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Guidelines for the Instructional Design of Motion Picture Sound

Bruce Leslie Mann

A Thesis

in

The Department

of

Education

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ABSTRACT

Guidelines for the Instructional Design of Motion Picture Sound

Bruce L. Mann

Traditionally, film and television users have thought of motion picture sound as accompaniment to the visuals. This inattention to the sound component in movies has manifested itself over time in film and television production courses. As a result of using the Martin & Briggs (1986) audit trailing and Davis, Alexander & Yelleh's (1974) RST techniques, this study determined that there doesn't seem to be a system of scriptwriting, of sound mixing, or of applying aesthetics presently in place that can manage the complexity of structuring sound functions synergistically. The prevailing situation is that motion picture production students and practitioners cannot create new procedures for designing sound for motion pictures synergistically.

A unit of instruction was developed for seventeen communication studies and educational technology volunteers based on a variation of Gagne and Briggs (1979) instructional design model with qualitative criteria drawn from Keller's (1983) motivational theory and the Mitchell, Wilkens & Steukel (1981) creative learning paradigm. Dick and Carey's (1985) formative evaluation of intellectual skills and attitudes was complemented with van Oech's (1983) creative thinking strategies. The subject matter experts, external evaluators, and independent instructional designer revised the instructional materials. It is highly recommended that they be consulted in future studies in sound design in order to keep the instructional materials current and interesting.

The one to one trials exposed several criterion-level inconsistencies and unusable video segments. Single subject trials are recommended if new materials are being considered for inclusion into the unit. The small group evaluations produced the most feedback about the

instructional design, showing that only two subjects were able to master 38 of the 40 criteria at the TPO level. Several subjects exhibited problem solving traits requiring a less structured instructional treatment, while subjects exhibiting predominantly rule-using level traits required a more structured treatment. (See Mann, 1988 for complete details of the instructional design stages and formative evaluation results.)

Further recommendations for revision would have the number of objectives expanded from seven to twenty with a more equal weighting of criteria per objective and more task specific creative thinking task-strategies for rule-using level subjects. Revised instructional materials would have more job-related problems in the video examples and nonexamples. Revised criterion-referenced tests would show more uniformity of difficulty of media type and of genre-type between test items. Moreover, since there does not seem to be any adequate sound design system in place at present, this sound design system and its instructional design procedures may be a logical point of reference to begin designing instructional materials for other target audiences.

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CHAPTER 1

Problem Statement

Background to the Problem

Realism

Historically, there have been two main theories used for interpreting production values in movie-making: Expressionism and realism. These theories have dominated the history of motion picture theory and practice ever since their inception by realist Louis Lumiere and expressionist George Melies (Gianetti, 1985; Monaco, 1981). Realistic sound tended to be synchronous, derived from the images which were recorded simultaneously with them. Expressionist sound tended to be nonsynchronous, that is, detached from its source, often acting in contrast with the image, or existing as a totally separate source of meaning. These theories were essentially visually-motivated conceptualizations of reality.

Critics of the realist tradition have stated that there is no reason why the soundtrack should reproduce the sounds usually made by the objects represented in the images (Spottiswoode, 1949). The more dissimilarities there are between picture and sound while still retaining a link of some kind, the more powerful the effect on the viewer/listener (Arnheim, 1957; Balazs, 1972; Bresson, 1977; Cavalcanti, 1939; Clair, 1972; Eisenstein, 1949; Eisenstein, Pudovkin & Alexandrov, 1949; Gorbman, 1976; Grierson, 1934; Kracauer, 1960; Metz, 1980; Paine, 1981; Pudovkin, 1960).

Visual Bias

Owing to a preponderence of primarily visually-minded theoreticians and practitioners, designing sound for motion pictures has often been slighted both in practice and research (Alkin

1973; Doane 1976; Gorbman 1978; Rosenbaum 1978). The justification for discussing movies in visual terms has been that sight has always been considered the primary sense (Rosenbaum, 1978; Sparshott, 1971).

In the past, creativity was most often yoked to seeing: "To imagine is to visualize". Terms like "motion pictures", "cinema", and "television", trace their etymological roots to visual concepts, not to oral/aural ones. Consequently, many contemporary authors attribute their opinions of poor sound in media productions to a visual bias which has evolved due to a camera-oriented dominance in the filmmaking terminology (Alkin, 1973; Altman, 1980, 1985; Altman, 1980; Doane, 1978; Rosenbaum, 1978; Seidman, 1986). Altman (1985), for example, stressed similarities; Eisentein (1949) stressed montage; and Bazin (1980) preferred long-takes. Both Eisenstein and Bazin were emphasizing the visual component of filmmaking. The current visual bias, therefore, may have been generated as a by-product of the early debates between the visually-motivated expressionist and realist movie theoreticians and practitioners.

Movie criticism and theory still remains resolutely image-bound (Altman, 1985). Reasons underlying the authority of the visual dominance have continued to multiply. The source of the image's current high status is still closely linked to sub-sets of visual terminology such as "angle of view", "imaginary line", "rule of thirds", "aspect ratio", and others (Gianetti, 1985; Livingston, 1969). The recent literature has supported this visual emphasis by the adoption (in some production circles) of the film theories of Jean-Louis Baudry, Jean Comolli, and Jacques Lacan. These theories, essentially based in linguistics, have been popularized in print and on tape by Baudry, Metz, and student-producers at the Universite de Paris (Altman, 1985). Although these theories are sufficient for naming and classifying the meanings embedded in expressionistic-style productions, problems have arisen in production practice and in courses when describing non-dominant sound designs (Gianetti, 1985). Descriptive film sound theories, therefore, may be part of the cause for the gaps in sound-picture relationships.

There are two more possible explanations for the recent visual bias in many motion picture

productions: Unstructured sound and unifunctional sound. Sound bullying (Rosenbaum, 1978) refers to either/both unstructured and/or unifunctional design production activities. Some sound designs have functions without a structure for those functions. Others have either an unstructured unifunctional design or an unstructured no-function design (e.g., aleatoric sound). In either case, the designs are unstructured and therefore contribute to the visual bias in the listener/viewer either because the soundtrack does nothing to reduce the visual bias, or because it works against the scripted action.

Unstructured Sound

The effect of a production with two or more sound functions working without a structure is often distracting (Gecsei, 1985), boring (Brown, 1985) or both (Field, 1982; Goldman, 1984). Location news footage and documentary filmmaking typically use a "direct cinema" or aleatoric approach to recording pictures and sound. This unstructured procedure (i.e., without a strategy) usually relies on realistic synchronous sound to relate the story rather than on montage and overdubbing (Gianetti, 1985). Ambient noise and conversation in a chaotic event , for example, may imply several sound functions at once (e.g., atmosphere, POV, locale). However, in this context, these functions seem to produce a confused, distracting effect.

Boring productions on the other hand, seem most often to be the result of informationally redundant pictures, stated, and implied sound. This seems to occur most often when there's lots of "wind-up" in an unscripted production, and the "clincher" or punchline is delayed to the point where the impact of the situation is diffused through too much dialogue.

Informational Strategy. A sound structure is an arrangement of several sound strategies for mediating an intended message or expression. An informational sound substrategy (Alten, 1981; Zuckerman, 1949) is a continuum that spans from the weakest substrategy, wherein the sound accompanies the image; to a stronger sound substrategy that cues the image; to a stronger sound substrategy that counterpoints the image; to yet a stronger sound substrategy that dominates the

image; and finally to the strongest sound substrategy, that undermines the image. The accompaniment of sound to the image is considered to be the weakest informational sound substrategy because the sound merely repeats the same information presented by another component of the same medium. Many current sound designs, especially in broadcast television, utilize the weakest informational sound substrategy in order to convey information.

Emotional Strategy. The emotional strategy prescribes a scripted subtext for the text, and answers the question, "what does s/he really want?" (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). In defining the visual action intensity the emotional sound strategy prescribes how, where, and how often the chosen sound function should punctuate the visual action (Alten, 1981; Seidman, 1986; Zuckerman, 1949). In punctuating the emotion, this emotional sound strategy prescribes how, where, and how often the chosen sound function should provide subtext to the stated sound and/or visual action (Alten, 1981; Seidman, 1986; Zuckerman, 1949).

Rhythm and Pacing Strategies. Rhythm and pacing are related but distinct sound substrategies (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). The two rhythm substrategies (i.e., continuous and discontinuous) prescribe the periodicity for each chosen sound function in the script. They prescribe how, where, and how often the chosen sound function should set up the world (Brown, 1985; Field,1982; Root, 1985) in the production.The two pacing sound substrategies (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972) prescribe how fast, where, and how often the chosen sound function occurs in the production. Sound pacing may either be fast or slow, or both occurring in contrast to one another.

Review Strategy. The three review substrategies (i.e., massed, spaced, and summarized) prescribes the nature of a particular function's reoccurrance in a sound-picture relationship (Coldevin, 1981; Davis, Alexander & Yellon, 1974). A massed review substrategy clumps one or more functions together in one place in the story. A spaced review substrategy spreads out one or more functions over the enitre plot. While a summarized review substrategy resrveds the

impact of one or more functions unitil the third act.

Delivery Strategy. The delivery strategy is usually considered to be contiuum used in education to prescribe instructional events or learning activities (Davis, Alexander & Yellon, 1974). The application of convergent or divergent delivery methods prescribes how, where, and how often the chosen sound function should editorialize the issue. In a convergent delivery strategy (Coldevin, 1981) the producer presents the questions and supplies the answers; favouring one side over another. This divergent delivery sound substrategy prescribes how, where, and how often the chosen sound function should represent the most exhaustive research of the issue. In the divergent delivery strategy (Coldevin, 1981), the listener/viewer supplies his/her own answers to controversial questions presented by the medium. In every case, the strategies that make up the sound design structure specify how, where, or how often a particular strategy will appropriately place specific sound functions next to every moving picture sequence so as to create an expressionistic conceptualization of reality which is greater than the sum of the parts.

AV Redundancy and Self-service Messaging. There are two types of manifestation of visual bias in motion picture productions as a result of two or more sound functions working without a structure: AV redundancy and self-service messaging:

1) AV redundancy is the most frequent and obvious manifestation of visual bias in motion picture productions as a result of two or more sound functions working without a structure. Many media users have treated sound as an accompaniment to the "real" basis of cinema (i.e, the moving pictures), and that "those people on the screen should merely produce the appropriate noises" (Bordwell & Thompson, 1979, p. 50). These visually-motivated realist and expressionist movie makers have been largely responsible for the current state of AV redundancy. AV redundancy occurs frequently on news programs that feature ongoing worldly skirmishes and wars. For example, a TV news programme may screen pictures showing a skirmish as it happened (live-to-tape). The news anchor introduces and reads the details of the story describing

what the listener/viewer can hear/see for him/herself while the character generator prints out the text of the anchor word for word across the screen. In this example, the scriptwriter has aimed the redundancy of these messages at the gut (Rosenbaum, 1978) intending to punctuate an emotional highlight with a convergent continuously spaced review substrategy. There is an attendant informational strategy which structures an atmosphere sound function that merely accompanies the image thereby sustaining AV redundancy and the visual bias. The graphicated text accompanied by the voice-over is another unnecessary reinforcement of the same informational strategy of the same atmosphere sound function. The combined effect in this example is a one-sided point of view (POV; camera angle and structured sound function) of the skirmish, where the soundtrack doesn't say any more than the pictures have and may even be distracting to the listener/viewer unless either the sound volume is lowered or the newscast is listened to from another room. AV redundancy means that not enough of script was written with respect to how, where, and how often any chosen sound function (atmosphere in this case) was structured (e.g., using an informational, emotional, pacing, rhythm, delivery) into the sound-picture relationship.

2) Self-service messaging is a less frequent manifestation of visual bias in motion picture productions as a result of two or more sound functions working without a structure. Self-service messaging, particularly informational messaging take themselves too seriously, providing the bulk of the evidence for visual bias (Eisler, 1967). Two examples of self-service messaging are TV evangelists and all-night salespeople who frequent many local and network cable television stations following the late news. Using a convergent delivery strategy, the prevailing condition is that self-service messages make conventional uses of sound structures. Eisler (1967) is concerned with the fundamentally immoral act of not screening equally strong arguments from opposing sides; not allowing people the opportunity to make up their own minds, not with the aesthetic mistreatment of the message.

Ideally, every structured function in a sound-picture relationship should be deliberately

obscured, controversial, or highly complex in its artistry or social ideology (Eisler, 1967). This would encourage the listener/viewer to become an active participant in the experience in order to understand (i.e., draw their own conclusions) about the message.

Unifunctional Sound

Sound designing uses both stated sound (i.e., live or live-to-tape dialogue or narration, live music, and live action sound effects) and implied functions (i.e., locale, POV, atmosphere/feeling/mood, past/future events, character's past, and character in the character). Structuring sound effects and music without regard to their implied functions in the sound-picture relationship neither prescribes appropriate character, locale, point of view (Rosenbaum, 1978; Zuckerman, 1949), nor accelerates the scripted action (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984).

The following structuring methods are considered to promote the visual bias in the listener/viewer by not attending to which functions are being structured:

1) Aristotle in the Poetica alluded to structure as "a simple or complex plot made up of those powerful elements of attraction: perepity, discovery, and suffering" (1449.b6 to 1453.10). Yet these elements are ignored in his discussion of plot development using sound (structure, dialogue, and music).

2) Zettl (1973) replaced Pudovkin's synchronistic/asynchronistic dichotomy with the more literal source-connected/disconnected categories. His subcategories seem to be dependent on visual cues rather than on story structure, and only allude to the psychological components of sound.

3) Coldevin's (1981) several content organization categories were meant to improve learning using media by structuring the educational content throughout the production. They do not attend to sound in the sound-picture relationships.

4) The Children's Television Workshop uses instructional goal-areas as a method for

structuring visual and verbal content (Palmer, 1969; Schramm, 1972). Their methodology, however, neglects to consider any procedure for selecting and combining their sound strategies (goal-areas) with their sound functions (POV, character's past, etc.) in the picture-sound relationship.

5) Salomon's system of codes (1979) primarily describes the strategies used to interpret and prescribe educational messages. They do not provide for the temporal dependency of sound in the time-space continuum (Arnheim, 1957).

6) The story-spine (Goldman, 1984; Field, 1982; Root, 1979) has been considered to be an indispensible instrument used in theatrical screenwriting and made-for-TV movies. Its usefulness in treating the story using sound has been left untouched.

7) McLuhan's (1967) idea that "TV acts more like an ear than an eye; that its participation is aural not visual", carries the correct attiude for approaching the visual bias problem in TV. However, this notion was only part of his larger vision of post-literacy in a futuristic global village, and is not readily acceptable to designing sound for television.

8) News items read by the network anchor or reporter tend to be designed with a stated, realistic, synchronous sound. Either no implied sound functions, or a unifunctional (usually point of view) informational sound strategy is planned. If a POV sound function is structured into the script, only one POV wins the debate. The only implied function, (POV in this case), is maintained throughout the production. Since the anchor's character, his/her past, his/her POV, his/her locale is never manipulated, the resulting impression seems to be that the interviewee's POV must be somewhat less correct or less informed while the anchor's POV is always correct. The compelling television magazine-style "60 Minutes" has evolved a method that occasionally erodes away the very trust and rigor at the very heart of investigative journalism" (Jonathan Black, 1982, p. 110).

9) British and North American television drama has tended to utilize informational and emotional strategies while applying one of three examples of the same sound function; namely,

atmosphere/ feeling/mood (Alten, 1981; Gorbman, 1976; Zuckerman, 1949). While giving these productions an immediate recognizability, their multiple applications of unifunctional sound can hardly be expected to suspend the listener's disbelief across productions.

10) Other producers and writers (Bordwell & Thompson, 1979; Doane, 1980; Gorbman, 1976; Prendergast, 1977; Seidman, 1986; Spottiswoode, 1965) have suggested semiological frameworks to organize content . But these are too descriptive and too complex for most sound design users (Gianetti, 1985).

Conditioned Reflex Designs. Nonverbal sound has been praised (when not overused) for its effect when it's aimed at the gut (Rosenbaum, 1978), contriving to persuade the audience that the images are more effective scarier, funnier, bolder, sadder, or wiser than they actually are. An insidious albeit less frequent manifestation of visual bias in motion picture production has been conditioned reflex sound designing, which usually recurs in dramatic and docudramatic film and television productions. There are few examples in the literature that deal with sound designs that stimulate thought rather than manipulate conditioned reflexes. Conditioned reflex sound designs are also symptomatic of a working sound structure without any, or with only one, sound function. One obvious example of associative automatism (Eisler, 1967) or conditioned reflex sound is the use of music to represent impending doom of the approaching shark in the feature movie "Jaws". If an equivalent visual coercion were directed at the audience, it would probably function like printed italics or an exclamation point, which of course would probably be ridiculed.

Cliche Designs. An equally insidious yet more frequent manifestation of visual bias than the conditioned reflex design is the cliched sound design. Cliched sound designs are symptomatic of a working sound structure without any, or with only one, sound function. In production, the cliched sound design may be said to act as substitute for, and may be considered to be a corollary of the conditioned reflex design. The heuristic used here seems to have been that whenever you can't afford to invent your own conditioned reflex design, then use somebody else's. In the

scriptwriting literature, these "uses" of other designers work are called spin-offs or rip-offs (Brown, 1985; Goldman, 1984) depending on how heavily the user borrows from the initial idea.

Cliched and conditioned reflex sound designs are symptomatic of a sound structure without any, or with only one, sound function. Sometimes sound necessitates an informational soundtrack, as in electronic news gathering (ENG) and in electronic field production (EFP). Here the sound is often subordinated and unifunctional (Spottiswoode, 1949; Zettl, 1976).

The Role of Implied Sound

In prevailing practice, the effect on the spectator is oftenplanned (cliched designs, conditioned reflex designs) while the content of the music is planless (Eisler, 1967). This situation should be reversed. Whatever the nature of the resources used (e.g., original composition, records, tapes), the movie music should be situation specific, derived from the particular conditions of the given case, and preferably never before heard on radio unless specifically designed to include that purpose (Eisler, 1967) as in many music video productions.

First, the music should be planned without an eye for the effect. Both pictures and sound should have a function in the sound-picture relationship, driving the story forward naturally based on the character's motivations, not the scriptwriter's device (Brown, Gecsei, Goldman, 1983). The use of music, dialogue and sound effects in motion pictures should be inspired by objective considerations (i.e., the intrinsic requirements of the work). The sound should not overeagerly identify with the events on the screen but should be able to assert its distance from them and thus accentuate the general meaning (Arnheim, 1957; Balazs, 1972; Bresson, 1977; Cavalcanti, 1939; Clair, 1972; Eisenstein, 1949; Eisenstein, Pudovkin & Alexandrov, 1949; Gorbman, 1976; Grierson, 1934; Kracauer, 1960; Metz, 1980; Pudovkin, 1960). Then, a protype of the music should be tested on the target audience. Changes should be considered following an assessment of results of the observations made of the target group(s). No "rules of

experience" should be recognized until they have been tried out on a target audience (Eisler, 1967, p. 126). Even in asserting its distance, sound designing can be overused. Director John Ford stated in an interview with collegue Peter Bogdonavitch (1969), "I don't like to see a man alone in the desert dying of thirst with the Philedelphia Orchestra behind him" (p. 99).

Designer's Identity

Typically, public taste has dictated how, where and how often film and television producers embrace realist techniques. One reason for this may be the commitment (or the lack thereof) of the sound designer in balancing artistic objectivity with public taste. Well-designed sound has always had a lot to do with how the designer interprets the world (Eisler, 1967). It must be decided in each case how, where and how often should structured functions should be prescribed. And whether or not the identification is actually achieved or replaced with cliches.

In conclusion, it seems that visual bias has been one of the most pervasive problems in motion picture sound designing (Altman, 1985; Gorbman, 1976; Rosenbaum, 1978). The number and nature of the structured functions of sound in sound-picture relationships determine whether or not the effects of those relationships have promoted or reduced the visual bias in the listener/viewer. Movie sound, therefore, will not begin to improve until every single sequence is treated with exact regard to its special function (Alten, 1980; Eisler, 1967; Zuckerman, 1949). The literature seems to support the opinion that gaps are evident in many motion picture sound design products. Presumably, this long history of gaps in sound design results is the product of producers who have learned their craft either apriori, from experience, or by some combination of both. It follows that any improvement in the sound design education system should logically produce better motion picture sound designers. "Better motion picture sound designers" in this context refers to those persons who have the ability to generate original expressionistic conceptualizations of the reality for the sound-picture relationship by selecting and combining appropriate functions and structures synergistically for each sound-picture sequence throughout

an entire production).

Introduction To The Context Of The Problem: A Needs Assessment

This proliferation of unstructured and/or unifunctional sound designs in motion picture productions has manifested itself over time as a bad habit within the instructional designs of many film and television production courses. The prevailing situation is that motion picture production students and practitioners have not been able to create new procedures for designing sound for motion pictures (Alten, 1981; Eisenstein, 1949; Gianetti, 1976; Metz, 1960; Gorbman, 1976; Gidal, 1978; Pudovkin, 1949; Spottiswoode, 1950; Zettl, 1973; Zuckerman, 1949). As a consequence of this bad habit, many writers are pressed to offer new production or teaching guidelines to the study of the relationships of sound to picture (Baggaley, 1986; Bordwell & Thompson, 1979; Brookes, 1986; Burch, 1973; Doane, 1980; Eisenstein, 1960; Eisler, 1967; Feldman & Feldman, 1967; Goldman, 1983; Gorbman, 1976; Kracauer, 1960; Mancini, 1985; Manville & Huntley, 1975; Paine, 1985; Prendergast, 1977; Pudovkin, 1958; Rosenbaum, 1978; Seidman, 1986; Sharples, 1975; Schramm, 1972; Snider, 1971; Spottiswoode, 1965; Stephenson & Debrix, 1969; Weis & Belton, 1985; Zuckerman, 1949).

Traditional Teaching Guidelines

Claudia Gorbman (1976), for example, states that the most frequently quoted authors, namely Arnheim, Kracauer, Spottiswoode, and others, have created a general disinterest in movie sound through the officiousness with which they have treated the soundtrack. According to Gorbman, they have mistakenly proposed that students of sound should be aware that: 1) sound design falls into one of two opposing categories- parallel versus counterpoint; 2) the relation of sound to picture falls into one of two opposing categories- synchronous versus nonsynchronous; and 3) the narrative source of movie sound falls into one of two opposing categories- realistic versus unrealistic.

Gorbman's criticism of these categories is well-taken in so far as the dominant practices in sound design education are questioned. Her point that sound effects editing and mixing should be examined by practitioners in relation to the current structure of their own ideological dualism, is also well taken. Eisler (1967) concurs with this need for more unconventional uses of sound to produce obscure or highly complex artistry and social ideology. Gorbman's important contribution may be in the exposure of traditional Pythagorean dichotomies that split current sound effects design knowledge into two opposing operating methodologies: Intellectual versus emotional, intelligible versus sensible, reasonable versus intuitive (Doane, 1978; Rosenbaum, 1978). Gorbman's semiological replacement, however, does little in the way of presenting a systematic and systemic instructional technology for prescribing an original soundtrack that lowers the visual bias. Her sound aesthetics are reminiscent of a simplified version of the Metz semiology. Metz has no production component either (Gianetti, 1985). His semiological frameworks are descriptive classifications only, not normative. Conversely, the notion of expressionism, though presenting only one side of a dichotomous relationship, still lends itself to easier classification under this system than does the semiotic symbology (Gianetti, 1986).

Several other guidelines for producing and teaching effective sound designs are evident in the literature. They range from the simplest step-by-step instructions for primary school children (Swartz, 1981) to adult media production education (Seidman, 1981) to audio hook-up techniques for consumer use (Brookes, 1986) to several complex audio configurations that are designed to improve the personal or corporate film production (Piper, 1975) to the variable studio or EFP effects of audio hardware in video production systems (Starr, 1987; DuPre, 1987) to current persuasive message designs used in the marketing of audio hardware and video production systems (Moss, 1987; Stanton, 1987) to current audience research on increasing the perceived reliability of subject matter experts through the use of solemn music (Baggaley, 1980).

Recent decades of independent filmmaking have seen a return to the sound-as-performance tradition of the silent-with-piano-music film. Synchronous sound is always realistic. However,

not all media production students are using synchronous realistic sound. In one college setting, student Super 8 filmmakers have discovered that asynchronous realistic sound was easier to work with and offered students more creative possibilites than synchronous realistic sound (Piper, 1975).

Steven Seidman's (1986) students, alternatively, studied soundtracks in order to create their own music videos. This strategy, however, relied on prerequisite visualization and narrative-writing skills. Portnoy (1986) used video production to assist students in learning believable character development and scene accelleration in their creative writing projects. Some independently made student films (Camper, 1985), and student videos (Brookes, 1986) were accompanied by sounds that were not placed on the filmstrip or audiotracks, but played separately that is, super 8 double-system style. The synchronization was inexact and slightly different on each projection: It was a fresh experience for every screening, and in one sense, an expressionistic conceptualization of reality.

Undesigned Instruction

The rationale for implementing many of these guidelines was derived, in many cases, from some combination of trial and error, expert judgement, and traditional film production principles, rather than from a formative evaluation of the instructional design. The products were sound designs that were clones of each other since they reflected neither the style nor the value-system of the designer. Production theories, it seems, have only been as good as they were useful. When they have ceased to be so, they were often discarded in favour of an approach that "worked for the picture" (Gianetti, 1985) with little attention payed to the commitment of the designer to the sound design in the film curriculum (Doane, 1976; Eisler, 1967; Rosenbaum, 1978). The sound designer was not taught how to become committed to manipulating or changing reality as part of the instructional system.

Student Visual Bias

One probable consequence of these theories seems to be a scarcity of movies that use non-dominant sound designs in motion picture productions (Doane, 1978; Rosenbaum, 1978). There has been a lack of detailed technical information about production techniques for non-dominant sound designs and an inadequate vocabulary for describing non-dominant sound design. Its not surprising, therefore, that so many students tend to think (as media producers have) of sound as simply an accompaniment to the real basis of cinema; the moving images. Listener/viewers, therefore, assume that the people and things pictured on the screen just produce an appropriate noise (Bordwell & Thompson, 1979).

In conclusion, it seems that the majority of subject matter experts are unanimous in their agreement on this problem of a visual bias. Moreover, there seems to be a consensus of opinion within the area of educational research that sound design education has been virtually left untouched (Berg, 1976; Burch, 1973; Coldevin, 1981; Zuckerman 1949). Burch (1973) writes that research into soundtrack production techniques, carried out by qualified researchers, is crucial if entertainment and educational motion picture film and television are ever to realize their inherent potential. Coldevin's TV research (1981) and Zuckerman's film research (1949) have suggested that more educational formative research and formative evaluation need to be carried out on the relationships of sound variables to picture variables for film, video, and sound production courses.

Statement Of The Problem

Given problematic or soundless (either in-house or independent) film and TV segments, motion picture production practitioners and students of film and TV production have not been able to generate new sound designing procedures for solving problems synergistically.

Specifically, film and television production students and practitioners are not able to: 1) prescribe original multiple sound functions for every sound-picture relationship in the production;

2) prescribe an original multiple-strategy sound structure for each sound function of every sound-picture relationship in the production; 3) write an expressionistic multi-layered script prescribing the sound-picture relationships throughout the production based on the original structured sound functions; 4) verbally direct the audio recording and mixdown of an expressionistic sound design using the original multi-layered script; and 5) write the procedure used to create the original expressionistic sound design.

CHAPTER 2

Literature Review

Importance Of The Problem Within The Context Of The Available Research: Support For The Needs Assessment

Poor sound designs seem to be caused by either unstructured sound functions, unifunctional sound, or both, in many sound-picture relationships (Alkin, 1973; Bordwell & Thompson, 1979; Doane, 1978; Eisenstein, 1949; Metz, 1960; Gorbman, 1976; Gidal, 1978; Pudovkin, 1949; Rosenbaum, 1978; Zettl, 1973). Two behaviours seem to be implicit in structuring sound functions into a sound-picture relationship:

1) At least two (out of a possible six) appropriate sound functions must be chosen for structuring sound into each sound-picture relationship. Typically, the procedures used for choosing appropriate sound functions have been intuitive at best, haphazard most often, and non existent at worst. Visually-motivated creative behaviour seems to be the result of some combination of ignorance or carelessness with a mutiplicity of sound functions, and an overfamiliarity with realistic conceptualizations of reality (Altman, 1985; Doane, 1978; Rosenbaum, 1978; Seidman, 1986).

