Absent	

Table 1 Continued

Concepts found in Lesson 12	Media Kit	Title
Camouflage Technique	Present	Pattern Recognition: Jesus
Stereoscopic Vision	Present	
Stereoscopic		Photos
Linear Perspective	Present	Ames Window
	Present	Railroad Ties
	Present	Three Tall Men
Figure-Ground	Present	Cubes - Star
	Present	Telephone - Dogs
	Present	Levi - Strauss
Law of Similarity	Present	Swirling Patterns
Law of Proximity	Absent	
Law of Continuity	Absent	
Law of Closure	Present	Horse and Rider

Table 1 Continued

Concepts found in Lesson 12	Media Kit	Title
Illusions	Present	Top Hat
	Present	Triangle

The following concepts were not found in lesson 12: Schroder's Staircase; Moire Pattern; Here's the Limit; Mental Imagery; Moon Illusion.

The specific elements for this kit included an audio cassette recording (best suited for content which refers to auditory perception), accompanying transcripts, illustrations and concrete devices. As a considerable section of the course material refers to auditory perception, the audio cassette is best suited for the content. The accompanying transcripts were included to reinforce the material, and also offer flexibility in the distance education setting.

According to Bates (1981) the audio cassette cannot be underestimated. In a study he conducted to survey the use of audio-visual media in 12 distant learning systems he found that, "both academics and students alike enjoy using audio cassettes. For the academic they feel they have more control over their use and can

integrate cassettes more tightly into course design" (p. 8).

Cassettes were generally thought to be a highly flexible medium, Bates (1981) "for mastery learning, for commenting on diagrams, charts, tables or text, use of two channels - sound and vision - in a controlled and integrated way, through the combined use of cassette and print or "media," is a very powerful teaching medium" (p.9)

Equally as important, students like using audio cassettes and this may become an important motivational consideration for distant learners, both as an instructional medium and as an affective approach to learning. Bates (1981) has found, "in a majority of courses, they are ranked as the most useful component after the correspondence texts" (p.9). The most salient features are that they are convenient, and students control the pace of instruction, playing parts of the cassette as many or as few times as needed.

Perhaps the increased motivation in using the cassette lies in the informality of the cassette. Bates (1981) finds that, "students frequently comment that cassettes are like having a personal tutorial with the course author in the student's own room" (p. 11).

One final implication to this particular production/evaluation is suggested by Bates (1981) where he states that "audio cassettes integrated with correspondence materials as a major area for development in distance education; they are cheap, easy to control and make, convenient for students, and above all educationally effective" (p.12).

In the kit, there were some concrete devices which illustrate and reinforce the auditory and visual perception principles including 3-D glasses, and a tuning fork. As stated by Fleming and Levie (1979) "the more concrete the things to be associated, the more readily they are learned and remembered" (p. 107). Concrete devices were included as no other method of presentation could better express the meaning of the concept than the actual device itself.

Actual photographs were used to better illustrate concepts which could not be facilitated through the use of simple line drawings. In an attempt to sharpen powers of observation as applied to distance perspective, realistic photographs were included. The photograph of the full moon for example created an illusion of being larger because of its proximity to the earth. When it is photographed, its true distance from

the earth is shown. This would be difficult to express in a simple line drawing.

The extent to which the kit benefited the learner in the instructional setting, depended on the outcome of the pre-post design results. Beyond the scope of statistical analysis, there were specific elements of design which are directly tied to the existing correspondence school materials. As concepts were discussed in the printed course material, students refered to the kit to find illustrations of that same concept.

Finally, the print material completed the instructional production design. As textual concepts were discussed in the course material, students may have made full use of the detailed content offered. Bates (1981) has suggested that print is "more useful for providing content where a good deal of ground needs to be covered or where the subject matter needs to be dealt with in depth, or where certain skills (analytical, mathematical, conceptual) need to be developed" (p.14).

On an administrative level, integrating the kit into an instructional setting requires the correspondence school randomly sending out the kit to students. Upon receiving the kit, a student will

integrate the textual materials with the kit, making reference to appropriate illustrations. As the student completes the kit, it is sent back, checked, and then re-issued to a new student, who is then ready for the next particular component of his/her course.

Production Requirements

The production requirements used to develop this kit fall into two major categories, materials, and personnel.

In terms of actually producing the finished product, the following materials were needed:

Audio tape	25 cassette duplicates 1/4" master 1 cassette master
Transcripts	25 copies of script
Graphic design of Illustrations	Laminated and trimmed

Photographs	25 Prints
Binders	25 Custom Designed Binders
Tuning Forks	25 Tuning Forks
Stereoscopic Glasses	25 Pairs of Stereoscopic Glasses

Personnel (External)

Due to the specialized nature of auditory discrimination and perception, the research process demanded that a consultant be used to review research and scripting phases of the project.

Initially, local specialists at the University of Calgary (Psychology Department) and the Calgary Foothills Hospital (Audiology clinic) were contacted in order to learn which fundamental concepts should be included on the auditory tape. They also provided a number of research sources in both record and tape format for our consideration. I toured both the university and hospital facilities with the intent of

doing some taping there at a later date. But ultimately we created our own sound effects and hearing tests in our own facility. These specialists, however, contributed greatly to the information gathering component of the kit.

At a later stage, a local accoustical consultant was approached to review and provide feedback for both the research and scripting phases of the auditory tape production. When the research phase was completed, a freelance writer was hired to flesh out the existing outline. The script was then reviewed by the accoustical consultant for any errors or omissions in content. This review and feedback process went through two drafts and a final polish before it was sent to production.

Personnel (Internal)

Below is a list of the internal personnel used to complete this project and their responsibilities. The responsibilities described are directly related to the confines of this project.

Project Manager - overall administration of the project.

- responsibility for budgets.
- chairs progress reports.
- co-ordinator of program development.

Developer/Researcher

- ensures educational validity is measured against the initial learning objectives.
- analyzes content scope and sequence.
- develops program goals and learning objectives.
- works with production staff in the preparation of scripts.
- proposes media formats and treatment for program components.

Producer/Photographer

- responsibility for implementing all phases of production, i.e. pre-planning, shooting, and post-production.

- provides leadership for the production team, i.e. ~~the~~ production assistant or crew members. (Not needed in this production.

Audio Operator

- provides technical assistance for audio production.
- prepares recording of all music and sound effects.
- plans production requirements for location work.

Announcer

- presents scripted material for recording.

Graphic Artist

- designs and illustrates materials for print medium.
- involved in the development of professional graphic concepts.

Copyright Officer

- investigates the availability and cost of copyright clearance.

Estimated Costs of Production

The costs associated with this production included internal costs for salaries, photographic supplies, printing and copyright clearance fees. Additionally, funds were allocated for consultation fees.

Over time, costs will be offset by the following factors:

a) the kit will not require updating as the content comprises Psychology principles and will unlikely become outdated;

b) the initial cost of production per kit is reduced by the amount of use over time;

c) the application of the kit may be expanded. For example, a teacher might use portions of the kit for non-psychology purposes.

PART II. PRODUCTION EVALUATION

Purpose of Evaluation

The purpose of the evaluation is two-fold, the first lay in determining whether the kit was effective in supplementing the textual courseware materials. The second is to determine from the dependent measures the direction that future instructional course design may

take. More specifically, whether future development of modules of this type should take place.

In the first instance, the criterion-referenced examination (pre and post tests) (see Appendix B) indicates the areas in which the kit has contributed to student understanding of visual and auditory components of the course. In addition, the attrition rate is tied to the affective measure (in the form of a questionnaire) (see Appendix B). These results provide a measurement of the students appreciation of the kit. The underlying assumption is that if the students enjoyed the kit then a reduced attrition rate will result.

