

Life-long Learning Using Sense Perception.

K. Knight-Mudie

University of Southern Queensland, Toowoomba Qld.

Abstract

This paper will examine a variety of visual and musical forms of communication so that teachers might develop an understanding of semiotic pedagogy.

The burgeoning of multiculturalism and an awareness of global economy have contributed to rapidly increasing artistic communication which now challenges the primacy of verbal signs thus leading to the possibility that established and confirmed notions of both verbal signs and artistic signs might require re-thinking. It is also possible that, in a world in which mass communication is used by the few to foster a sense of vicarious experience in the many, the notion of experience as the compulsion to think otherwise than one has been thinking, might also need examination.

All people, whether considered 'talented' or not, are capable of expressing themselves in some artistic form. Making marks begins at a very early age and continues in a common pattern of development from scribbles to symbolism to pictorial realism unless, for various reasons, progress is inhibited and a person mistakenly thinks he or she cannot draw. Similarly, skills involved in listening to music develop as one learns to see what is heard and hear what is seen using the senses of sight and sound in complex ways. However, with careful and sympathetic guidance in the classroom the basic skills of representation and an awareness of the soundscape can be fostered.

It is important that anyone in the teaching profession understands that children must be given adequate and sympathetic attention during crucial transitional stages in image making and burgeoning sensitivity to sounds. Richardson (1992) highlights the fact that teachers "need to be aware that children can reach the stage of pictorial realism at any point in a range of ages" and it is commonly known that children respond in a variety of ways to different sounds. Thus teachers themselves must be able to recognise each case as and when it arises. This is only possible if teachers possess sufficient knowledge in and about sensory perception.

Staying alive is the major concern of most people. This entails developing skills that make survival possible. Using such skills in various ways to make things special is another major concern of most people. This involves finding ways to manipulate things that provide emotional satisfaction because the tendency to behave in one way rather than another is grounded in emotion.

However, in modern Western society many survival skills lie dormant because we have machines that are used to replace natural competencies that were once basic to the way in which we negotiated with the environment. Once upon a time our natural abilities of discrimination, memory, association, eye-hand coordination, pattern recognition, identification of wholes from partial clues, understanding figure-ground relationships, recognising constancy in form, comprehending spatial orientation, recognising categories,

groups and clusters and using forms of abstraction were developed and strengthened in everyday use. Nowadays we have to simulate ways in which these natural biological and mental abilities might be sampled in a packaged and mechanised world. Too often some form of vicarious experience is substituted for real experience as we absorb life through the television, as we think and remember with the help of the computer and we purchase an identity in the technological and design marketplace.

We can argue that the modern materialist position places the arts as extraneous in many educational settings. It now appears that it is only in the field of the arts and pure science that natural competencies are valued, developed and used because raw imaginative potential is the basic ingredient necessary for experimentation. In these fields one has to invent and create unique and personal ways of exploring and coming to know the external world using intuitive thought and imaginative capacity to find significant connections, to draw inferences and to solve problems. However, both intuition and imagination are considered mysterious gifts occasionally bestowed on someone by the gods or by heredity and therefore hardly teachable. Because of its 'magical' quality it is thought that intuitive thought requires little serious mental effort. This is not so.

We cannot ignore a world of reality that exists independent of human beings. External reality exerts certain constraints on a person's conceptual system through suggesting many different views of reality depending on the biological make-up of a person, their position within a culture, and the way in which truth corresponds with the beliefs and experiences that are considered meaningful within the cultural group.

Both Johnson (1987) and Lakoff (1987) argue that one of the strongest influences upon thinking in Western society is the widely held belief that the mind and body are two distinct entities. This erroneous belief leads to a legacy of undue emphasis being given to the power of reason and all its accumulated trappings of status including the written word. The body has been ignored because reason has been thought to be abstract and transcendent, independent of the limitations of the body, perceptual system and nervous system. If we understand reason as a disembodied, abstract machine that mechanically and literally mirrors nature we deny the actual engine of the mind which is the intuitive/imaginative capacity and thus dismiss the nature of what it means to be human. We ignore the serious mental effort involved in making sense of things outside the body; we ignore the two cognitive procedures of intuitive perception and intellectual analysis set in motion by bodily experience.

Further arguments generated by Peirce (1978a) and Gee (1992) indicate that reason is often used as an egotistical excuse for actions emanating from unconscious instinct, and that collective meaning grows and changes as we constantly re-sign ourselves through symbol-concepts based on sensory experience that modifies our behaviour. In support of such an argument, Dissanayake (1992) stresses that the tendency to behave in one way rather than another is grounded in emotion. It is what the mind makes of the physical sensations that is interesting and relevant.

It is essential to remember that nearly all modes of behaviour have one pivotal goal – survival. For example, the act of balancing is basic to our survival. As a child begins to walk s/he stumbles and falls many times until, after years of practice, the act of walking becomes ‘naturally’ balanced. Repetition of the balancing act facilitates one’s understanding of bodily balance and as a consequence of understanding bodily balance a person might be able to transfer this understanding to more abstract concepts such as symmetrical or asymmetrical balance in design, or balancing the books in accounting.

Some might argue that understanding abstract concepts requires the use of reason that is a mental faculty apart and separate from the bodily action of balancing. Such an argument however, denies the biological make-up of human beings and ignores the influential role of social practices.

According to Solso (1994), the brain is the nucleus of the emotions, giving life feeling; it is the centre of thinking, providing associations for rational thought; and it is the centre of visual perception, the ability to see, feel and experience art. Located in the head, the brain is part of the body and, thus we can argue that bodily involvement is crucial to recognising the way in which the mind works. This involves some understanding of the mechanisms and chemistry of the total body as demonstrated by Arnheim (1986), Dissanayake (1992), Johnson (1987), Lakoff (1987), Churchland (1983), Gee (1992) and Solso (1994).

Perception as argued by Arnheim (1986) and Dissanayake (1992) is not simply a mechanical recording of the stimuli imposed by the physical world upon the receptor organs of man and animal. Rather, it is the active and creative grasping of structure involving three constituents of human cognition. These consist of organisational principles that govern perception in the nervous system and its reflections in consciousness; the objective structure of physical reality as conveyed to the mind through the senses, and properties of the media through which

cognitive experience takes shape. At no time can perception and thinking function separately but rather act in concert to form internal symbolic representations of the external environment.