2) At least four (out of a possible six) appropriate sound strategies for structuring each function must be prescribed. Implicit in this task is an ability to choose from among fifteen possible substrategies, as well as the ability to decide how, where, and how often each substrategy should be applied in the sound-picture relationship.

The First Structuring Behaviour: Stating and Implying Sound Functions

Evidentally, functional aesthetic distinctions are rarely drawn between meanings inherent in

the stated picture, implied picture, stated sound and the implied sound. The stated sound functions, in this context, refers to live dialogue, effects and music. An implied sound is a sound, silence, or combination of sounds, that describes or prescribes its function within a sound-picture relationship (Alten, 1981; Gorbman, 1976; Zuckerman, 1949).

The six implied sound functions may be conceptualized as possible prescriptions for character, place, time, or subject matter in a sound-picture relationship. In this sense, they are not unlike Arnheim's visual categories for montage (1957). Together, the implied sound functions can prescribe what the sound should imply within a sound-picture relationship: 1) about the atmosphere, feeling or mood; 2) about the point of view (POV); 3) about future or past events; 4) about the locale; 5) about the character's past; and 6) about the character in the character.

Atmosphere, Feeling, and Mood. Implied emotional functions of sound relate to the mood or feelings aroused when sound is added or subtracted from the picture. The atmosphere, feeling, and mood sound function (Alten, 1981; Seidman, 1986; Zuckerman, 1949), traditionally has been the most overused function of sound. Typical overuse of this function is the leitmotif; a music phrase repeated throughout the production (Eisler, 1967). The clearest examples of leitmotif occur in "Jaws" types of films and in most television dramas and comedies with easily recognizable signature tunes, as in "Cheers", "Cagey and Lacey", "Magnum PI", "Hill Street Blues", and so forth. The problem with using this function exclusively or inapproriately is that over time it seems to produce a deadening effect in the listener/viewer, possibly due to its consumer product quality (Eisler, 1967; McLuhan, 1967).

Sound design expert Roger Tyrell has labelled the local television commercial "Lajeunesse" unfixable because the producer threw on a little background music to provide an atmosphere, feeling or mood."Lajeunesse" refers to a local fashion store. This commercial shows a modern couch and table in the foreground with a white background. A fashionably dressed woman enters left and seats herself on the couch, posing deliberately to give the impression of her wealthy, exotic character. She looks off-stage right expectantly. Cut to a card show photographs of four or five models posing in wedding attire. The sound that was chosen for this commercial was

prerecorded music and a voice-over. The voice-over is a woman's voice softly chanting "lajeunesse" throughout. In this case, the chosen music has been frequently aired by the TV station to accompany filler spots such as "A Montreal Minute", and "One Moment, Please".

Untypically, in titillating drama or comedy this music may function as an understated musical suggestion of love, sorrow, suspicion, and so forth.

POV. Implied informational functions of sound (Alten, 1981; Zuckerman, 1949) relate to illustrating by adding a new concept idea or fact to the film/video. Point of view (POV) can be used as a function of character. A subjective POV uses character voice-over, an objective POV uses narrator voice-over, and a performer POV uses some combination of subjective-objective sound (Alten, 1986; Lee & Misiorowski, 1978; Zuckerman, 1949). These are usually presented alone, which tend to present a one-dimensional newsreader, cartoon, dramatic or other character. Usually, the motion picture montage connotes or denotes the POV. The audiovisual redundancy of a TV talking head (as we watch it talking) is due in part to a misuse of the POV sound function. Examples are prevalent in many broadcast news and interview shows.

Recalling the Past or Foretelling the Future. Essentially, this sound function may be thought of as the equivalent to a scriptwriter's visual or plot device called the "gimmick" (Brown, 1985; Gecsei, 1984; Gianetti, 1985; Field, 1979; Lee & Misiorowski, 1978; Root, 1984; Samuels, 1984), also known as Hitchcock's "McGuffin" (Goldman, 1983; Monaco, 1981). Unlike the character's past function, however, this function informs the listener/viewer about a past event unrelated to the character's past (e.g., a metaphorical occurance as in a dream). In this context the gimmick may be a sound that implies something only known to the audience, or to the main character and audience but not to the other characters. Virtually always produced with too much echo or reverb (Alten, 1981; Zuckerman, 1949), this function is still only sparingly used in production.

Recalling the past has been used as both an emotional and informational strategy to great effect in the recurring "Rosebud" in Orson Welles' "Citizen Caine", and "Who are those guys, anyway?" in Lehrer and Goldman's "Butch Cassidy and the Sundance Kid" screeenplay.

Similarly, foretelling the future, in this context, is a gimmick, a sound that implies something only known to the audience or to the main character and audience but not to the other characters. An example of foretelling the future can be heard in the thoughts of the crazy girl in Ingmar Bergman's "Through A Glass Darkly". Recalling the past can be written as both an informational and an emotional strategy as when the old man's past is revisited in Bergman's "Wild Strawberries", which incidentally seems to function on a par with the image. Two lesser-known, yet in some ways more striking examples of sound are use both an emotional and an informational strategy, is the sound of the breathing sick woman alone in the empty apartment in Paddy Chayevsky's "Mother", and the infamous breathing murderer in "M".

As an informational strategy alone, recalling the past or foretelling the future deliberately exaggerates the absence of time in the space-time continuum (Arnheim, 1957) e.g., typically, "meanwhile, back at the ranch...". As an emotional strategy alone, recalling the past or foretelling the future is often used as a psychological device for describing mental events within a character. Usually, however, the gimmick is overplayed and the intrigue lost. One example is the recurrance of the dragging foot in the "Ballad Of The Thin Man". Recalling the past as an emotional strategy has been used in stageplays that were adapted to television. Typically, an annoying sound was used as a hair-trigger that would set off the tragic flaw in the main character with an emotionally traumatic past. This of course would all be previously unbeknownest to the audience, evolving naturally as the plot (and the character's personality) unravelled.

Two striking examples of this effective use of sound as a function of the character's past are the secret psychotic worlds of the women portrayed in "Liluth" and in "I Never Promised You A Rose Garden". Another example of this effective use of sound as a function of the character's past is the anarchic boy who narrowly escapes death running through busy traffic because he refuses to acknowledge its physical reality in "La Vie N'existe Pas". In all these examples, the listener/viewer is only partially privileged to the psychological state of the character, and only at certain times.

Locale. Locale seems to play one of the most necessary informational roles in a sound picture

relationship. Most often, the locale sound function is used realistically as appropriate background music or sound effect. Typically, familiar sounds are produced to establish a locale by evoking listener/viewer faith in anticipating familiar behaviours (Alten, 1981; Zuckerman, 1949), eg. Chinese music for a city scene denoting Hong Kong or Peking. Untypically, familiar sound can be added out of context, e.g., Chinese music in little-Italy which may create uncertainty, interest; or the subtle, other-worldly voice of Darth Vader or several Twilight Zone episodes that seem to rely heavily on locale sound (Alten, 1986; Lee & Misiorowski, 1978; Seidman, 1986; and Zuckerman, 1949).

Character in the Character. Specific questions in relation to the plot are usually answered in the stated picture (the visual action) or on the stated soundtrack (the dialogue): who is s/he? who/what does s/he want? However, specific questions in relation to the subtext of the plot are best answered by implication using the character in the character sound function: What does he really want? Who/what's really stopping him/her from getting what s/he wants? The intention behind prescibing this sound function is to generate a controversy with the other sound functions (i.e., POV, Locale, Character's Past, etc.) working in the sound design. The character in the character sound function refers to the subtext, story spine or tragic flaw in the character.

Typically, character in the character sound would be used to depict a certain recurring aspect of the character's behaviour, as in many of Spielberg's films (e.g., "Jaws", and "Raiders"). Untypically, certain aspects of the character's (moral) character or his/her peculiar personality (mask) is intentionally prescribed ambiguously with, for example, self-effacing music that presents a multi-faceted character in the character (Goldman, 1985; Root, 1985; Zuckerman, 1949). One of the few landmark prescriptions of the character in the character sound function survives in the classic other-wordly music box bells that betray the business woman in "McCabe and Mrs Miller", with its audible grumbling idle gossip of the townspeople in Robert Altman's.

Character's Past. Unlike character in the character, the character's past sound function tries to answer specific questions in relation to the plot. This function does not plumb the depths of the character's psyche the way the character in the character function does. It therefore takes less time

to develop and tends to be in evidence more often in motion picture productions (Brown, 1985; Gecsei, 1984; Gianetti,.1985; Field, 1979; Lee & Misiorowski, 1978; Root, 1984; Samuels, 1984). A multidimensional character is a well-sketched character, detailing the character's past by implication (usually visual).

The character's professional past implies (without overtly stating it) what the character has been doing for a living; his roles in the corporation, history of relationships with co-workers, and so forth. The character's personal past implies (without overtly stating it) the nature of his/her marital history, history of educational background, job, and socioeconomic history. The character's private past is what propels the character through the story. The private past implies the need for fame, money, stability of the marriage, peculiar tendencies, and flaws of character or personality.

In summation, there are six implied sound functions. Typically, in so far as most directors have not realized the potential of the sound track, sound has remained a secondary component of the motion picture system. The effect of working with sound structure without using any sound functions, or with using only one function (usually mood) is that the structure neither describes the character, the locale, POV, nor accelerates the scripted action (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). Nondescript characters, redundant, cliched and conditioned reflex sound designs are symtomatic of a working sound structure without any, or just one, sound function. Sound designing attitudes seem to have locked the creative thinking process into an audiovisually-redundant status quo, that has encouraged the production of sound design clones (Altman, 1985; Bordwell & Thompson, 1979; Doane, 1978; Eisler, 1967; Eisenstein, 1949; Gorbman, 1976; Gidal, 1978; Pudovkin, 1949; Rosenbaum, 1978; Spottiswoode, 1950).

Beginning any analysis of the creative thinking process with the elements of sensation, would mean starting at the wrong end, since the elements, products of reflection and abstraction, are remotely derived from the immediate experience (Heidbreder, 1933). The whole experience, in which the entirety is somehow different from the inert sum of the parts, has been called gestalt

(Koffka, 1935; Kohler, 1929; Luchins, 1971; Wertheimer, 1972; Zettl, 1973). In a gestalt, the parts of the whole experience, are not indifferent to each other but are mutually related; they interact and influence one another. Change in one part may produce change in another. The gestalt cannot be conceived of as a composition of elements. The best way to understand the whole experience, would be to decompose it by analysis into its component parts. However, these component parts should not be decided upon arbitrarily; but in their place, their role and function in relationship to the whole of which they are a part, and not be partitioned into predetermined elements that are indifferent to the whole (Koffka, 1935; Heidbreder, 1933; Luchins, 1971; Wertheimer, 1980).

The Creative Thinking Process for Choosing Sound Functions

One way of conceiving of the creative thinking process has been to consider the ideation activity itself in two phases: the germinal phase and the practical phase (van Oech, 1983).

The Practical Phase. Taking the latter component of the process first, creative ideas can only be evaluated and executed in the practical phase of the creative thinking process. Evaluating already-created ideas, closing-in on practical decisions, running risk analyses, and preparing to carry the already created ideas into action are all symptomatic of and the best use for hard thinking. Hard thinking tends to be logical, precise, exact, specific, and consistent; focusing on the differences among elements in a system. Traditional educational systems have developed hard thinking, with less effort given to developing soft thinking skills (van Oech, 1983); particularly in the untested area of choosing sound functions for structuring (Eisler, 1967; Gorbman, 1978; Pudovkin, 1949; Spottiswoode, 1950). The ambiguity and dream-like attitudes of soft thinking are inappropriate during the practical phase, since they can prevent the execution of an idea (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). The firmness and directness indigeneous to the hard thinking attitude, while necessary for the organizational side of sound production, tend to interfere in the germinal phase. Nevertheless, based on the low level of originality, ambiguity, and synergy in the prevailing choice of sound functions used in sound designs, hard

thinking rather than soft thinking skills seem to have been attempted in the germinal phase of the creative thinking process (van Oech, 1983). Hard thinking in the germinal phase of the creative thinking process, then, seems to be responsible for poor sound designing.

The Germinal Phase. Ideas can be generated and manipulated more easily in the germinal phase. Where hard thinking can limit the creative process in the germinal phase, soft thinking is quite effective when searching for ideas (van Oech, 1983). Hard-thinking attitudes in the germinal phase can act like mental locks which are hazardous to creative thinking. Logic and analysis, the tools of hard thinking in the practical phase, can prematurely narrow the creative thinking process in the germinal phase (van Oech, 1983).

Soft thinking has many characteristics: It is metaphorical, approximate, diffuse, playful, and capable of dealing with contradiction, searching for similarities and connections among elements in a system (Mitchell, Wilkens and Steukel, 1981; van Oech, 1983). Soft thinking in the creative living process is not the adaptation of inner circumstances to outer ones. Soft thinking may be conceived of as the creative thinker's will to power "in which, working from within, s/he incorporates and subdues more and more of that which is outside" (Nietzsche in Kaufmann, 1967, p. 361). This helps to insure that sound designing is not self-servicing (Eisler, 1967). Therefore, for more and better ideas, the best prescription should be a good dose of soft thinking at the germinal phase, and a hearty helping of hard thinking in the practical phase of sound design production.

Prescribing Sound Functions: Soft Thinking in the Germinal Phase

Generating Original Ideas. Discovery seems to consist of listening to/looking at the same thing as everyone else and thinking something differently. Brainstorming, or soft thinking aloud (either alone or with others) tends to motivate the suspension of disbelief and generate unique responses, such as original humour; using similies to compare ideas, concepts, things and people. These original ideas can be unusual, clever; even outlandish (Brown, 1984; Field, 1982; Gessner, 1968; Goldman, 1983; Mitchell, Wilkens & Steukel, 1981; Root, 1979; Samuels,

1982). During this soft thinking process, facts don't exist, only interpretations (Nietzsche in Kaufmann, 1968; van Oech, 1983). What matters is where the focus is placed. By changing perspective and playing with concepts of knowledge and experience, we can make the ordinary extraordinary, and the unusual commonplace. Without the ability to temporarily forget about the distinctions between ordinary and extraordinary, the mind remains cluttered with ready-made answers, stifling its capacity for brainstorming. Again, day to day hard thinking tends to be logical, specific, and so on; appropriate to the practical phase of the creative thinking process. Hard thinking in the germinal phase of the creative thinking process, however, seems to be responsible for poor sound designing because of its ability to mentally trap the entire creative thinking process into the lock-step status quo attitude, labeling this process "the normal way of thinking".

These mental locks can be opened in two ways. The first way is to become aware of the mental lock and try and forget about it during the soft thinking phase for new ideas. The second way is to try possible motivating influences that may suggest sample sound functions that are the source from which these mental locks may be opened. One of the most popular suggestions is to utilize the content of an older medium in order to create a new medium (McLuhan, 1967). Some examples are: 1) transcribing an interesting radio program into the structured sound functions on a music video; 2) prescribing a newspaper article as the structured sound functions on a educational program; and 3) rewriting the ending of an old song into the structured sound functions on a epic motion picture soundtrack.

Nonconforming. New ideas are not born into a conforming environment. Whenever people get together, there is a danger for "groupthink" (van Oech, 1983). This is the phenomenon in which the group members are more interested in retaining the approval of other members than in trying to arrive at creative solutions to the problems at hand. Group pressure can inhibit originality and new ideas. Thus when everyone is thinking alike, no one is doing very much thinking. One way of dealing with the problem of conformity and groupthink is to play the fool (van Oech, 1983). Many of the foolish ideas of five and ten years ago are now a reality. It is

difficult to be objective if you have a lot of ego tied up in an idea. Playing the fool might reframe the problem by denying that the problem exists at all. This foolishness may reverse the standard assumptions in order to place the focus on another party's POV. Or the fool may stimulate creative ideas in the other group members by making a parody of the rules, while extolling the trivial and trifling with the exalted (van Oech, 1983). It may be worth noting that putting down the fool (as played by someone else) may be setting up a group-think situation.

Tolerating Ambiguity. On the one hand, people strive to avoid ambiguity because of the communications problems they incur (van Oech, 1983). Conversely, ambiguity often helps to create new ideas. In germinal situations, there is a danger that too much specifity can stifle the producer's imagination (van Oech, 1983). Tolerating ambiguity means feeling comfortable when faced with complex social issues that may have intermingled opposing principles (Mitchell, Syeukel & Wilkens, 1981), accepting the fact that not all questions are totally right or wrong, that there are gray areas which must sometimes be tolerated. Some examples are: 1) utilizing inquiry techniques; 2) utilizing higher level thinking skills; 3) thwarting the premature closure during storyconferences, and; 4) encouraging different or unique questions and responses.

The rightful place for ambiguity is during the search for creative ideas, not during the execution of them. A synonym for ambiguity may be "a second right answer" (van Oech, 1983, p.24). Traditional educational environments encourage covergent learning wherein the producer looks for the one right answer (Davis, Alexander & Yellen, 1974; van Oech, 1983). Thus, the one right answer approach has become ingrained in our way of thinking. This is unfortunate because often it is the second, third or tenth right answer which is what is needed to solve a problem in an innovative way. Roger van Oech (1983) offers three sources of ambiguity: 1) humour; 2) paradox; and 3) personal or private sources.

Generating Humour, Paradox, and Private Sources. The literature suggests that humour is a crucial ingredient of the creative personality (Eisler, 1967; Schramm, 1971; Zillmann, 1980). Thus, the emphasis should be on helping people become better producers and consumers of humour. Essentially, good movie music should contain humorous elements as a kind of formal

self-negation, not in the strict sense of mocking the storyline or the characters on the screen. Movie music should not take itself too seriously while making use of the whole gamut of expressions (Eisler, 1967). Sound designers should be able to: 1) develop the ability to pun and to enjoy punning; 2) create humourous stories, limericks, poems; and 3) pursue activities involving humourous artwork such as cartoons and droodles.

The very occurrance of a paradox is at the crux of creative thinking, for it is the ability to entertain two different and often contradictory notions at the same time (van Oech, 1983). In the application of motion picture aesthetics during production life can be made to appear to be fast-and-lively yet slow and melancholic; or frivolous yet deadly serious, depending on the points of view taken simultaneously.

The seeking out and cultivation of the private sources of ambiguity by producers can improve "the idea-having average" (van Oech, 1983, p.6). These may be books, people, a song on the radio or whatever forces the creator to look for more than one meaning in every design possibility.

The Creativity Stigma. Creative people believe that they are creative because they've been told they are, while less creative people believe that they are not creative because they've been told they are not (van Oech, 1983). Moreover, a major factor which differentiates these creative people from those who believe themselves to be uncreative is that the creative believers perceive themselves as paying more attention to their small ideas than do the creative disbelievers. This phenomenon is concerned with the development of a self assessment mechanism (Mitchell, Wilkens & Steukel, 1981).

An often used example of the creative believer self assessment mechanism at work in motion picture production has been that of the auteur theory (Gianetti, 1985; Monaco, 1984). According to this notion, the director (and some others) believes that he should rightfully be thought of as the sole creative inspiriation of the entire process in motion picture production based on the perceptions of a few syndicated film critics. Under this preconception, filmmakers like Robert Altman, Ingmar Bergman, Alfred Hitchock, Jean Renoir, and others have been raised to the level

of "auteur" or author of their film productions, based on the critical acclaimations of "their work". Altman, Bergman, and Hitchock have proliferated their auteur persona thoughout the film industry and public at large during their interviews with the media, using words such as "my vision of " and "I was inspired by..." to describe the collective effort of many creative people.

This auteur view of the motion picture production business has been widely criticized by most practitioners and writers of motion picture productions (Brown, 1985; Gecsei, 1984; Gianetti, 1984; Field, 1979; Lee & Misiorowski, 1978; Root, 1984; Samuels, 1984), since any production is, in fact, well known to be a collaboration of the efforts of many people (i.e., screenwriters, sound designers, costumers, and so on). Therefore, it seems that it is both the public's perception of these men, and their relectance to disspell the illusion of sole propietorship that makes them and "their work" great.

Self-assessing sound design activities would require designers to test their own products or performance in terms of its strengths and weaknesses, suggesting possible means of improvement (Eisler, 1967). This would entail the designer self-assessesing the gestalt in their own script and sound mix for a soundless videograph, as well as their for their own progress throughout the sound design activities. It is this type of self-assessment that sound designers need to exercise on a more regular basis in order to reduce the pejorative view of themselves as creators.

Learning From Failure. There are instances when making errors is considered inappropriate, but the germinal phase of the creative process isn't one of them (van Oech, 1983). One element of creative problem solving comes about by learning from a failing situation (Mitchell, Wilkens & Steukel, 1981). Errors are a sign of diverging from the well-travelled path. Failing now and then, in this context, is a sign that innovation is taking place (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). One way to encourage innovation is to develop an atmosphere in which failure is permissable: 1) Establish an environment which says: "Go ahead and try something. If it doesn't work lets find out why"; 2) Screen the failures of sound designs created by famous producers with tin-ears (Rosenbaum, 1978; Sharples, 1978); 3) Encourage students to attempt tasks where

failure is possible (i.e., a discovery method of learning sound design).

Generating Flexibility. Producing a variety of ideas that causes shifts from one thought pattern (or category) to another (Mitchell, Wilkens & Steukel, 1981; Torrance, 1980; van Oech, 1983) seems to be another motivating influence that may be a possible source from which mental locks may be opened. For example:

1) Generating open-ended questions or self-questioning may produce a variety of ideas that may cause a shift from one thought pattern to another, such as "how we know that character X means what she says this time" may be shown through either: a) scripting the visual action (e.g., by showing her in action), which is more typically the case; or b) implying by prescribing an implied sound function (e.g., a fairly common sound that triggers an old memory in her) which denotes a tragic flaw from the character's private past.

2) Generating "how many unusual uses" questions may be considered to be another mental unlocking technique (e.g., how many unusual uses can you think of for a silent sequence in this production? For which sound function?); or,

3) Categorizing tasks that focus on the comparison of two items by identifying as many differences as possible and placing their responses into categories (e.g., The train whistle in this sequence are examples of the following sound functions: a) defining the intensity of the action, b) establishing locale, and c) creating atmosphere).

- It may not be enough to generate original ideas through brainstorming activity. Shifting ideas seems to be a key that may open mental locks.

Testing-out Ideas and Hunches. The realm of the possible may be called a germinal seedbed. There are many soft-thinking tools for culitivating the seedbed. One of them is the "what if" question (Brown, 1985; van Oech, 1983). Some examples of the "what if" question are: What if everyone (in the story) could hear what everyone else was thinking? What if an entire motion picture story were made up solely of several points of view of the behaviours of one person during an entire day?. The key to asking "what if" questions in the germinal phase is allowing oneself to probe the possible, the impossible and even the impractical for ideas.

"What if" questions alone may not produce practical, creative ideas. Therefore, it may be necessary to use another germinal soft thinking tool called the "stepping stone" (van Oech, 1983). Stepping stones- sometimes called an outline, scriptoid, sketch, or story idea in film and media (Brown, 1985; Gecsei, 1984; Gianetti, 1984; Field, 1979; Lee & Misiorowski, 1978; Root, 1984; Samuels, 1984)- are simply provocative ideas which stimulate creative thinking about other ideas. For example, a script-idea may call for a herd of charging elephants. The production costs for bringing such a herd to the studio, or the crew to the herd, would be prohibitive. However, the sound alone of a herd of charging elephants dubbed-in during post production may be more cost effective. But for this idea to become fruitful, it would need the visual equivalent to plant the seed for oral/aural creativity. The value of the "stepping stone" lies in its latent practicality.

One reason why producers and students have not used "what if" thinking and stepping stones to generate ideas seems to be that current media have dictated the production trends making producers and students prisoners of familiarity (van Oech, 1983). They get used to asking "what is" and not "what if" questions. A second reason why producers and students have not used "what if" thinking and stepping stones to generate ideas seems to be that they are low-probability production tools (van Oech, 1983). Most people don't feel that they can find the time to ask several soft-thinking questions without coming up with immediate practical creative ideas. A third reason why producers and students have not used "what if" thinking and stepping stones to generate ideas seems to be that they haven't been taught to use these tools. Many people have been educated to respond to unusual ideas by saying, "That's not practical" (van Oech, 1983, p. 48). Consequently, there seems to be an embedded fear of being criticized for being impractical.

Generating Imaginative Sound Designs. Much of what is called intelligence may be an ability to recognize patterns or sequences of events. Patterns give us the power to understand the phenomenal world. Patterns tend to rule our thinking. Quite often, creative thinking involves breaking out of one pattern in order to discover another. People tend to treat most problems and

situations as closed ones with set rules rather than open ones which can be played with. One reason for this may be that there is a lot of societal pressure to follow the rules. Breaking the rules doesn't necessarily lead to creative ideas, but it's one avenue, since many rules outlive the purpose for which they were intended (van Oech, 1983).

Many propositions throughout a person's lifetime tend to be presented as a win/lose situation. Game-playing, however, presents a win/no win logic. Either the participant wins the game or learns from the experience of losing the game. Playing games with ideas in this way can fertilize the creative thinking process. Moreover, a fun learning or working environment makes it more productive than a routine environment (van Oech, 1983), Generating imaginative sound designs in this context refers to the capacity of pretending or engaging in fantasy-related thought processes (Mitchell, Wilkens & Steukel, 1981), including an ability to deliberately exaggerate reality in scriptwriting sound mixing (Gianetti 1985; Piper, 1981; Rosenbaum, 1978). Scriptwriting, by definition, must manipulate reality- the story and characters (Aristotle, Poetica; Field, 1982; Gessner, 1968; Root, 1979; Goldman, 1983; Samuels, 1982). The scriptwriting adage "all writing is rewriting" (Field, 1982; Root, 1979; Goldman, 1983) applies here.

Creating Fluency. The concept of fluency can be thought of in terms of 'odds': the ability to create many responses to a given stimulus (van Oech, 1983). The stimulus may be silent pictures, a problematic soundtrack, or an unfinished script. Rather than breaking the whole into arbitrary pieces and building it again from below, an above-down view argues that the best way to understand the sound-picture relationship as a whole, is to decompose it by analysis into its component parts (Luchins, 1971; Wertheimer, 1934; Wertheimer, 1980). Thinking deeply about the characters and their environment involves moving the whole experience onto different planes (Eisler, 1967); finding moments that will generate conflict, surprise, or suspense in the story using the functions of sound (Aristotle, Poetica; Field, 1982; Gessner, 1968; Root, 1979; Goldman, 1983; Samuels, 1982).

In a gestalt, the entirety of the phenomenon (e.g., a soundpicture relationship) is somehow different from the inert sum of the parts (e.g., a subjective POV sound function).These parts are

not indifferent to each other but are mutually related; they interact and influence one another. Change in one part may produce change in another (Wertheimer, 1934). In other words, what does the structure of its plot look like? Should the plot points and catharsis appear in the usual places in the story? (Aristotle, Poetica; Field, 1982 ; Gessner, 1968; Root, 1979; Goldman, 1983). Does the story proceed in a linear fashion, flashback or forward? (Brown, 1984). Who's POV is taken; who do we cling to? What does the character want and who is s/he afraid of? Who is stopping them from getting what they want? (Brown, 1984). What about suspense- and how is it resolved? (Goldman, 1983). What are the subtexts within each of the stories? (Gecsei, 1982; Goldman, 1983). When do the obligatory scenes occur? (Goldman, 1983; Field 1982; Root, 1979).

The next step may be to make a list of prerecorded or synthesized sounds, though not recorded live during shooting. However, the gestalt that is achieved in unifying the magnetic soundtracks to the film images cannot be conceived of as a composition of separate sound elements accompanying pictures. To begin any analysis with the elements of sensation is to begin at the wrong end, for these elements are products of reflection and abstraction, remotely derived from immediate experience (Gianetti, 1985; Gorbman, 1976; Heidbreder, 1933). Every single sequence must be treated with exact regard to its special function (Alten, 1981; Eisler, 1967; Zuckerman, 1949). This can be achieved somewhat in the way an orchestra leader might emphasize the strings in one passage, then make them swell in another, controlling all the elements by emphasizing and deemphasizing each layer of sound separately, and at will.

