

The Learning Wheel

**Ideas and Activities for Multicultural
and Holistic Lesson Planning**

The Learning Wheel

Ideas and Activities for Multicultural
and Holistic Lesson Planning

by Annabelle Nelson



The **WHEEL** Council

The Learning Wheel
Ideas and Activities for Multicultural and Holistic Lesson Planning
by Annabelle Nelson

Grades: All ages

© 1994 by Zephyr Press
Printed in the United States of America

ISBN 0-913705-91-8

Design and production: Nancy Taylor
Cover design: David Fischer
Drawings by Cody Lundin.
Photograph of author by Howard Kelley.

Zephyr Press
P.O. Box 66006
Tucson, Arizona 85728-6006

All rights reserved. The purchase of this book entitles the individual teacher to reproduce the forms for use in the classroom. The reproduction of any part for an entire school or school system or for commercial use is strictly prohibited. No form of this work may be reproduced, transmitted, or recorded without written permission from the publisher.

Library of Congress Cataloging-in-Publication Data

Nelson, Annabelle.
The learning wheel: ideas and activities for multicultural and
holistic lesson planning / by Annabelle Nelson.
p. cm.

Includes bibliographical references and index.
ISBN 0-913705-91-8

1. Multicultural education—United States—Curricula.
2. Multicultural education—Activity programs—United States.
3. Cognitive styles in children.
4. WheelsCross-cultural studies.

I. Title.
LC1099.3.N45 1993

370.19'6'0973—dc20

93-27890
CIP

This book is dedicated to the indigenous North American ancestors on whose bones we walk. During the European conquest six to eleven million of those ancestors died from diseases, attacks, relocation, and other means. All of us born in North America, regardless of our ancestry, owe these ancestors a great deal, for they carried visions of ancient wisdom that can help us today.

Contents

Acknowledgments	xi
Introduction	1
1 The Wheel Model	7
Introduction	7
Wheels as Reflections of the Universe	7
Wheels Reflect Cycles of Time	12
Wheels Reflect Unseen Energies	15
Tools for Balancing Diverse and Opposing Energies	18
Summary of Wheel Attributes	22
Educational Implications of the Wheel	24
Summary of Wheels	27
2 Wheel Intelligence Model	29
Introduction	29
The Educational Process	29
Multicultural Learning Process	31
Conceptual Background of the Wheel Intelligence Model	33
Practical Intelligence	36
Technical Intelligence	37
Conceptual Intelligence	38
Creative Intelligence	38
Expanded Intelligence	39
The Circle Relationship of Intelligences	41
Strengths of the Wheel Intelligence Model	41
Summary	43
3 Learning Wheel Methods	45
Introduction	45
Format of the Wheel	45
Recommendations for Using the Wheel	46
Learning Objectives for Practical Intelligence	47
Learning Objectives for Technical Intelligence	50
Learning Objectives for Conceptual Intelligence	53
Learning Objectives for Creative Intelligence	57
Using the Wheel to Create Thematic Units	63

Using the Wheel for Classroom Environment	65
Other Strategies with the Wheel	66
Summary	68
4 Intuition, Imagery, and Expanded Intelligence	69
Introduction	69
The Unconscious Mind and the Learning Wheel	69
What Is in the Unconscious?	70
What Is Intuition?	71
What Can Intuition Do?	72
What Are the Benefits of Addressing Intuition?	73
What Are Methods for Including Intuition in Instruction?	74
Imagery and Intuition	76
Imagery, Intuition, and the Inner/Outer Brain Model	87
Summary	88
5 Cultural Competence	91
Introduction	91
What Are Culture and Cultural Competence?	91
The Roots of Cultural Programming	93
Attitudes that Hinder Cross-Cultural Work	94
Techniques Useful to Cross-Cultural Work	97
What Do You Do about What You Dislike in Another Culture?	104
What Do You Do When You Are Stereotyped?	104
The Benefits of Cross-Cultural Work	105
Summary	105
6 Lesson Plans	107
Lesson Plan Chart	108
Lesson Planning Forms	
Career Planning for Unemployed Adults	111
Using “I” Statements to Express Feelings	114
Recognizing a Sentence	117
Division of Two-Digit Numbers with Remainder	120
Locating the Main Idea in a Reading Selection	123
Ecological Interdependence	126
Surface Area and Temperature Regulation	129
Introduction to Poetry	132
Recognizing Numerals	135