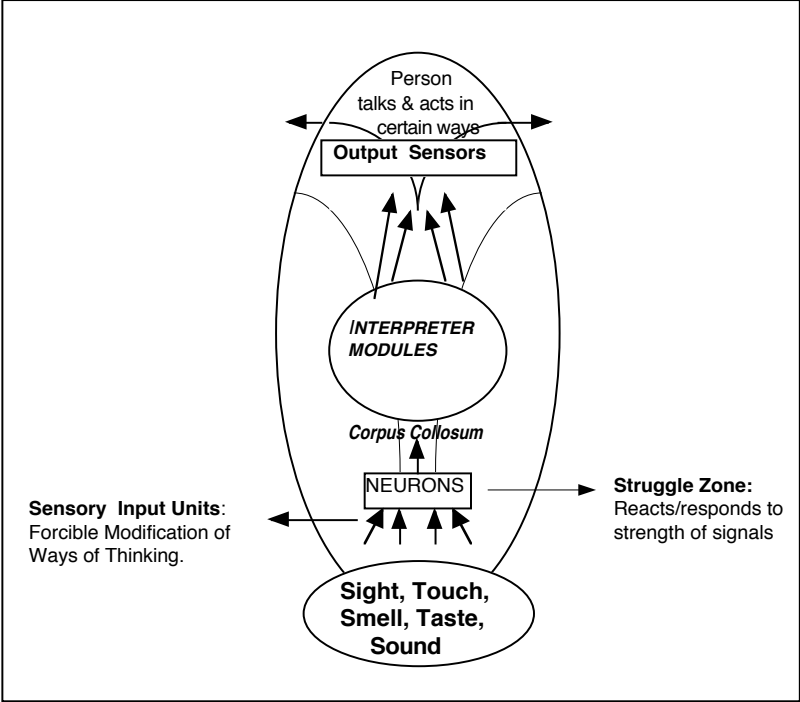
Such symbolic representations are, according to Johnson (1987) and Lakoff (1987), image schema which is a means of structuring particular experiences schematically thus giving order and connectedness to our perceptions and conceptions based on bodily experience. For example a container schema (such as the body itself) allows us to distinguish between interior/exterior, a link schema is based on the umbilical cord, a centre-periphery schema emanates from how we experience our bodies as having centres and peripheries, and a source-path-goal schema is based on bodily movement. It is argued that these image schema provide important evidence for the claim that abstract reason is a matter of two things. Firstly, primary reason is based on bodily experience and secondly, use of metaphor motivated by structures inhering in everyday bodily experience allows projections from the concrete to abstract domains. Thus the conceptualising capacity is firstly, the ability to form symbolic structures that correlate with preconceptual structures in everyday experience, secondly, the ability to project metaphorically from structures in the physical domain to structures in the abstract domains and thirdly, the ability to form complex concepts and general categories using image schemas as structuring devices.

The way in which we use structuring devices depends on the nature of the human body, especially perceptual capacities and motor skills that develop from the types of experiences cultivated in given cultures. However, the human capacity to manipulate image schemata into meaningful, coherent unities involves using imaginative ability to direct the traffic of the mind that is activated by neural firing.

Churchland (1983), Gee (1992) and Solso (1994) propose that clusters of neurons in the brain can each be activated to different degrees, depending upon how greatly they are stimulated by other neurons that send signals to particular clusters of neurons. Gee (1992) suggests that we can identify three basic clusters of neurons that are triggered by firstly, input sensors (sight, touch, smell, taste, sound) that clamour for the attention of the second cluster comprising the *interpreter* modules that sift expectations, decisions, emotions and actions through language, to the third cluster of output sensors that manifest the result of the input sensors moderated by the *interpreter*.

Figure 1 suggests possible traffic routes that neurons might follow in the brain according to ideas proposed by Gee (1992). The notion of percolation, as demonstrated visually by the ascending arrows, seems appropriate because it suggests the on-going flow of data that modifies the output of each person, and thus a vertical egg motif is used as a model for the brain to suggest the reciprocal interplay of physical and mental forces that cause us to act.

Figure 1: Possible Traffic Flow of Neurons in the Brain.



It appears that clusters of neurons are activated firstly by direct sensory perception which then causes these neurons, secondly, to demand the attention of interpreter modules that sift information to the third cluster of output modules that result in action/thought of some sort. However, things are never as simple as they appear owing to the variety of senses we perceive. How do we determine whether sight, touch, smell, taste or sound is the most important? Is it the job of the interpreter modules to direct the traffic signals?

According to Gee (1992) rules of behaviour are ingrained in social practices in which relevant and right experiences are fostered by a particular social community through apprenticing newcomers, and constantly checking and nudging each member towards some norm. Within a social community there may be many varied social practices, each having certain ways of acting, talking, valuing, and thinking with associated objects, settings, and events that define the nature of the Discourse, or social network. Because these practices are handed down through time, and membership is sanctioned and operated by a socioculturally

defined group of people, human action is only meaningful and recognisable within some discourse framework. For example, a child belongs to a family, and thus the primary amalgam of ways of acting, interacting, talking, valuing and thinking are associated with objects, settings and events that are characteristic of that particular Family Discourse. The child acquires knowledge of the Discourse through a type of apprenticeship whereby other, more senior members, model appropriate values and behaviour thus inculcating "folk theories" within the child. As the child grows, the range of surrounding discourses increases with schooling, sport, religion, government and hundreds of other social practices vying for attention. Consequently it is the ideal norms of the Discourse that constitute meaning, memory, believing and knowing, and these belong in the community outside the head.

In the community outside the head, Gardner (1993: 237) draws attention to "authentic domains" that are socially valued disciplines that allow acquisition of skills and knowledge through effort over time supported by feedback; Grossberg (1988: 35) talks of sites at which we may stop and "install" our selves into practices; Rosenblatt (1983: 161) emphasises personality patterns dominated by automatically absorbed prejudices and expectations; Culler (1981: 26) includes the network of environmental data within his "system of relations"; Dissanayake (1992) draws attention to ritual and Gordon (1961: 95) refers to conventions. All these things are outside us, influencing us and adding to a complex configuration of associations that we do have inside our heads, and it is these associations, and how we use them, that allows us to claim experience as personal. But before the experience we need to have some understanding of the forces that motivate us to interpret the things outside us.