Future course design considerations must engage in a comprehensive review of the objectives outlined in the evaluation. The degree to which the dependent measures are successful in providing results may promote a review of the course design. The implication of this is that recommendations may be generalized for similar distance education courses which contain a similar course structure.

The purpose and goal of the evaluation, in relation to the target audience will be focused on applying the aforementioned outcomes to improving the course

materials for future students. In a more immediate fashion, the dependent measures will address specific needs for purposes of revising the course material.

Objectives of the Evaluation

The outcome of the evaluation will be:

1. To determine the effectiveness of the visual and auditory illustrations through a criterion referenced examination, (pre and post tests).

2. To learn which elements of the kit contribute to students' understanding of the course material.

3. To provide an affective measure of the students' appreciation of the kit.

4. To determine if the kit had a motivational effect by reducing the attrition rate.

5. To derive pertinent data regarding the effectiveness of the kit for future design considerations.

Specific Questions in Relation to Objectives of the Evaluation

The following questions are tied to the objectives in order to determine the overall effectiveness of the kit.

1) Does including the kit in the course affect the learning outcome of the course content?

2) Do the dependent measures appear to be valid for the purpose of the evaluation and are they tied clearly to specific objectives?

3) Will the instructional design of the course be revised if the kit reduces the attrition rate and increases the motivational effect?

4) Will evaluation results demonstrate the need for future development of kits of this type?

Sample of Target Audience to be Tested

Approximately 50 subjects will be tested, 60% being seventeen year olds in Grade 11, and 40% being adults. The majority of enrollees are from rural centers. Please note that Appendix B contains a demographic sheet which provides information regarding the age, sex and number of years of formal education for each student.

Testing Design

The testing design will consist of a two group, (between group) Pre-Post design with an additional evaluative measure (questionnaire). Only students enrolled at the Alberta Correspondence School will be considered as participants.

Subjects will be randomly assigned to either the kit group or the non-kit group. Both groups will receive the required course materials in their present form. The kit will be sent to subjects designated to receive it sometime after they begin their studies with the course material.

Both the kit group and the non-kit group will be notified that upon receipt of the courseware materials they may proceed to lesson 12 (Perception) immediately after completing Lesson 1. Only students who receive the kit will understand that the kit serves to supplement the courseware material. There will be no indication made as to how long the kit-group may use the kit, as this will be an indicator of the motivational factor.

Identical criterion referenced pre-post tests are given to both groups, as Loret (1974) states; "Be sure pre-test and post-test are comparable; it is preferable

to use different forms of the same level of the same test" (p. 17).

Finally, a questionnaire will be sent to the kit-group, once they have completed the post-test.

Instrumentation and Data to be Gathered

The demographic sheet will provide some information about the subjects' educational background and academic experience. Students will be able to identify whether they have taken previous courses in psychology or physics, since such courses relate to perception. The criterion referenced pre-post tests will be in the form of a multiple choice examination. A criterion referenced exam is used as it provides a measurement of achievement to a specific set of objectives. The questionnaire is an affective measure of the kit. It is used to assess the attitudes of the students. In order to review the dependent measures, please see Appendix B.

Sampling Procedures

Random assignment of the kit will be carried out by an administrator at the Correspondence School. Upon

receipt of registration, the administrator will randomly assign students into kit and non-kit groups. She will assign student numbers, in order to ensure that students will complete all phases of the evaluation. Students will be informed that reference to a student number will ensure random assignment of the kit and confidentiality of the dependent measures.

Data Analysis

The distribution of scores on the dependent measure will be examined for each of the two independent groups. These distributions will be derived by calculating the difference between the post-test score and the pre-test score. Since it was determined that the distributions are similar, T-tests were used to compare the kit group to the non-kit group.

The statistical explanation for the choice not to use analysis of co-variance was due to the low within group ($r = .10$) correlation of pre-test and post-test scores.

The affective data will be analyzed by reviewing the frequency of response to particular items, noting typical comments of special interest.

Results

The purpose of this study was to examine the relative effectiveness of introducing a media kit as a supplementary source to existing textual material. In addition to the criterion referenced dependent measure, a questionnaire was sent to recipients of the kit. Frequency distributions indicate the degree to which the students saw value in the kit.

T-tests

The t-test assumes the requirement of equal variances, where the experimental group (kit) has the same degree of variability as the scores of the control group (non-kit). The application of the t-test was used in order to determine if the two sample means (kit and non-kit) are significantly different from one another. This analysis was also used to determine if there was a significant difference within independent means. That is, if there was a significant difference between pre-test and post-test scores within each group.

The outcome of this analysis is detailed in Table 2 and 3. The kit did not contribute significantly to the students overall knowledge of perception principles, as

tested by the criterion- referenced exam. The between independent means (pre-test scores) were $t = -1.01$, $df = 20$, $p < .05$. The between independent means (post test scores) were $t = .46$, $df = 20$, $p < .05$.

The t-test did indicate a significant increase from pre-test to post-test scores from within independent means, $t = 3.86$, $df = 42$, $p = .05$.

Table 2

Comparison Between Independent Means of Experimental and Control Groups in terms of Pre and Post Test Scores. (Assessed by means of students t).

Group	Mean (Pretest)	SD	Mean (Post-test)	SD	t
Experimental	9.91	2.12	13.64	2.69	-1.01
Control	10.91	2.51	13.09	2.88	-1.01

Table 3

Comparison Within Independent Means of Groups in Terms of Pre and Post-test Scores. (Assessed by means of Student t).

Group	Mean (Pre and Post)	df	t
Experimental	11.77	42	3.86
Control	12.00	42	3.86

Table 4

Pre-Enrollment Attitudes Towards Psychology 20 Course, by Gender and Community (Experimental Group)

	Gender		Community	
Attitude	Male	Female	Rural	Urban
Enthusiastic	5	6	6	5
Neutral	1	5	2	4
Reluctant	0	1	1	0
Total	6	12	9	9

Table 5

Reasons for Taking Psychology 20 Course, by Gender and Community (Experimental Group)

	Gender		Community	
Reasons	Male	Female	Rural	Urban
Requirement	1	5	3	3
Personal Interest	5	6	5	6
Fit Into Schedule	0	1	1	0
Total	6	12	9	9

Table 6

Attitude Toward Taking Course As An Introduction to Psychology, by Gender and Community (Experimental Group)

	Gender		Community	
Course Judgement	Male	Female	Rural	Urban
Extremely Difficult	0	1	1	0
Fairly Difficult	4	6	5	5
Just Right	2	3	3	2
Fairly Easy	0	2	0	2
Very Easy	0	0	0	0
Total	6	12	9	9

Table 7

Use of Similar Materials to those found in Kit, by Gender and Community (Experimental Group)

	Gender		Community	
Use of Similar Materials	Male	Female	Rural	Urban
Yes	0	0	0	0
No	6	6	9	9
Total	6	6	9	9

Table 8

Rating of Transcript According to Degree of Help in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
Transcript Rating	Male	Female	Rural	Urban
Extremely Helpful	1	2	1	1
Very Helpful	4	4	3	5
Fairly Helpful	1	6	5	2
Not Very Helpful	0	0	0	0
Not At All Helpful	0	0	0	0
Total	6	12	9	8

Table 9

Rating of Line Drawings According to Degree of Help in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
Line Drawings	Male	Female	Rural	Urban
Extremely Helpful	0	1	1	0
Very Helpful	4	4	3	5
Fairly Helpful	2	6	4	4
Not Very Helpful	0	1	1	0
Not At All Helpful	0	0	0	0
Total	6	12	9	9

Table 10

Rating of Tuning Fork According to Degree of Help in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
Tuning Fork	Male	Female	Rural	Urban
Extremely Helpful	0	0	0	0
Very Helpful	1	1	2	0
Fairly Helpful	4	7	6	5
Not Very Helpful	1	2	0	3
Not At All Helpful	0	2	1	1
Total	6	12	9	9