Uniting Irrelevant Elements Synectically. The activity of uniting different and seemingly irrelevant elements synectically can only be successful when the implementer has developed both the cognitive skills for implementing an innovation, and the affective behaviours necessary for generating positive attitudes toward that innovation (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). In creative problem solving there is an inductive leap, a combining of ideas from widely separated knowledge systems, a bold use of analogy that transcends what is usually meant by generalizing within a class of problem situations (Gagne, 1985; van Oech, 1983). A

synectic union presupposes that the emotional components of the process are more important than the rational ones (Mitchell, Wilkens & Steukel, 1981).

Some hypothetical examples of emotional expression manifested in new sound functions are: 1) Word-gaming, such as, "a calendar is like a mirror because.."; 2) playing with scientific laws and concepts, such as, what would happen if there was no sun, only sound...; 3) personal analogizing, such as, "what animal sounds the way this person looks?"; 4. Direct analogizing; such as, "Alexander Graham Bell's invention of the telephone was based on his clinical knowledge of the human ear because of his work with the deaf"; and; 5) symbolic analogizing, such as, "the use of objective and impersonal sounds to describe personal problems (eg. a woman screams, as the train whistle shrieks (Arnheim, 1957). The key to this kind of metaphorical thinking is in thinking of similarities: similies and metaphors.

A metaphor is a kind of concept map, making complex ideas easier to understand. The human ability to symbolize is not limited to the real nor the present. This capability empowers creative thinking in two ways: First, it enables the thinker to anticipate the future with such questions as, "suppose it rains tommorow?" and, " What alternatives should be made?" By stimulating possibilities, future planning is realizable. Second, creative thinking is not bound by real world constraints. Ideas can be generated that have no correlate in the world of experience (van Oech, 1983).

Elaborating on Separate Ideas Based on an Original Notion. Specialization, as part of a management information strategy is a fact of life, where the goal is to narrow one's focus and become expert within it (van Oech, 1983). Such information-handling attitudes, however, can limit generation of new ideas. They not only force the creator to delimit problems too narrowly, they may also prevent investigations outside for new ideas outside of their areas of expertise. Strategies for new sound ideas may reside in books, activities, conversations, or in art. Sound designers might well look to cinematography or visual literacy literature for clues to designing sound (not as cues for their sound designs) but as inventive aural replacements to traditional visual techniques. "Unusual uses" exercises can put familiar sounds in a strange setting. Sound

designing exercises may include the planning of learning activities that have students prescribe the most boring soundtrack they can think of (e.g., A droning announcer reading the weather, sports scores; the CFCF elevator music behind a "Montreal Minute"; the shouting "K Tel-type" vocal/music mix of the hard-sell ad campaign); supplying titles or new titles for redesigned non-examples.

Generally speaking, storyconferencing activities provide a stimulus to develop responses and require the creative thinkers to develop responses which build on each other (a chaining effect). Some examples are: 1) solving problems with given conditions and items which allow for sequential developments leading to ultimate solutions; 2) completing full, complex designs from simple partial sound designs; 3) inventing new games and/or rules based on a well-known game; and 4) writing endings to unfinished designs.

Integrating the Sound and Picture Synergistically. When two or more elements (e.g., locale and subjective POV implied sound functions) interact in a unique manner, the result can be greater than the sum of its parts (Koffka, 1935; Luchin, 1971; Mitchell, Wilkens & Steukel, 1981; Schoderbek, Schoderbek & Kefelas, 1985; van Oech, 1983; Wertheimer, 1934, 1935; Zettl, 1973). Synergy in a script or final cut refers to the behaviours of an integral aggregate macrosystem (e.g., the entire film or television production) unpredicted by behaviours of any of their components (the sound design) or subassemblies of their components (the functions or structures). In the gestalt, the parts of a whole interact and influence one another. Change in one part may produce change in another. For example, the integration of the implied subjective POV sound function, repeated once or twice, can make the function reinforce, parody, or undermine itself depending upon how, where, and how often it is structured in a script or sound mix. Other examples of synergistic sound designing would be: 1) unifying the dramatic materials in a script or mix; 2) associating ideas across implied and stated functions; 3) connecting dialogue sequences by structure; and 4) accompanying sequences of functions for silent action. Possible synergistic sound designing learning activites may include: 1) creating a sound design mural

where the whole class or small groups of students would participate in its planning and construction; or 2) creating useful sound designs from poor ones using meager resources.

Moreover, synergy in a script or final cut may also refer to the behaviours of an integral aggregate microsystem. One example may be the integration of two or more implied sound functions (such as the subjective POV and the character's professional past); with a sound structure comprising five scriptwriting strategies, such as an informational strategy that undermines the image; an emotional strategy that defines the intensity of an action, has fast pacing strategy, has a discontinuous rhythum strategy; and a divergent delivery strategy (Alten, 1980; Mitchell, Wilkens & Steukel, 1981; Zettl, 1973; Zuckerman, 1949). Structuring sound functions will be covered in greater detail later in this chapter under the heading "The Second Structuring Behaviour: Prescribing Strategies for Functions". The notion of achieving gestalt in the context of designing sound for movies will also be explained under the subheading "Rationale for Production Design: Software Before Hardware".

Soft Thinking Resourcefulness. Soft thinking in the germinal phase requires a unique form of resourcefulness. Resourcefulness can be measured in terms of the power of one's achievement (Mitchell, Wilkens & Steukel, 1981). This "power of one's achievement " may manifest itself as:

1) the aggregate of one's skill (e.g., an ability to scriptwrite sound functions that creates multi-faceted characters, or can mix silence throughout a cluttered picture sequence);

2) the aggregate of one's one's aesthetic judgement (i.e., the sound form as the audible shape of the sound's content);

3) one's capacity for finding the means for prescribing functions (e.g., creating a new instrument to obtain part, or all of, a new sound design; e.g., a nose-flute or humming hydro wires to create a mood or POV, etc.);

4) one's capacity for adjusting the means for prescribing functions (e.g., "making do" with substitute equipment, e.g., mixing live, prerecorded, or live and prerecorded sounds on

audiocassette, then playing it back using a dual-system sound-picture system in class (Swartz, 1972); using audio overdubbing on videocassette recorders; or

5) one's capacity for testing the effects of a sound design, then redesigning the sound with the results of the evaluation in mind (e.g., testing-out the applause activity by simply determining whether or not they preferred design one or design two; using incentives or not; directing a group to applaud loudly vs. one or two people clapping half-heartedly).

In summation, most of us maintain certain attitudes which lock our thinking into the status quo. Unlocking the ten mental locks involves believing in the worth of one's ideas, and having the persistence to continue building on them. With this attitude, the creator takes more risks, breaking the rules occasionally. S/he looks for more than one right answer, hunting for ideas outside his/her line of expertise. Creative learning, then, often means tolerating ambiguity and occasionally looking foolish. In the germinating phase of a mental unlocking process, playing with creative ideas can be more fruitful than "getting down to business". These activities involve engaging in "what if" and other soft thinking approaches in an effort to go beyond the status quo. Finally, in order to achieve an objectivism in the sound, the designer must be able to draw out the essential form of someone/thing by freeing him/her/it from its details so that the ear glimpses everything and grasps nothing, yielding a highly intellectual content formulation into a single immediate impression (Eisler, 1967; Shahn, 1957). A simple discussion among designers utilizing some of these concepts may generate long-range planning tasks which require performance over an extended period of time.

The Status Quo: The Reaction Against Realism

Traditionally, motion picture users have thought of sound as an accompaniment to the visuals (Arnheim, 1957; Balazs, 1972; Bresson, 1977; Cavalcanti, 1939; Clair, 1972; Eisenstein, 1949; Eisenstein, Pudovkin & Alexandrov, 1949; Gorbman, 1976; Grierson, 1934; Kracauer, 1960;

Metz, 1980; Pudovkin, 1960). Through expressionistic manipulation of the filmstock, or through montage, the cinema could articulate anything. The addition of sound has threatened the authority that the images had exercised over cinematic expression for more than thirty years (Weis & Belton, 1985). The widely accepted view, therefore, has always been been that it was the visual's right to receive most of the attention (Arnheim, 1957; Eisenstein, 1949; Eisenstein, Pudovkin & Alexandrov, 1949; Metz, 1980; Salt, 1976). The introduction of sound, or more particularly, of dialogue, to film posed several problems for those producers who located the source of artistry of the medium within the silent discourse of images that constituted a unique language (Weis & Belton, 1985).

In 1928, Soviet film expressionistic directors Eisenstein, Pudovkin and Alexandrov published a joint statement on sound film in a Leningrad magazine wherein they collectively condemned the realistic application of sound to picture by montage. According to this notion, the cinematograph of moving subjects tended to isolate and neutralize those subjects by cutting them off from surrounding reality, suspending them within time, in space or by attendant subject matter (Arnheim, 1957), thereby transforming the nature of the moving images of the subjects into blocks of raw, unsculptured material. The coincidence of sound with image threatened this process by restoring power and autonomy to the photographed subjects, increasing their independence of meaning, and thus their inertia as montage pieces; in essence "destroying the culture of montage" (Eisenstein, Pudovkin & Alexandrov, 1949). Both Pudovkin and Eisenstein considered that if sound were used symbolically and contrapunctually, rather than realistically, there would result less harm done to the visual image (McLuhan, 1967; Weis & Belton, 1985).

Although he was a co-signer of the statement, Pudovkin held a different view from Eisenstein's. Pudovkin saw asynchronous sound as a means of enriching rather than neutralizing the image (Pudovkin, 1960). While Eisenstein's sound theory was resolutely dialectical, Pudovkin presented a program for associational approaches to sound and picture: "...the first function of sound is to augment the potential expressiveness of the film's content.... sound,

playing a subjective part in the film, and image playing the objective part, is only one of many diverse ways in which the medium of sound film allows us to build a counterpoint. I maintain that only by such counterpoint can primitive naturalism be surpassed, and the rich depths of meaning potential in sound film, creatively handled, be discovered and plumbed" (Pudovkin, 1960, p. 86). Marshall McLuhan (1967) wrote of the 1928 Soviet literary event in likeness to the coming of film sound to illiterate people. The African tribe, during a screening of a film of themselves as photographed/recorded by E.S. Carpenter in 1960, would not accept the combination of both sight and sound media together. They insisted on group participation (by shouting and chanting during the film screenings). In the silent version, they automatically provided sound for themselves by way of closure or completion. This activity became wholly frustrated by the inclusion of a soundtrack. "When sound was added, there was much less participation in working with the image, making it "a further completion of the visual package as a mere consumer commodity" (McLuhan, 1967, p. 130). Moreover, there was no turning back to the old way of "seeing" once sound film listening/ watching became the custom. McLuhan drew parallel circumstances between this (and other) primitive African tribes to the misgivings of the oral/aural Russians, citing Eisenstein and Pudovkin.

Even directors of more theatrical biases were opposed to strictly realistic uses of sound. In 1929, director Rene Clair noted that through a careful selection and organization of sounds, filmmakers could liberate themselves from wordy theatricalism and recapture some of the poetic energy that animated silent cinema. The asynchronous use of sound provided a new method of expression. "For instance, we hear the noise of a door being slammed while we are shown Bessie's anguished face watching from a window; her departure we do not see. This short scene in which the whole effect is concentrated on the actress's face and which the silent cinema would have had to been broken up into several visual fragments, now owes its excellence to its 'unity of place' achieved through sound" (Clair, 1972).

Brazilian-born Alberto Cavalcanti exerted considerable influence on the approach to sound

taken by the British documentary movement in the thirties (Weis & Belton, 1985). Like Pudovkin, Cavalcanti wrote that sound could enable the cinema to achieve a more exact rendering of emotional reality. "While the picture lends itself to clear statement, the sound lends itself to suggestion. All the most suggestive sound devices have been nonsync." (Cavalcanti, 1939, p.211).

Rudolf Arnheim, a student of gestaltists Max Wertheimer and Wolfgang Kohler, published an influential series of articles from 1933 through 1938 on film. In Film As Art, Arnheim, answering those who viewed film as a reproduction of reality, celebrated those aspects of the cinema that limited its reproductive potential. "People who contemptuously refer to the camera as an automatic recording device, must be made to realize that even in the simplest photographic reproduction of a perfectly simple object, a feeling for its nature is required which is quite beyond any mechanical operation" (Arnheim, 1957). For Arnheim, the primacy of the image was total: there was no room for anything else. Speech was either redundant, or at odds with the image, preventing a true fusion of the two media (Weis & Belton, 1985). Although he was considered to be an expressionist with respect to visual perception, Arnheim contradicted Eisenstein and other proponents of nonsync sound by rejecting asynchronism which made sound and image separate but equal, because the addition of sound reduced the gap between film and reality and threatened the artistic status of the medium.

Hungarian realist theoretician Bela Balazs was a figure of paradox. He endorsed the transition to sound as progress yet faulted the sound film for its failure to realize its potential (Weis & Belton, 1985). In his 1945 book, Theory Of Film, he wrote that the coming of sound and the introduction of speech celebrated the cinema as a wordless language. For him, the potential of sound film was in its ability to recover certain lost sensations for the listener/viewer, such as the sounds of objects or nature, the sounds of certain spaces, or the sound of silence, which can be heard only in the context of other sounds (Weis & Belton, 1985). Balazs viewed the vocation of the sound film as a redemption from the chaos of shapeless noise by accepting it

as expression, as significance, as meaning. The soundtrack should organize sounds into a new language that will decipher the noises around us, giving the listener/viewer "the speech of things...If the sound or voice is not tied up with a picture of its source (asynchronous sound), it may grow beyond the dimensions of the latter. The surest means by which a director can convey the pathos or symbolical significance of sound or voice is precisely to use it asynchronously" (Balazs, 1970, p. 64). Further, Balazs stressed the spatial qualities of sound that prevent it from being isolated, and that endow it with the timbre and colour of the particular space in which it was recorded (Weis & Belton, 1985).

Perhaps no theorist has been more influential to filmmakers than Siegfried Kracauer, whose book Theory of Film: The Redemption of Physical Reality, like Balaz's, was distrustful of the soundtrack as mediator between the viewer and his/her environment. Classical theorists, it would seem, created a historical precedent when they held the cinema accountable to theory, rejecting any cinema that failed to meet their standards (Weis & Belton, 1985). The literature continues to indicate concern for the preservation of the structural unity of picture and sound even when music is used as a contrast (Eisler, 1967). Typically, this unity was achieved indirectly; it did not consist in the identity between any elements (tone, color or that of rhythms as a whole). The meaning or function of the elements was intermediary and should never coincide *per se*. The relation was not one of similarity but, as a rule, one of question and answer, affirmation and negation, appearance and essence.

Contemporary Practioners and Theorists

There seems to be little doubt that sight is the dominant sense in any sound-picture relationship, and that the picture usually commands most of the attention. But critics have believed that the visuals can not hold the attention for long if the aural sense is not suitably stimulated (Alkin, 1973; Rosenbaum, 1978; Gorbman, 1976). Bombarded by ever-deepening visual information, therefore, audiences must have heightened sound effects, if only to perceive

them at all (Paine, 1985). Out of the juxtaposition of what the sound is saying and what the picture is saying, the audience comes up with a third idea which is composed of both picture and sound messages, and resolves their superficial differences. Moreover, the relationship of sound to picture is always shifting within a design. The more dissimilar they get while still retaining a link of some sort, the more powerful the effect (Paine in Weis & Belton, 1985). The rationalization for this attitude lies in the confusion about the relative importance of the relationship of the sound and picture to each other. This 'poor relation' attitude is particularly evident in television, where the problem of achieving high quality sound is avoided by suggesting that the presence of the picture makes sound less critical or that the picture supplies most of the information (Alkin, 1973; Altman, 1980; Benjamin, 1974; McLuhan, 1967; Zettl, 1973). Director Alfred Hitchcock, in a candid interview with his collegue Peter Bogdonavitch, appeared to have accepted the place of visual bias when he defined "pure film" as film that expresses its meaning visually, specifically through montage (Bogdonavitch, 1963). But closer examination of his statement in context of his filmmaking revealed (to some) that he was objecting to an excessive use of static dialogue sequences, not to music and sound effects (Weis, 1982).

After 1933 "background music" came to be used more extensively (Bordwell & Thompson, 1979; Salt, 1976). Sound effects, music, and speech could be produced expressionistically or realistically (Gianetti, 1985). Whereas realist film theories stressed the content being communicated, film expressionist theories stressed how the ideas and emotions were conveyed. Moreover, sound was either diegetic (in the story space) or nondiegetic (not in the story space). If diegetic, it may be on-screen or offscreen, internal (subjective) or external (objective). One characteristic of diegetic sound was the possibility of suggesting the distance of the listener/viewer from the source of the sound; loud sounds implying closeness, softer sounds implying more distance. This phenomenon became known as the doppler effect (Alten, 1980). Most nondiegetic sound has had no relevant temporal relationship to the image (Gianetti, 1985)

such as music played over a scene to create a mood, not to imply a certain locale or POV. Movie sound, particularly music, should retain the quick pace of casual listening imposed by the picture, and not be left behind (Eisler, 1967).

Expressionists such as Pudovkin and Eisenstein had established the classical groundwork for encouraging gestalt and reducing the visual bias by encouraging the manipulation of the one dimensional aural reality along the realist-expressionist continuum. Since the 1930's, motion picture editors were beginning to realize the importance of "the dialogue cutting point" for making smooth, unnoticeable cuts when cutting from one speaker to another in a scene (Salt, 1976). By 1933, it was possible to mix a separately recorded music track with the synchronous dialogue track after editing the visuals, without an audible loss of sound quality. Expressionistic theory emphasized the technical sound effects design terminology, techniques of sound track construction, and the discourses on sound effects technique. Though not all modern theorists agreed with Bazin (that the existence of the cinema precedes its essence) the sound film had been accepted as a given. While early filmmaker-theorists like Rene Clair viewed asynchronous sound as a means of serving the image, Robert Bresson, a modern counterpart, gave an independent status to the soundtrack. For Clair, off-screen sound complimented and liberated the image, eliminating the need to show the off-screen action. For Bresson, sound replaced and dominated, not complemented the image.

Recent decades of independent filmmaking have seen a return to the sound-as-performance tradition of the silent-with-piano music film, wherein the expressionistic sounds tend to be nonsynchronous; that is, detached from their source, often acting in contrast with the image. There has been a growing tendency toward the development and integration of the production's technical elements; scriptwriting, sound designing, acting, and photography (Eisler, 1967; McLuhan, 1967; Salt, 1976).

Landmark Sound Designs

There are a few motion picture productions that can be said to be examples of well-designed sound. There is the lonely, timid, rosebud-type character within the echoing consumptive personality of Orson Welles' "Citizen Kane". There are the crescendo-reaching polylogues in Billy Wilder's gangster films and in Alfred Hitchcock's "The Birds". There is subjective agony behind the superficial drug-created joy in Francis Coppola's "Appocalpse Now", and the controlled business man losing control in "McCabe and Mrs Millar". And, there is the peeping-tom surveillance man, who becomes trapped in his own paranoia in Francis Coppola's "The Conversation". These sound designs (and others) have been considered by critics to be inspired (Fischer in Weis & Belton, 1985; Gianetti, 1985; Paine, 1981; Weis, 1978, 1982). Furthermore, isolated examples of stylized sound in local television productions provide us with the the rare examples of well-designed sound: The omnipresent gong that cues the doughnut maker in the often-run "Time To Make The Donuts" ad; the efficient silence of electricity in a Hydro-Quebec ad; and the noisy traffic crossing a kitchen floor in several current floor wax commercials.

One particularly striking TV sound example is a recent Pepsi commercial wherein a young aspiring baseball player approaches two looming opponents (i.e., the Coke and Pepsi machines), in a dusty small town of baseball enthusiasts. In a brilliant use of analogy, the boy is transformed (using sound) into a nervous batter in the World Series, and the machines his adversary on the pitcher's mound). In this case, the announcer's voice and boy's actions are supported by the picture, instead of the reverse (i.e., several grown-ups whom we see through a store window are gathered around a TV set cheering on the hitter at bat). The voice says, "there's the wind-up... and the pitch". At this point, the boy has made his choice, snaps open the lid. "It's a hit... it's going... and going", as the boy chugs back the frosty drink. "It's gone". There's cheering as the boy finishes the drink , wipes his brow, and tosses the empty can with perfect accuracy into the trash bin. In this example, the locale and POV sound functions dominate (possibly undermine in

some moments) the information presented by the image. This is accomplished by defining the intensity of the boy's consequences of choosing a Pepsi over a Coke, spacing each function (locale and POV) slowly throughout the design, then slugging a home run crescendo deliberately converging in a victorious cheer from the crowd, achieving catharsis.

The balance of sound design products, for the most part, are considered to be either AV redundant, conditioned-reflex, self-servicing messages or cliched (Alkin, 1973; Altman, 1985; Altman, 1980; Bordwell & Thompson, 1979; Brown, 1985; Doane, 1978; Eisler, 1967; Field, 1982; Gecsei, 1985; Goldman, 1984; Rosenbaum, 1978; Seidman, 1986). Is sound designing then the inspired gift of a fortunate few, or can it be learned by anyone? What are these producers doing with sound that others are failing to do? One place to begin an investigation of the source of this inability may to understand the problem from a historical perspective. A review of the literature into the history of motion picture production indicates that there seems to be a continuing need to go back to the fundamentals of motion picture production and see what new forms can be derived from its substance (Spottiswoode, 1949). "Any study, however imperfect, which tries to lay bare the scaffolding of the film medium, may be able to help the creative worker on his way" (p. 2).

In summation, the prevailing situation in many entertainment and educational media in which sound and vision are combined seems to be a tendency to consider sound as the poor relation and to allow only as much consideration, effort, and facilities as can be spared after the visual requirements of the production have been satisfied (Alkin, 1973). Poor sound designs seem to be caused by either unstructured sound functions, unifunctional sound, or both. The results of unstructured sound functions are evident in audiovisually redundant and self-servicing sound designs. The presence of a well-structured script is evident in a few landmark movies but is usually absent in many productions (Brown, 1985; Field, 1982; Geesei, 1985; Goldman, 1984). Although structure seems to have been considered to be an improvement over the unscripted

story, the visual aspects of the film story (utilizing the storyboard to tell the story) have been traditionally favoured over the aural aspects. Since the advent of original and adapative scriptwriting for film, the functions of sound have been unscripted and even aleatoric (Gianetti, 1985; Monaco, 1985).

What has been missing and heretofore needed, therefore, is a system that would increase the amount of consideration given to the sound component in sound-picture relationships thereby closing the gaps in results attributable to poor sound designing. The new system needs to include would be a more precise structuring procedure for scriptwriting that delineated how, where and how often a given sound function would be structured into each sound-picture relationship.

The Second Structuring Behaviour: Prescribing Strategies for Functions

Structuring is the second behaviour implicit in structuring sound functions into a sound-picture relationship. Structuring skills are relatively common dramatic devices that, in many cases, are learned in many creative writing and production courses under various synonyms. However, typical sound structuring practices have largely remained separate from the scripting and filmmaking processes, often utilizing one or two kinds of specific sound strategies at a time (such as pacing or rhythm) without reference to more than one sound function. The temptation of many designers seems to be to consider sound structuring as a hard thinking activity to be carried out in the practical phase of production.

This consideration, however, is at the root of the structuring problem."The trouble with such simple controls is that they have insufficient variety to cope with the variety in the environment" (Beer, 1964, p. 50). The designer needs to be constantly questioning him/herself about the sound-picture relationship as one way of maintaining control over his/her system, keeping the sound design system viable, and of reducing the apparent arbitrariness for deciding what substrategies are suitable for which functions.

The two main questions are:

1) Is substrategy X for function W relatable in some way to sound-picture relationship YZ? If function W using substrategy X does not seem to be relatable to YZ, then it may be appropriate to avoid using that combination of structured function, since it has no place in either the sound design system or the environment (i.e., the stated picture, implied picture, stated sound environment). Conversely, if function W using substrategy X seems to be relatable to YZ, then it may be appropriate to use this combination of structured function in either the sound design system or the environment (i.e., the stated picture, implied picture, stated sound environment). (See the Instructional Manual in Mann, 1988 for prescriptive details.)

2) Do I have enough variety using substrategy X with function W to control XY? If there seems to be more variety already in the XY relationship than the designer has using substrategy X with function W, then the designer will not be able to control XY. Conversely, if the designer seems to have more variety using substrategy X with function W than already in the XY relationship, then the designer will be able to control the XY relationship.

Answering these self-imposed questions ought to provide the designer with additional information which would necessarily reduce the variety in the system thereby increasing the designer's control (Beer, 1964; Churchman, 1968; Schoderbek, Schoderbek & Kefelas, 1985) over his/her sound design system. Structuring functions should be thought of in the same way that functioning was achieved (i.e., in terms of a soft thinking activity carried out in the germinal phase of sound designing). Therefore, the same soft thinking skills have been applied here in much the same way in which choosing the functions was done, only on a more complex level. Instead of just choosing two out of six probable sound function inputs, there is the additional task of choosing four from among the fifteen probable substrategy inputs, plus the further complication of deciding how, where, and how often each chosen function should be structured into the script or sound mix.

Scriptwriting the Structured Sound. A "sound strategy" is the sound schema for mediating an intended message or expression. The combination of two or more strategies working together is

called a sound structure. Often a sound strategy answers the scriptwriter's own questions: "What's it about?" (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). Often a sound strategy will utilize a persona to tell its story or relate its message, in which case the question, "what's it about?" becomes "Who is s/he/? What does s/he want? and Who/what's stopping him from getting what s/he wants?".

Sound structure, therefore, refers to the plot (Aristotle, Poetica), the content organization category (Coldevin, 1981), the goal-area (Palmer, 1969; Schramm, 1972), the code (Salomon, 1979), or the story-spine (Goldman, 1984; Field, 1982; Root, 1979). This structure should be used to place the appropriate sound functions next to every moving picture sequence so as to create an expressionistic conceptualization of reality which is greater than the sum of the parts. Sound strategies and substrategies help the scriptwriter to prescribe where, how, and for which function exactly each component of the message fits into or "works" in the overall scheme of each film or video scene or sequence of scenes.

Informational Sound Strategy

There are four informational sound substrategies that may be placed along a relationship-to-image continuum: Undermining, dominating, counterpointing, and cueing. All four of these substrategies may be used throughout the sound design in combination with other substrategies. A fifth strategy (not considered here) typically prescribes sound information that accompanies the image. This often-used fifth substrategy best prescribes the status quo, informational sound that accompanies the infofmational image, making that information redundant, insulting the intelligence of the listener/viewer, and subsequently promoting the visual bias. For that reason, the use of this strategy is discouraged and not included in this study.

Cueing Sound Substrategy. (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). This informational sound substrategy prescribes how, where, and how often the chosen sound function should foreshadow the visual action (e.g., segues, headliners, flashforwards,

McGuffins, gimmicks).

Counterpointing Sound Substrategy. (Alten, 1981; Zuckerman, 1949). This informational sound substrategy prescribes how, where, and how often the chosen sound function should oppose or complement the image. Visually, this strategy is used to create a visual cast-against-type characters. As an informational sound substrategy, counterpointing has been best used to give different aesthetic meaning, e.g., city traffic in a "Mop 'n Glo" ad, Stravinsky's music for the ballerina hippos in Disney's"Fantasia"; and the Wide World Of Sport's ballet-in-slomo, presenting a football player's "character in the character" introduction to the programme.

Dominating Sound Substrategy. This informational sound substrategy prescribes how, where, and how often the chosen sound function should control the content of the image. This sound substrategy rarely appears in motion pictures, since it would elliminate audio-visual redundancy (i.e., identical verbal, visual & graphic information/emotion) evident in many overly graphicated newscasts. However, at its rare best this substrategy untypifies a predictable, emotional interlude (e.g., injects silence where music would bridge two scenes, or where the attention to image is lost briefly). Shots firing, or a beating-heart, for example, creates curiousity where either a "elevator music" design, or a "wind blowing through trees" design would typically accompany a country scene).

Undermining Sound Substrategy. This informational sound substrategy prescribes how, where, and how often the chosen sound function should ridicule the content in the image. This substrategy is considered to be the most radical use of informational sound in that its effect "sends up" the meaning in the picture (e.g., making fun of by placing laughter behind a serious-looking politician).

Emotional Sound Strategy

The emotional strategy prescribes a scripted subtext for the text and answers the question, "what does s/he really want?" (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). Both

of the substrategies may be used alone or in varying combinations together or with other substrategies throughout the sound design.