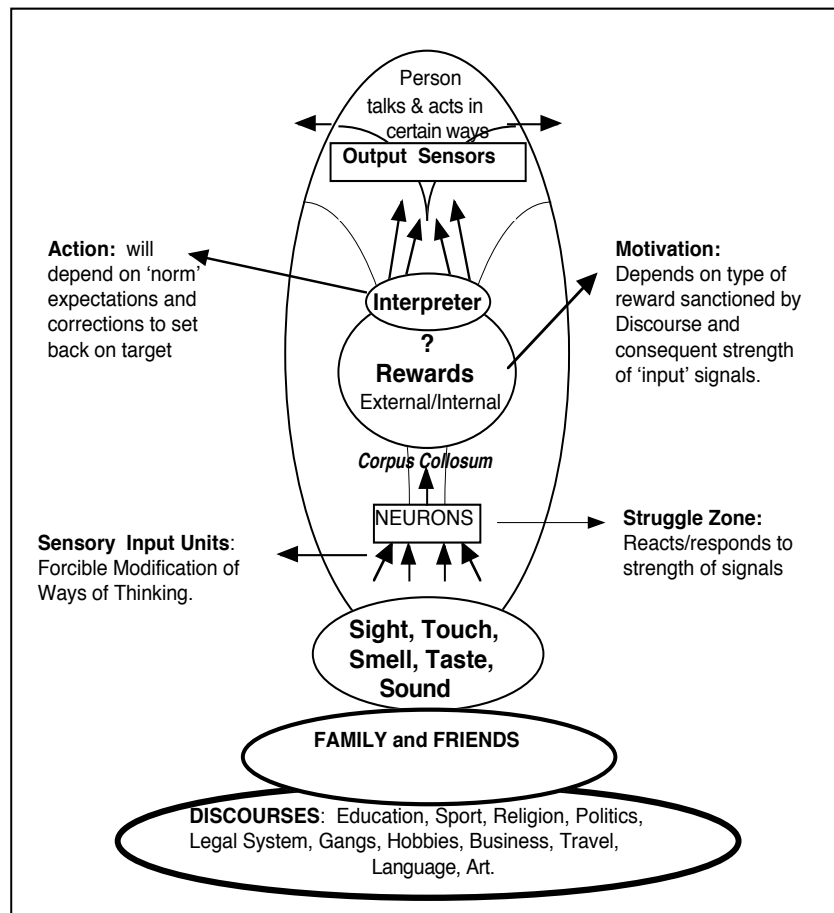
Gee's (1992) notion of Discourses highlights what we might think of as various clubs of meaning. Our Western society, in particular, cultivates clubs like metaphorical mushrooms that spring up all over the place. We have Church Clubs, Political Clubs, Race Clubs, Tennis Clubs, Golf Clubs, Surf Clubs, Needlework Clubs - clubs of all sorts including associations and institutions through which groups of people come together to define themselves, develop an interest, foster a passion, meet other like-minded people, or perhaps make money. All clubs seem to have one basic rule - you either conform or you are excluded. This means understanding the context and supporting the ideology of the group of which you are part. Gee (1992) argues that the ideology of any group tends to evolve as dominant ideas become fashionable for a time thence to be supplanted by modifications that may lead to an opposing ideology.

We can agree that our cluster of interpreter modules is kept very busy sifting through the sensory input data so that we might not perceive a discrepancy between our attitudes and our behaviour. Arnheim (1986), Johnson (1987), Lakoff (1987) and Solso (1994) stress our search for bodily balance, pattern and harmony in which we seek to avoid dissonance in our daily lives and, other ways such as daydreaming and modes of vicarious experience, are highlighted by Schelling (1986), Elster (1986) and Josephson (1996). We can argue that what we sense, and in particular what we see, plays a very important part in the way in which we respond to external stimuli.

Thus we can reason that what we *do have in our heads* consists of physical and psychological materials, and while we may be able to grasp the concrete aspects of the former, it is the complex network of associations comprising peculiar nonlinguistic modules of the mind that defies satisfactory definition. If these networks of associations are picked up as part of apprenticeships within social practices and, if habit is very influential and can be exercised relatively independently of motivation, does this mean that the type of internal or external rewards, sanctioned by the social group, may also determine whether or not our actions are recognised as meaningful in specific ways within the practices of specific social groups?

Figure 2, suggests a pictorial development on Figure 1, concerning the flow of neurons in the brain in which the notion of *rewards* is positioned before reaching the *interpreter* owing to the possibility that motivation for action may depend on what type of rewards/goals are habitually sanctioned by the Discourse.

Figure 2 The Influence of Discourses.



When we talk of habits, we are talking of *picking up* ways of behaving. For example, Arnheim (1986) draws attention to the way in which a hunter's world looks different from that of a botanist or poet. We could argue that three different discourses are involved and, because each discourse regulates the behaviour of its members according to significant and pertinent beliefs and actions, a hunter would probably look for animal tracks and a botanist for variations of flora. However, no verbal referents can be adequately applied to the poet. As Gordon (1961) points out, the artist ranges freely through the multiplicity of experience, selecting at will and by whim for, as Dissanayake (1992) and Van Gelder and Port (1996) indicate, significance of any stimulus is assessed according to whether neural firing is accelerated, decelerated, or remains level. From an artist's perspective, one might visit a particular site and, on arrival, completely change one's mind (neural firing decelerated) because the time of day is wrong or the place does not feel right. It is possible that a hunter would still look for a beast and the botanist find plant samples because their discourses are more specific and the rules more straightforward. Gee's (1992) observation clarifies this suggestion:

The only way to ensure that learners have the right experiences and focus on the relevant aspects of them is to apprentice them to the social practices of sociocultural groups in such a way as to ensure that they have certain experiences

and have their attention focused in the right ways through interaction with "masters" acting out their mastery. (1992: 48).

In this way our expectations, actions, decisions and emotions are strongly influenced by group members of the Discourse and, although it was suggested that the artist and poet appeared to have virtual freedom, this is not entirely true. Solso (1994: 231-251) draws attention to the visual phenomenon of prototypes that are canonic representations of a given concept or class of things that best represent that concept of class. In other words, these are exemplars, master models or idealised impressions which best represent salient and meaningful features of whatever is perceived. As Solso (1994) notes, the mind cannot store everything so it stores abstractions of stimuli against which similar patterns are judged. Similarly, Lakoff (1987) considers that prototypes often act as cognitive reference points of various sorts and form the basis for inferences.

Another phenomenon of the human mind that facilitates organisation of things is what Johnson (1987), Burge (1986), Van Gelder and Port (1986), and Clark (1998) refer to as recurring dynamic patterns of perceptual interactions and motor programmes that give coherence and structure to our experience. These structures, being grounded in bodily functions, require some sort of recognition and organisation if they are to be understood. Johnson (1987) allocates this pervasive structuring activity to the *imagination*, the capacity to find significant connections, to draw inferences, and to solve problems.