Table 11

Rating of Audio Tape According to Degree of Help in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
Audio Tape	Male	Female	Rural	Urban
Extremely Helpful	3	4	4	3
Very Helpful	0	5	2	3
Fairly Helpful	2	2	2	2
Not Very Helpful	1	1	1	1
Not At All Helpful	0	0	0	0
Total	6	12	9	9

Table 12

Rating of 3-D Glasses According to Degree of Help in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
3-D Glasses	Male	Female	Rural	Urban
Extremely Helpful	0	2	1	1
Very Helpful	2	5	4	3
Fairly Helpful	1	2	1	2
Not Very Helpful	3	2	3	2
Not At All Helpful	0	1	0	1
Total	6	12	9	9

Table 13

Rating of Audio Component (Tape and Transcript) According to Usefulness in Studies, by Gender and Community (Experimental Group)

	Gender		Community	
Audio Component	Male	Female	Rural	Urban
Extremely Useful	2	4	3	3
Very Useful	2	5	3	4
Moderately Useful	2	3	3	2
Not Very Useful	0	0	0	0
Not At All Useful	0	0	0	0
Total	6	12	9	9

Table 14

Use of Audio-Tape without the Aid of Transcript, by Gender and Community (Experimental Group)

	Gender		Community	
Audio w/o Transcript	Male	Female	Rural	Urban
Yes	0	4	1	3
No	6	8	8	6
Sufficient Info on Tape	0	4	0	3
Total	6	12	9	9

Table 15

Use of Transcript without the Aid of Audio-Tape, by Gender and Community (Experimental Group)

	Gender		Community	
Transcript w/o Audio	Male	Female	Rural	Urban
Yes	1	2	0	3
No	5	10	9	6
Sufficient info on Trans.	1	2	0	3
Didn't have access to Audio machine	0	0	0	0
Total	6	12	9	9

Table 16

Use of Audio Tape and Transcript in Combination, by Gender and Community (Experimental Group)

	Gender		Community	
Combination	Male	Female	Rural	Urban
Yes	5	8	7	6
No	1	4	2	3
Total	6	12	9	9

Table 17

Rating of Using Transcript Alone as a Study Preference, by Gender and Community (Experimental Group)

	Gender		Community	
Transcript Alone	Male	Female	Rural	Urban
Not At All Well Liked	1	2	1	2
Not Well Liked	1	1	2	0
Fair	1	6	3	4
Well Liked	2	3	3	2
Very Well Liked	1	0	0	1
Total	6	12	9	9

Table 18

Rating of Audio Tape Alone as a Study Preference, by Gender and Community (Experimental Group)

	Gender		Community	
Audio Alone	Male	Female	Rural	Urban
Not At All Well Liked	0	0	0	0
Not Well Liked	3	1	2	2
Fair	1	4	2	3
Well Liked	2	5	4	3
Very Well Liked	0	2	1	1
Total	6	12	9	9

Table 19

Rating of Using Transcript and Audio Tape Simultaneously, by Gender and Community (Experimental Group)

	Gender		Community	
Audio/Tape Combo	Male	Female	Rural	Urban
Not At All Well Liked	0	0	0	0
Not Well Liked	0	1	1	0
Fair	2	5	2	5
Well Liked	3	4	4	3
Very Well Liked	1	2	2	1
Total	6	12	9	9

Table 20

Frequency of Reference to Audio-Tape in Preparation for Post-Test, by Gender and Community (Experimental Group)

	Gender		Community	
Reference to Audio	Male	Female	Rural	Urban
Never	3	3	2	4
1 - 4 Times	2	6	5	3
5 - 10 Times	1	3	2	2
11 - 15 Times	0	0	0	0
Total	6	12	9	9

Table 21

Frequency of Reference to Transcript in Preparation for Post-test, by Gender and Community (Experimental Group)

	Gender		Community	
Reference to Transcript	Male	Female	Rural	Urban
Never	0	2	0	2
1 - 4 Times	5	7	7	5
5 - 10 Times	1	3	2	2
11 - 15 Times	0	0	0	0
Total	6	12	9	9

Table 22

Rating of Comprehension of Audio Component, by Gender and Community (Experimental Group)

	Gender		Community	
Understand Audio	Male	Female	Rural	Urban
Easily Understood	1	1	1	1
Quite Easily Understood	2	8	6	4
Fair	1	3	2	2
Moderately Understood	2	0	0	2
Not Easily Understood	0	0	0	0
Total	6	12	9	9

Table 23

Rating of Ease in Relating Audio Tape to Course Material, by Gender and Community (Experimental Group)

	Gender		Community	
Relate Audio to Course	Male	Female	Rural	Urban
Easy to Relate	0	3	1	2
Moderately Easy to Relate	2	4	4	2
Fair	2	4	4	2
Moderately Difficult	2	1	0	3
Difficult to Relate	0	0	0	0
Total	6	12	9	9

Table 24

Rating of Helpfulness in Comprehension of Perception Concepts, by Gender and Community (Experimental Group)

	Gender		Community	
Line Drawings Help	Male	Female	Rural	Urban
Extremely Helpful	0	3	3	0
Very Helpful	4	2	2	4
Fair	2	5	3	4
Not Very Helpful	0	2	1	1
Not At All Helpful	0	0	0	0
Total	6	12	9	9

Table 25

Rating of Clarity of Illustrations in Representing Perception Concepts, by Gender and Community (Experimental Group)

	Gender		Community	
Illustrations Clarity	Male	Female	Rural	Urban
Extremely Clear	0	2	1	1
Somewhat Less Clear	4	6	6	4
Fair	2	4	2	4
Moderately Clear	0	0	0	0
Not At All Clear	0	0	0	0
Total	6	12	9	9

Table 26

Rating of Overall Effectiveness of Kit for Recommendation, by Gender and Community (Experimental Group)

	Gender		Community	
Effectiveness of Kit	Male	Female	Rural	Urban
Extremely Effective	1	2	2	1
Effective	1	5	2	4
Fair	2	5	5	2
Moderately Effective	1	0	0	1
Not Effective	1	0	0	1
Total	6	12	9	9

Table 27

Rating of Audio Tape According to Need for Improvement, by Gender and Community (Experimental Group)

	Gender		Community	
Audio-Tape	Male	Female	Rural	Urban
Shouldn't Be Included	0	0	0	0
Should Be Revised	0	0	0	0
Should Be Considered	2	2	2	2
Should Be Included	4	10	7	7
Total	6	12	9	9

Table 28

Rating of Transcript According to Need for Improvement, by Gender and Community (Experimental Group)

	Gender		Community	
Transcript	Male	Female	Rural	Urban
Shouldn't Be Included	0	0	0	0
Should Be Revised	0	0	0	0
Should Be Considered	2	1	2	1
Should Be Included	4	11	7	8
Total	6	12	9	9

Table 29

Rating of Illustration According to Need for Improvement by Gender and Community (Experimental Group)

	Gender		Community	
Illustrations	Male	Female	Rural	Urban
Shouldn't Be Included	0	0	0	0
Should Be Revised	0	2	1	1
Should Be Considered	0	1	0	1
Should Be Included	6	9	8	7
Total	6	12	9	9

Table 30

Rating of 3-D Object According to Need for Improvement, by Gender and Community (Experimental Group)

	Gender		Community	
3 - D Object	Male	Female	Rural	Urban
Shouldn't Be Included	0	0	0	0
Should Be Revised	2	1	2	1
Should Be Considered	2	5	3	4
Should Be Included	2	6	4	4
Total	6	12	9	9

Table 31

Rating of Enjoyment in Using Kit, by Gender and Community (Experimental Group

Extremely Enjoyable	2	1	2	1
Enjoyable	1	9	5	5
Fair	3	2	2	3
Moderately Enjoyable	0	0	0	0
Not At All Enjoyable	0	0	0	0
Total	6	12	9	9

Table 32

Rating of Kits Informative Contribution to Understanding Principles of Perception, by Gender and Community (Experimental Group)

	Gender		Community	
Understand Principles	Male	Female	Rural	Urban
Extremely Informative	2	1	3	0
Informative	4	9	5	8
Fair	0	2	1	1
Moderately Informative	0	0	0	0
Not At All Informative	0	0	0	0
Total	6	12	9	9

Discussion

This study found that the experimental group who received the audio-visual supplementary kit (to their Personal Psychology 20 course) did not perform significantly better than the control group. However, the questionnaire has supplied some evidence to indicate that students found the kit both useful and enjoyable in their studies.