Defining Visual Action Intensity Sound Substrategy. (Alten, 1981; Seidman, 1986; Zuckerman, 1949). This emotional sound strategy prescribes how, where, and how often the chosen sound function should punctuate the visual action. Sometimes the visual action may only be 'a look' or a McGuffin. Strategically placed, a sound, or its absence, may create depth by creating suspense or interest in the sound-picture relationship. Typically, rapid knocks on a door indicate urgency, or thunderous applause as a man bows indicates success, or one or two people clapping infrequently implies disinterest. Untypically, restraint through the sparing use of silence or room noise may imply suspense or interest in the story or message.

Punctuating Emotion Sound Substrategy. (Alten, 1981; Seidman, 1986; Zuckerman, 1949). This emotional sound strategy prescribes how, where, and how often the chosen sound function should provide subtext to the stated sound and/or visual action. Again, a strategically placed sound, or its absence, may create depth by implying suspense or interest with two or more sound functions in a sound-picture relationship. Typically, scary music cues the monster. Untypically, electroacoustically-produced sound designs may create deeper-felt emotions in the listener/ viewer.

Pacing Sound Strategy

The two pacing sound substrategies (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972) prescribe how fast, where, and how often the chosen sound function occurs in the production. Sound pacing may either be fast or slow, or both, occurring in contrast to one another. Since the 1930's, pacing has been used effectively in many applications of sound to picture, i.e., in artistic, education, and entertainment environments. Motion picture writers and editors have operationalized the importance of "the dialogue cutting point" for making smooth, unnoticeable cuts when cutting from one speaker to another in a scene (Salt, 1976).

Rhythm Sound Strategy

Rhythm and pacing activities are related but should remain distinct sound substrategies. The two rhythm substrategies lised below prescribe the periodicity for each chosen sound function in a script or sound mix.

Continuous Rhythm Substrategy. (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). This rhythm sound substrategy prescribes how, where, and how often the chosen sound function should set up the world (Brown, 1985; Field,1982; Root, 1985) in the production. A continuous rhythm substrategy places uninterrupted sound (massed or summarized) or interrupted sound at regular intervals (spaced) throughout the sound design.

Discontinuous Rhythm Substrategy. (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). The rhythm sound substrategies prescribe how, where, and how often the chosen sound function should be spiced throughout the production. A discontinuous rhythm places uninterrupted sound (massed or summarized) or interrupted sound at regular intervals (spaced) throughout the sound design. *Where* and *how* would this sound best function? This structure has been used most famously in Eisensteinian fashion to dissect the picture into sub-moments for composing "realistic" film music. Typically, the mood function is structured discontinuously throughout an entire production.

Review Sound Strategy

The three review substrategies prescribe the nature of a particular function's reoccurrance in a sound-picture relationship. Typically, visual review strategies are used widely for educational message designing. It seems that the application of reviewing methods to sound designing seems to be appropriate when it is used in this context.

Summarized Review Substrategy. (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). This review sound substrategy prescribes how, where, and how often the chosen sound function should illicit activity or reinforce a message at the end of the production.

For example, every "Sesame Street" episode typically repeats "this program has been brought to you by the letter M". Broadcast TV news programmes utilize a summarized review sound substrategy in recapping the main stories of the day. Corporate video productions utilize a summarized review sound substrategy to reinforce behaviour modification role modelling techniques.

Massed Review Substrategy. (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). This review sound substrategy prescribes how, where, and how often the chosen sound function should illicit activity or reinforce a message at the end of each relevant segment. Moral and personal goal areas on "Sesame Street" and "3-2-1 Contact" are often taught all at once and usually out of the programme context using a massed review sound substrategy.

Spaced Review Substrategy. (Coldevin, 1981; Palmer, 1969; Salomon, 1979; Schramm, 1972). This review sound substrategy prescribes how, where, and how often the chosen sound function should illicit activity or reinforce a message throughout the production. Problem solving level skills are often taught on "Sesame Street" and "3-2-1 Contact" utilizing a spaced review sound substrategy.

Delivery Sound Strategy

This strategy is usually considered to be a contiuum, used in education to prescribe instructional events or learning activites (Davis, Alexander & Yellon, 1974). The application of convergent or divergent delivery methods to sound designing seems appropriate when applied in this context.

Convergent Delivery Substrategy. This delivery sound substrategy prescribes how, where, and how often the chosen sound function should editorialize the issue. In a convergent delivery strategy (Coldevin, 1981) the producer presents the questions and supplies the answers; favouring one side over another. Brown (1985) states that in a dramatic script with a convergent delivery, catharsis is reached through the ultimate confrontation of two opposing forces. Some

often used story ideas (plotlines) are: When a character conquers or is conquered by the natural elements (humanity versus nature), when a character vanquishes or is vanquished by a fellow character (humanity versus another humanity), when a character overcomes or is devoured by itself (humanity versus itself), when a character overcomes a predetermined path with his/her own free will (humanity versus fate), or when a character beats or is beaten by an organization (humanity versus society).

Divergent Delivery Substrategy. This delivery sound substrategy prescribes how, where, and how often the chosen sound function represents the most exhaustive research of an issue. In the divergent delivery strategy (Coldevin, 1981) the listener/viewer supplies his/her own answers to controversial questions presented by the medium. An example of a divergent sound delivery substrategy occurs frequently in broadcast news programs where the anchor faces two large screens with his/her back to the listener/viewer. Two or more diverging points of view emerge but are presented equally for public scrutiny (e.g., the opposing points of view of two or more political parties). It is important to note that there is no attempt made on the part of the broadcaster to editorialize or to show favour for one side over another.

In summation, structure in the movie script is evident in well-written stories and is usually absent in unscripted stories. Structure then, is usually considered to be an improvemnt over the unscripted story (Brown, 1985; Field, 1982; Gecsei, 1985; Goldman, 1984). Scriptwriting, however, has traditionally favoured the visual story over the aural (particularly storyboarding), while the functions of sound (e.g., the Locale, Charcater's Past, POV, etc.) are left aleatoric or unscripted (Gianetti, 1985; Monaco, 1985). Structuring skills are relatively common dramatic devices that can be learned (under various synonyms) in many creative writing and production courses.

There seems to be one exception: some production courses and texts do not attend to more

than one or two kinds of specific sound strategies (such as pacing, rhythum, and delivery) that make up the structuring component in sound designing. Moreover, creating a structure for each carefully chosen function means answering how, where, and how often for each chosen substrategy under each chosen strategy in the structure. The second of two structuring conditions of sound scriptwriting seems to be that the sound designer must be able to choose at least four (out of a possible six) appropriate sound strategies. Creative soft thinking, in this context means encouraging play with four or more scriptwriting strategies to structure at least two functions of sound into a sound-picture relationship in the germinal phase, would produce an expressionistic conceptualization of reality. Only the production and evaluation of an expressionistic motion picture sound design unit will improve the practice of sound designing. Generating sound designs that are expressionistic conceptualizations of reality has the attendant result of reducing the visual bias. Reducing the visual bias in sound-picture relationships, then, requires soft thinking in the germinal phase.

It seems, therefore, that a new system for learning how, where, and how often to structure functions into a screenplay or teleplay is needed. Instructional guidelines for creating sound designs would enable students and practitioners alike to be able to manipulate sound according to some measurable set of criteria (Altman, 1980; Mann, 1988; Mitchell, Steukel, & Wilkens, 1981; Seidman, 1986).

Review Of Literature in Instructional Design

Instructional Design Model

The choice of an instructional design model should be dependant on the model's prescriptivity (Martin & Briggs, 1986). A descriptive theory such as Bloom's cognitive taxonomy, is one that permits reliable classifications of terms, labels, and sometimes even objectives and test items, but does not include the supporting materials to allow the user to design lessons (Bloom, 1956; Bloom, Hastings & Madeus, 1971; Martin & Briggs, 1986).

Gagne's taxonomy, however, is accompanied by an entire theory for the design of instruction, organized by category, as well as an instructional design model (Gagne, 1985; Gagne & Briggs, 1979).

Gagne & Briggs Contributions to the Model. Gagne's theory offers a list of nine instructional events, a set of learning conditions, and a technique for deriving learning hierarchies (Martin & Briggs, 1986). Within his five categories of learning outcomes, the section on intellectual skills best prescribes the capabilities that enable the learner to use symbols to organize and to interact with the environment. (Martin & Briggs, 1986). The organizational capabilitites are of a soft thinking nature, creative rather than analytical. Gagne's cognitive taxonomy (1977), coupled with the Gagne & Briggs instructional design model (1979), has been judged by Reigeluth (1983) to represent one of the oldest and most comprehensive models of instructional design in use. Martin & Briggs (1986) have stated that Gagne's taxonomy is extremely useful.

Affective Contributions by Keller. The instruction of a concept, principle or theory not only refers to comprehension teaching, but also includes the attitude toward it; the acceptance or rejection of it as useful, and its dependability (Bloom, 1971). Sound designing activities involve soft thinking, which seem to be particularly suited to Keller's (1983) motivational theory of continuing motivation. This theory uses two concepts, choice and effort, to illustrate the reasons why people approach or avoid tasks, and how to design instruction to make a task more interesting. Keller's motivational design model has four categories with attendant strategies for accomplishing each goal:

1) Interest or "epistemic curiousity" in this context, refers to establishing and maintaining the curiousity-level, and achieving optimal levels of learner arousal. Keller uses the term 'interest' in an information seeking and problem solving epistemic, or amoral sense. Interest, is believed by some (Merrill and Goodman, 1972) to be impossible to adequately evaluate under conditions where the student may be able to fake a desired response. Merrill and Goodman further imply that it is immoral to grade students on motivation or interest change. However,

Keller has provided specific strategies to increase relevance (i.e., amoral epistemic curiousity) by using novel problems, guiding inquiry into unfamiliar but not totally unknown areas, and using personal examples about which learners have some motivational attachment.

2) Relevance or "instrumental value" refers to the increases in motivation to accomplish an immediate goal when it is connected to another and how the accomplishment of one goal leads to the accomplishment of an immediate goal when it is perceived to be a desired for attaining a future goal. Keller (1983) suggests that clearly explaining how one goal is connected to another, and how accomplishment of one goal is connected to the accomplishment of a desirable future goal will have an impact on continued motivation. This strategy includes opportunitites for success as a result of effort, and opportunities for cooperation and personal choice.

3) Expectancy for success refers to the causes one attributes to his/her potential for repeating similar tasks. A student who feels s/he has personal control over the successful completion of a learning task and who believes success is related to personal ability and effort, will tend to persist longer in the activity than those who believe success is due to external factors (Martin and Briggs, 1986).

4) Intrinsic satisfaction is a key to developing and maintaining motivation (Keller, 1983). This coupled with reinforcement aimed at providing information, rather than controlling the learner, may lead to a sustained motivational level.

Needs Assessment

A needs assessment is a report on the gaps-in-results between the status quo and the ideal situations (Kaufman, 1986; Kaufman & English, 1979). Filling these gaps-in-results between the ideal situation and the prevailing condition is accomplished by linking instructional objectives with lifelong goals of the student (Martin and Briggs, 1986).

The status quo in sound design education is the inappropriateness of sound designing procedures in media production and in media production education. The ideal situation would be

gestalt and the attendant reduction of the visual bias. This should be accomplished by designing instruction that encourages the learner to generate an original sound design procedure to solve specific problems that are known to cause a visual bias (i.e., procedures for selecting and combining the structures and functions of sound in the sound-picture relationship). Specifically, film and television production students and practitioners are not able to: 1) prescribe original multiple sound functions for every sound-picture relationship in the production; 2) prescribe an original multiple-strategy sound structure for each sound function of every sound-picture relationship in the production; 3) write an expressionistic, multi-layered script prescribing the sound-picture relationships throughout the production based on the original structured sound functions; 4) verbally direct the audio recording and mixdown of an expressionistic sound design using the original multi-layered script; and 5) write the procedure used to create the original expressionistic sound design.

Audit Trail

An audit trail derives an appropriate terminal performance objective (TPO) directly from its referent situation (RS), (Davis, Alexander & Yellon, 1974; Martin & Briggs, 1986). The audit trail is a mechanism that integrates the instructional sequencing in the affective and cognitive domains, and closes the gap between life-long goals of the learner with the instructional unit (Martin & Briggs, 1986). In a sound design strand, the audit trail would integrate the instructional sequencing of sound design objectives in the affective and cognitive domains, and close the gap between life-long media production goals, media production curriculum goals, sound design objectives for courses, for course-units, and for lessons.

Referent Situation Tests. The referent situation test (RST) is a mechanism for relating an RS to a TPO since both the test and the objective are criteria of the achievement (Davis, Alexander & Yellon, 1974). The RST describes successful performance in the referent situation. The objective describes successful perfomance at the end of instruction. Therefore, the TPO should be the

closest possible approximation to the audience, behaviour, conditions, and degree of the RS as possible.

RS_1: This situation occurs at in-house motion picture production units such as the audiovisual production department within large companies like Teleglobe and Bell Canada.

RS_2: This situation occurs in independent motion picture production situations such as Atlantis Film Company in Toronto, or Souvenir Video Productions in Ormstown, Quebec.

In both of these referent situations, the scriptwriting, shooting, and editing involved requires the practitioners of the film or TV production company to be able generate new sound designing procedures for solving problems synergistically. (RST statements are listed in the Appendix.)

Performance Objectives

The behaviours that best describe sound designing activities should have two types of learning outcomes: 1) a cognitive component made up of four intellectual skills; and 2) an affective component made up of three attitudes toward the task of sound designing. Four levels of intellectual skills were defined in accordance with the Martin & Briggs instructional design model: 1) discrimination; 2) defined concept learning; 3) rule using; and 4) problem solving in the cognitive domain (Gagne & Briggs, 1979; Martin & Briggs, 1986); and continued motivation in the affective domain (Keller, 1983; Martin & Briggs, 1986).

Typically, a criterion checklist is based on a consensus of expert opinion and on current reviews in the literature. The criterion checklist, in this context, is both a quantitative measure of the behaviour stated in the objective. For example, a quantitative criterion would be: Two functions are written on the function sheet within the allotted time. Specification of a time limit is not essential in sound design mastery. A qualitative criterion would be: If the POV function is chosen, then it must imply another POV or something more about the POV than has already been

stated or implied from or about him/her/it in the existing picture or sound.

Domain Integration. The rationale for including domain integration as a component in the combination of the educational goal-areas is to develop an instructional theory for sound design that shows the producer, designer, teacher or evaluator how to integrate the cognitive and affective domain, both conceptually and practically. Ordering Theory, a deterministic measurement model builds a branching network permitting the two domains to build upon one another (Hurst, 1980; Martin & Briggs, 1986).

Ordering theory is a hierarchical validation technique, with the primary intent of determining hierarchies among all possible tasks or items. As a deterministic model, it relies on the use of a preset tolerance level that defines mastery as the number of students who pass (a "yes") or fail an objective (a "no") that will be accepted when defining a prerequisite relationship (Airasian, 1971; Airasian & Bart, 1975; Bart & Airasian, 1974; Hurst, 1980; Martin & Briggs, 1986). A disconfirmatory response pattern (DRP) is one in which an individual achieves mastery of a higher level task (a yes or 1) but fails to master a lower level task (a no or 0). Such a response would be disconfirmatory if the percentage of such responses for all the individuals in the analysis exceeded the tolerance level except one subject (Airasian, 1971; Airasian & Bart, 1975; Bart & Airasian, 1974; Hurst, 1980). Ordering theory can analyze only dichotomously scored data; no partial scores are acceptable. Therefore, when designing tasks or criteria to be analyzed using ordering theory, clear criteria for mastery or nonmastery must be established (Hurst, 1980).

Instructional Strategies and Media Selection Models

An important characteristic of learning intellectual skills insofar as media is concerned, has been its requirement for precise corrective feedback (Reiser & Gagne, 1983). The overriding requirement for teaching an intellectual skill is for an interactive operation. Typically, display media (i.e., soundscapes and videographs) have been used as an interactive operation attempted

by using supplementary workbooks and other printed material. Gagne and Briggs' (1979) nine events of instruction has become a widely accepted device for prescribing instruction into lesson designs (Gagne, 1985; Martin & Briggs, 1986). Merrill and Goodman's media selection model (1972) is also a popular for structuring the events in the external learning conditions.

Criterion-Refererenced Tests

Criterion referenced test items are designed to reflect both the quantitative and qualitative criteria and subcriteria from the criterion checklist. Designing tests of this kind has its own set of three specific criteria: Appropriateness, accuracy, and clarity of the problem set (Rahmlow & Woodley, 1979). Appropriateness is a check on whether or not the item is a proper measure of the behaviour it was designed to measure. The test item is appropriate if it matches the objective in terms of the principal performance, the difficulty level, and the conditions of performance. Accuracy refers to the condition that the item must be factually correct. Clarity of the problem set refers to the relativity of interpretation of the test items. Intrepreting the meaning of an item should not be a part of the task set for the learner (Rahmlow & Woodley, 1979).

Formative Evaluation

A recommended method for assessing the effectiveness and efficiency of an instructional unit that involves media is the Dick and Carey (1985) formative evaluation model. This model has been judged by many (Gagne, 1985; Gagne and Briggs, 1986; Martin and Briggs, 1986) to be reliable for assessing and revising an instructional design. According to this model, there should be a preliminary inspection of the instructional design and materials by instructional designer and subject matter experts.

This formative evaluation model is a three step process: 1) a one-to-one assessment of students from the population; 2) a small group assessment; and 3) a field trial of the entire population. Traditionally, sound production classes are small, allowing sufficient access to the

reviewing and mixing facilites. For this reason, the field trial phase is unmanagaeable. Moreover, sound designing is a time consuming activity, requiring brainstorming learning activities in small groups. Finally, the resiliency of the visual bias is evident in sound design and literature. Teacher feedback is most beneficial in the one to one strategy, particularly in the mixdown situations.

Rationale for Media Selection and Production Design

Chapter one began with a discussion of the problem of inattention to sound design in the history of motion picture production and criticism. The consensus of expert opinion for a solution to the problem was for the radical reduction of the visual bias in order to achieve something greater than the sum of the parts as a product gestalt. Expressionism, rather the expressionistic conceptualization of reality, was suggested as a possible instructional strategy for teaching learners to achieve gestalt.

Rationale for Production Design: Software Before Hardware

Specific questions relating to the motivational role of AV devices in teaching sound design is of lesser importance to gestaltists who believe that a more fundamental concern is the need to know about the actual transactions that take place between teacher, student and AV device. It is a typical mistake, however, and often easier to bring in the machinery ahead of the establishment of the educational objectives. A better approach would be to locate the fundamental educational problems before investigating how new techniques can help to solve them (Miller, 1957). Different devices may be needed for different purposes, or a given device may have to be tailored or used somewhat differently to serve different functions. One example would be the use of soundless TV segments to teach sound design. There is a need for more information on how to structure and how to organize a particular learning situation so that audiovisual devices accomplish their intended purposes and help move the learning in the desired direction (Luchins, 1971).

Gestalt. Gestalt psychologists (Arnheim, 1957; Heidbreder, 1935; Luchins, 1971; Wertheimer, 1934) hold that the analysis of a phenomenon should be preceded by attempts to grasp its structural features, and that any analysis should deal with the natural structural and functional units of the phenomenon in attempts to understand their role and function in the structure. Such an approach is in keeping with what some have called "the method from above" approach (Martin & Briggs, 1986; Wertheimer, 1934) to distinguish it from "methods from below" which usually arbitrarily cut a phenomenon into its parts or elements and consider the parts in isolation. Instead of descriptions based on the and-summation of arbitrarily determined elements, the need in sound design instruction is for descriptions based on the structural understanding that relates parts to their context. Teaching transummative sound design wholeness can only become clear in the light of the research and evaluation conducted into the actual learning activities in studying undergraduate classroom and studio production environments.

Luchins offers a "homo sapiens" conception of man as a useful heuristic device for presenting Wertheimer's views on educational procedures. This homo sapien model is a conception of man as a creature trying to realize the meaning and the structure of the world around him. The values and facts he uses are not always just idiosyncractically and arbtitrarily related to his feelings (as in Lucins' "homo volens model of man") but may be rooted in structural features of objective reality of which man's urges are only a part. Behaviour takes place within a context in the gestaltists framework. To know whether or not particular factors are relevant to human behaviour, their relevance within the the particular behaviour must be discovered, not judged *a priori*. It may seem to be justified, then, that Martin and Briggs (1986) have responded to Luchins' (1971) request for a taxonomy of the needs of men as expressed in an everyday language. They have attempted to integrate instruction with research in an effort to fill the everyday gaps in results. In sound design gestalt learning, as in sound design audit trailing, it is important to study the social climate as well as the learning theory in which the learning takes place. It may also be advisable to take into account the meaning of audiovisual

devices in terms of the life experiences and feelings of the learner. Martin and Briggs also try to bring learning more in line with real world experiences by integrating cognitive and affective objectives. Care should be taken, therefore, not to divide the subject matter into arbitrary parts in order to have parts which can be readily related to the learner's requirements of the course (Luchins, 1971; Martin & Briggs, 1986).

Gestalt theories oppose asssociationistic conceptions of learning when they are presented as the prototype of all learning (Koffka, 1935). The Gagne and Briggs instructional design advocates that human learning should currently be interpreted in terms of an information processing model (Gagne, 1985). In the realm of creative problem solving, however, "there is an inductive leap, a combining of ideas from widely separated knowledge systems, a bold use of analogy that trancends what is usually meant by generalizing within a class of problem situations" (Gagne, 1985). Theories of learning involve diverse approaches to control the teaching-learning condition. These differences have important implications for practice (Luchins, 1971). Gestaltists do not consider that practice or repetition is a condition for learning necessarily (Koffka, 1935). Nor do they consider that all learning occurs through insight; that past experience never plays a role in learning, nor that insight is always sudden in nature. Insight can occur in the first experience, may not occur until a later experienxce, or may not occur at all (Koffka, 1935). Education which views repetition without variation as the paradigm of learning is not education in the sense of Luchins' *homo sapiens* notion, and may be more in line with his *homo mechanicus* model. For learning that includes gained insight, the amount of practice and number of repetitions may be less important than the structure of the subject matter.

Gestaltist Suggestions. The following list shows nine gestaltist suggestions for what the instructional designer can do to stimulate reasoning and concept attainment using either entertainment or educationally-designed materials:

1) The quality, not the quantity of illustrations matters most. One clear and dramatic example is worth many mediocre ones (Luchin, 1971; Merrill & Goodman, 1972; Mielke &

Chen, 1981), Although this statement refers to visual illustrations, effective dramatic illustrations in sound may be equally applicable;

2) The same audiovisual device may be used for various purposes during the same or different lessons if it is structurally suitable (Luchin, 1971; Merrill & Goodman, 1972; Reiser & Gagne, 1983);

3) The teacher should know when to use an example that presents the entire idea, and when to use one that requires closure by hinting at the idea (Eisler, 1967; Luchin, 1971; Merrill & Goodman, 1972; Reiser & Gagne, 1983). This suggestion can be tied into Coldevin's (1981) notion of 'pacing' the content throughout the production design;

4) Instructional material that is unrelated to the topic at hand may be included to merely arouse the learner's curiousity (Coldevin, 1981; Palmer, 1969; Schramm, 1972; Wertheimer, 1935). The involvement of humor in educational television programs for children, especially when unrelated to the educational message and when fast paced has had most beneficial short term effects, both in terms of selective exposure and in terms of the acquisition of educational information (Zillmann, 1981). Zillmann's suggestion lends credibility for using Coldevin's (1981) "spaced review strategy", wherein a pause (which could be unrelated humor) may often make a significant improvement in learning;

5) The reason for an illustration need not be made immediately apparent to the learner (Luchin, 1971) which seems to amount to not throwing away the punchline. In teaching sound design, this means using seemingly uninteresting video illustrations that provide the maximum opportunity for learners to use as many of the six sound functions and fifiteen substrategies as possible;

6) Obtain student's reactions to an illustration. This may serve as a basis for decoding whether to change, replace or alter the illustration (Baggaley, 1980; Coldevin, 1981; Eisler, 1967; Luchin, 1971; Mielke & Chen, 1981; Palmer, 1969; Salomon, 1981; Schramm, 1972).

7) AV Devices should not be used as inflexible parts of a formal lesson in relation to the

objectives of the lesson. It may be advisable to interrupt the presentation of a device in order to demonstrate (verbal information) a particular feature (Luchin, 1971; Mitchell, Wilkens & Steukel, 1981). The teacher pretests the learners with part of the illustration then waits to see what questions and comments may develop, or s/he may ask the students to predict the ending;.

8) Illustrations may be a necessary part of the instructor manual in order that s/he has a firm grasp of the behaviours. These illustrations may be different in some way from what the student may receive in his instructional package, lecture, etcetera (Luchin, 1971). In a sound design unit, different instructional events would provide the learner with different illustrations of the concept, rule, or problem.

9) It is advisable to supplement, or in some cases to replace ready-made devices with improvised illustrations that are contextually more suitable (Luchin, 197; Mielke & Chen, 1981). In this context, a sound design unit that is custom-made to the target audience is called for.

The Rationale For Media Selection

Martin & Briggs (1986) have attended to the choices among different models involved in the selection of media in the Reiser & Gagne model, and found that Reiser & Gagne (1983), provide a demystifying algorythm for the purposes of selecting the media in line with the educational objectives. In their text Selecting Media For Instruction, Reiser & Gagne (1983) crossreferenced nine media selection models that take into account the learner, the setting, and the task characteristics for each model including categories of outcomes and events of instruction. Additional criteria for media selection has also been suggested by Martin & Briggs (1986). These are that the instructional designer takes into account: "1) the capability of the learners to use the media for teaching cognitive and affective objectives; 2) the capability of the learners to use the media with enjoyment and mastery; 3) the capability of the media for enhancing success, self-esteem, learning strategies, and satisfying study conditions, and; 4) the capability for contributing to Keller's four components of motivation: interest, relevance, expectancy for success, and

intrinsic satisfaction with the outcome (Martin & Briggs, 1986, p. 392).

Media are intended to cause connections, to mediate, and having caused connections (with listener/reader/viewer) to produce effects upon the thoughts and/or feelings of the receiver (Jamieson, 1986). To the extent that an audiovisual device may help to achieve the mastery of specific sound design skills it may be regarded as intrinsic to the mastery of specific sound design skills. To the extent that the device is intended primarily to arouse interest, entertain or reward the student, it may be regarded as extrinsic to the mastery of specific sound design skills. The reasons for using media categories are usually connected with the idea that a particular type of medium can best present a task having a similar classification (Reiser & Gagne, 1983). In this context, learning a task which depends upon receipt of an auditory message may best be accomplished with media that includes an audio component (Merrill & Goodman, 1972; Reiser & Gagne, 1983). A soundless video component is given, therefore a videocassette and monitor should also be a requirement.

Moreover, the extent to which the audiovisual device attends to the process of designing sound, or structural features of the sound designs, the more intrinsic it is to the mastery of specific sound design skills: 1) Videocassettes may help to achieve the mastery of specific sound design skills, since the activity of listening/viewing videocassettes may be regarded as intrinsic to the activity of sound designing in the referent situation, and therefore to the mastery of specific sound design skills; 2) Since planning and scriptwriting best reveal the structure of a sound design, scriptwriting may be regarded as intrinsic to the activity of sound designing in the referent situation, and therefore to the mastery of specific sound design skills.

The Encoding Strategy and Production Design

All educational messages are coded in symbolic form which require skill for their recoding. A program's coding elements affect not only skill mastery but preferences or tendencies for information processing as well (Salomon, 1979). As there are no existing structures for

symbolically coding sound design messages based on an extensive review of the literature, a composite of well-known structures for symbolically coding visual messages may be of benefit, at least during the initial stages.

Every element in the illustration should be symbolically coded to affect the mastery learning of specific mental skills in its listener/viewers. Some examples of symbolically coded elements that may be implemented in the segments are song lyrics, silences, and polylogues. Symbols become symbol schemes by means of specific rules of prescription (e.g., a language) or conventions of coherence (e.g., an artwork) according to which systems can be combined, chained, arranged, and organized (Salomon, 1979). One example of a sound design symbol scheme would be a recurring leitmotif coded expressionistically to exhibit the value system of the designer, not merely filling in a gap between awkward silences or visual metaphors (Eisler, 1960). Coded elements should affect cognition in three ways: 1) through the activation of skills that transform external codes into internal ones; 2) through shortcircuiting skills by overtly providing the end result of mental transformations that a learner should have employed; and 3) through overt supplantation or modeling of processes by means of transformational codes (Salomon, 1979). Two types of coding elements are available to observational learning; 1) stationary codes; and 2) transformational codes. Stationary codes must be matched by learners ability to generate transformations that would lead up to them, e.g., the sound effect of a historical event. Transformational codes can overtly supplant or model a skill (Salomon, 1979).