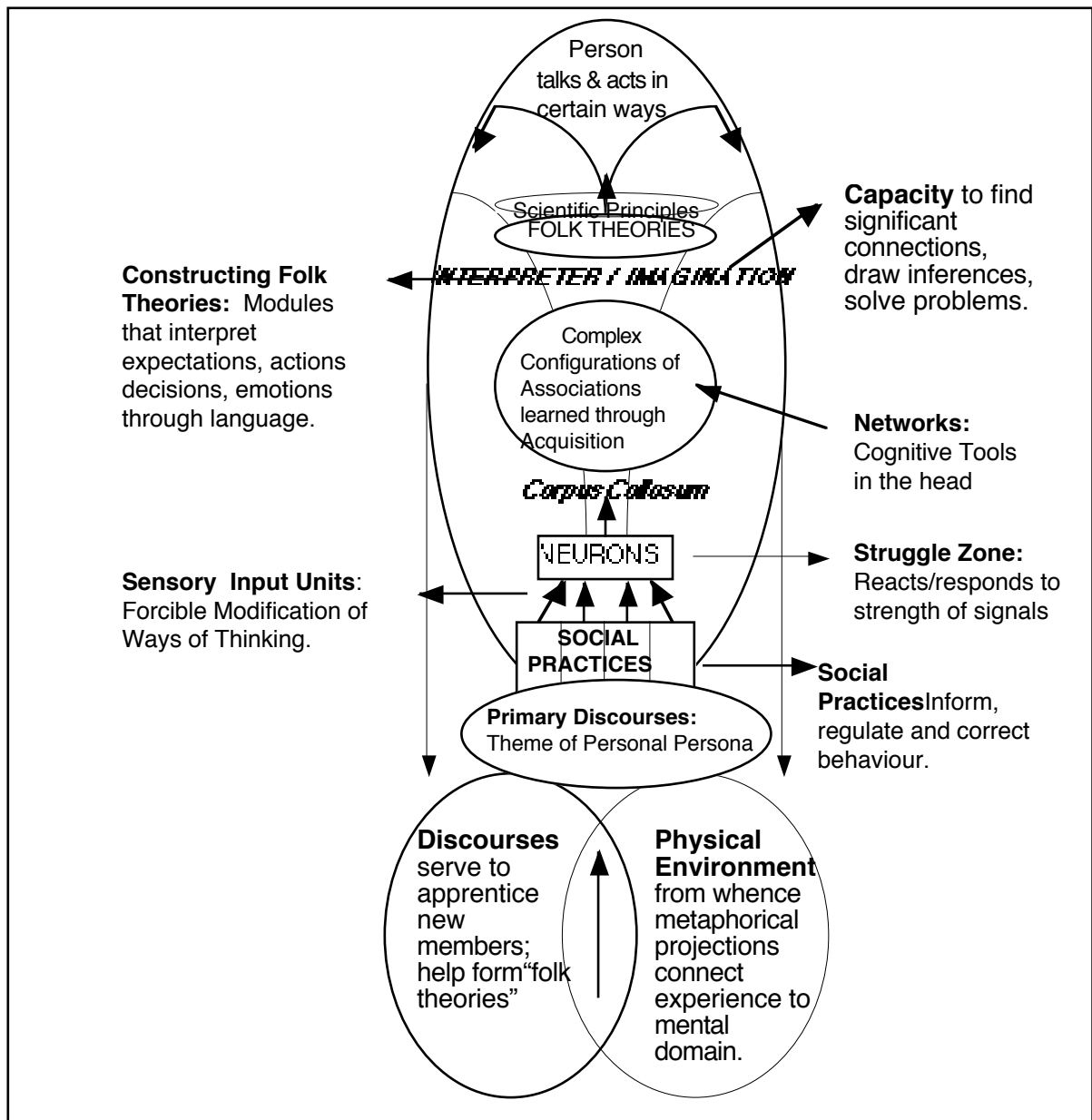
We can argue that the tasks of the *interpreter* (Gee, 1992) and of the *imagination* (Johnson, 1987), are very similar. However, a difference can be noted in deciding what is the influential force giving rise to the decision-making and ordering task in the first place. According to Gee (1992), discourses play the most significant role, whereas Johnson (1987: 205) considers that human understanding “reveals our engagement in a physical environment” from whence emerge our basic embodied structures when needed for human rationalisation. It is arguable that the two notions are not exclusive of each other, but rather seem to highlight this or that side of the same coin being the organism-environment interaction or, in other words, the physical body-discourse relationship.

Figure 3 is an attempt to show how stimuli might percolate into a person from the *coin* of Discourse/Physical Environment, with each generating forces that must be reconciled through some mode of behaviour. Dufrenne’s (1980) notion of *loving battle* with regard to artistic practice is an apt metaphor to use with regard to the way in which the following visual

symbol evolved. It did involve hours of tedious, yet loving struggle in positioning the various data in what might be appropriate locations in such a visual symbol. The visual forces are balanced on the page so that there is some sense of order that allows us to grasp the total symbol while also enticing us to follow the path of arrows that flows up the page (as neurons might flow through a person) through the social practices, through the struggle zone, through the networks, through the transformative interpreter/imagination to be released back down to the coin of Discourses-Physical Environment to begin again.

The notion of pathways involves the use of a conduit metaphor, that, based on the physical act of carrying something from here to there or moving from one point to another, allows us, or an object, to reach a destination, and thus arrows are used to direct the percolation of forces fuelled by various stimuli that might come from discourses, or the physical environment, or both. It seems feasible to question why we cannot consider reconciling the two approaches as suggested in Figure 3?

Figure 3 Influential Bases: Discourses and Physical Environment.



Our bodily involvement in following paths to move from one destination to another involves an understanding of orientation in space and directionality whilst also employing visual memory, visual association and awareness of figure/ground differentiation. Through practising these physical competencies throughout our life we become so oblivious to their complexity that we often overlook the wonder of how we understand a *line of thought* that relies on its very existence within our bodily abilities. We easily understand implied line in a drawing as a *path* the eye follows and yet we do not appreciate the origin of this understanding in physical movement.

No one can really tell us exactly how, when and why the schema emerge; we do not know why our minds have chosen to recommend a certain expectation or course of action.