This section will outline probable reasons for the lack of significant results by discussing the inherent problems in distance education, and learning from media. Finally, reference will be made to possible courses of action in light of these findings.

Well documented evidence cites the most prevalent problems in distance education are student feeling of isolation, fear of failure, interrupted studies, lack of motivation, and delay in receiving feedback from tutors. They all culminate in a heightened attrition rate.

The intended design of instruction for the media kit sought to respond to these problems by adding

elements to the kit in order to render it easier to understand and more enjoyable to use.

According to the frequency distribution of the questionnaire, which relates to the audio portion of the kit (both tape and transcript), eighty - eight percent (88%) of the students who used the audio tape, and one hundred percent (100%) of the students who used the transcript found it useful to their studies. (Percentage calculated where the semantic differential of the Likert scale indicated rates between fairly helpful to extremely helpful).

One reason for such an overwhelming positive response is that according to Durbridge (1982) "the spoken word is powerful in conveying enthusiasm, humour, and indeed a human touch to their academic study" (p.102). This point is further reinforced by Marash (1962), who points out that the human voice may be modulated in such a way "as to deliver the human voice with the correct artistic use of pitch, sound, pace, inflection, and phrasing" (p.102). In this way the student is given the advantage of certain audible clues about the meaning of particular words and phrases. Certainly, in this particular kit, concerted effort has been made to go beyond the meaning of phrases in the

text, but rather has sought to identify specific auditory perception examples.

There is some conflict among theorists in distance education as to the benefits in allowing learner to progress at their own pace, (Bloom, 1968; Flammer and Keller, 1968; Holmberg, 1981). A positive aspect by Holmberg (1981) noted that the two main reasons students choose distance-type study is "because correspondence study enables me to earn while studying' and "because correspondence study enables me to study in my own time and at my own pace' (p. 23).

While self-paced materials may have been urged by some, others, such as Coldeway (1981) has found that it often leads students to withdraw or procrastinate (Henneberry, 1976; Lloyd and Knutzen, 1969; Scwartz, 1976). Lack of time was explained as an excuse for withdrawal among the students using the media kit. Poor time management skills are often explained as the root of the problem, (Carp et al, 1973; Bradley and Lehman, 1975). Such results lead one to recognize the importance of scheduling and time management. Students at Athabasca University were given the option of receiving a computer generated study schedule. This schedule would suggest appropriate

assignment/examination dates with a maximum time allotment to complete the course.

The Alberta Correspondence School will soon have in place a Digital 11750 computer. The most immediate plans are to use it for record keeping; processing of lessons coming in and out; marking course work; averaging grades; registration and sending progress reports to outside schools. Perhaps as a future enhancement to the system, the school might consider adding a computer generated study schedule in order to encourage course completion.

The motivation factor in distance education studies is generally translated to mean, motivation to complete the course. In this sense, one is led to believe that only the end product is of concern. The intent of this media kit was to increase motivation by making learning more fun. The reasoning was to use materials that were of a concrete nature, thus encouraging positive attitudes towards the course material. "It was not enough that students simply completed the course," claims (Boshier, 1978) "but rather to understand students' needs and whether they are being met" (p. 34).

A recent review by Mathieson (1971) on recent trends and methods in self-directed learning, revealed

the importance of motivation and goal clarity in correspondence completion. His findings suggest that in order to maintain motivation there should be greater emphasis on the guidance process in correspondence study. In addition, consideration should be placed on redesigning the curriculum methodology to take advantage of contemporary learning theory.

The head of student services at the Alberta Correspondence School agrees that new methodologies in learning theory should be tested in order to find contemporary approaches to maintain student interest. He has found that the best means currently seen to maintain motivation in a course of study has been to speed up turn around time in returning course materials to students.

The role of research in distance learning has been scant. Various authors (Peters, 1971; Holmberg, 1977; Ljosa, 1978) have noted that educational researchers are rarely present during the design of distance learning systems. Further, they often test variables that are really classes of variables, (e.g., comparisons of distance and classroom learning). The results are often difficult to replicate. "Some institutions are even adverse to defining these variables, since practitioners

work with macro-level variables (e.g., tutoring) and fear that breaking them down into smaller components will complicate the phenomenon" (p. 30)

These problems hinder the development of increasing the body of research. The key area to be tackled for the future production of correspondence materials lies in micro-level research. These limitations in the role of research may have, albeit tangentially, effected the non-significant results, as the body of literature was small for reference purposes.

Measurement of Learning

In closer terms specific to the kit, the lack of significant results may be attributed to the fact that the dependent measure was a verbal assessment of understanding perception principles. The incongruence in testing pictorial and aural illustrations through a textual means lends credence to a point by Romiszwoski (1984) that the end of course test items should simulate the behaviour required as closely as possible.

Clearly the fault lies in the design of the test itself. There were some illustrations included in the test that were also found in the kit. This was a necessary element of design as their absence would have

made the specific question difficult to understand. In future, test design must comply with this rule of testing, 'to simulate the task as closely as possible to the intended behavior.'

Another problem associated with uncontrollable influences lies with the testing component in terms of determining how the students wrote the post-test examination. The difference between post-test and pre-test results in the kit and non-kit group were 3.73 and 2.18 respectively. This shows a slightly higher gain in score by the kit group.

The assumption was that the students who had the kit had access to all the materials for the post-test. Given this fact, there was not a substantial difference between the kit and non-kit groups. The questionnaire asked how often students of the kit group made use of the audio-tape in preparation for the post-test. The results were that 43% used the audio tape one to four times and 12% used it five to ten times. Sixty-eight percent (68%) used the transcript one to four times and 18% used it five to ten times.

It is reasonable, in a distance education setting, to view the writing of a pre-test as objective and free from extraneous interference as possible. However, for

future consideration, the post-test should be held under more controlled conditions. A geographically central institution among urban and rural dwellers would be an optimum locale to carry out an objective assessment.

Learning from Media

Clark (1983) has stated as a premise to research on learning from media, that "consistent evidence is found for the generalization that there are no learning benefits to be gained from employing any specific medium to deliver instruction" (p.445). The implication being that any delivery mode is as appropriate as another. Media are simply vehicles for instruction and do not themselves influence student achievement. The results of this study confirms Clark's findings insofar as there are no significant results between mediated and textual formats. However, Clark goes on to say that the means to fostering learning and meeting intended objectives is through instructional methods. Glaser (1976) defines instructional methods as "the conditions which can be implemented to foster the acquisition of competence" (p.1). It is these instructional methods that warrant some discussion.

There are two major features which underlie the development of the media kit. The first feature is to deliver the content to the students in its most appropriate medium. That is to say that reference to auditory perception principles must be illustrated through an auditory medium. Similarly, discussions referring to visual perception principles must be presented with actual illustrations. This approach provides compatibility between the referent and its' delivery mode.

The second feature lies with the relationship between the content and the medium itself. Paivio (1975) has suggested that the theory of dual coding offers a stronger memory trace where textual information and illustrations complement each other. This 'complementary' relationship which supports the theory of dual coding exists between the illustrations and textual course material as well as between the audio tape and accompanying transcript. Tables 8,9,11,13, and 16 all indicate that the greatest instructional strategies are where both symbols (audio or visual) are combined with text (transcript or course material).