The concern of the medium, no matter how limited, is nevertheless the chief basis for whatever effectiveness it has (Palmer in Schramm, 1973; McLuhan, 1967). In sound design education, this means concern for careful designing. The challenge to researchers and producer is to investigate new ways of incorporating instruction into the plotted drama format (Mielke & Chen, 1981; Palmer, 1969; Schramm, 1972). In sound design education, this means investigating new ways of incorporating instruction into the plotted drama format. The effects of symbol systems or coding elements are the mental skills they call upon in the service of

information extraction as determined by the task (Salomon, 1979). In sound design education, this means that the effects of sound symbol systems or coding elements should be the mental skills (i.e., creative thinking strategies) they call upon in the service of information extraction as determined by the task (i.e., the intellectual skill). The effectiveness is reflected by the interaction between a symbol system, one's mastery of the needed mental skills, and the skill-requirement of the task (Salomon, 1979). In sound design education, this means that the effectiveness is reflected by the interaction between a symbol system of one's mastery of the needed mental skills (i.e., creative thinking strategies), and the skill-requirement of the task (i.e., the intellectual skill and continued motivation requirements within the behavioural objective).

In summation, chapter two was concerned with the importance of the problem in the context of the available research as support for the needs assessment. A review of the literature in instructional design discussed the implementation of needs assessment using Martin and Briggs' audit trailing and Davis, Alexander, and Yellen's RSTs as a method of determining the TPO. The problem addressed in this study was that film and television production students and practitioners are not able to: 1) prescribe original multiple sound functions for every sound-picture relationship in the production; 2) prescribe an original multiple- strategy sound structure for each sound function of every sound-picture relationship in the production; 3) write an expressionistic multi-layered script prescribing the sound-picture relationships throughout the production based on the original structured sound functions; 4) verbally direct the audio recording and mixdown of an expressionistic sound design using the original multi-layered script; and 5) write the procedure used to create the original expressionistic sound design. The importance of this problem in the context of the available research resides in the two prerequisite conditions for structuring sound functions into a sound-picture relationship: 1) determining two or more sound functions for structuring, and; 2) prescribing four or more substrategies for structuring.

Second, the utilization of Gagne and Brigg's prescriptive instructional design and Dick and

Carey's formative evaluation models were analyzed.

Finally, Luchins' gestalt literature, Reiser and Gagne media selection algorythm, Salomon's psychological literature in educational coding, and a review of evaluation research from the Children's Television Workshop provided the rationale for selecting a modification of Reiser and Gagne Merrill and Goodman media selection models that suggested using prerecorded sound effects on compact disk (if possible), and a wide variety of short prerecorded videos segments on small format playback equipment.

Chapter three will be concerned with how a protoypical instructional motion picture sound unit was designed (stage one), and formatively evaluated (stage two) for seventeen volunteer university students. Chapter four will discuss some recommendations for further revisions to the unit (stage three).

CHAPTER 3

The Instructional Design Methodology

Instructional Design And Development

This chapter is concerned with how an instructional motion picture sound unit was designed and formatively evaluated for a group of volunteer university students. Assessing the gaps-in-results has been typically thought of as a necessary step to designing instruction (Dick & Carey, 1985). Accordingly, an audit trail (Martin & Briggs, 1986) was set up to link life-long goals to RST's (Davis, Alexander & Yellen, 1974) and the TPO. Then, a modified version of the Gagne and Briggs' instructional design model (1979) and Keller's four-stage motivation model (1983) was developed. (See Mann, 1988 for details regarding the procedures and results of this instructional unit.)

Needs Assessment: Sound Design Gaps-In-Results

Based on a review of the literature and current expert opinion (in Chapter One) there were gaps-in-results found in two sound designing situations. Figure 3.1 shows these gaps between the two status quo situations (SQ) and their ideal referent situations (RS). According to the figure, there were two current status quo situations (SQ's) in sound designing: Poor in-house production sound designs, and poor independent production sound designs. Moreover, there were two identical RS's: Multifunctional and structured sound. Using the audit trail, one RST related to two TPO.

Status Quo	Gap-in-Results	Ideal Situations
SQ_1: Poor In-house Sound	Cliche, Conditioned reflex, etc.	RS_1:Multi-functional, Structured, etc
SQ_2: Poor Independ.. Sound	Cliche, Conditioned reflex, etc.	RS_2:Multi-functional, Structured, etc

Figure 3.1 A sound design needs assessment showing the gaps-in-results between two SQ's and their RS's.

Referent Situation Tests

The referent situation test (RST) is a mechanism for relating an RS to a TPO since both the test and the objective are criteria of the achievement (Davis, Alexander & Yellon, 1974). The following RSTs were established for this study:

RS_1: Inhouse Production. This situation occurs at in-house motion picture production units such as the audiovisual production department within large companies like Teleglobe and Bell Canada.

RS_2: Independent Production. This situation occurs in independent motion picture production situations such as Atlantis Film Company in Toronto, or Souvenir Video Productions in Ormstown, Quebec.

In both RS's, the scriptwriting, shooting, and editing involved requires the practitioners of the film or TV production company to be able generate new sound designing procedures for solving problems synergistically. Sound design RST statements are listed in an objectives format in the Appendix. (See Mann, 1988 for a complete statement of RSTs, objectives, analysis of events of instruction, and instructional materials used in teaching each of these objectives.)

The Audit Trail

The RST described successful RS performances in relation to the TPO. which described successful perfomance at the end of instruction. Therefore, the TPO was designed to include the closest possible approximation to the audience, behaviour, conditions, and degree of the RS as possible. Audit trailing related the volunteer's life-long media production goals, with media production curriculum goals and with sound design objectives for courses. Figure 3.2 shows the converging Educational Technology and Communications Studies audit trail strands relating life-long media production goals and media production curriculum goals with the sound design TPO. The sound design audit trail links the TPO to an ideal set of behaviours common to both RST's.

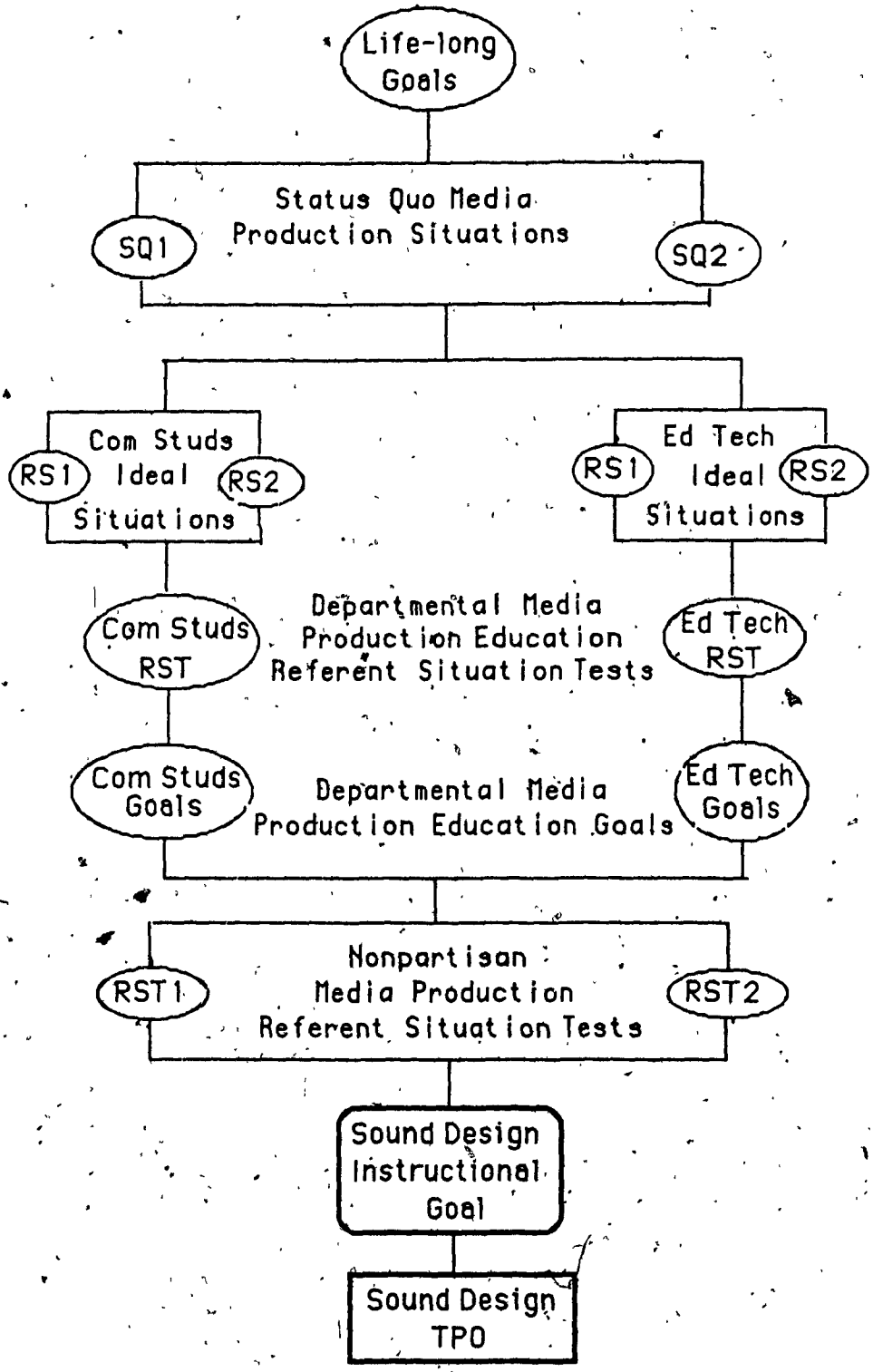

Figure 3.2 Audit trail relating goals with sound design objectives for courses.

The TPO and two enabling objectives were matched with the two RST's based on the results of the audit trail for the target audience. The two audit trails (i.e., Educational Technology and Communications Studies) were structured to reflect the philosophy and purpose of each of these academic programs as stated in the Concordia University calendar 1986-87 and the current program brochures.

The Instructional Goal

The formulation of the instructional goal was implemented according to Dick and Carey's (1985) criteria for deriving instructional objectives:"The selection of instructional goals must be done in terms of the following concerns: 1) that learners were available to receive the instruction; 2) that content would be selected that could be learned in a reasonable amount of time; 3) that the designer's expertise in the area (of sound design) be sufficient to deal with the subject matter; 4) and that it be believed that this instructional design would solve the problem which led to the need for it"-(p. 17, 18).

The instructional goal was designed to enable the participating subjects to master the sound design objectives within a reasonable amount of time and thereby close the gaps-in-results which led to the need for it.

The Intellectual Skills and Attitudes: Apriori Performance Objectives

Behavioural objectives were derived from the audit trail procedure and hierarchically designed according to the Gagne and Briggs (1979) instructional design model. Each behavioural objective specified the ABCD, or the audience, behaviour, learning conditions, and degree (i.e., quantitative and qualitative criteria for mastery of the behaviour). The qualitative criteria measuring some objectives were drawn from Keller's (1983) motivational theory and from the Mitchell, Wilkens & Steukel (1981) creative learning paradigm. All the objectives were designed apriori since neither the wording of the objective and criteria, nor their order on the hierarchy had

yet been validated. Another preliminary step to designing instruction for this target audience was the analysis of the concepts related to designing sound based on the literature review (in Chapter Two).

The Concepts: Sound Design Skills, Strategies, and Motivation

Two behaviours seemed to be implicit in structuring sound functions into a sound-picture relationship. These were discussed in some length in the previous chapter: 1) the prescription of appropriate functions, which involves thinking creatively and distinguishing expressionism from realism; and 2) the prescription of appropriate strategies for structuring those functions.

Figure 3.3 shows a concept map of the two behaviours implicit in structuring sound functions, creative thinking strategies, and motivation into a sound-picture relationship. The larger squares indicate major concepts entailing other concepts. The name of the concept is printed in bold letters adjacent to the square (e.g., expressionism, creative thinking, sound functions, sound structure, continued motivation, interdisciplinary applications, and media applications). Smaller circles indicate those concepts entailed by the larger concept (e.g., rhythm, review, delivery, information, emotion, and pacing were the six strategies entailed in the concept of sound structure). Still smaller ellipses indicate those concepts entailed in the larger concept (e.g., cues, counterpoints, dominates, and undermines were all informational substrategies belonging to the sound structure concept). A solid line indicates a strong relationship, while a broken line indicates a tenuous relationship between two concepts.

The figure shows that designed sound is linked to expressionism, creative thinking skills, function and structure elements, and media and interdisiciplinary applications; not related or indirectly related to realistic elements such as aleatoric sound, media applications, designed sound, and interdiciplinary applications. Notably, there is no link at all to creative thinking and continued motivation.

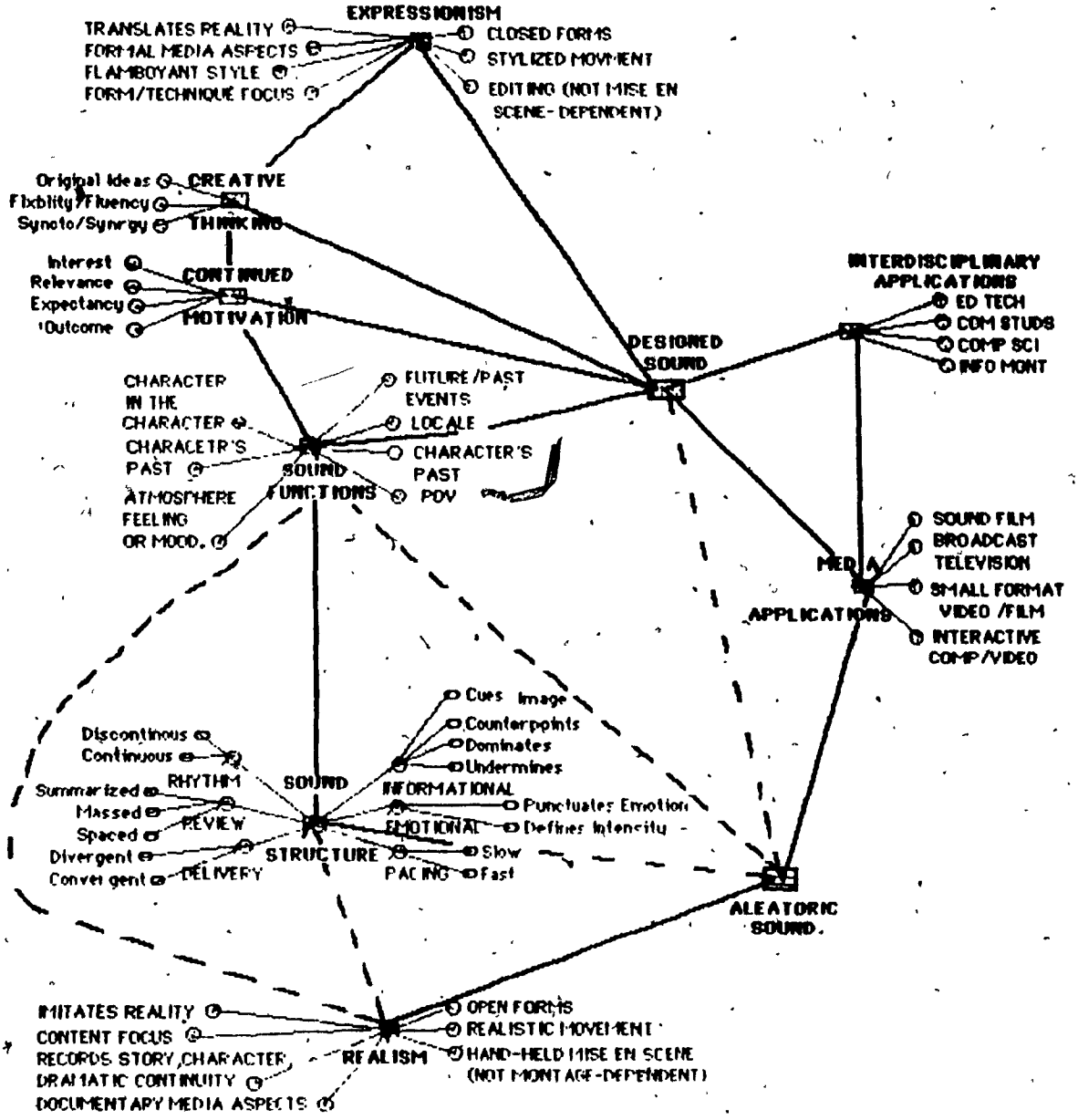

Figure 3.3 A concept map relating functions, structures, strategies, and motivation.

Summarizing, this section was concerned with mapping the intellectual skills, strategies, and motivational concepts involved in designing sound that closes the gaps-in-results currently found in two referent situations. Assessing the gaps-in-results has been typically thought of as a necessary first step to designing instruction (Dick & Carey, 1985). What follows is a description of the creative thinking strategies methodology used for exercising executive control (Gagne,

1985) over these intellectual skills and attitudes.

The Creative Thinking Process: Structuring Sound Functions

Dick and Carey's (1985) formative evaluation of intellectual skills and attitudes was complemented with van Oech's (1983) prescriptive creative thinking strategies. Progressive creative thinking, in this context, referred to the soft thinking abilities in the germinal phase (van Oech, 1983) of each objective; the frequency and quality with which each subject would generate and manipulate ideas in order to master the criteria (Mitchell, Wilkens & Steukel, 1981).

Strategy One: Brainstorming for Original Ideas (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). Discovery, in this context, refers to attending to the same thing as everyone else and thinking something different (Mitchell, Wilkens & Steukel, 1981; Torrance, 1980; van Oech, 1983). Brainstorming, or soft thinking aloud (either alone or with others) was included in the instructional strategy to motivate the learner's suspension of disbelief and to generate unique responses (i.e., original humour and using similies to compare ideas, concepts, things and people).

Strategy Two: Fluency and Flexibility. Producing a variety of ideas that causes shifts from one thought pattern (or category) to another seems to be another motivating influence that may be a possible source from which mental locks may be opened. The concept of fluency was thought of in terms of "odds": the ability to create many responses to a given stimulus (Mitchell, Wilkens & Steukel, 1981; Torrance, 1980; van Oech, 1983). In this case, the stimuli took the form of silent pictures and problematic soundtracks.

Strategy Three: Synectic Synergy. Strategy three involved the combination of three major notions derived from the literature:

1) The activity of uniting different and seemingly irrelevant elements synectically (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). This was successful only after the implementer had developed both the cognitive skills for implementing an innovation and the affective behaviours

necessary for generating positive attitudes toward that innovation. A synectic union presupposed that the emotional components of the process were more important than the rational ones (Mitchell, Wilkens & Steukel, 1981).

2) Creative problem solving transcends what is usually meant by generalizing within a class of problem situations (Gagne, 1985; van Oech, 1983). This activity usually involves combining ideas from widely separate knowledge systems. The attitude can be characterized by an inductive leap manifested in a bold use of analogy.

3) Synergy in a script or final cut was considered to refer to the behaviours of an integral aggregate macrosystem (e.g., the entire film or television production) unpredicted by behaviours of any of their components (the sound design) or subassemblies of their components or functions and structures (Alten, 1980; Heidbreder, 1933; Koffka, 1935; Luchins, 1971; Schoderbek, Schoderbek, & Kefelas, 1985; Mitchell, Wilkens & Steukel, 1981; Wetheimer, 1934; Zettl, 1973; Zuckerman, 1949). When two or more elements (e.g., locale and subjective POV sound functions) were juxtaposed in a unique manner, the result was greater than the sum of its parts. In the gestalt, the parts of a whole interact and influence one another. So change in one part often produces changes in another.

Figure 3.4 is a concept map showing creative thinking relationships of soft thinking in the germinal phase. The map shows that item comparisons and similies connect the three cognitive strategies.

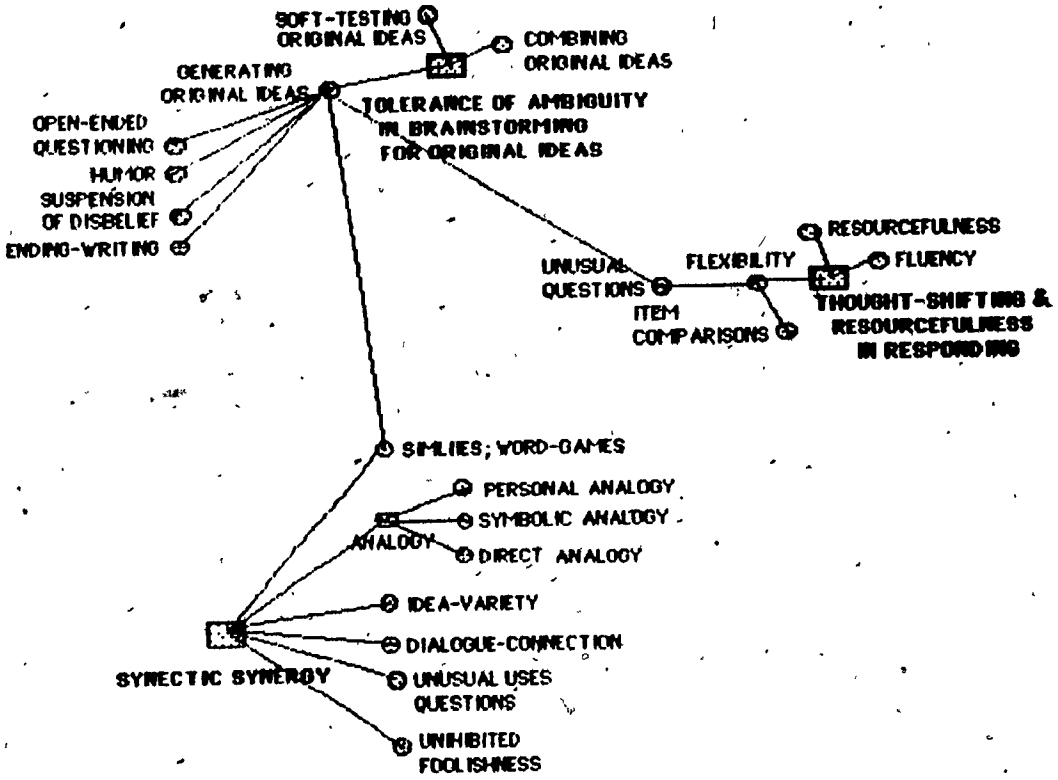

Figure 3.4 A concept map of creative thinking concepts and their relationships.

In summation, this section was concerned with the development of the instructional design; the intellectual skills and creative thinking strategies. Preliminary steps to designing instruction for the specified target audience included exposing gaps-in-results, linking of the RST and TPO relevant to the audit trail strands, and analyzing the appropriate concepts based on the literature review. The combination of intellectual skills and attitudes were drawn from the concept map in order to prescribe three performance objectives. The TPO and two enabling objectives were matched with the two RST's based on the results of the audit trail. Three creative thinking strategies for exercising executive control over these intellectual skills and attitudes were discussed.

Structure of the Instructional Design

An instructional design structure was created to teach the sound design unit. Gagne (1985) has suggested that intellectual skills are hierarchically related, wherein the learning of a complex skill requires the mastery of its subordinate skill. The result would be a learning hierarchy: "An arrangement of intellectual objectives into a pattern which shows the prerequisite relationships among them" (p. 300). (See Mann, 1988 for a complete analysis of events of instruction and media selection for each of these objectives.)

The Hierarchy

Figure 3.4 shows an a priori hierarchical instructional analysis of sound design behavioural objectives one, two, and three. The ability to generate a new procedure for solving sound design problems (TPO level) was contingent upon the ability of the learner to demonstrate the procedure for selecting and combining the appropriate defined concepts (i.e., expressionism, design, function and structure) for a given moving image. Furthermore, knowing how to demonstrate this procedure was based on the understanding of each of the concepts that were combined to make up the procedure. These objectives are listed in the Appendix.

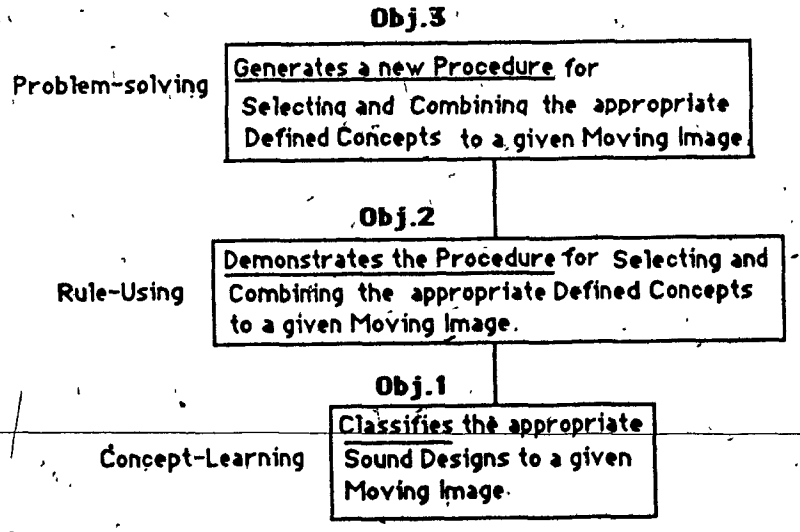

Figure 3.4 Learning hierarchy of behavioural objectives one, two, and three.

Instructional Strategy

Next, an instructional strategy was created for each objective, based on Gagne and Brigg's (1974) events of instruction, and Reiser and Gagne's (1983) model for selecting media. According to Dick and Carey (1985) "an instructional strategy describes the general components of a set of instructional materials and the procedures that are to be used with those materials to elicit particular learning outcomes from students" (p. 136). One reliable set of components for designing instruction is Gagne's nine events of instruction. Gagne (1985) refers to the nine events of instruction as "all the circumstances that must be considered as composing what is called instruction" (p. 305). Table 3.0 shows an a priori instructional events timetable with the nine events of instruction along one side, and the levels of learning along the top. Time allottments per event were estimated a priori in minutes.

	Classifies Sound Designs One Video of all Practice & Test Samples, Pretests, Posttests, Attiude Survey, TV, vcr, Screening Room.	Demos The Procedure One Video per vcr, TV Learning Center Hot Carrells, Samples, Tests, Survey	Genrates New Procedures One Video per vcr, TV Learning Center Hot Carrells, Samples, Tests, Survey	
1. Pretesting/ Gaining Attention	10 mins	10 mins	10 mins	105 min
2. Informing Leaner of the Objective	5 mins	5 mins	5 mins	
3. Stimulating Recall of Prior Knowledge	5 mins.	5 mins.	5 mins.	
4. Presenting the Stimulus Material	15 mins.	15 mins.	15 mins.	
5. Providing Learner Guidance	20 imns.	20 imns.	20 imns.	2 hours
6. Practice/ Eliciting Performance	20 mins.	20 mins.	20 mins.	
7. Providing Feedback	20 mins.	20 mins.	20 mins.	1 hour
8. Post Testing/ Assessing Performance	20 mins	20 mins	20 mins	75 mins
9. Enhancing Retention & Transfer	5 mins.	5 mins.	5 mins.	
Total Accumulated Time:	2 hrs.	2 hrs.	2 hrs.	6 Hours

Table 3.0 An a priori instructional events timetable.

Media Selection

The overriding requirements for teaching an intellectual skill using media are: 1) activities must be as interactive ("hands-on") as possible; 2) the instructional unit should provide precise corrective feedback about the learner's learning habits (Reiser & Gagne, 1983). Therefore, display media (i.e., soundscapes and videographs were selected to be used interactively (i.e., starting and stopping the videotape to read and write on printed materials).

Production Details and Requirements

Following the development of instructional events and media, the next step was to determine the production equipment and materials necesssary to bring about the intended learning outcomes. Details and requirements for equipment (e.g., audio and video tape recorders, video playback) and materials (e.g., student manuals and prerecorded sound effects), were outlined, and the learning materials were prepared (i.e., sound resources, video segments, answer sheets, space, project expenses). (See Mann, 1988 for details.)

Target Audience

Graduate and undergraduate students in Communications Studies and graduate students in Educational Technology were asked to volunteer their time to participate in this study. All subjects were registered in courses at Concordia University in Montreal.