However, Van Gelder and Port (1996: 331) suggest that a system is dynamical in the sense that “changes are a function of the forces operating within it” and they offer some very basic facts for consideration as follows:

... that cognitive processes always unfold in real time; that their behaviors are pervaded by both continuities and discreteness; that they are composed of multiple subsystems which are simultaneously active and interacting; that their distinctive kinds of structure and complexity are not present from the very first moment, but emerge over time; that cognitive processes operate over many time scales, and events at different time scales interact; and that they are embedded in a real body and environment. (Van Gelder and Port, 1996: 340)

The problem remains for us to organise energies and forces that we encounter in an effort to arrive at understanding and meaningful interaction with things outside us. Within the dynamic system it is proposed that we evolve over time according to rules. If this is the case, what happens to our soul, that complex, undefinable, fluctuating *something* that, according to Peirce (1978) allows us to resolve contradictions, tension and instability through internalization of the structures of the social world? Or, if as Gordon (1961) and Gee (1992) contend, soul is achieved through practice and/or holding various positions in social space so that we perceive and appreciate the physical and social world more intensely, does this mean that we can somehow modify dynamical rules? How is it possible for linkage between a temporal system such as day to day living and an atemporal system such as using imaginative capacity? As proposed by Van Gelder and Port (1996), the relevant aspect of the cognitive system itself must be given a dynamical account that allows investigation into the interaction between the targeted aspect and the more central processes. In other words, we may be able to recognise relationships that emerge in a macroscopic order and complexity from microscopic behaviour through understanding that dynamical descriptions of the body and the environment unfold over time in which cognitive functions occur in the same time frame.

Thus, in attempting to understand the temporal functions of the body and environment, we need to recognise how the cognitive system is interactive with these temporal systems in controlling essentially temporal bodily movements such as reactions to sensory input that cause us to speak and move. In a continuing and repetitive process, dynamics is driven further inward through temporal input and output systems to the mind as motion. If this is the case, whereby the mind acts in concert with body and environment, we can argue that the body is similarly in motion sustaining the reciprocal relation of body and mind.

It is possible that Arnheim's (1986: 125) argument, that the first instrument to serve all wilful human activity is the human body because it allows us the "means of gaining tangible presence to the images conceived by the mind", is plausible. However, Arnheim's (1986) consideration that the body, "like every other tool, acting as an intermediary and translator, (it) has its own idiosyncrasies" leads us to believe that the body is secondary to the mind. We can question which is the dominant force. It can be argued that the important first step is that in which the images, conceived by the mind, primarily draw from the workings of the body in stimulating the cognitive tools in the head to allow us the means of gaining mental presence of bodily being through language, gestures, images and music. In this scenario the body is seen as an integral component in the on-going process of mind-body percolating flow.

Such a flow requires a recurring, rhythmic pattern as argued by several researchers. According to Dissanayake (1992), humans share a preference for order and feel strange until they have found a pattern for doing things and have adapted old habits to the new order. Salomon (1979) opines that the notion of repetition is necessary for the neurons in the brain to form a pattern through regular firing and thus the similarity between one's stored mental schema of the referent is more important than similarity or dissimilarity to the real thing. Sless's (1981: 144) discussion of mathematical concepts and diagrams also highlights the "visual system's exceptional capacity for using pattern". Further force is given to this conjecture by Solso (1994) who argues that the brain classifies the neural messages from the eye into simple patterns that are then placed in their context for further processing. The concept of pattern implies regularity which, Van Gelder and Port (1996) strongly argue, is demonstrated in their model of geometric dynamic cognitive systems that evolve over time according to some rule. Emphasis is placed on the total state as one unfolding over time in which everything simultaneously affects everything else.

This raises the question of what means we might employ to orchestrate an experiential-mental symphony of being. Two major points are worthy of deep investigation if we are to understand how the mind works and if we wish to orchestrate such an experiential-mental symphony of being. Firstly, we must recognise that the head is part of the body and we use the tools inside the head to organise the sensorial messages and forces working upon us that give rise to meaning. Secondly, we cannot ignore the importance of pattern because the architecture of the brain allows it to organise information in terms of categories, prototypes and schemata.

Hence we must recognise the importance of bodily senses, we must mend the split between body and mind and we must re-think our notions of teaching and learning so that we understand perception as the active and creative grasping of structure using imaginative capacity, intuition and intellect. The sensory system has remained unchanged in human beings for thousands of years, however, the world around us has been radically transformed in a very short time span by people. How can educators of the twentieth first century redirect the growing ‘machinement’ of young people? How can we give a central place to the imaginative and intuitive structures of understanding so that the wonder of being human is embraced in our schools?

We cannot do this unless we model the appropriate behaviour. It is time to dismiss any idea of the arts as peripheral to human learning. Such a demeaning notion might only be applied to machines. A basic requirement of every human being lies in finding ways to manipulate things that provide emotional satisfaction through some form of artistic behaviour. Richardson (1992) highlights the fact that teachers “need to be aware that children can reach the stage of pictorial realism at any point in a range of ages” and it is commonly known that children respond in a variety of ways to different sounds. Thus teachers themselves must be able to recognise each case as and when it arises. This is only possible if teachers possess sufficient knowledge in and about sensory perception.

Hence, we recommend ways in which people might exercise natural competencies to investigate their environment rather than being passive consumers of vicarious experience. This means probing concepts such as the shape of things, the size of things, the texture of things, the colour of things, the degrees of darkness and lightness in things and the movement of things. The exciting task then is to organise representations of these concepts using our natural ability to form patterns. We need to play around with ways of creating unity, harmony and rhythm, to identify a focal point, to achieve some form of equilibrium, to manipulate the scale and proportion of things, and to use space and movement in unusual ways. In this way we become aware of our bodies and how they are embedded in the environment so that the reciprocal flow between things outside the body and internal image schema is harmonious.

All people want to make something special. In an effort to do so the imaginative capacity is used to heighten the power to think, feel and respond to the environment in a personal way. Too often people complain that they do not have an imagination or a particular skill when in

fact they are simply admitting to lack of practice. If we liken the imagination to a pantry we can understand the necessity to stock it with ingredients so that we have the possibility of making something unique ranging from the simple to the fantastic. It all depends on what ingredients are used and how they are put together. Speaking metaphorically, we must go shopping in the environment to select the colours, shapes, sizes, textures, sounds, smells and tastes to stock our imagination. These ingredients are not peculiar to the arts, but it is the artists and scientists who demonstrate the passion for mixing and making and hence are often regarded as extraordinary people. However, all people are born with natural competencies but not everyone uses them repeatedly, day after day, year after year so that an intuitive *sixth sense* develops over time through practice.