This combination has been well documented in previous studies most notably, (Duchastel, 1978;

Duchastel, 1981; and Levie and Lentz, 1982). While the confines of this study did not examine the various roles that the 'reiterative' quality may play, it nonetheless recognizes that both illustrations and the audio tape may 'serve to motivate as an attentional role, aid in understanding in an explicative role and ultimately facilitate later retrieval from memory in a retentional role (Duchastel, 1981, p. 39).

The retentional role is of particular interest in the design of future distance education studies, due to the favorable evidence that illustrations play in influencing delayed recall over immediate recall. A major study conducted by Levie and Lentz (1982) entitled, "The Effects of Text Illustrations: A Review of Research", investigated whether illustrations aid in retention of textual information. They compared scores on immediate and delayed recall tests of learning from illustrated text versus text alone. Similar comparisons were done in several other studies by (Dwyer, 1968; Haring and Fry, 1979; Duchastel, 1981). Of 24 similar studies, Levie and Lentz (1982) found that 19 studies showed that pictures help more in delayed than in immediate recall.

In a future distance education study, the retention of textual information by immediate and delayed recall should be considered as a variable for study. This study did not examine the immediate and delayed recall retention factor, however it does benefit by learning that the lack of significant results may be partially attributed to the fact that only immediate recall was tested. Perhaps significant results may have ocurred had the students been tested at a later date.

The Audio Component

In offsetting the results of the criterion-referenced examination it becomes necessary to discuss the affective nature of the experimental design. The audio cassette and accompanying transcript offer an educational advantage, as they serve to evoke the sense of a one-to-one tutor among students. In addition, students who use audio-cassettes have far more flexibility in their use. Both time and place of convenience is relevant to their individual needs. Moreover, they can develop their own study strategy by using the cassette players', stop, pause, and replay functions. Given the added advantage in having the

transcript available, students may skim and review information with independent control of the pace. Current media research in the area of audio cassettes by (Bates, 1981; Groves, 1981; Durbridge, 1982) suggests that the audio medium lends itself to distance teaching strategies. Beyond the fact that the medium is more intimate, students' hands and eyes are also free to work on a task together with the lesson on the tape. Future research in this area should focus on an audio lesson where activities and questions can be embedded into the course. These questions may develop various cognitive levels of awareness, such as problem solving, or developing specific skills.

The greatest number of students, ninety-three percent (93%), preferred studying the audio portion in combination, i.e., audio and transcript together. Fleming and Levie (1978) have suggested that the audio portion alone fades rapidly and should allow for repeated presentations. This presentation may be in the form of a transcript.

Students made use of the transcript by using it as a reference source for the post-test. The transcript was used more frequently than the audio-tape as a resource for post-test preparation. Future developments

of audio-transcript should be included. It would be useful to include a tape counter number for easier reference to the section on the tape. It is difficult to know whether the transcript would be preferred over the audio-tape, had an easier access to a specific portion been made available.

The Distance Education Learner (Experimental Group)

The most immediate consideration with regard to the design of instruction lies with the audience. Once an assessment is made of characteristics of the learner, specific teaching methods of delivery modes may be put into place in order to achieve specific educational goals. Distance education is confronted with wholly different approaches to teaching. Typical teaching and study approaches, where there is access to a lecture, tutorial, lab, library, computer and student interaction, are not available to the distance education learner. Therefore, educational strategies must be altered to accommodate these differences.

A profile of the distance education student is a composite of various audiences who have different study patterns in learning. Students who choose a distant learning course want to learn. In asking why students

chose to take the course fifty percent (50%) stated it was for Personal Interest and forty-one percent (41%) explained it was as a course requirement. The remaining students in this study have offered comments which are typical to those found in a distance education setting. Most notably are comments which refer to the redundant feature built into the kit, namely the complementary illustrations/text, and audio/transcript components. For example, "the kit was easy to relate to the course." "I was enticed to study more because I was curious about how the kit related to the course." "I liked the tape and transcript combination, I found it a highly effective way to learn." "I found the script spoke down to you, it was too simple." "Some questions from the course were made clearer by the audio-tape."

Given that this sample population had never had any experience with an audio-visual kit, their response may be seen as exhibiting a Hawthorne effect. This should be couched with a note that the experimental group most frequently rated the course as fairly difficult.

Students noted that for the most part all components of the kit should be included for the future production of A-V kits. The questionnaire did reveal a lower overall rating of the 3-D object. One student

pointed out that the reason 'for consideration' was that the 3-D object's usefulness was in question.

In terms of the motivational effect of the kit, approximately seventy-two percent (72%) of the students who used the kit found it to be enjoyable or extremely enjoyable. This positive response contributes to the motivational effect on their attitude towards the materials.

Equally as significant is the students' response to the kit's informative contribution to understanding principles of perception. Eighty-eight percent (88%) felt that the kit was highly to extremely informative in helping them to understand perception principles.

Decisions for Action

In the future production of a similar media kit, it will be necessary to modify the textual materials as the primary source of information to a more integrated package of instruction. This will demand a comprehensive analysis of the content, its' learner, and appropriate development of media components based on sound instructional methodology.

After careful analysis, this researcher would like to offer that the Personalized System of Instruction

(P.S.I.) Keller, (1968) "has obvious similarities with distance education" (p.31). Northcott (1975) has suggested that P.S.I. "Provides a microcosm of an open university system" (p.31). It is an attractive model of instruction because it relies on the written word for instruction, students must perform at a specified criterion to demonstrate mastery, materials are self-paced by students, and tutors are used to provide feedback to students. Adopting all of these features will necessitate an evaluation of the Psychology 20 course, with particular emphasis on rewriting objectives to include the media format, revised breakdown of the content into discreet units for feedback purposes, and appropriate assessment/evaluation methods to test all elements of the instructional design.

Since the feedback element has a direct effect on learner motivation, it may be worthwhile in a future study to compare immediate and delayed feedback with telephone and mailed feedback.

Perhaps the most difficult area of research lies with the tutor. His/her roles range from teacher, administrator, counsellor, facilitator, motivator, and record-keeper. Accordingly, it is difficult to identify

essential skills and impart them to inexperienced tutors who are new to the system.

Coleway (1980) found that many tutors were not making regular contact with students, "... relatively little of the exchange was related to the course or to administrative matters." Coleway (1980) conducted an experiment with a stratified remuneration system that paid tutors for providing information on students' progress and gave them a bonus when a student completed a credit. This group was compared to a control group who did not receive additional pay. The results did not enhance credit completion, however experimental tutors provided ten times more information than the control group. It may also be worthwhile to provide a list of names of fellow students who excelled in the course and who might be willing to do some peer tutoring. The advantages are that they can identify with fellow students and serve as a much needed friend. It has been documented numerous times that feelings of 'isolation' are a major contributor in student drop out.

Pacing should be viewed as a research variable for future study. It is a strong indicator of the motivational level towards the course. It was not possible for this researcher to administer when the

control and experimental groups sent in their materials to the Correspondence School and, therefore could not account for the pacing variable.

For future consideration it has been determined that the design of course materials must be as motivational as possible. One idea for future design is the illustrative lecture. It is a popular approach, often used with Open University students. The materials consist of a cassette and bound text (with illustrations). Each page provides an illustration, which according to Durbridge (1980) operates like a paragraph of print and contains one idea which the narrator explores. During the lesson, the speaker picks out the words or symbols which appear in each frame. This approach gives students the sense of having a private lesson. It has been successful in the past because it has been said to be "motivating, stimulating and supportive."