Formative Evaluations

The Evaluation Design of the Study

Since this instructional unit was concerned with both cognitive and affective objectives, a comprehensive evaluation was developed to measure different types of objectives. Further, three creative thinking strategies would be measured by internal evaluation. Subject comments were to be evaluated on both open-ended answers and Likert scales. A single group pretest-posttest

evaluation design was selected to evaluate the intellectual skills and continued motivation for this study (Macmillan & Schumacher, 1984). The notational system for this design (O X O) was similar to the one used by Campbell and Stanley (1963). "O" refers to an observation, a measure that records observations of a pretest or a posttest. "X" indicates treatment conditions.

The formative evaluation plan was conducted in four stages. Stage one was the subject matter expert (SME) and instructional designer formative evaluations. These results would point out revisions that removed any errors inherent in the a priori objectives, instructional analysis, and instructional materials. Stage two was a series of one-to-one trials. These results would enable the instructional designer to gain some insight into the abilities and attitudes of the target audience. Stage three was a small group evaluation. This procedure would suggest further revisions to the instructional design based on test results, an internal evaluation, and learners comments. Stage four was the formative evaluation of stage three, designed to yield the specific recommendations for a new instructional design in order to exact further improvements to the sound design unit.

Stage One: S.M.E. and I.D. Formative Evaluations

During stage one, three SME's and an independent instructional designer were given the complete a priori instructional design with prototypes of the student manual, student workbook, video segments, sound resources, answer forms, tests, and questionnaires.

Subject Matter Expert Formative Evaluations. The function of the SME was "to comment on the accuracy and currency of the instruction" (Dick & Carey, 1985, p. 199). Three SME's assessed the events of instruction, the adequacy of the studio environment, recording and playback equipment and materials, edited video segments, records, audiotapes, answer forms, and the questionnaire. Revisions were suggested and implemented based on the audiotaped exchanges between the SME's.

Instructional Designer Formative Evaluations. An independent instructional designer was

given both the original and revised instructional design materials to assess. He located problems in the objectives statements and the instructional analysis with respect to the definition of the target audience. Revisions of the instructional design were based on his feedback.

Revised Performance Objectives

Revisions were made to the behavioural objectives based on feedback from the independent instructional designer. It was thought that the size of the chunk of instruction and the diversity of skills in the criterion checklist were too great to be included under one objective. Therefore, the criteria under objective one were spread out under five objectives so as to insure greater separation and delineation of tasks. It was hoped that this decision would produce a higher percentage of mastery of criteriia for each subject.

Figure 3.6 shows the revised hierarchy of behavioural objectives based on the instructional designer's feedback. Behaviour and criterion statements in performance objectives one, two, and three were changed to discrimination level, subordinate to objectives four and five. Objective one (which contained mostly affective criteria) was determined to be prerequisite to objectives two, four, five, six, and seven, but not prerequisite to objective three. (See Mann, 1988 for a complete statement of objectives, analysis of events of instruction, and instructional materials used in teaching each of these objectives.)

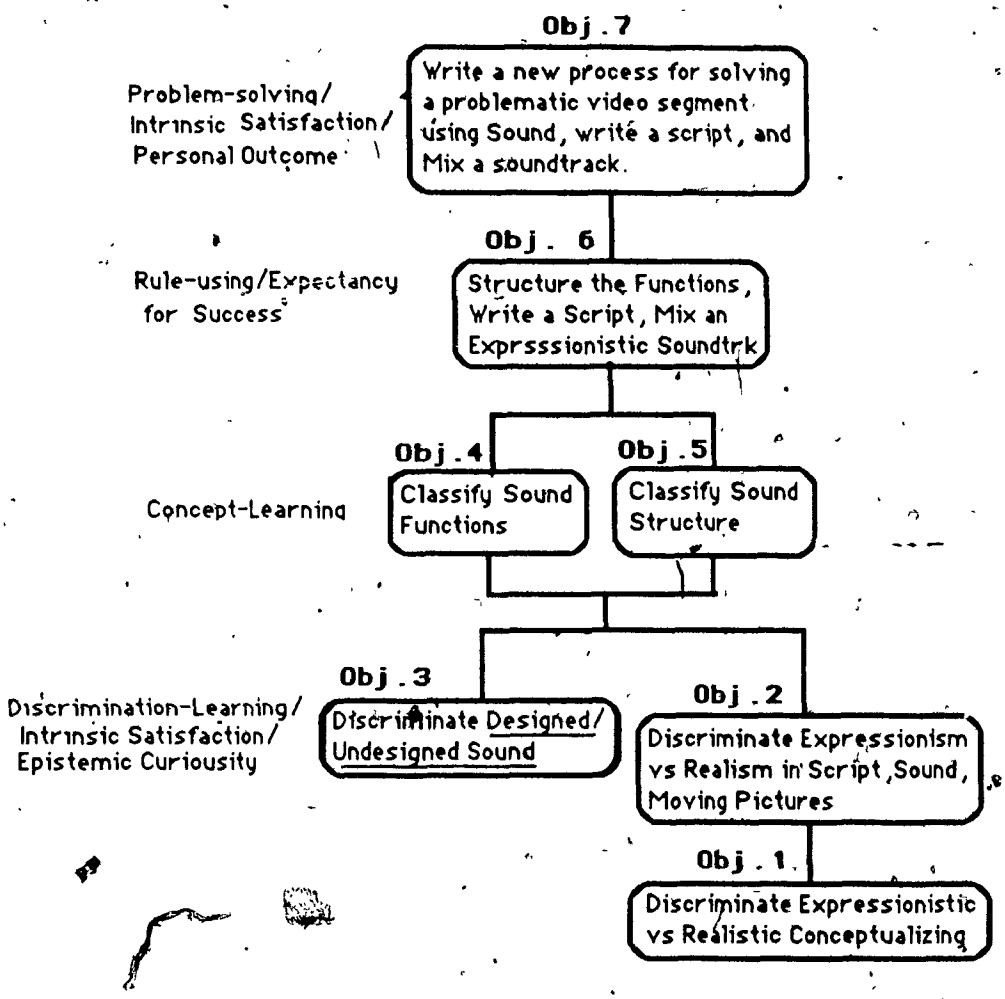

Figure 3.6 Revised hierarchy based on instructional designer feedback.

Revised Instructional Events Timetable

Gagne's nine instructional events were revised to eleven in order to allow for "all the circumstances that must be considered as composing what was called instruction" (Gagne, 1985, p. 305). Table 3.1 shows how the events of instruction were revised to accomodate the scope of sound designing activities in this time frame, and for this target audience. In both versions of the instructional events and timetable, sound designing would be taught in three lessons (i.e., as seven objectives based on the revisions). Therefore, the boxes along the top in the revised

version reflect the instructional events and timetable for objectives one through five, objective six, and objective seven respectively, just as they did for objectives one, two, and three under the old version. The number of instructional events were increased from nine to eleven to reflect the complexity of creative activites in designing sound. In the revised version, brainstorming, sample videos and answer sheets were added to the learning activites before the pretest and practice sessions in order to fully acquaint the subjects with the instructional materials. A pretest plus questionnaire table were added, showing minimum times for mastery of all three lessons (6 hours total). The total time for the completion of the sound design unit (i.e., attempting and failing the pretest, taking the instruction, practicing, and completing the posttests) had been increased from six hours to over sixteen hours. Moreover, changes were made to the instructional materials, recording, and assessing instruments.

	Obj's. 1-5 Discriminates Designed/ Undesigned Sound, Realism/ Expressionism Classifies Sound Functions Classifies Structure	Obj. 6 Structure the Functions, Write a Script, Mix an Expresssionistic Soundtrk.	Obj. 7 Write a new Process for Solving aPreoblematic Video Using Sound; Write a Script Mix a Soundtrack Tests, Survey	
1. Inform Learner Of Objective/Criteria	10 mins	15 mins.	15 mins.	6:10
2. Present Definitions /Sample Sheets	30 mins	30 mins	30 mins	
3. Screen Sample Video/Sample Brainstorm	75 mins	75 mins	90 mins	
4. Screen Video / PRETEST	60 mins	60 mins	90 mins	3:30
5. Screen Track Stars Video/Gain Interest	10 mins	n/a	n/a	0:10
6 Screen Video / Teach Brainstorming	15 mins.	15 mins.	15 mins.	1:50
7. Stimulate Recall of Prior Knowledge	n/a	10 mins.	10 mins.	
8. Sound Design Guided Discoveru /Tutoring	15 mins.	15 mins.	15 mins.	
9. Screen Video/Guided Practice/Feedback	30 mins	30 mins	45 mins..	1:45
10 Screen Video/ POSTTEST	45 mins.	45 mins..	60 mins	2:30
11 Provide Voluntary Questionnaire	15 mins.	15 mins.	15 mins.	0:45
PRETEST & Quest Only; ie. Nos. 1-4,11	**3:10**	**3:10**	**4:00**	**6:10**
PRETEST/Intr'n/Feedback/POSTTEST	**5:05**	**5:00**	**6:25**	**16:35**

Table 3.1 Revised events of instruction based on SME and independent instructional designer feedback.

The next step was to try out these revised instructional materials on a one-to-one basis with selected representatives of the target audience-two graduate students (one from Educational Technology and the other from Communications Studies), and one undergraduate Communications Studies student.

Stage Two: One-To-One Formative Evaluations

The purpose of these trials was "to identify and to remove the most obvious errors in the

instruction, and to obtain initial reactions to the content from three or more learners who were representative of the target population" (Dick & Carey, 1985, p. 199). The sources of information for implementing changes were: learner suggestions, learner performance, and the evaluator's informed comments. Based on the diversity in these subjects' backgrounds and the candid nature of one-to-one testing, the information provided by these people could be expected to be distinctly different from those data collected from the small group (Dick & Carey, 1985).

There were two levels of investigation: objectives and criteria. Revisions were made to the function and structure sheets as well as to the videos segments. These revisions became the new instructional materials for the small group formative evaluations. (See Mann, 1988 for details regarding the procedures, results and comments of the one to one trials.)

Stage Three: Small Group Evaluations

Stage three in the formative evaluation process was the small group evaluation. (Results are described fully in Mann, 1988). The purpose of collecting and analyzing small group data was to locate the probable causes of nonperformance in the instructional design.

Target Audience. Fourteen graduate and undergraduate students in Communications Studies and graduate students in Educational Technology were asked to volunteer their time to participate in this study. All subjects were registered in courses at Concordia University in Montreal. All subjects filled-in a personal questionnaire.

1) When asked about the kinds of film or electronic media equipment they owned, 11 out of 12 reported that they owned or leased an audio system (turntable, amp, and speakers), and most subjects owned or leased at least one television (7/12), and in some cases two. Notably, two subjects did not own or lease a television.

2) When asked about the types of film or electronic media equipment they felt comfortable operating, everyone stated that they could operate a stereo audio system, a reel-to-reel tape recorder, and an audiocassette recorder. Notably, only 10 out of 14 respondents stated they could

operate a video camera and a Super 8 film camera, while 5 out of 11 stated that they were able to work a professional three-tube studio or location camera.

3) When asked about the types of media have they had edited, the responses were uniform for audiotape editing and splicing, videotape editing and audio overdubbing; 7 out of 12 subjects stated they had previously mixed or spliced audio and/or videotape successfully.

4) When asked about the types of media courses have they had completed, only six out of fourteen subjects replied that they had completed a scriptwriting course. The highest frequency of production courses taken (12/14) were large format broadcast TV production courses and video production courses without a switcher. Notably, only 10 out of 14 subjects had taken a course in studio or location video production with a switcher. The highest frequency of media aesthetics education (8/14) was in visual dynamics and TV aesthetics courses.

5) When asked about their level of education attained, four undergraduate and one graduate subject in Communications Studies showed that they had taken a wider range of courses with higher levels of objectives in sound, film, and television media, than the nine graduate subjects in Educational Technology had. Also of note were those subjects from both disciplines who stated that they anticipated a poor performance in the study because they were too visually oriented, and/or had little or no sound production experience (coming from art history, computer sciences, or business).

7) When asked about languages spoken, 7 out of 14 subjects stated more than one language. Four subjects were trilingual; speaking either Italian, Chinese, Polish, or Spanish well.

6) When asked about musical persuasions, only 5 out of 14 subjects said that they had ever sung or played an instrument semiprofessionally.

Formative Evaluation Procedure Followed. There were two levels of small group investigation: objectives and criteria. All eight sections of objectives-level investigations were analyzed first, followed by the four sections of the criterion-level investigations.

The objectives-level investigation had seven sections. The first four sections consisted of

objectives-level analyses of the learners' abilities to master the intellectual skills and attitudes on the pretests and posttests: section 1) a pretest analysis; section 2) a posttest analysis; section 3) an objectives-level ordered hierarchy and posttest analysis; and section 4) a pretest-posttest analysis. Section 5 consisted of objectives-level analyses of the learners' creative thinking strategies by the internal evaluator; section 6) consisted of analyses of the learners' comments on the Likert and open-answer portions of the questionnaire by objective. Finally; section 7) consisted of an objectives-level correlation of the pretest-posttest analysis with the internal evaluations of learners' creative thinking strategies, and the responses on the Likert and open-answer portions of the questionnaire by objective.

The criterion-level investigation had four sections. The first four sections consisted of criterion-level analyses of the learners' abilities to master the intellectual skills and attitudes on the pretests and posttests: section 1) a pretest analysis; section 2) a posttest analysis; section 3) a criterion-level ordered hierarchy and posttest analysis; and, section 4) a criterion-level correlation of the pretest-posttest analysis with the internal evaluations of learners' creative thinking strategies, with the responses on the Likert and open-answer portions of the questionnaire by objective.

In summation, Chapter Three was concerned with the methodology of the study. First, the target audience was delineated and an evaluation design was specifed. Second, a modified version of the Gagne and Briggs model (1979) and Keller's four-stage motivational design model (1983) was developed in order to address the gaps-in-results in two referent situations based on current expert opinion and a review of the literature. An audit trail was set up to link the a priori TPO to an ideal set of behaviours common to both RSTs. These RSTs would insure that the behaviour, conditions and degree of performance for the TPO were matched as closely as possible to either of the ideal referent situations. Three objectives statements were also developed and an instructional strategy for teaching them. The instructional materials were selected

according to the Reiser and Gagne's (1983) media selection model. Finally, the structure of the instructional design was specified. A hierarchical instructional analysis of the objectives showed the a priori relationships of the objectives to one another. A table showing Gagne's (1985) nine events of instruction specified approximate times per event. A four stage modification of Dick and Carey's formative evaluation model (1985) was initiated which included 1) an ID/SME evaluation of the instructional materials; 2) one-to-one formative trials with three members of the target audience; and 3) a small group evaluation. (See Mann, 1988 for complete details regarding the procedures and results of this instructional unit.) Recommmendations for revisions to the instructional design based on these conclusions follow.

CHAPTER 4

Recommendations for Revision

This chapter is concerned with the appropriate recommendations for revisions to the performance objectives, the instructional analysis, the instructional strategy, and instructional materials for both types of learners. It was concluded that five out of fourteen subjects were operating on a problem solving level. In these cases, the instruction was perceived as having too much structure. Those subjects exhibiting problem solving traits with high interest and relevance factors and original or alternative (e.g., semiological) creative thinking strategies, required a less structured instructional treatment (such as the option of omitting rules) in order to master problem solving level of objectives. Nine out of fourteen subjects exhibited predominantly rule-using traits with high interest and relevance factors and high to moderate creative thinking strategies, requiring a more structured instructional treatment (e.g., more relevance in the video examples and nonexamples, and more uniformity of difficulty of media-type and of genre-type between test items) in order to master problem solving types of objectives. Alternative instructional strategies would allow for better instructions on how to apply sound designing rules for those who needed it, and the leniency to experiment for those who didn't. (See Mann, 1988 for a detailed analysis of the conclusions and discussion of the results of the small group evaluations.)

Recommendations for Revisions to the Performance Objectives

It was recommended that more objectives be generated, and that these objectives be more evenly weighted with criteria. Therefore, a list of twenty objectives with sixty-one attendant criteria follows:

Objective One (formerly criterion 21)

Topic: Intrinsic satisfaction.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) intellectual skills and creative thinking strategies; 4) blank sound design discrimination function and structure sheets; 5) definitions of expressionism, realism, designed sound, sound function, and sound structures; 6) instructions on how to fill-in the sound design sheets; 7) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to show/state an intrinsic satisfaction that has been the key to developing and maintaining his/her continued motivation throughout this activity.

Criterion 1: The statement or behaviour of satisfaction was voluntary.

Criterion 2: The statement or behaviour of satisfaction reflects either a professional, private, or personal committment to the task.

Objective Two: (formerly criterion 9):

Topic: Success expectancy.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) intellectual skills and creative thinking strategies; 4) blank sound design discrimination function and structure sheets; 5) definitions of expressionism, realism, designed sound, sound function, and sound structures; 6) instructions on how to fill-in the sound design sheets; 7) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to voluntarily show/state an expectancy for success.

Criterion 3: That s/he feels that s/he has personal control over the successful completion of a learning task.

Criterion 4: That s/he feels that s/he believes his/her success was related to his/her personal

ability and effort.

Criterion 5: The statement or behaviour of satisfaction was voluntary.

Objective Three: (formerly a general cognitive strategy)

Topic: Brainstorming for original ideas

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to brainstorm for original ideas.

Criterion 6: That brainstorming generates soft thinking aloud or constructive doodling (either alone or with others),

Criterion 7: That brainstorming motivates the suspension of disbelief as evidenced in a fantastic production idea.

Criterion 8: That brainstorming generates unique responses; such as original humour; using similies to compare ideas, concepts, things and people.

Objective Four:

Topic: Thought-shifting; generating flexibility.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7)

instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to produce a variety of ideas that causes shifts from one thought pattern (or category) to another

Criterion 9: Blending several production ideas at once verbally and/or on paper.

Objective Five (formerly criterion 3):

Topic: Real versus unreal movies.

Given: 1) a prerecorded video segment; 2) a blank discrimination sheet; 3) definitions of expressionism, realism; 4) instruction on how to fill-in the discrimination sheet.

Task: The learner will be able to discriminate an expressionistic from a realistic conceptualization of reality by writing your answers on the discrimination sheet.

Criterion 10:

- If "no" was the response, this means that in examining the video segment as a three component system (i.e., script, sound, and pictures), it can be said that the effect of the production, taken as a whole was not an example of an expressionistic conceptualization of reality (i.e., the system can be said to describe reality).

- If "yes" was the response, this means that in examining the video segment as a three component system (i.e., script, sound, and pictures), it can be said that the effect of the production, taken as a whole was an example of an expressionistic conceptualization of reality (i:e., the system manipulates reality).

- If pictures only was the response, this means that only the motion pictures tend toward an expressionistic conceptualization of reality, while the story

and sound design tend toward a realistic conceptualization of reality.

- If pictures and sound was the response, this means that both the sound design and the motion pictures tend toward an expressionistic conceptualization of reality, while the story tends toward a realistic conceptualization of reality.

- If sound only was the response, this means that only the sound design tends toward an expressionistic conceptualization of reality, while the story and motion pictures tend toward a realistic conceptualization of reality.

- If script only was the response, this means that only the story tends toward an expressionistic conceptualization of reality, while the motion pictures and sound design tend toward a realistic conceptualization of reality.

- If script and pictures was the response, this means that both the motion pictures and the story tend toward an expressionistic conceptualization of reality, while the sound design tends toward a realistic conceptualization of reality.

- If pictures, script, and sound was the response, this means that all three components tend toward an expressionistic conceptualization of reality.

Objective Six (formerly Objective 3): Designing Sound

Topic: Planned and unplanned sound.

Given: 1) a prerecorded video segment; 2) a blank discrimination sheet; 3) definitions of expressionism, realism, designed sound; 4) instruction on how to fill-in the discrimination sheet.

Task: The learner will be able to discriminate designed from undesigned sound by writing the

answer on the discrimination sheet.

Criterion 11: (formerly criterion 5) Discriminating designed/undesigned sound means writing a statement that shows the size and the extent to which the video segment does or does not use planned sound.

- If "yes" was the response, then the sound was planned, whether expressionistic or not, whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video, whether pre or post-synchronized or not.

- If "no" was the response, then the sound was aleatoric (wild), or unplanned, whether expressionistic or not, whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video, whether pre or post-synchronized or not.

Objective Seven: (formerly criteria 20, 32, and 40)

Topic: Using original humour.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Tasks: The learner will be able to discriminate humorous from mundane scripts and mixes by writing the answer on the discrimination sheet.

Criterion 12: Discriminating humorous from mundane scripts and mixes means writing a statement that shows the size and the extent to which the video segment does or does not use humour.

- If "yes" was the response, then the script or sound mix was considered to be humourous; whether expressionistic or not, whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video, whether pre or post-synchronized or not.

- If "no" was the response, then the script or sound mix was not considered to be humourous; whether expressionistic or not, whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video, whether pre or post-synchronized or not.

Objective Eight: Exhibiting Unusual Uses of Silence (criteria 17, 29, and 37).

Topic: Discriminating silence from nonsound.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to discriminate silence from nonsound in a script or mix.

Criterion 13: Either the behaviours of the integral aggregate macrosystem (e.g., the entire film or television production), unpredicted by behaviours of any of their components (the

-- sound design)

Or subassemblies of their components (the functions or structures). In the gestalt, the parts of a whole interact and influence one another. Again, change in one part may produce change in another.

Objective Nine:

Topic: Discriminating learner-producable and nonlearner-producable scripts and mixes.

Given: 1) The notion that designing sound requires functions and strategies in order to produce audio scripts and mixes; 2) The notion that learner-producability has a one-to-one correspondence with requisite variety; 3) The notion that requisite variety in the script and mix was equal to the requisite variety in the learner; 4) an intriguing but problematic prerecorded video segment or script; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to discriminate a learner-producable from a learner-nonproducable script or sound mix.

Criterion 14: Making a script or mix learner-producable means reducing the requisite variety (the learner-producability) in their sound design system to two (out of six) sound functions and four (out of six) sound strategies;

- If "yes" was the response, then the script or sound mix was considered to contain two (out of six) sound functions and four (out of six) sound strategies

designed for the script or sound mix.

- If "no" was the response, then the script or sound mix was considered to contain more than two (out of six) sound functions, more than two (out of six) sound strategies designed for the script or sound mix, or simply (and more commonly) multiple layers of sound effects and/or music without function or structure.

Objective Ten (formerly criterion 7):

Topic: Classifying at least two implied sound functions (from steps 4 through 9 on the function sheet).

Given: 1) a prerecorded video segment; 2) a blank function sheet ,3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instruction on how to fill-in the the function sheet.

Task: The learner will be able to classify the functions of the sound in the segment's sound-picture relationship, by writing the appropriate sound functions on the function sheet.

Criteria 15:

- If atmosphere/feeling/mood was chosen, then it must imply either more or something else about the atmosphere, a feeling, or a particular mood other than what has already been stated or implied about atmosphere, a feeling, or mood in the existing picture or sound.

- If POV was chosen, then it must imply another POV or more about the POV than what has already been stated or implied from or about him/her/it in the existing picture or sound.

- If future/past event was chosen, then it must imply more or something other about future/past events than what has already been stated or implied about the future or

past in the existing picture or sound.

- If locale was chosen, then it must imply more about the locale or something else about it than what has already been stated or implied about locale in the existing picture or sound.

- If character's personal/private/public past was chosen, then it must imply more or something other about the character's past than what has already been stated or implied about his/her past in the existing picture or sound.

- If character in the character was chosen, then it must imply more or something other about the character than what has already been stated or implied about him/her in the existing picture or sound.

Objective Eleven (formerly criterion 8):

Given: 1) a prerecorded video segment; 2) a filled in function sheet; and a blank structure sheet; 3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instruction on how to fill-in the function sheet, and the structure sheet.

Tasks: The learner will be able to classify at least 4 sound strategies used in the structuring the sound in the video segment by writing the appropriate sound strategies on the structure sheet; at least 2 of the 3 questions asked on the function sheet within each Sound Strategy must be answered on both structure sheets (ie. How? Where? and How often?).

Criterion 16:

- If one or more of the informational strategies (cueing, counterpointing, dominating, and/or undermining), has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants

to deliberately manipulate the reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will cue, counterpoint, dominate, and/or undermine the existing Image.

- If one or more of the emotional strategies (punctuate an emotional highlight or define the intensity of an action), has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants to deliberately manipulate the reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will punctuate an emotional highlight or define the intensity of an action.

- If one or more of the pacing strategy (slow or fast), has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants to deliberately manipulate the reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will be paced slowly and quickly.

- If one or more of the rhythm strategy (continuous and/or discontinuous), has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants to deliberately manipulate the reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will be continuous and/or discontinuous.

- If one or more of the review strategies (massed, spaced, or summarized) has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants to deliberately manipulate the

reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will be Massed, Spaced, or Summarized.

- If one or more of the delivery strategies (divergent delivery or convergent delivery), has been chosen for a particular sound function, then each strategy should show the size and the extent to which the learner wants to deliberately manipulate the reality suggested by the picture or on the existing soundtrack, by writing down how, where or how often each sound function will demonstrate a divergent delivery or convergent delivery.

Objective Twelve (formerly criteria 19, 31, and 39).

Topic: Uniting irrelevant elements synectically; exhibiting analogies.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: will be able to classify synectic connections by writing one of the following opposite the video segment 1) plays with scientific laws and concepts; 2) by personal analogy; 3) by direct analogy, or 4) by symbolic analogy.

Criterion 17: Elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion.

Criterion 18: There was an inductive leap; a combining of ideas from widely separated knowledge systems; a bold use of analogy that transcends what was usually meant by

generalizing within a class of problem situations. A synectic union presupposes that the emotional components of the process are more important than the rational ones.

... or if the new script uses metaphors to compare things by personal analogy;
Ex. what animal sounds the way this person looks?

... or if the new script uses metaphors to compare things by direct analogy.
Ex. Bell's invention of the telephone was based on his clinical knowledge of the human ear because of his work with the deaf.

... or if the new script uses metaphors to compare things by symbolic analogy. This involves the use of objective and impersonal sounds to describe personal problems; eg. a woman screams, as the train whistle shrieks.

Objective Thirteen: (formerly criteria 15, 27, and 35).

Topic: Classifying synergy. When two or more elements (e.g., locale and subjective POV implied sound functions) interact in a unique manner, the result can be greater than the sum of its parts.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) opportunities to discuss the original ideas with peers; 4) intellectual skills and creative thinking strategies; 5) blank sound design discrimination function and structure sheets; 6) definitions of expressionism, realism, designed sound, sound function, and sound structures; 7) instructions on how to fill-in the sound design sheets; 8) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to: 1) write a script; and, 2) mix a soundtrack that exhibits,

synergy (ie. the functions and structures interact internally in a unique manner, the result being greater than the sum of its parts).

Criterion 19:.

- Either the behaviours of the integral aggregate macrosystem (e.g., the entire film or television production), unpredicted by behaviours of any of their components (the sound design)

- or subassemblies of their components (the functions or structures). In the gestalt, the parts of a whole interact and influence one another. Again, change in one part may produce change in another.

Objective Fourteen (formerly criterion 2):

Topic: Stating a personal, private, or career interest.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) intellectual skills and creative thinking strategies; 4) blank function sheet, structured-function sheets, and multilayered script with the functions filled-in along the columns; 5) definitions of expressionism, realism, designed sound, sound function, and sound structures; 6) instructions on the procedure for creating sound functions, Structuring the functions, and writing a multilayered sound design script for the video segment; 7) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to show/state an aroused epistemic curiousity about the activity of designing sound with pictures.

Criterion 20: The statement or behaviour of any type of interest (epistemically curious or otherwise) is voluntary.

Criterion 21: The statement or behaviour of satisfaction reflects either a professional, private,

or personal committment to the task.

Objective Fifteen (formerly criterion 1):

Topic: Stating a personal, private, or career relevance.

Given: 1) an intriguing but problematic prerecorded video segment; 2) time to take it home and think it over; 3) intellectual skills and creative thinking strategies; 4) blank function sheet, structured-function sheets, and multilayered script with the functions filled-in along the columns; 5) definitions of expressionism, realism, designed sound, sound function, and sound structures; 6) instructions on the procedure for creating sound functions, Structuring the functions, and writing a multilayered sound design script for the video segment; 7) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Task: The learner will be able to state/show that this activity has personal/professional instrumental value (relevance) refers to the increases in motivation to accomplish an immediate goal.