The natural human competencies (Appendix 1) are our means for mixing and making sense of the world around us. A way in which we can use a particular natural competency as a strategy for probing artistic concepts is demonstrated in the attached unit plan of work for an upper primary class. It is essential that any learning environment is so arranged that members of the Schooling Discourse have the opportunity and the desire to probe the workings of the body and mind as a united force that can manipulate and control personal fulfilment and survival. However, it is essential that such control lies in the sense of “comprehension and negotiation with, in order to check and halt uncertainty, not with domination and subjugation in sense of conquest” (Dissanayake: 1992). In this way students may develop an understanding of semiotic pedagogy based on sensory perception whereby visual and aural symbols play a major role in understanding the environment.

Appendix 1: Natural Human Competencies

1.1 Visual and Aural Discrimination

The ability to note differences between and similarities in things. This ability allows students to classify objects and sounds, draw associations between things, recall and memorise like objects and even note small differences between similar objects.

1.2 Visual and Aural Memory

The ability to create or hold a picture in the mind of something or to recall a particular sound. This ability encourages deep concentration and stimulates students to use their memory.

1.3 Visual and Aural Sequential Memory

The ability to understand how one thing comes after another in a recurring order or pattern. This ability allows students to recognise patterns of regularity, contrast, alternation and gradation.

1.4 Visual and Aural Closure

The ability to identify the form and characteristics of objects and sounds from partial visual or aural clues. This ability encourages students to envisage the remaining part/s that may be hidden from view or deleted from the musical performance.

1.5 Visual and Aural Figure Ground

The ability to differentiate between what is foregrounded and what is backgrounded when conflicting, distracting or disguising features exist. This ability encourages students to explore notions of emphasis and focus and to develop keen perception in identifying forms and sounds from a background of conflicting, distracting or disguising features.

1.6 Visual and Aural Constancy

The ability to see and recognise a visual or musical form although it may be changed in terms of size, location or orientation. This ability encourages students to understand that the form remains the same even though its context or their viewpoint might be new and different.

1.7 Visual and Aural Association

The ability to identify or to recognise an object, sound or idea from clues that are similar or related but *not the same* as the object, sound or idea. This ability allows students to develop association skills and awareness through connecting this with that. They transfer one type of knowledge to another type of related knowledge and become more deeply aware of the visual and aural components upon which the knowledge is based.

1.8 Visual and Aural Laterality

The ability to understand symmetry in nature, bodily balance and axes of symmetry. This ability fosters an understanding of formal balance and recognition of how small discrepancies or deliberate changes in the balance create more interest and excitement.

1.9 Visual and Aural Directionality

The ability to discriminate left/right orientation and left to right progression (or vice versa) in the environment. This ability heightens student awareness of where things are in space and how one can follow the direction of a form or how the form itself can move. Students also develop greater understanding of symbols and signs (visual motifs) placed on a two dimensional page.

1.10 Orientation in Space

The ability to locate oneself in the environment and to suggest this position in relationship to surroundings through developing a system of diagrams. This ability encourages students to find real 'markers' (coordinates), for example a dead tree or the sound of a bird that may be used to indicate one place in relation to another. Symbols for the markers can be created in a drawing or on a score.

1.11 Eye-Hand Coordination

The ability to transfer what is seen and known onto the page demonstrating physical control over media. This ability develops concentration and careful investigation of the subject.

1.12 Classification

The ability to recognise categories, groups, clusters and parts by discussing and exploring the similarities and differences of the component items that comprise a particular category. This ability allows students to group like things and develops an appreciation for unity, focal point, balance and rhythm in artworks and musical scores.

1.13 Abstraction

The ability to simplify a form through modification so that there is little resemblance to the original object. This ability fosters decision making in that students select important areas or details that may be exaggerated and altered while others can be deleted so that the final image or musical arrangement retains a link to its origin but is unique in itself.

1.14 Tactile Differentiation

The ability to note and discriminate between various visual, aural and tactile surfaces. This ability stimulates student perception and analysis of the features that make up the environment. Students develop an understanding of light reflection and how it affects the look of something while, on the other hand, if sight is denied they become intensely aware of how something feels or sounds. They learn to appreciate the different marks made using a variety of media and different techniques for simulating and inventing texture in both visual and musical works.

Appendix 2: A Unit Plan for an Upper Primary Class.¹

Concepts to be investigated: Line and Value in Art; Melody and Form in Music.

Strategy employed uses key competency of Visual and Aural Closure.

Theme: “Whodunit”

Before beginning any unit of work, it is essential to consider the following questions:

1. Why should students investigate line, value, melody and form?

The response to this question gives a rationale for doing the proposed activity.

2. What exactly do you want students to learn?

The response to this question identifies the content to be investigated.

3. What is the stage of student readiness?

The response to this question establishes context, degree of difficulty and resources required.

4. What theme/topic will interest and excite students?

The response to this question points to appropriate motivation.

- **Rationale.**

Everything we see in the environment is composed of forms and variations of light and dark. There is no actual line in the environment because all forms are three-dimensional. However, because we cannot see around things, we see edges and thus we can identify where one form ends and another begins. It is important that students become aware of this fact and so redevelop their observational skills for detail and the ability to fill in missing parts. Such skills and ability often diminish after early childhood because observational skills are not taxed sufficiently in day to day living. However, if we can stimulate student observation, we can enhance their ability and desire to examine details and thus encourage students to envisage the remaining part/s that may be hidden from view or deleted from the musical performance.

- **Content.**

The elements of line, value, melody and form.

Line is the path of a moving point. It is used to define, record and describe objects.

Value refers to the relative lightness or darkness of areas in a picture.

Melody is the succession of notes varying in pitch that have an organised and recognisable shape.

Musical Form is the aural and visual structure and design of a composition.

- **Context.**

¹ This Visual Art section of this unit is based on work done by Bachelor of Education students at the University of Southern Queensland, Justin Marsh and Derek Vogel (2000). The Music section is designed by Michelle

Ascertain what students know about line, value, melody and form. Have they had previous experience with using precise or calligraphic lines, contour and implied lines? Do they understand the process and methods of shading, how to make and use tints, tones and shades? Do they recognise the characteristics and appearance of shadows? Do they identify characteristics of melody? Can they visually or aurally identify form in musical compositions?

Students in the upper primary school are developing more advanced fine motor control and are interested in patterns, fine detail and problem solving.

- **Theme.**

A detective theme, such as “Whodunit” would be appropriate for this year level. Construction of a self-profile would be interesting while allowing students to understand more fully their place in the environment. In music, improvisation allows the performer individually to express music and to participate in group music making.

- **Motivational Procedures.**

A visit to the local police station (forensic department if possible).

Read a detective story (or short stories) in class.

Watch a Sherlock Holmes (or similar) episode on television.