With any innovation or change to an existing system, it becomes necessary to evaluate the model presently in place. This researcher would like to suggest the 2 + 6 evaluation model, first used at the Open University. It should be considered as a means to test learning rather than content issues, that is, not

to negate the importance of curricular issues, but rather to test the effects of learning itself. A 2 + 6 model evaluates in the first year of presentation, revises the materials in the second year and then allows the course to run in a similar form for the following six years. The major aim of the evaluation is in accordance with similar objectives found in this study. These are to provide qualitative feedback to the course development team regarding various aspects of the course, such as, the number of students dropping out of the course, and students perception of the relevance of elements of learning materials. (cassette and illustrations with the printed text). In addition, the evaluation should aim to identify those parts of the course (both textual and audio-visual) which are conceptually difficult for students. Finally, it is important to elicit from student suggestions for improving course materials.

Role of the Educational Technologist

The primary role of the educational technologist must be one which blends the work of the practitioner with that of a researcher. In this fashion a dynamic role emerges which will allow for a more self-contained

professional in the field of educational technology. He/she will be able to hypothesize, create instructional materials and test their effectiveness.

While this study has found some disparities between research and practice there, nonetheless, emerge some new questions for research. It has confirmed previous findings in other studies and at the same time has raised new questions in approaching some of the variables. Unanswered questions in this study relate to the reaction of students to correspondence study, student characteristics and evaluation course materials.

As a final note it is fitting to state from (Pirkei Avot - Chapters of the Fathers - Mishnah - Commentary on the Torah) that "It is not your obligation to complete the work, but neither are you free to desist from it."

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APPENDIX A

Content found in Kit

The following descriptions appear as the textual information found on the page preceding the illustration. This description uses language which is similar to that found in the correspondence school course book.

Concept: Afterimage Title: Bird in the Cage

Stare at the bird for thirty seconds in bright light. Then look at the cage. An afterimage will appear and place the bird in the cage.

Afterimages are images that persist after the removal of the stimulus. They occur like the spots we see after looking into a flash. One physiological explanation for this phenomenon is that pigments have been bleached in the retinal receptors and what you "see" in the afterimage is an indication of how the retina's are positioned in relationship to the outside world.

Concept: Afterimage Title: The Hermann Grid

Do you see ghostly dots at the intersections of the black squares? This illusion is based on the notion that white always appears whiter when it is placed next

to black. In fact the lines surrounding the black squares appear whiter than at the corners. At the corners, white meets white and next to black, the brightness is dulled to the ghostly darker dots that you see.

Concept: Color Afterimages Title: Green-Red Canadian Flag

Stare at the Canadian flag for thirty seconds in bright light. Close your eyes in order to allow the color to emerge.

The color of an afterimage is explained by a theory that the same receptors share red-green stimulation, while different receptors share blue-orange and yellow-purple stimulation. When you are looking at green, the red part of the receptor shuts down. If there is a long exposure to the green stimulus, removing it allows the red afterimage to appear.

Concept: Closure Title: Horse and Rider

In this picture, the visual clues that you have been given are there to help you discriminate information that is familiar to you. Your ability to

fill in the gaps into a meaningful and recognizable whole is called "closure".

Do you recognize this pattern as a horse and rider?

Concept: Color Perception Title: "Brightness" Simultaneous Color Contrast

Simultaneous color contrast has been so firmly established in color theory that it is quite remarkable to find that physically identical colors appear to take on the complimentary hue and brightness of their surrounding backgrounds.

Notice in this illustration how the green squares appear slightly different with each background.

Concept: Color Perception Title: The Bezold "Brightness" Effect

In this illustration we can see that the colored region takes on the same color as its background. In fact the color is assimilated by surrounding squares if placed against lighter or darker squares respectively. In this instance we may thank Mr. Wilhelm von Bezold who discovered the "Bezold Effect" while practicing his hobby, rug design.

Concept: Subjective Colors Title: Benham Top

In this illusion, simply take the disk provided and rotate it on different devices from a pencil point to a turntable or electric hand mixer. When you spin the disk (in strong light) in a clockwise direction, you will see a series of rings ranging from a bluish color on the outside, greenish in the middle, and reddish in the center.

Scientists have not been able to explain this phenomenon with great assurance, however they have noted that if we were to photograph the spinning top it would appear grey, as before. We must therefore conclude that this effect is actually a function of our visual system, one that is indeed subjective.

Concept: Figure - Ground Title: Cubes - Star
Telephone - Dogs
Levi - Strauss Jeans

An ability to distinguish an object from its environment is determined by what information is perceived as figure and what as ground. Our most basic perceptual ability is one which is able to distinguish

an object from its environment. A figure is a specific form which has attributes that we recognize, and placed against a background that appear to stand out.

In the examples given the relationship between figure and ground is reversed. The eye cannot choose between an object in the foreground and one in the background so it is forced to repeatedly shift from one area to the other. Note: The two illusions are vases shifting into faces, and three cubes shifting into a star.

Concept: Irradiation Illusion

Title: Helmholtz Irradiation

This illusion demonstrates the effect of light on the size of an object. A dark spot will appear darker as the brightness of its background is increased; whereas, a white spot will appear brighter as its background is darkened. Irradiation also affects the apparent size of things. Bright areas will appear enlarged at the expense of adjacent dark areas. The light square on the left, and the white dots on the right should appear larger.

Concept: Mental Imagery Title: Can You Visually Imagine

Translate each of the following descriptions into a mental image. As you do, rate its clarity according to the following scale:

C - Clear

V - Vague

N - No image at all

Can you visually imagine:

1. A familiar face.
2. A galloping horse.
3. A rosebud.
4. A body of water at sunset.
5. Your bedroom.
6. The characteristic walk of a friend.
7. A table laden with food.
8. A changing stop light.
9. A newspaper headline.
10. A moon through the clouds.

The following descriptions are intended to evoke other modes of sensory imagery:

1. The sound of rain on the roof.
2. A bird twittering.
3. The voice of a friend.
4. Children laughing at play.
5. Thunder.
6. The quiet of a chess game.
7. The prick of a pin.
8. A cold shower.
9. An itch.
10. A soft breeze on your face.
11. The muscular sensation of running.
12. Of sitting down in comfortable chair.
13. Of kicking a can.
14. Of drawing a circle on paper.
15. Of reaching toward a high shelf.
16. The taste of a lemon.
17. The taste of black pepper.
18. The taste of salt.
19. The taste of toothpaste.
20. The taste of a green onion.
21. The smell of an open fire.
22. The smell of a gardenia.
23. The smell of a sweet perfume.
24. The smell of burning leaves.

25. The smell of gasoline.

26. The sensation of hunger.

27. Of extreme fatigue.

28. Of a cough.

29. Of coming awake.

30. Of radiant well-being.

Concept: Optical Illusions Title: Top Hat

This illusion proves our common failings in perceiving height as greater than width even when they are the same. An explanation for this misperception is that it takes more effort to raise our eyes up and down to judge height than from side to side to judge width. In this way, we judge height to be greater because of the effort involved in viewing it.

You may also note that the brim is exactly half the width of the hat, and one quarter the height. The band is exactly half the height of the hat.

Concept: Optical Illusions Title: Contradictory Triangle

You will notice that this triangle is quite extraordinary in its form. Each line appears to be logical until it meets an adjoining corner. This triangle contains two sets of contradictory visual clues which cause the eye to make two contradictory spacial interpretations.

Concept: Oscillation Title: Ames Window

This illusion creates a conflict in seeing whether the window is moving towards or away from us. This is caused by the shape of the window. The narrow end makes the window look as if it is a rectangle, pointing away from you. Converging lines are a distance cue for parallel lines. When the smaller end moves toward you, your brain still perceives it as if it were further away.

Concept: Oscillation Title: Moire Pattern

This illusion is produced when two or more geometric patterns of equally spaced repetitive elements are overlapped. You may find that at certain angles, your eye fills in the intersections, producing a shimmer.

Moire patterns (pronounced mwa-ra) are found in many places in our environment, such as, on screen doors, overlapping picket fences, or sheer nylon curtains.