Criterion 22: The statement or behaviour of any type of interest (episytemically curious or otherwise) is voluntary.

Criterion 23: The statement or behaviour of satisfaction reflects either a professional, private, or personal committment to the task:

Criterion 24: When it is connected to another goal;

Criterion 25: That the methodology for accomplishing an objective leads to the accomplishment of an immediate goal;

Criterion 26: When it is perceived to be a desired for attaining a future goal.

Objective Sixteen (formerly criterion 12).

Topic: Demonstrate the prescribed procedure for designing an AV sound design script to

moving pictures synergistically.

Given: 1) a prerecorded video segment; 2) a blank sound design sheets (i.e., function, structure, structured function, multi-layered AV Script, and blank script); 3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instructions on how to fill-in the function sheet, and the structure sheet, multi-layered AV script sheet, and blank script sheet.

Task: The learner will be able to demonstrate the prescribed procedure for writing a student-producable script by structuring the appropriate sound functions and programming the columns on the multilayered script sheet synergistically.

Criterion 27: The prescribed sound design system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) must be demonstrated as a reflexive goal-changing system (i.e., the sound designer is considered part of the system). Therefore, the system will have a memory with a self-organizing ability:

- to initiate its own course of action in a feedback response (the present state; e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) or in a feedforward response (projected future states; e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) to changing environmental conditions (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures);

- to choose the best alternative for a particular set of conditions (e.g., a performer point of view sound function will counterpoint the image of the people in the

hospital ward in a continuous slow-paced substrategy at the top of the story. In the second act, the design demands a subjective point of view sound function that dominates the image of the people in the hospital ward in a discontinuous quicker-paced substrategy. Finally, the subjective point of view sound function undermines the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

- to reflect upon its past decision making: is it working this way or should I change something? (e.g., perhaps - the subjective point of view sound function that undermines the image of the people in the hospital ward with a divergent continuous summarizing review substrategy should be used in the third act; not the convergent discontinuous summarizing review substrategy. The divergent continuous substrategy would produce a harmonious, hopeful quality, while the convergent discontinuous substrategy would produce a tragic and final effect).

Criterion 28: A model of the sound design system is constructed which includes the subject matter, the producer and the listener/ viewer and may be described either on paper or verbally (to the understanding of a producer from outside that system) in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality.

Criterion 29: The prescribed sound design system must be separated from its environment. The boundaries of the original sound design system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) are delineated from its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 30: The prescribed sound design system must be an open systemm wherein the

system interacts somehow with its environment (e.g., character's memory cues or undermines his actions on the screen producing a humous effect; e.g., some Woody Allen films).

Criterion 31: The behaviour of the prescribed sound design system must be demonstrate in terms of the changes in one or more of the structural properties of the system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) or of its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 32: The behaviour of the prescribed sound design system must be homeostatic (i.e., continuous and always automatically sensing and comparing the system's output as an automatic corrective action).

Criterion 33: The system is demonstrated in terms of its synergy; its property as a whole (e.g., sound functions and structures working together) within the environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures) to produce attributes not found in the individual parts of the system nor its environment (e.g., an prescribed procedure for solving a problem synergistically using sound).

Objective Seventeen (formerly criterion 11).

Topic: Demonstrating the prescribed procedures for mixing sound synergistically.

Given: 1) a prerecorded video segment; 2) completed sound design sheets (i.e., function, structure, structured function, multi-layered AV Script, and blank script); 3) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Tasks: The learner will be able to demonstrate the procedure for designing sound to moving pictures synergistically.

Criterion 34: The prescribed sound-mixing system (e.g., in terms of recording music and

sound effects according to the multilayered AV script so as to produce an expressionistic conceptualization of reality) must be described as a reflexive goal-changing system (i.e., the sound designer is considered part of the system). Therefore, the system will have a memory with the self-organizing ability:

- to initiate its own course of action in a feedback response (the present state; e.g., in terms of recording music and sound effects according to the multilayered AV script so as to produce an expressionistic conceptualization of reality) or a feedforward response (projected future states; e.g., what effect will the sound design have next to the motion pictures) to changing environmental conditions (e.g., reshot or reedited motion pictures);

- to choose the best alternative for a particular set of conditions (e.g., some voice-over should be chosen over heartbeat or breathing to create a subjective point of view sound function that will undermine the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

- to reflect upon its past decision making: is it working this way or should I change something? (e.g., perhaps the voice over was too heavy-handed. A very occasional personal noise such as a wheeze recorded in close-up may better project a subjective point of view sound function that will undermine the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

Criterion 35: A model of the sound design system is constructed which includes the subject matter, the producer and the listener/ viewer and may be described either on paper or verbally (to the understanding of a producer from outside that system) in terms of recording music and sound effects according to the multilayered AV script so as to produce an expressionistic

conceptualization of reality.

Criterion 36: The prescribed sound design system must be separated from its environment. The boundaries of the original sound design system (e.g., in terms of recording music and sound effects according to the multilayered AV script so as to produce an expressionistic conceptualization of reality) are delineated from its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 37: The prescribed sound design system must be an open systemm wherein the system interacts somehow with its environment (e.g., character's memory cues or undermines his actions on the screen producing a humous effect; e.g., some Woody Allen films).

Criterion 38: The behaviour of the prescribed sound design system must be demonstrated in terms of the changes in one or more of the structural properties of the system (e.g., in terms of recording music and sound effects according to the multilayered AV script so as to produce an expressionistic conceptualization of reality) or of its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 39: The behaviour of the prescribed sound design system must be homeostatic (i.e., continuous and always automatically sensing and comparing the system's output as an automatic corrective action).

Criterion 40: The system is demonstrated in terms of its synergy; its property as a whole (e.g., sound functions and structures working together) within the environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures) to produce attributes not found in the individual parts of the system nor its environment (e.g., an prescribed procedure for solving a problem synergistically using sound).

Objective Eighteen

Topic: Describing the prescribed procedures for designing sound.

Given: 1) completed sound design sheets (i.e., function, structure, structured function,

multi-layered AV Script, and blank script); 3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instructions on how to fill-in the function sheet, and the structure sheet, multi-layered AV script sheet, and blank script sheet.

Tasks: The learner will be able to describe the procedure for designing sound to moving pictures synergistically.

Criterion 41: The prescribed sound design system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) must be described as a reflexive goal-changing system (i.e., the sound designer is considered part of the system). Therefore, the system will have a memory with the self-organizing ability:

- to initiate its own course of action in a feedback response (the present state; e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) or a feedforward response (projected future states; e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) to changing environmental conditions (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures);

- to choose the best alternative for a particular set of conditions (e.g., a performer point of view sound function will counterpoint the image of the people in the hospital ward in a continuous slow-paced substrategy at the top of the story. In the second act, the design demands a subjective point of view sound function that dominates the image of the people in the hospital ward in a discontinuous quicker-paced substrategy. Finally,

- the subjective point of view sound function undermines the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

- to reflect upon its past decision making: is it working this way or should I change something? (e.g., perhaps - the subjective point of view sound function that undermines the image of the people in the hospital ward with a divergent continuous summarizing review substrategy should be used in the third act; not the convergent discontinuous summarizing review substrategy. The divergent continuous substrategy would produce a harmonious, hopeful quality, while the convergent discontinuous substrategy would produce a tragic and final effect).

Criterion 42: A model of the sound design system is constructed which includes the subject matter, the producer and the listener/ viewer and may be described either on paper or verbally (to the understanding of a producer from outside that system) in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality.

Criterion 43: The prescribed sound design system must be separated from its environment. The boundaries of the original sound design system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) are delineated from its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 44: The prescribed sound design system must be an open systemm wherein the system interacts somehow with its environment (e.g., character's memory cues or undermines his actions on the screen producing a humous effect; e.g., some Woody Allen films).

Criterion 45: The behaviour of the prescribed sound design system must be described in

terms of the changes in one or more of the structural properties of the system (e.g., in terms of prescribing stated and implied functions, strategies and substrategies into a multilayered AV script so as to produce an expressionistic conceptualization of reality) or of its surrounding environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures).

Criterion 46: The behaviour of the prescribed sound design system must be homeostatic (i.e., continuous and always automatically sensing and comparing the system's output as an automatic corrective action).

Criterion 47: The system is described in terms of its synergy; its property as a whole (e.g., sound functions and structures working together) within the environment (e.g., rewritten scenes, turns in the plot, ambient noises, reshot or reedited motion pictures) to produce attributes not found in the individual parts of the system nor its environment (e.g., an prescribed procedure for solving a problem synergistically using sound).

Objective Nineteen

Topic: Creating original procedures for designing sound.

Given: 1) completed sound design sheets (i.e., function, structure, structured function, multi-layered AV Script, and blank script); 3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instructions on how to fill-in the function sheet, and the structure sheet, multi-layered AV script sheet, and blank script sheet.

Tasks: The learner will be able to generate a new procedure for solving the problem synergistically by mixing the prescribed soundtrack on audiotape based on an original script script.

Criterion 48: The original sound design system (e.g., a sound, an implied sound, a nonsychronous sound, a meta or extra diegetic sound, a soundtrack) must be a reflexive goal-changing system (i.e., the sound designer is considered part of the system). Therefore, the

system will have a memory with the self-organizing ability:

-- to initiate its own course of action in a feedback response (the present state) or a feedforward (projected future states) response to changing environmental conditions (e.g., noises, stated sounds, synchronous sounds, nondiegetic sounds, motion pictures);

- to choose the best alternative for a particular set of conditions (e.g., a performer point of view sound function will counterpoint the image of the people in the hospital ward in a continuous slow-paced substrategy at the top of the story. In the second act, the design demands a subjective point of view sound function that dominates the image of the people in the hospital ward in a discontinuous quicker-paced substrategy. Finally, the subjective point of view sound function undermines the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

- to reflect upon its past decision making;

Criterion 49: A model of the sound design system is constructed which includes the subject matter, the producer, and the listener/ viewer and is described on paper in words, symbols, graphs; or verbally to the understanding of a producer from outside that system.

Criterion 50: The original sound design system must be separated from its environment. The boundaries of the original sound design system (e.g., a sound, an implied sound, a nonsynchronous sound, a meta or extra diegetic sound, a soundtrack) are delineated from its surrounding environment (e.g., a noise, a stated sound, a synchronous sound, a nondiegetic sound, a motion picture).

Criterion 51: The original sound design system must be an open system (i.e., the system interacts somehow with its environment).

Criterion 52: The behaviour of the original sound design system must show changes in one or more of the structural properties of the system (e.g., a sound, an implied sound, a nonsychronous sound, a meta or extra diegetic sound, a soundtrack), or of its environment (e.g., a noise, a stated sound, a synchronous sound, a nondiegetic sound, a motion picture).

Criterion 53: The behaviour of the original sound design system must be homeostatic (i.e., continuous and always automatically sensing and comparing the system's output as an automatic corrective action).

Criterion 54: The system must have synergy; its property as a whole (e.g., sound functions and structures working together) within the environment (e.g., the motion picture) to produce attributes not found in the individual parts of the system nor its environment (e.g., an original procedure for solving a problem synergistically using sound).

Objective Twenty

Topic: Describing the original procedures for designing sound.

Given: 1) completed sound design sheets (i.e., function, structure, structured function, multi-layered AV Script, and blank script); 3) definitions of expressionism, realism, designed sound, sound function, and sound structures; 4) instructions on how to fill-in the function sheet, and the structure sheet, multi-layered AV script sheet, and blank script sheet.

Task: The learner will be able to describe the original process used to generate the new procedure for solving the problem synergistically using sound.

Criterion 55: The original sound design system (e.g., a sound, an implied sound, a nonsychronous sound, a meta or extra diegetic sound, a soundtrack) must be described as a reflexive goal-changing system (i.e., the sound designer is considered part of the system). Therefore, the system will have a memory with the self-organizing ability:

- to initiate its own course of action in a feedback response (the present state) or a

feedforward (projected future states) response to changing environmental conditions (e.g., noises, stated sounds, synchronous sounds, nondiegetic sounds, motion pictures);

- to choose the best alternative for a particular set of conditions (e.g., a performer point of view sound function will counterpoint the image of the people in the hospital ward in a continuous slow-paced substrategy at the top of the story. In the second act, the design demands a subjective point of view sound function that dominates the image of the people in the hospital ward in a discontinuous quicker-paced substrategy. Finally,

- the subjective point of view sound function undermines the image of the people in the hospital ward with a convergent discontinuous summarizing review substrategy).

- to reflect upon its past decision making;

Criterion 56: A model of the sound design system is constructed which includes the subject matter, the producer and the listener/ viewer and is described on paper in words, symbols, graphs; or verbally to the understanding of a producer from outside that system.

Criterion 57: The original sound design system must be separated from its environment. The boundaries of the original sound design system (e.g., a sound, an implied sound, a nonsychronous sound, a meta or extra diegetic sound, a soundtrack) are delineated from its surrounding environment (e.g., a noise, a stated sound, a synchronous sound, a nondiegetic sound, a motion picture).

Criterion 58: The original sound design system must be an open system (i.e., the system interacts somehow with its environment).

Criterion 59: The behaviour of the original sound design system must be described in terms

of the changes in one or more of the structural properties of the system (e.g., a sound, an implied sound, a nonsychronous sound, a meta or extra diegetic sound, a soundtrack), or of its environment (e.g., a noise, a stated sound, a synchronous sound, a nondiegetic sound, a motion picture).

Criterion 60: The behaviour of the original sound design system must be homeostatic (i.e., continuous and always automatically sensing and comparing the system's output as an automatic corrective action).

Criterion 61: The system is described in terms of its synergy; its property as a whole (e.g., sound functions and structures working together) within the environment (e.g., the motion picture) to produce attributes not found in the individual parts of the system nor its environment (e.g., an original procedure for solving a problem synergistically using sound).

Recommendations for Revisions to the Instructional Analysis

A revised instructional analysis recommends the expansion of the hierarchy of objectives from seven to twenty, including specific creative thinking task-strategies for rule-users. Figure 4.0 shows the recommended revisions to the instructional analysis of objectives. Based on the conclusions, twenty objectives should be integrated into a hierarchical relationship. There are now two TPO's, one production oriented and one nonproduction oriented. Objectives 16, 17, and 19 form the top of the production strand of the hierarchy, requiring subjects to demonstrate a procedure and to generate an original procedure for producing a sound designed product. Objectives 18 and twenty form a strand hat is concerned with the ability to describe the creative process only. Therefore, its instructional strategies for creative problem solving would be directed at teaching analytical oral/aural or writing skills (e.g., definitions of resourcefulness, synergy with the picture and stated sound at the TPO level).

Keller's (1983) four continued motivational components are still here, now in an objectives format (i.e., objectives one and two, and 15 and 16). Moreover, a variation of van Oech's (1983)

creative thinking strategies have become specific task-strategy objectives by Gagne's (1985) suggestion. The highly problematic creative sound components (i.e., silence, humour) of Mitchell, Steukel, and Wilkens (1981), and student-producability are now separate objectives. It is recommended that the rule-using level subjects complete all twenty objectives, while the problem-solving level subjects tackle fourteen of the twenty objectives.

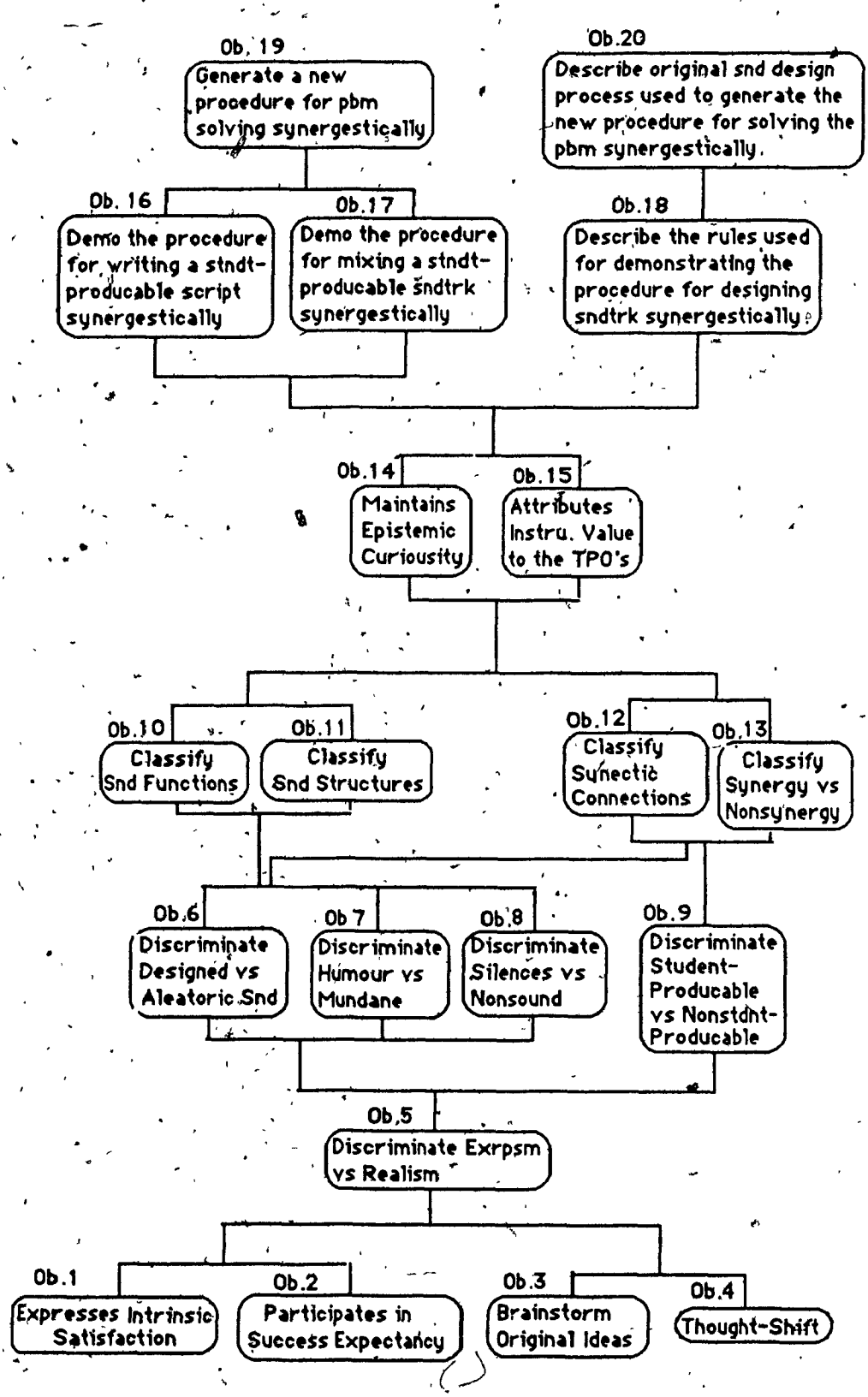

Figure 4.0 Recommended revisions to the hierarchical instructional analysis.

Objectives Requiring Both Rule-Using and Problem Solving Strategies

Objectives One Through Five

The instructional needs of both rule-using and problem solving level subjects may best be served by teaching the first five objectives together. Martin and Briggs (1986) suggest the following variations on Keller's (1983) motivational instructional strategy for both the rule-using and the problem solving level subjects. This instructional strategy incorporates one skill, two motivating attitudes, and two creative thinking strategies together and in context.

Affective Objectives One and Two; 1) Teach subjects how to reward themselves for task accomplishment; 2) demonstrate how to match subjects tasks to present and future personal needs and values; 3) discuss ways to motivate oneself to do the unpleasant tasks (e.g., show subjects how to link undesirable tasks to future needs, desires, wants, and show subjects how to break-up the large tasks into smaller units and to reinforce each step; 4) provide opportunities for subjects to continus a task away from the original learning environment; 5) use task-endogenous rather than task-exogenous rewards; 6) use the informational rather than the controlling aspect of a reward; 7) use unexpected rewards and verbal praise to maintain motivation; 8) link success to personal attributes (abilities and efforts); 9) provide opportunities for control of success ober the learning situation (to move into the problem solving level of subject, or a deeper creative level (i.e; more technical, innovative, etc); 10) provide opportunities for further involvement with topics which students already know about or believe in; 11) increase dissonance (but not through uninteresting subject matter in the video segments) by providing information slightly outside the range of acceptance using novel and unexpected situations or using personal and emotional materials and situations.

Creative Thinking Task Objectives Three and Four

Strategy One: Brainstorming Original Ideas. Discovery seems to consist of listening to/looking at the same thing as everyone else, and thinking something differently. Brainstorming,

or soft thinking aloud (either alone or with others), tends to motivate the suspension of disbelief and generate unique responses, such as original humour, using similies to compare ideas, concepts, things and people.

Strategy Two: Fluency and Flexibility. The concept of fluency can be thought of in terms of "odds"- the ability to create many responses to a given stimulus. The stimulus may be silent pictures, a problematic soundtrack, or an unfinished script. Moreover, producing a variety of ideas that causes shifts from one thought pattern (or category) to another (Mitchell, Wilkens & Steukel, 1981; Torrance, 1980; van Oech, 1983) seems to be another motivating influence that may be a possible source from which mental locks may be opened.

Objective Five

Objective five (i.e., discriminate expressionism from realism) is an intellectual skill that should be required by both rule-users and problem solvers alike, since the content may be unfamiliar to both. Again, examples and nonexamples (realistic and aleatoric) of expressionistic conceptualizations of reality are prescribed. However, the video segments should be better representative of expressionism (even supporting the visual bias to prove the point) and less unambiguous.

Objective Nine

A synonym for student-producability is resourcefulness- essential to the successful completion of the sound design unit. Humorous examples of overkill using sound as well as several small format examples showing unfinished masterpieces based on scripts that were unresourceful.

Objectives Ten and Eleven: Sound Functions and Structure

Emphasis should be placed on the fact that only two out of six functions and only four out of

six strategies are necessary and sufficient for structuring appropriate sound functions into a sound picture relationship.

Objective Twelve and Thirteen: The Creative Thinking Process: Structuring Sound Functions

Progressive creative thinking, in this context, refers to the soft thinking abilities in the germinal phase (van Oech, 1983) of each objective; the frequency and quality with which each subject generated and manipulated ideas in order to master the criteria (Mitchell, Wilkens & Steukel, 1981).

Objective Twelve: Uniting Irrelevant Elements Synectically. The activity of uniting different and seemingly irrelevant elements synectically can only successful when the implementer has developed both the cognitive skills for implementing an innovation and the affective behaviours necessary for generating positive attitudes toward that innovation (Mitchell, Wilkens & Steukel, 1981; van Oech, 1983). In creative problem solving, there is an inductive leap, a combining of ideas from widely separated knowledge systems, a bold use of analogy that transcends what is usually meant by generalizing within a class of problem situations (Gagne, 1985; van Oech, 1983). A synectic union presupposes that the emotional components of the process are more important than the rational ones (Mitchell, Wilkens & Steukel, 1981).

Objective Thirteen: Integrating the Sound And Picture synergistically. Synergy in a script or final cut may be considered to refer to the behaviours of an integral aggregate macrosystem (e.g., the entire film or television production) unpredicted by behaviours of any of their components (the sound design) or subassemblies of their components (the functions or structures). In the gestalt, the parts of a whole interact and influence one another. Again, change in one part may produce change in another.

Objectives Fourteen and Fifteen

As in objectives one and two, the instructional needs of both rule-using and problem solving

level subjects may best be served here by taking the the two objectives together. Martin and Briggs (1986) suggest the following variations on Keller's (1983) motivational instructional strategy for both the rule-using and the problem solving level subjects: 1) Teach subjects how to reward themselves for task accomplishment; 2) demonstrate how to match subjects tasks to present and future personal needs and values; 3) discuss ways to motivate oneself to do the unpleasant tasks (e.g., show subjects how to link undesirable tasks to future needs, desires wants; show subjects how to break-up the large tasks into smaller units, and to reinforce each step; 4) provide opportunities for subjects to continus a task away from the from the original learning environment; 5) use task-endogenous rather than task-exogenous rewards; 6) Use the informational rather than the controlling aspect of a reward; 7) use unexpected rewards and verbal praise to maintain motivation; 8) link success to personal attributes (abilities and efforts); 9) provide opportunities for control of success ober the learning situation (to move into the problem solving level of subject, or a deeper creative level (i.e, more technical, innovative, etc); 10) provide opportunities for further involvement with topics which students already know about or believe in; 11) increase dissonance (but not through uninteresting subject matter in the video segments) by providing information slightly outside the range of acceptance using novel and unexpected situations or using personal and emotional materials and situations.

Objectives Nineteen and Twenty

It is suggested that these two TPO's be taught separately, even though they tend to lend information to each other.

Objectives Nineteen. It is recommended that using the forms at all at this level be avoided in favour of beginning with analogizing sessions. Scripts may be verbal as long as the layers are delineated. Private terminologies may be used as long as there are clear functions for each sound idea and a strategy for it alongside the motion picture. Deviation amplifying should be encouraged, both in groups and separately.

Objective Twenty. This instructional activity should be tied into objective four, thought-shifting (i.e., producing a variety of ideas that causes shifts from one thought pattern, or category, to another). The difference here is that the process of describing creative problem solving is two-fold: 1) The first type of process description requires an educational or commercial type of needs assessment of the intented product: Who needs it? Whos going to pay for the production? Who going to sell the product; 2) The second type of process description requires dramatic explanantion of the process used to arrive at the product: Who is s/he? What does s/he want? What does s/he really want? What's stopping him/her from getting what s/he wants?

Objectives Requiring Rule-Using Instructional Strategies Only

Objectives Six, Seven, and Eight

Rule-using level subjects should also be able to master intellectual skills six, seven, and eight before attempting to classify sound functions and structures or creating synectic connections.

Objective Six. It is recommended to teach the subject how to describe both the size (or impact) and the extent (or amount of use) of deliberate sound planning throughout the video segment.

Objective Seven. Seven is a new objective (formerly criteria 20, 32, and 40). The criteria for discriminatihg humour from nonhumour is stated in a similar manner to the criteria for discriminating designed from undesigned sound (i.e., with the careful illmination of nuisance factors). The instruction should teach the subjects how to *recognize* a humourous script or sound mix.

Objective Eight. Eight is also a new objective (formerly criteria 17, 29, and 37). The criteria for discriminating silence from nonsound may be thought of system (throughout the entire production) and a subsystem (a scene). It is recommended to teach the subject how to describe both the size (or impact) and the extent (or amount of use) of deliberate sound planning (similar

to teaching him/her to discriminate designed/undesigned sound) throughout the video segment.

Objective Sixteen, Seventeen, and Eighteen

These are rule-using objectives and may be skipped over by problem solvers with semiotic or personal methodologies for generating an original script and soundtrack. It is suggested that objectives 16 and 17 be taught together, separately from 18. Eighteen may better be understood after these two abilities have been demonstrated, even though they tend to borrow information from each other.

Objective Sixteen. This behaviour requires the subject to be able to demonstrate the procedure for writing a student-producable script synergistically. It is recommended to begin the instructional events with the partially formed personal methodologies of the participants in an effort to ease them away from the concept-learning (form-filling-in) level. Story treatments may be verbalized, but it is suggested that their AV scripts be written out, with all the layers of sound function delineated. Personal terminologies may be used as long as there are clear functions for each sound and a strategy for it alongside the motion picture column. Deviation amplifying behaviours should be encouraged, both in groups and separately. However, close supervision of the learning activites is essential in the form of providing the appropriate endogenous negative feedback in order to insure that the guidelines for sound structuring functions are adhered to.

Objective Seventeen. This behaviour necessitates a one-on-one mixdown session. Again, it is recommended to begin the instructional events with the partially formed personal methodologies of the participants in an effort to ease them away from the concept-learning (form-filling-in) level. Story treatments may be verbalized, but it is suggested that their AV scripts be written out, with all the layers of sound function delineated. Personal terminologies may be used as long as there are clear functions for each sound and a strategy for it alongside the motion picture column. Deviation amplifying behaviours should be encouraged, both in groups and separately. However, close supervision of the learning activites is essential in the form of

providing the appropriate endogenous negative feedback in order to insure that the guidelines for sound structuring functions are adhered to.