Play a whole class version of “Cluedo” or “Where in the World is Carmen San Diego?”

General Learning Objective for the Unit.

Students should develop an understanding of characteristics of line, value, melody and form through the construction of a poster showing aspects of self in a visual self-profile and an improvised musical performance.

Sequential Steps in the Unit to be conducted over 7-9 weeks.

Preliminary investigations – Line.

Specific Objectives	Activity	Resources	Assessment
<p>Students should investigate and note the differences between the visual marks created by different art tools.</p> <p>Students should be able to reproduce a fingerprint on a larger scale and a shoe print at actual scale by line drawing and the use of grids.</p>	<p>Students experiment with different art tools (pencils, paintbrushes, charcoal, crayon, graphite stick,) by creating and labelling a series of lines for each tool using different techniques and applied pressures. This provides a template for future referral when designing.</p> <p>Using an inkpad, students print their fingerprint and then use a tool and technique of their choice to reproduce this fingerprint on a larger scale. Using another tool and technique of their choice, reproduce the sole of their shoe emphasising line. Students should create a background environment to their shoe print (eg. bricks, pavement, leaves, wood etc.)</p> <p>Extension</p> <p>Play a game to see if students can identify each other's fingerprint. Obscure half of teacher's fingerprint and ask students to complete it.</p>	<p>Pencils 4H-4B, various paintbrushes, graphite sticks, charcoal, black crayons, paints, water containers, inkpad, A4 paper.</p>	<p>Questioning about the type of art tools used for different marks based on investigation. What qualities do the marks have? Are they precise or freehand (calligraphic)?</p> <p>Questioning about choice of tool for drawing the fingerprint and shoeprint.</p> <p>Assess degree of mastery demonstrated in the reproduction process and grid enlargement.</p>

Preliminary Investigations – Value

Specific Objectives	Activity	Resources	Assessment
<p>Students should develop different techniques of making a white area gradually darker by producing value bar scales from white to black as well as white to colour.</p> <p>Students should identify and simulate areas of light and dark by drawing their less preferred hand.</p> <p>Students should become aware of the effect of semi-concealing an image.</p>	<p>Students use different drawing tools and techniques (eg. hatching, cross-hatching, stippling) to produce value bar scales. Do the same with selected paint colours by adding white for tints and black for shades. All bar scales must be labelled.</p> <p>Using the tools and techniques of their choice, students draw the inside or outside of their hand, concentrating on reproducing the areas of light and dark. What effect do value changes have on the final product?</p> <p>Students devise a means of obscuring or deleting a small part of their hand image. What is the result? What does their mind's eye see?</p>	<p>Pencils – 4H-4B, various paintbrushes, graphite sticks, charcoal, black crayons, white, black and coloured paints, water containers, rulers, A 4 paper.</p>	<p>Questioning about types of art tools to use in creating value changes in different art works.</p> <p>Does the drawing of their hand show understanding of light and dark? If not, can this be attributed to lack of observation, or a lack of skill in drawing? Has effort and care been taken?</p> <p>Does their use of light and dark give the hand an illusional 3D form?</p> <p>How did students conceal part of their hand image? Questioning about the difference concealment has made compared with the original image.</p>

Producing the Portrait.

Specific Objectives	Activity	Resources	Assessment
<p>Students should identify lines and areas of light and dark in the human face and simulate these by drawing their partner's face.</p> <p>Students should come to realise that reproductions of models or images undergo a transformation characterised by the artist's impression and degree of skill mastery.</p> <p>Students should become aware of the effect of semi-concealing an image.</p>	<p>Teacher presents a variety of artists' works that show facial features. In pairs, students draw the face of the other using the tools and techniques of their choice. Emphasis is on contour and implied lines, and light and dark (Each student models for the other – ideally each student should have an easel so that portrait work can be done simultaneously).</p> <p>The portrait is given to the student who then copies it using a different tool and technique of their choice.</p> <p>Students choose one of the two drawings and obscure it partially in some manner, e.g perforated cardboard over the top, wooden fence over bottom half of face, dark glasses, behind a tree, big hat etc.)</p>	<p>Collection of works by artists who have created portraits, self-portraits concentrating on use of line, value and the tools/techniques used.</p> <p>Pencils – 4H-4B, various paintbrushes, graphite sticks, charcoal, black crayons, white, black and coloured paints, water containers, rulers, easels, A 3 paper, various materials for possible use in semi-concealing of image.</p>	<p>Questioning about what areas of the face they found difficult to simulate.</p> <p>Questioning about their choice of art tool and technique of 'shading'.</p> <p>Does the image created look like the subject? If not, why not? Can the student suggest reasons why? Assess degree of skill mastery in using line and value in created portrait, rather than likeness to the subject.</p> <p>How did the student feel about their partner's visual representation of them? During copying, what elements did they change, modify, based on their facial observations of the other? How did students conceal part of their portrait? What difference exists compared with the original image? Can it still be identified?</p>

Abstraction of Portrait.

Specific Objectives	Activity	Resources	Assessment
<p>Students should exhibit an understanding of the simplification process and the importance of recognising the essence of an original subject/object by re-drawing their portrait within a time constraint.</p> <p>Students should exhibit an understanding of depth by repeating an image on the same page that is increased in value (ie. lighter) and decreased in size.</p>	<p>Teacher introduces and presents a variety of work by artists who have produced abstract drawings, particularly portraits.</p> <p>Students select a drawing tool and re-create one of their portraits in a simplified or abstract manner in one of the bottom quadrants of the A3 page. If students are being too meticulous or too rigid, place a time limit on their creation. Now reproduce the abstract form higher on the page at a smaller size and using a lighter value. Do this once more if feasible to create the illusion of depth on the page.</p>	<p>Collection of abstract drawings created from real subjects/objects, particularly abstract portraits.</p> <p>Pencils – 4H-4B, paintbrushes, graphite sticks, charcoal, black crayons, white, black and coloured paints, water containers, rulers, easels, A 3 paper, various materials for possible use in semi-concealing of image.</p>	<p>Were students able to simplify their original portrait in the manner they were anticipating. If not, why not? Did they feel restrained/inhibited by the demand for realism?</p> <p>Did students capture the essence of their portrait in the abstract form? Question students about their representation.</p> <p>Questioning about the effects that multiple and changing images have on their visual perception.</p>