Concept: Oscillation Title: Schroder's Staircase

Turn this illusion upside down and you should see that the staircase appears on the opposite side. In Schroder's staircase, perspective is altered slightly in order for the viewer to determine which is the top and which the bottom.

Concept: Oscillation Title: "Here's The Limit"

These patterns are not identical, one is made up of a single line. The other is made up of two discontinuous sections. In order to perform this experiment you must trace the pattern as suggested by its' designers, Minsky and Papert of M.I.T. (Massachusetts Institute of Technology). Their objective is to show you that the limits of pure perception are not always obvious but rather that they demand a good deal of effort.

Concept: Patterns Title: Swirling Patterns

You may notice how the static patterns group themselves into swirling patterns. Actually, it is you who is causing the patterning action to occur. Grouping, according to Gestaltists, occurs involuntarily, as it is based on an innate urge towards simplifying complex information into simpler groups.

Concept: Pattern Recognition Title: Jesus (Drawn by Tom Dwyer)

Have you already noticed a pattern in this picture? If not study the top right hand corner of the picture. You should notice that the large saturated area contains elements that form the face of Jesus Christ.

Concept: Perceptual Contrast Title: Circles Large and Small

In this illusion, the apparent size of the circle is influenced by the context in which it is situated. One assumes that the circle surrounded by the larger circles is smaller than the circle surrounded by smaller circles. Actually they are of equal size.

Do you have a small room in your house with large patterned draperies? Would the room look larger or smaller with small patterned draperies?

Concept: Perspective Title: Three Tall Men

Which man is tallest? The man at the top right appears to be tallest, however all three men are of the same size. They appear to increase in size because of

their differing locations within a system of converging lines.

Concept: Linear Perspective Title: Railroad Ties

You will notice that of the two rectangles superimposed on this photograph, the top rectangle looks distinctively larger, where in fact they are of the same size. Can you explain this phenomenon? Use the previous perspective illusion to help formulate your answer.

Concept: Distance Perspective Title: Moon Illusion

A full moon looks larger when it is just rising than later on in the night when it is high in the sky. This of course is an illusion because the moon does not change in size! Why then does it appear to change?

The answer lies in the photograph. (Hint .. look for familiar distance cues.)

Concept: Stereoscopic Vision Title: Stereoscopic Photos (With Stereo Glasses)

When you look at anything with both eyes, you actually "see" two different things. The right eye and the left take in slightly different views of the same subject. Their mind receives these two visions, each from its own angle, and interprets the discrepancy between them as stereoscopic depth. The third dimension is a relation between the eyes that gives the effect of extension in depth. Place the glasses above the stereo pair and move the glasses until you are able to see in the third dimension.

Concept: Stereoscopic Vision Title: Stereoptics

The secret to seeing the cards in three dimensions without stereo glasses lies in learning to aim your eyes at a point beyond the card, so the two drawings on the card will "fuse" into a third, middle image, which is the three-dimensional image.

Some people have found that a record album can help them learn to see the effect without a viewer. Place a

ard on a table in front of you, and stand an album cover up vertically along the space between the two drawings.

If you look down on the card with your nose close to the top edge of the album, each eye will be able to see only one drawing.

APPENDIX B

PERSONAL PSYCHOLOGY 20

PRE-TEST

Name _____ File No. _____

We are asking for your help in a study to test the effectiveness of an educational kit, designed for the course you are about to take. This kit, called Personal Psychology 20, contains illustrations to help you better understand some of the information in this course.

What is a little bit different, is that we would like to try and measure just how good these materials are by testing the kit. We are doing this by asking you to take a short test before you take the course and then another one, once you have completed Lesson 12. Then we'll compare the results.

For the purpose of this study, you may proceed to Lesson 12 after having done Lesson 1. In other words if you receive a kit, you may skip to Lesson 12 after having done Lesson 1, after which you can go back to Lessons 2-11.

The study in which you are about to participate is to test the effectiveness of an educational kit, "Personal Psychology 20".

I agree to participate in this study and understand that the results will remain confidential.

_____ _____

Signature Date

Age _____ Male ☐ Female ☐

I have taken previous courses in Psychology. Yes _____ No _____

If yes, please name these courses.

_____

_____

I have taken previous courses in Physics. Yes _____ No _____

If yes, please name these courses.

_____

_____

Number of formal years of education. Please circle.

High School - Grade 8 Grade 9 Grade 10 Grade 11 Grade 12.

PSYCHOLOGY 20

Instructions: Please read each question thoroughly.
Answer all questions without the aid of any course materials.
Choose the best answer.

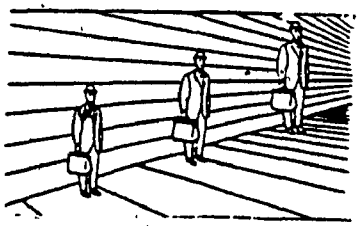
1. Perception may be defined as

   a) sensations and experiences which are stored permanently in the brain.
   b) an interpretation of the stimulus received.
   c) stimulus energy converted into electrical signals for use by the nervous system.
   d) a means of identifying sensory input.

2. Intensity of sound refers to

   a) the amplitude of a sound wave.
   b) the pressure of sound hitting the three tiny bones on the other side of each eardrum.
   c) a measurement of sound.
   d) all of the above.

3. The illusion entitled, "Three Tall Men" depict three men appearing to increase in size, this may be explained due to



   a) converging lines.
   b) deptn perception.
   c) retinal disparity and fusion.
   d) linear perspective.

4. Laws of similarity, proximity, continuity and closure are categories of

   a)perceptual organization.
   b)cognitive style.
   c)cognitive organization.
   d)perceptual integration.

5. To produce the illusion of depth, stereoscopic glasses are worn in order to emphasize

   a) aerial perspecive.
   b) closure.
   c) the visual adaptation level.
   d) retinal disparity.

6. Camouflage is a useful perceptual technique, as we generally have a tendency to structure what we see.
Choose the best description of camouflage.

a) the retinal image retains patterns of varying brightness, and colors thus perceiving specific shapes.
b) one figure is destroyed perceptually and replaced by another.
c) the contours are incorporated into another dominant pattern.
d) all of the above.

7. The tendency to fill in gaps of information in perceiving a figure is called

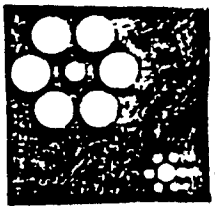
a) sensory completion.
b) closure.
c) figure-ground.
d) continuation.

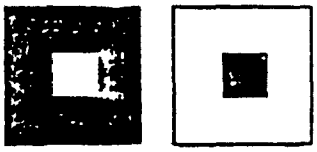
8. The organizational principle demonstrated below is

a) continuity.
b) figure - ground.
c) similarity.
d) nearness.

X O X O
X O X O
X O X O
X O X O

9. Perceptual contrast may be illustrated by which of the following graphics

a) 

b) 

c 

d) 

10. Critical attributes may be best described as those

a) distinctive properties which help to classify it.
b) forces which give direction to an object.
c) patterns which are recurring experiences.
d) storehouses of information which contain common elements.

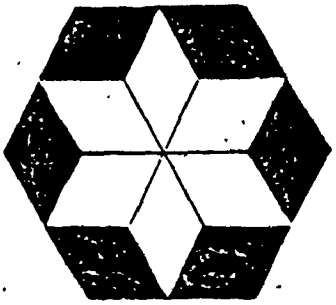
11. Resonance may be defined as

a) a sound wave which measures the intensity of energy units.
b) sound waves of equal frequency tend to reinforce each other.
c) the tonal quality found while instruments harmonize.
d) all of the above.

12. Objects at a distance are seen closer together. Lines leading to the horizon is called

a) divergence.
b) perceptual expectancy.
c) accommodation.
d) convergence.