Objective Eighteen. The instructional activity for this objective should be tied into objective four's thought-shifting task strategies (i.e., producing a variety of ideas that causes shifts from one thought pattern (or category) to another). The difference here is that the process of describing creative problem solving is two-fold: The first type of process description requires an educational or commercial type of needs assessment of the intented product: Who needs it? Whos going to pay for the production? Who going to sell the product? The second type of process description requires dramatic explanantion of the process used to arrive at the product: Who is s/he? What does s/he want? What does s/he really want? What's stopping him/her from getting what s/he wants?

Instructional Materials

It is recommended that revisions be made to the criterion referenced tests, including the questions asked by the evaluator, the video segments used, and the answer forms. The voice-over soundtrack should be rerecorded on audiotape, then transferred to videotape in order to lower the incidents of distraction among the listeners. The video segments should be changed, made more interesting. It is recommended to go back into the pool of films and videos or use new ones that present the problems (e.g, cliche, reflex, etc) without boring the listener or dragging out the punchline. There would be more uniformity of media-type and of genre-type between test items in the video segments. Revised instructional materials would have more professionally-relevant (e.g., journalistic or computer-generated) video examples and nonexamples. And finally, criterion referenced tests would have more uniformity of difficulty between test items for any given objective. It is recommended that the revised unit be evaluated independently.

Instructional Events Timetable.

The inclusion of time-lengths and objectives into Gagne's (1985) instructional events was helpful during instruction of the unit and should therefore be expanded to accomodate the objectives and startegies of the new instructional hierarchy.

Table 4.0 shows the recommendations for revisions to the instructional events and times for all 20 objectives. Notably, rule-using level subjects should complete all of the events of instruction for 20 objectives in under the maximum 46 hour time limit. Problem solving level subjects should all of the events of instruction for 14 objectives in under the maximum 31 hour time limit.

	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7	Objective 8	Objective 9	Objective 10	Objective 11	Objective 12	Objective 13	Objective 14	Objective 15	Objective 16	Objective 17	Objective 18	Objective 19	Objective 20	
1. Inform Learner Of Objective/Criteria	–	–	5	5	5	5	5	5	5	5	5	5	5	–	–	5	5	5	5	5	
2. Present Definitions/Sample Sheets	5	5	5	5	15	5	15	10	10	15	15	10	10	10	10	20	10	5	30	5	
3. Screen Sample Video/Sample Brainstorm	10	10	15	15	10	10	10	10	10	20	20	15	15	10	10	20	10	10	30	20	
4. Screen Video / PRETEST	10	10	15	15	15	15	15	20	20	30	30	15	15	10	10	30	30	15	60	15	
5. Screen Track Stars Video/Gain Interest	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
6. Screen Video/Teach Brainstorming	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	30	15	10	15	10	
7. Stimulate Recall of Prior Knowledge	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	15	15	5	15	5	
8. Sound Design Guided Discovery/Tutoring	–	–	5	5	10	10	10	10	10	10	10	10	10	–	–	20	10	10	30	10	
9. Screen Video/Guided Practice/Feedback	10	10	20	20	30	30	30	30	20	50	50	10	10	10	10	30	30	10	90	10	
10 Screen Video/ POSTTEST	10	10	15	15	15	15	15	15	15	30	30	15	15	10	10	30	30	15	60	15	
11 Provide Voluntary Questionnaire	5	5	5	5	10	5	5	5	5	10	10	5	5	5	5	20	10	10	20	10	
Nos 1thru 11: Pretest, Instrn Feedbk Posttest	0:75:00	0:75:00	1:50:00	1:50:00	2:15:00	2:00:00	2:10:00	2:10:00	2:20:00	3:15:00	3:15:00	1:50:00	1:50:00	1:20:00	1:20:00	3:45:00	2:40:00	1:45:00	6:05:00	1:55:00	46:05:00

Table 4.0 Recommendations for revisions to the instructional events timetable.

Formative Evaluation Model

The existing Dick and Carey (1985) formative evaluation model was supplemented with van Oech's (1983) soft thinking strategies (i.e., brainstorming, thought-shifting, and synectic synergy). The independent subject matter experts, external evaluators, and instructional designer were of significant value in designing and revising these instructional materials. It is highly recommended that they be consulted on an ongoing basis in order to keep the instructional materials current and interesting (e.g., from becoming re-edits of the same mistakes).

The one to one trials exposed several criterion-level inconsistencies and with several unwatchable (for varying reasons) video segments. Single subject trials are recommended if new materials are being considered for inclusion into the unit. The small group evaluations produced the most feedback about the instructional design, and were most helpful. A field trial of the entire student populations of educational technology and communication studies departments would be rather unwieldy and is therefore not recommended at this time.

Measurement. The nonspecific nature of the existing internal evaluations of the creative thinking strategies made measurement difficult. A task specific, creative thinking strategy was recommended. Changes were made to the objectives, criteria, hierarchy of objectives, and the instructional strategy. Moreover, the attitude questionnaire was found to be inadequate. Greater care should be taken in furture with respect to choosing questions, perhaps striving for better quantification of the variables.

In summation, chapter four was concerned with the appropriate recommendations for further revisions to the performance objectives, the instructional strategy and materials of this motion picture sound design unit. There doesn't seem to be any other system in place at present for scripting, sound mixing, or applying aesthetics that has attempted to deal with the complexity of structuring sound functions synergistically. Nor does there seems to be any other prescription in place for teaching the subjects how to design sound systemically. These sound design and the

instructional design systems, therefore, may be considered to be an appropriate place to begin to design instructional materials for learning these sound processes with other target audiences.

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Appendix A: Referent Situation Tests

Working Conditions. The external working conditions for both RST_1 and RST_2: 1) a problematic or soundless video segment; 2) a blank sheet of paper, a blank storyboard, a blank Multi-layered Script Sheet (a script without Function labels in each column) ; 3) instructions on the procedure for creating expressionistic sound designs for soundless video segments; 4) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Behaviour. The behaviour that applies to both RST_1 and RST_2: the subject would be able to generate a new procedure for solving media production problems synergistically using sound.

Criterion Checklist. The degree of performance for mastery for both RST_1 and RST_2:

1. Show or state that this activity had an Intrinsic Satisfaction that has been the key to developing and maintaining his/her continued motivation throughout this activity.

2. Show or state that within the subject's methodology (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there was a brief description of 1) the stated picture and 2) the stated sound, 2) the implied meanings in the pictures; i.e., 3 stated sound-picture functions.

3. Show a written showing at least 2 brief descriptions (outline, sub-plotline, sketch, treatment, scriptoid, etc.), about the implied meanings of the sound in the video segment; i.e., 2 implied sound functions.

4. Show a written prescription for creating Structured Sound Functions on a Blank Sheet of paper (outline, sub-plotline, sketch, treatment, scriptoid, etc.), that addresses the questions how, where, and how often should the Sound Function in this Sound Design?

5. Write a script and mix a soundtrack that exhibits how each chosen Sound Function is Structured in the sequence or segment.

6. Write a script and mix a soundtrack that exhibits *where* each Sound Function was

Structured.

7. Write a script and mix a soundtrack that exhibits synergy.

8. Write a script and mix a soundtrack that deliberately exaggerates reality.

9. Write a script and mix a soundtrack that exhibits unusual uses of silence.

10, Write a script and mix a soundtrack that elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion,(ex. uses a musical phrasing or leitmotif in the segment to relate the subtext-something implied in the story).

11. Write a script and mix a soundtrack that plays with scientific laws and concepts, by personal analogy, by direct analogy, or by symbolic analogy.

12. Write a script and mix a soundtrack that uses original humour.

Appendix B: Three A Priori Objectives

Objective One

Learning Conditions. Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank function Sheet; and a blank structure Sheet; 3) Definitions of sound functions and structures; 4) Instruction on how to fill-in the structured function sheet.

Behaviour. The subject will be able to classify the expressionistically designed functions and structures of the sound in the video segment's sound-picture relationship by writing the appropriate sound functions on the structured function sheet.

Criterion Checklist. The degree of performance for objective one will be measured by:

1. Show or state that this activity had a personal or professional instrumental value (relevance) to the subject.

2. Show or state an aroused interest (epistemic curiousity) about the activity of designing sound with pictures.

3. Classify both the stated sound, and the stated and implied picture functions on the function Sheet.

4. Write at least 4 sound strategies on each structure Sheet used in the video segment, at least 2 of the 3 questions asked on the function Sheet within each Sound Strategy must be answered on both structure Sheets (i.e., How? Where? and How Often?).

Objective Two

Given: 1) a video segment with a partially-recorded soundtrack; 2) a blank function Sheet, a blank structured-function sheet sheet, a blank Multilayered Script with the functions filled-in along the columns; 3) instructions on the procedure for creating sound functions, Structuring the functions, and writing a Multilayered Sound Design Script for the video segment; 4) a microphone, a video playback unit, and free access to the search controls of the videocassette

recorder, audio mixing facilities, prerecorded music and sound effects.

Behaviour. The subject would be able to demonstrate the procedure for writing a script.

Criterion Checklist

1. Show or state that this activity had an Intrinsic Satisfaction that has been the key to developing and maintaining his/her continued motivation throughout this activity.

2. Show or state that within the subject's methodology (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there was a brief description of 1) the stated picture and 2) the stated sound, 2) the implied meanings in the pictures; i.e., 3 stated sound-picture functions.

3. Show at least 2 brief descriptions (outline, sub-plotline, sketch, treatment, scriptoid, etc.), about the implied meanings of the sound in the video segment; i.e., 2 implied sound functions.

4. Show a written prescription for creating Structured Sound Functions on a Blank Sheet of paper (outline, sub-plotline, sketch, treatment, scriptoid, etc.), that addresses the questions how, where, and how often should the Sound Function in this Sound Design?

5. The script exhibits how each chosen Sound Function is Structured in the sequence or segment.

6. The script exhibits *where* each Sound Function was Structured.

7. The script exhibits synergy.

8. The script deliberately exaggerates reality.

9. The script exhibits unusual uses of silence.

10. The script elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion,(ex. uses a musical phrasing or leitmotif in the segment to relate the subtext-something implied in the story).

11. The script plays with scientific laws and concepts, by personal analogy, by direct analogy, or by symbolic analogy.

12. The script uses original humour.

Objective Three (the TPO)

Learning Conditions. Given: 1) a problematic or soundless video segment; 2) a blank sheet of paper, a blank storyboard, a blank Multi-layered Script Sheet (a script without Function labels in each column) ; 3) instructions on the procedure for creating expressionistic sound designs for soundless video segments; 4) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

Behaviour. The subject would be able to generate a new procedure for solving media production problems synergistically using sound.

Criterion Checklist. The degree of performance for mastery:

1. Show or state that this activity had an Intrinsic Satisfaction that has been the key to developing and maintaining his/her continued motivation throughout this activity.

2. Show or state that within the subject's methodology (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there was a brief description of 1) the stated picture and 2) the stated sound, 2) the implied meanings in the pictures; i.e., 3 stated sound-picture functions.

3. Show a written showing at least 2 brief descriptions (outline, sub-plotline, sketch, treatment, scriptoid, etc.), about the implied meanings of the sound in the video segment; i.e., 2 implied sound functions.

4. Show a written prescription for creating Structured Sound Functions on a Blank Sheet of paper (outline, sub-plotline, sketch, treatment, scriptoid, etc.), that addresses the questions how, where, and how often should the Sound Function in this Sound Design?

5. Write a script and mix a soundtrack that exhibits how each chosen Sound Function is Structured in the sequence or segment.

6. Write a script and mix a soundtrack that exhibits *where* each Sound Function was Structured.

7. Write a script and mix a soundtrack that exhibits synergy.

8. Write a script and mix a soundtrack that deliberately exaggerates reality.

9. Write a script and mix a soundtrack that exhibits unusual uses of silence.

10. Write a script and mix a soundtrack that elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion,(ex. uses a musical phrasing or leitmotif in the segment to relate the subtext-something implied in the story).

11. Write a script and mix a soundtrack that plays with scientific laws and concepts, by personal analogy, by direct analogy, or by symbolic analogy.

12. Write a script and mix a soundtrack that uses original humour.

Appendix C: Seven Revised Objectives

Objective 1

Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank Function Sheet; and a blank Structure Sheet; 3) Definitions of Expressionism, Realism, Designed Sound, Sound Functions and Sound Structures; 4) Instruction on how to fill-in the Discrimination Sheet, the Function Sheet, and the Structure Sheet.

The learner has beenable to discriminate an expressionistic from a realistic conceptualization of reality by writing your answers on the Discrimination Sheet.

Criterion 1. Showing/stating that this activity had personal/ professional instrumental value (relevance) refers to the increases in motivation to accomplish an immediate goal when it was connected to another and how accomplishment of one goal leads to the accomplishment of an immediate goal when it was perceived to be a desired for attaining a future goal.

Criterion 2. Showing/stating an aroused epistemic curiousity about the activity of designing sound with pictures.

Criterion 3. Discriminating an expressionistic from a realistic conceptualization of reality.

Objective 2

Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank Function Sheet; and a blank Structure Sheet; 3) Definitions of Expressionism, Realism, Designed Sound, Sound Functions and Sound Structures; 4) Instruction on how to fill-in the Discrimination Sheet, the Function Sheet, and the Structure Sheet.

The learner has beenable to discriminate expressionistic from realistic scripts, pictures, and sounds by writing your answers on the Discrimination Sheet.

Criterion 4. Discriminating which component(s) was/are expressionistic conceptualizations of reality (whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video), then a written statement should show the size and

the extent to which the learner believes that this/these component(s) was/are deliberate manipulations of reality suggested from the scriptwriting, from the picture, or from the soundtrack.

Objective 3

Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank Function Sheet; and a blank Structure Sheet; 3) Definitions of Expressionism, Realism, Designed Sound, Sound Functions and Sound Structures; 4) Instruction on how to fill-in the Discrimination Sheet, the Function Sheet, and the Structure Sheet.

The learner has beenable to discriminate designed from undesigned sound by writing the answer on the Discrimination Sheet.

Criterion 5. Discriminating Designed/Undesigned Sound (whether expressionistic or not; whether taken strictly as the learner's perception, or taken as the learner's perception of the producer's intention in making the video), then a written statement should show the size and the extent to which the learner believes that the video segment uses planned sound, whether pre or post-synchronized.

Objective 4.

Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank Function Sheet; and a blank Structure Sheet; 3) Definitions of Expressionism, Realism, Designed Sound, Sound Functions and Sound Structures; 4) Instruction on how to fill-in the Discrimination Sheet, the Function Sheet, and the Structure Sheet.

The learner has beenable to classify the functions of the sound in the segment's sound-picture relationship, by writing the appropriate Sound Functions on the Function Sheet.

Criterion 6. Classifying both the stated sound, and the stated and implied picture functions (steps 1,2,3 on the Function Sheet)

Criterion 7. Classifying at least two implied Sound Functions (from steps 4 through 9 on the Function Sheet).

Objective 5

Given: 1) a prerecorded video segment; 2) a blank Discrimination Sheet, a blank Function Sheet; and a blank Structure Sheet; 3) Definitions of Expressionism, Realism, Designed Sound, Sound Functions and Sound Structures; 4) Instruction on how to fill-in the Discrimination Sheet, the Function Sheet, and the Structure Sheet.

The learner has beenable to classify the sound strategies used in the structuring the sound in the video segment, by writing the appropriate Sound Strategies on the Structure Sheet;

Criterion 8. Describing at least 4 sound strategies on each Structure Sheet used in the video segment, at least 2 of the 3 questions asked on the Function Sheet within each Sound Strategy must be answered on both Structure Sheets (i.e., How? Where? and How Often?).

Objective 6

Given: 1) a video segment with a partially-recorded soundtrack; 2) a blank Function Sheet, a blank Structured-Function Sheet, a blank Multilayered Script with the Functions filled-in along the columns; 3) instructions on the procedure for creating Sound Functions, Structuring the Functions, and writing a Multilayered Sound Design Script for the video segment; 4) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

The learner has beenable to demonstrate the procedure for designing sound to moving pictures by prescribing Sound Functions on a Function Sheet, Structuring the appropriate Sound Functions on a Structured-Functions Sheet, and writing a Multi-layered Sound Design Script;

Criterion 9. Showing/stating an expectancy for success; i.e., that s/he feels that s/he had

personal control over the successful completion of a learning task and who believes his/her success was related to his/her personal ability and effort.

Criterion 10. Creating 3 stated sound-picture functions on the Functions Sheet, there must be a brief description of the stated picture and stated sound plus one statement about the implied meanings in the pictures; i.e., 3 stated sound-picture functions.

Criterion 11. Creating 2 implied sound functions per segment on the Functions Sheet, there must be at least 2 brief descriptions about the implied meanings in each video segment; i.e., 2 implied sound functions per segment.

Criterion 12. Creating at least 4 sound strategies on each Structured-Function Sheet for each (both) of the chosen Sound Functions 4 strategies, at least 2 of the 3 questions asked on the Structured-Function Sheet within each Sound Strategy must be answered on both Structured Functions Sheets (i.e., How? Where? and How Often?).

Criterion 13. Writing a script that exhibits *how* each chosen Sound Function was Structured in the sequence or segment.

Criterion 14. Writing a script that exhibits *where* each Sound Function was Structured.

Criterion 15. Writing a script that exhibits synergy (i.e., the Functions and Structures interact internally in a unique manner, the result being greater than the sum of its parts).

Criterion 16. Writing a script that translates, manipulates, stylizes, or otherwise deliberately exaggerates reality.

Criterion 17. Writing a script that exhibits unusual uses of silence.

Criterion 18. Writing a script that elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion,(ex. uses a musical phrasing or leitmotif in the segment to relate the subtext-something implied in the story).

Criterion 19. Writing a script that plays with scientific laws and concepts; Ex. what would happen if there was no sight, only sound?

- or if the new Script uses metaphors to compare things by personal analogy; Ex. what

animal sounds the way this person looks?

- or if the new Script uses metaphors to compare things by direct analogy. Ex. Bell's invention of the telephone was based on his clinical knowledge of the human ear because of his work with the deaf.

- or if the new Script uses metaphors to compare things by symbolic analogy. This involves the use of objective and impersonal sounds to describe personal problems; e.g., a woman screams, as the train whistle shrieks.

Criterion 20. Writing a script that uses original humour.

Objective Seven: The TPO

Given: 1) a problematic or soundless video segment; 2) a blank sheet of paper, a blank storyboard, a blank Multi-layered Script Sheet (a script without Function labels in each column); 3) instructions on the procedure for creating expressionistic sound designs for soundless video segments; 4) a microphone, a video playback unit, and free access to the search controls of the videocassette recorder, audio mixing facilities, prerecorded music and sound effects.

The learner has beenable to generate a new procedure for solving the problem synergistically by: 1) voluntarily stating/showing his/her own expectations for achievement of creative self-expression in terms of its intrinsic rewards (outcomes); 2) prescribing Sound Functions on the Function Sheet; 3) Structuring each Sound Function on the Structured-Function Sheets; 4) writing an original script based on the prescription on the Blank Multi-layered Script Sheet; 5) mixing an original soundtrack on audiotape based on the script; 6) describing the original process used to generate the new procedure for solving the problem synergistically using sound.

Criterion 21. Showing/stating an Intrinsic Satisfaction that had been the key to developing and maintaining his/her continued motivation throughout this activity.

Criterion 22. Within the learner's methodology (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there must be a brief description of 1) the stated picture and 2) the stated sound,

2) the implied meanings in the pictures; i.e., 3 stated sound-picture functions.

Criterion 23. Within the learner's methodology (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there must be at least 2 brief descriptions about the implied meanings of the sound in the video segment; i.e., 2 implied sound functions.

Criterion 24. Within the learner's methodology; (outline, sub-plotline, sketch, treatment, scriptoid, etc.), there must be there must be a written prescription for creating Structured Sound Functions on a Blank Sheet of paper that address the questions How? Where? and How Often? should the Sound Function in this Sound Design?

Criterion 25. Writing a script that exhibits *how* each chosen Sound Function was Structured in the sequence or segment.

Criterion 26. Writing a script that exhibits *where* each Sound Function was Structured.

Criterion 27. Writing a script that exhibits synergy.

Criterion 28. Writing a script that deliberately exaggerates reality.

Criterion 29. Writing a script that exhibits unusual uses of silence.

Criterion 30. Writing a script that elaborates on separate ideas through the development of a chain of ideas based on the embellishment of an original notion,(ex. uses a musical phrasing or leitmotif in the segment to relate the subtext-something implied in the story).

Criterion 31. Writing a script that plays with scientific laws and concepts, by personal analogy, by direct analogy, or by symbolic analogy.

- or if the new Script uses metaphors to compare things by personal analogy; Ex. what animal sounds the way this person looks?

- or if the new Script uses metaphors to compare things by direct analogy. Ex. Bell's invention of the telephone was based on his clinical knowledge of the human ear because of his work with the deaf.

- or if the new Script uses metaphors to compare things by symbolic analogy. This involves the use of objective and impersonal sounds to describe personal problems; e.g., a woman

screams, as the train whistle shrieks.

Criterion 32. Writing a script that uses original humour.

Criterion 33. Mixing a soundtrack that exhibits *how* each chosen Sound Function was Structured in the sequence or segment.

Criterion 34. Mixing a soundtrack that exhibits *where* each Sound Function was Structured.

Criterion 35. Mixing a soundtrack that exhibits synergy

Criterion 36. Mixing a soundtrack that deliberately exaggerates reality.

Criterion 37. Mixing a soundtrack that exhibits unusual uses of silence.

Criterion 38. Mixing a soundtrack that elaborates on separate ideas based on the embellishment of an original notion.

Criterion 39. Mixing a soundtrack that plays with scientific laws and concepts, by personal analogy, by direct analogy, or by symbolic analogy.

If the new mix plays with scientific laws and concepts; Ex. what would happen if there was no sight, only sound?

- or if the new mix uses metaphors to compare things by personal analogy; Ex. what animal sounds the way this person looks?

- or if the new mix uses metaphors to compare things by direct analogy. Ex. Bell's invention of the telephone was based on his clinical knowledge of the human ear because of his work with the deaf.

- or if the new mix uses metaphors to compare things by symbolic analogy. This involves the use of objective and impersonal sounds to describe personal problems; e.g., a woman screams, as the train whistle shrieks.

Criterion 40. Mixing a soundtrack that uses original humour.

Appendix D: Eight Revised Answer Sheets

Discriminate Examples from Nonexamples in Expressionism, and on the Soundtrack.

Video Segment: _____

1. In examining this video segment as a 3 component system; ie. script, pictures and sounds; it could be said that this Video Segment is an example of an Expressionistic Conceptualization of reality. Why or why not?

   No ☐ _____

   Yes ☐ _____

2. If "yes", which component(s) in the production system is/are considered to be Expressionistic Conceptualization(s) of reality? Why?

   Pictures only ☐ _____

   Pictures & Sound ☐ _____

   Sound only ☐ _____

   Sound & Script ☐ _____

   Script only ☐ _____

   Script & Pictures ☐ _____

   Pictures, Script & Sound ☐ _____

3. In examining the soundtrack of this Video Segment, it could be said that this is an Example of designed sound. Why or why not?

   No _____

   Yes _____

   Caution: Whether the Sound has been designed, or not has nothing to do with whether the Sound is Expressionistic or Realistic

Describe The Functions Of The Sound Design For Video Segment

Step 1: What the Pictures Show (Ex. Two people talking...)

Step 2: What the Sound Says (Ex. Both people disagree about...)

Step 3: What the Pictures Imply (Ex. Both are unsure of their own convictions)

Step 4: What the SOUND IMPLIES about the Atmosphere, Feeling, or Mood

Step 5: What the SOUND IMPLIES about the what the Point(s) of View
(A Subjective POV, an Objective POV, the Performer's POV/ all of above)

Step 6: What the SOUND IMPLIES about Future or Past Events
("meanwhile, several years ago/ several years hence")

Step 7: What the SOUND IMPLIES about the Locale(s)
(Your Character's Psyche; or the Same Locale but different Time)

Step 8: What the SOUND IMPLIES about the Character's Past.
(Your Character's Personal Past/Private Past/Public Past)

Step 9: What the SOUND IMPLIES about the Character IN the Character
(Who is s/he? What does s/he want? Who/What is s/he Afraid of?)

Describe The Structures Of The Sound Design for Video Segment _____

The Informational Strategy:

☐ Cues The Image
How? _____
How Often? _____
Where? _____

☐ Dominates the Image
How? _____
How Often? _____
Where? _____

☐ Counterpoints the Image
How? _____
How Often? _____
Where? _____

☐ Undermines the Image
How? _____
How Often? _____
Where? _____

The Emotional Strategy:

☐ Punctuates an Emotional Highlight
How? _____
How Often? _____
Where? _____

☐ Defines Intensity Of Action
How? _____
How Often? _____
Where? _____

The Pacing Strategy:

☐ Slow-Paced
How? _____
How Often? _____
Where? _____

☐ Fast Paced
How? _____
How Often? _____
Where? _____

The Rhythm Strategy:

☐ Discontinuous Rhythm
How? _____
How Often? _____
Where? _____

☐ Continuous Rhythm
How? _____
How Often? _____
Where? _____

The Review Strategy:

☐ Massed Review
How? _____
How Often? _____
Where? _____

☐ Spaced Review
How? _____
How Often? _____
Where? _____

☐ Summarized Review
How? _____
How Often? _____
Where? _____

The Delivery Strategy:

☐ Divergent Delivery
How? _____
How Often? _____
Where? _____

☐ Convergent Delivery
How? _____
How Often? _____
Where? _____

Create The Functions Of The Sound Design For Video Segment

Step 1: What the Pictures Show (Ex. Two people talking...)

Step 2: What the Sound Says (Ex. Both people disagree about...)

Step 3: What the Pictures Imply (Ex. Both are unsure of their own convictions)

Step 4: **What the SOUND SHOULD IMPLY about the Atmosphere, Feeling, or Mood**

Step 5: **What the SOUND SHOULD IMPLY about what the Point(s) of View**
(A Subjective POV, an Objective POV, the Performer's POV/ all of above)

Step 6: **What the SOUND SHOULD IMPLY about Future or Past Events**
("meanwhile, several years ago/ several years hence")

Step 7: **What the SOUND SHOULD IMPLY about the Locale(s)**
(Your Character's Psyche; or the Same Locale but different Time)

Step 8: **What the SOUND SHOULD IMPLY about the Character's Past.**
(Your Character's Personal Past/Private Past/Public Past)

Step 9: **What the SOUND SHOULD IMPLY about the Character IN the Character**
(Who is s/he? What does s/he want? Who/What is s/he Afraid of?)

Create Structured Sound Functions

for Video Segment _____ **for Function:** _____

The Informational Strategy:

☐ **Cues The Image**

How? _____
How Often? _____
Where? _____

☐ **Dominates the Image**

How? _____
How Often? _____
Where? _____

☐ **Counterpoints the Image**

How? _____
How Often? _____
Where? _____

☐ **Undermines the Image**

How? _____
How Often? _____
Where? _____

The Emotional Strategy:

☐ **Punctuates an Emotional Highlight**

How? _____
How Often? _____
Where? _____

☐ **Defines Intensity Of Action**

How? _____
How Often? _____
Where? _____

The Pacing Strategy:

☐ **Slow-Paced**

How? _____
How Often? _____
Where? _____

☐ **Fast Paced**

How? _____
How Often? _____
Where? _____

The Rhythm Strategy:

☐ **Discontinuous Rhythm**

How? _____
How Often? _____
Where? _____

☐ **Continuous Rhythm**

How? _____
How Often? _____
Where? _____

The Review Strategy:

☐ **Massed Review**

How? _____
How Often? _____
Where? _____

☐ **Spaced Review**

How? _____
How Often? _____
Where? _____

☐ **Summarized Review**

How? _____
How Often? _____
Where? _____

The Delivery Strategy:

☐ **Divergent Delivery**

How? _____
How Often? _____
Where? _____

☐ **Convergent Delivery**

How? _____
How Often? _____
Where? _____

Write The Script

The procedure for writing the script involves; recording the length of the Time and the Pictures, for each Video Seg., then structuring every IMPLIED Sound Function under the appropriate column:

for Video Segment

Time:	Stated Picture Stated Sound:	IMPLIED Character	IMPLIED Case History	IMPLIED P.O.V's	IMPLIED Locales	IMPLIED Past/Future	IMPLIED Mood
00:00							

Your Own Procedures For Designing Sound.

for Video Segment 1:

for Video Segment 2:

for Video Segment 3:

Write The Script

for Video Segment _____