Out of Focus Image & Personal Poster

Specific Objectives	Activity	Resources	Assessment
<p>Students should distinguish and simulate on paper variation in light and dark as a photo slide gradually comes into focus.</p>	<p>Teacher projects a photo slide onto a white board/screen starting from a maximum out-of-focus setting and gradually bringing it into focus, pausing a few minutes at each re-setting. Students use charcoal on A4 paper to depict what they see at each setting, ie. the gradual strength in value contrast as the image comes into focus. Nothing should be erased at any stage.</p> <p>The photo slide should depict an image that is not too detailed, but has significant value contrasts.</p> <p>At the end of this unit attach/stick all work done onto a piece of cardboard to create a poster displaying personal attributes of each student.</p>	<p>Appropriate photo slide, slide projector, white board/screen, charcoal, A4 paper, glue, stapler, large pieces of cardboard.</p>	<p>Question students regarding the stage at which they were able to identify the projected image. Did they anticipate too early? Did knowing what the image was affect their subsequent drawing?</p> <p>Assess their degree of skill mastery in using charcoal to create variations in light and dark on paper. Did they observe value changes carefully? How did students design their poster? Was care and effort taken? Do students feel proud of their achievement?</p>

Preliminary Investigations - Melody in Music

Specific Objectives	Activity	Resources	Assessment
<p>Students should aurally and visually identify form in known and unknown musical compositions.</p> <p>Students should create a musical composition using a standardised music form.</p>	<p>Students are given an opportunity to view or hear musical compositions and indicate repeated or contrasting phrases and sections through symbols, coloured strips of paper or body movement.</p> <p>Students arrange melodic motives in Binary, Ternary or Rondo form to create a composition of 8-12 bars long</p>	<p>Musical Examples - aural and score. Coloured strips of paper, worksheets, Blank score paper. Recorder or melodic instrument.</p>	<p>Questioning about form terms - phrase, motive, section, verse, chorus, binary, ternary and rondo. Observation and correction in identification of musical form. Does composition feature clearly defined sections of contrast and repetition?</p>

Preliminary Investigations - Form in Music

Specific Objectives	Activity	Resources	Assessment
<p>Students should aurally identify melodic excerpts and reproduce the given melody through dictation, singing and musical instrument performance.</p> <p>Students should create four and eight bar melodic phrases in traditional and non-traditional notation.</p> <p>Students should be able to accurately perform musical excerpts with and without accompaniment.</p>	<p>Students are aurally exposed to musical examples and, with the use of recorders, voice or another melodic instrument, accurately notate or reproduce the succession of pitches.</p> <p>After selecting a theme, students will develop a melodic idea to aurally represent the selected scenario and notate the melody for others to interpret and perform.</p> <p>Students will sing or perform new or known musical compositions alternating between inner hearing and audible performance.</p>	<p>Aural Examples. Recorder or Melodic instrument</p> <p>Themes- Bank robbery Police Chase Undercover Agent Score and blank paper</p> <p>Musical Compositions.</p>	<p>Questioning about melodic terms - contour, high, low. Correct dictation. Observation of whether musical performance displays accuracy, pleasing timbre, correct technique. Discussion of appropriate and inappropriate melodic ideas - Does the melodic idea convey the meaning or illustrate the theme? Observation of students ability to inwardly hear the musical example and sound at the appropriate time.</p>

Preparing to Improvise

Specific Objectives	Activity	Resources	Assessment
<p>Students should participate in African Call and response vocal chanting and singing.</p> <p>Students should investigate the musical form and melodic ideas of a musical composition through visual and aural analysis of the score.</p> <p>Students should reproduce the main and secondary melodies of the composition on a melodic instrument.</p>	<p>Introduce African call and response style music through discussion of its improvisatory (not notated) characteristics. Encourage students to lead sections combining spontaneous arrangement of words and pitches.</p> <p>Students view a copy of the sheet music Mission Impossible. Students identify and label components of form (verse, chorus, melodic motive) and melody (main and secondary melody, accompaniment, bass line) before and during an aural example of the song.</p> <p>Using a melodic instrument, students will reproduce sections of the score identified as main melody and secondary melody.</p>	<p>African call and response listening and performing examples, or prepared chant/song appropriate to the "Whodunit" theme.</p> <p>Sheet Music - Mission Impossible L. Schrifin</p> <p>Recorder or other melodic instrument.</p>	<p>Observe student willingness to improvise vocally. Encourage participation.</p> <p>Correct score analysis activity.</p> <p>Questioning - How many bars is the main melody? Where does the verse end?</p> <p>Observation of whether or not musical performance displays accuracy, pleasing timbre and correct technique.</p>

Improvisation

Specific Objectives	Activity	Resources	Assessment
<p>Students should arrange a selected musical motive from the score Mission Impossible to create a new motive based on the original.</p> <p>Students should reproduce the main and secondary melodies of the composition on a melodic instrument and vary the melodies spontaneously whilst performing sections of the song "Mission Impossible"</p>	<p>Students view a copy of the sheet music Mission Impossible and select a musical motive that is varied through rhythmic or melodic manipulation. Students notate their arrangement on score.</p> <p>Using a chosen melodic instrument students will reproduce sections of the score identified as main melody and secondary melody and perform their notated variation and attempt spontaneous melodic performance based on the original music.</p>	<p>Sheet Music Mission Impossible - L. Schrifin</p> <p>Blank score.</p> <p>Recorder or other melodic instrument.</p>	<p>Correct notation. Question students to determine if an aural understanding of the form and melodic aspects is developing.</p> <p>Observation of musical performance demonstrates accuracy, pleasing timbre and correct technique</p> <p>Observation of students performance in areas of improvisation, fluidity, selection of notes, rhythm, and awareness of the form.</p>

Cross-Curriculum Integration of Concepts: Line, Value, Melody and Form.

	Line and Value	Melody and Form
Language	Following a story line. Curvilinear writing. Degrees of light/dark in lettering.	Perform expressive reading varying pitch. Poetry forms - analysis of melody in reciting.
Mathematics	Direction of lines in numbers. Metaphorical value of 'in the red' / 'in the black'.	Graphing high and low sounds. Identify form in algebra formulas
Science/ Technology	Edges in nature and manmade environment. Weather patterns, shadows, dull/bright days. Use computer drawing tools, colour gradations.	Investigate form and structure of natural objects. Experiment with music composition software.
SOSE	Calligraphic writing. Hieroglyphics. Study of national costumes identifying whether light or dark colours predominate.	Investigate scale systems from other countries. Compare vocal inflections of other languages
Health/PE	Lines the human body makes when running, swimming etc. Changes in body colour when someone is ill. Variety of value in skin colours.	Complete a physical activity featuring a succession of smaller tasks (eg- steeplechase) Compare the structure and organisation of group sports activities.

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