13. The following illustration is an example of



a) figure - ground.
b) illusions.
c) shape constancy.
d) continuation.

14. Which of the following concepts explains how the ear can handle the intense pressure of a gunshot?

a) Absolute threshold.
b) Accoustical Reflex.
c) Accoustical Expalanation.
d) Intensity.

15. The most basic perceptual organization is

a) shape constancy.
b) depth perception.
c) size constancy.
d) figure - ground.

16. The moon illusion is best explained by

a) the effects of depth clues on apparent distance.
b) the perceptual closure effect.
c) magnification caused by the denser atmosphere along the horizon.
d) convergence.

17. Loudness may be distinguished from intensity by

a) the amplitude of a sound wave.
b) measuring energy units per square centimeter.
c) a measurement unit called a bel, named after Alexander Graham Bell.
d) by the frequency and amplitude of a sound wave.

18. Clues in our environment gives us a sense of size and distance. If two objects are of equal size, the one which appears brighter will also seem to

a) appear smaller.
b) provide a sense of depth.
c) appear closer.
d) appear larger.

19. Attention is aroused by

a) intense stimuli.
b) repetitious stimuli.
c) contrast or change in stimulation.
d) all of the above.

20. The depth cue in which there is an apparent convergence of parallel lines is called

a) binocular accomodation.
b) linear perspective.
c) retinal disparity.
d) converging lines.

21. The cocktail party effect occures when

a) an individual focuses on two voices at the same time.
b) the ear focuses on meaningful sound from the general hubub.
c) an individual focuses her/her hearing on a specific frequency of sound.
d) sounds of equal amplitude gives rise to listen to two different conversations at the same time.

22. After-image is a phenomenon that occurs when

a) the visual experience lingers after the sensory stimulus is removed.
b) photic input is seen directly after stimulation.
c) the eye continues to retain information on the retina.
d) the observer perceives an object in a monochromatic image.

23. The farther sound has to travel in church, for example, the greater,

a) its clarity.
b) the chance it has to mix with other sounds.
c) the loudness.
d) the echo and reverberation.

24. Illusions are

a) distortions of sensory information.
b) false perceptions of visual stimuli.
c) the result of innate mechanisms.
d) not based on external reality.

25. Which of the following is a description of the illustration

a) continuity.
b) accommodation.
c) overlap.
d) closure.

Name : _____ File No: _____ Date: _____

PSYCHOLOGY 20

Instructions: Please read each question thoroughly.
Answer all questions without the aid of any course materials.
Choose the best answer.

1. Perception may be defined as

   (a) sensations and experiences which are stored permanently in the brain.
   (b) an interpretation of the stimulus received.
   (c) stimulus energy converted into electrical signals for use by the nervous system.
   (d) a means of identifying sensory input.

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   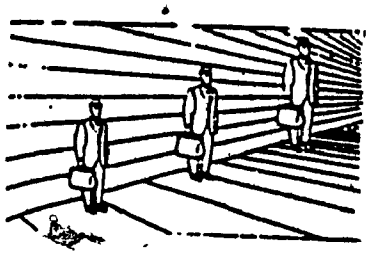

   (a) converging lines.
   (b) depth perception.
   (c) retinal disparity and fusion.
   (d) linear perspective.

4. Laws of similarity, proximity, continuity and closure are categories of

   (a) perceptual organization.
   (b) cognitive style.
   (c) cognitive organization.
   (d) perceptual integration.

5. To produce the illusion of depth, stereoscopic glasses are worn in order to emphasize

   (a) aerial perspective.
   (b) closure.
   (c) the visual adaption level.
   (d) retinal disparity.

Student Registration File Number _____

This questionnaire is part of the evaluation to study the effectiveness of the Personal Psychology 20 kit. Your answers to the following questions will help determine if similar types of kits should be introduced along with textual course material.

Where appropriate, please circle the letter or number associated with your response. Once again, thank you for your help.

Section I

1. How would you describe your attitude toward the Psychology 20 course before you enrolled?

   a. Enthusiastic
   b. Neutral
   c. Reluctant

   Comment _____

2. Why did you take this course?

   a. Requirement for diploma
   b. Personal Interest
   c. Fit into schedule

   Comment _____

3. How would you judge this course as an introduction to Psychology?

   a. Extremely difficult
   b. Fairly difficult
   c. Just right
   d. Fairly easy
   e. Very easy

4. Have you ever used similar materials to those found in this kit?

   a. Yes
   b. No

   Name the course(s) _____

Section II

5. Please rate the following components of the kit you used according to the degree of help they gave you in your studies, where 1 is "not at all helpful" and 5 is "extremely helpful."

Components:	Transcript	Line Drawings	Tuning Fork	Audio Tape	3-D Glasses
Extremely Helpful	5	5	5	5	5
Very Helpful	4	4	4	4	4
Fairly Helpful	3	3	3	3	3
Not Very Helpful	2	2	2	2	2
Not At All Helpful	1	1	1	1	1

6. To what extent was the audio component (tape and transcript) found in the kit useful in your studies?

Not At All Useful — Extremely Useful

1 2 3 4 5

7. Did you use the audio tape without the aid of the transcript?

a. Yes
b. No

If you answered yes, please specify

c. sufficient information was gained by listening to the tape.
d. Other _____

8. Did you use the transcript without listening to the audio tape?

a. Yes
b. No

If you answered yes, please specify

c. sufficient information was gained by reading the transcript.
d. didn't have access to an audio tape machine.
e. Other _____

9. Did you use the audio tape at the same time you used the transcript?

a. Yes
b. No

10. Rate all three possibilities according to how you prefer studying the material, where 1 means "Not at all Well Liked" and 5 means "Very Well Liked."

	Transcript Alone	Audio Tape Alone	Transcript/ Audio	Combination
Not At All Well Liked	1	1	1	1
Not Well Liked	2	2	2	2
Fair	3	3	3	3
Well Liked	4	4	4	4
Very Well Liked	5	5	5	5

11. In preparation for the post-test, how often did you make reference to the audio-tape?

a. never
b. 1 - 4 times
c. 5 - 10 times
d. 11 - 15 times

12. In preparation for the post-test, how many times did you make reference to the transcript?

a. never
b. 1 - 4 times
c. 5 - 10 times
d. 11 - 15 times

13. To what extent do you feel you understand the audio component of the kit, where 1 means not easily understood, and 5 means easily understood?

Not Easily Understood — Easily Understood

1 2 3 4 5

14. To what extent could you relate the audio tape to the course material, where 1 means difficult to relate, and 5 means easy to relate?

Difficult to Relate — Easy to Relate

1 2 3 4 5

15. To what extent did the line drawing illustrations in the kit, help you to understand the concepts in the course?

Not at all Helpful — Extremely Helpful

1 2 3 4 5

16. To what extent were the illustrations clear in representing the concept?

Not at all Clear — Extremely Clear

1 2 3 4 5

If you gave a rating of 3 or less, please explain your answer

_____

17. To what extent could other chapters benefit by having course material illlustrated in a similar type of audio-visual kit?

Not Effective Approach — Extremely Effective Approach

1 2 3 4 5

Could you name other chapters within this course which may benefit by being mediated?

_____

Could you name other courses which may benefit by mediation?

_____

18. Please rate the following components of the kit according to their need for improvement. Should they be considered for another similar kit.

	Audio-Tape	Accompanying Transcript	Illustrations	3-D Object
Shouldn't be included	1	1	1	1
Should be revised	2	2	2	2
Should be considered	3	3	3	3
Should be included	4	4	4	4

19. To what extend did you enjoy using this kit?

Not At All Enjoyable — Extremely Enjoyable

1 2 3 4 5

20. To what extent was the kit informative in contributing to an understanding of principles of perception?

Not At All Informative — Extremely Informtive

1 2 3 4 5