Word Problems	138
American Indian Living Structures	141
Solving Equations with One Variable	144
Percents	147
Seed Dispersal	150
Topography of the Ocean Floor	153
Abraham Maslow's Actualizing Tendency and the Roots of Humanistic Psychology	156
Metaphors	159
Herbs	162
Whales	165
Appendix A: The Learning Wheel	171
Appendix B: Lesson Planning Form	175
Appendix C: Imagery Script Form	179
Appendix D: Ethnicity and Learning Style	183
Appendix E: Learning about Your Own Culture	187
Bibliography	191
Index	195

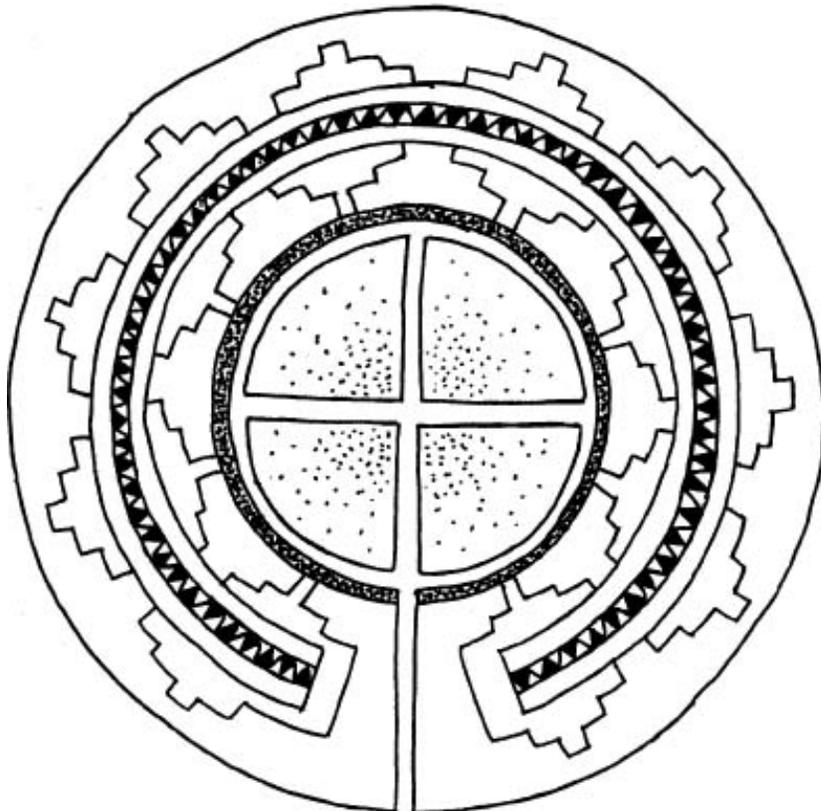
Acknowledgments

Many people contributed to the development of the Learning Wheel concept and this book. I thank those who heard my presentations of the concept and gave me feedback. These include the Advisory Committee of the Center for Indian Bilingual Teacher Training at Prescott College, Prescott, Arizona; the United States Department of Education, Fund for the Improvement of Post- secondary Education; the 1991 Conference of the Society for Accelerative Learning and Teaching; the staff of *The Journal of Navajo Education*; the H. M. Patel Institute in India; and the Central Institute for English and Foreign Language Instruction, also in India. I am particularly indebted to Bev Santo, who gave me the idea of using a color wheel for the actual Learning Wheel. I am also in debt to David Begay of the Diné Philosophy of Learning Program at Navajo Community College for showing me how to use a wheel to organize information.

Thanks go also to teacher trainees in multicultural education classes at Prescott College, Prescott, Arizona, who were willing to try out various drafts of the wheel in their own lesson planning. Thanks to Cody Lundin, who created the drawings in chapter 1. I also thank colleagues who reviewed the concept, including Wil Numkena, Vincent Randall, Dr. Vi Florez, Dr. Gwendolyn W. Sander, Marie Rose, and Tad Kitada. My family Bob, Jody, and McCoy also deserve thanks for their support during the writing process. Bob was my partner and editor and showed me great love and support. Finally, I extend thanks to the people at Zephyr Press for working with me on the concept.

Everything the power of the World does is done in a circle. The sky is round and I have heard that the earth is round like a ball and so are all the stars. The wind in its greatest power whirls. Birds make their nests in circles for theirs is the same religion as ours. The sun comes forth and goes down again in a circle. The moon does the same and both are round. Even the seasons form a great circle in their changing and always come back again to where they were. The life of a man is a circle from childhood to childhood and so it is in everything where power moves. Our tepees are round like the nests of birds and these were always set in a circle, the nation's hoop, a nest of many nests where the Great Spirit meant for us to hatch our children.

Black Elk
Black Elk Speaks



Introduction

The Origins of the Learning Wheel

I have been interested in cross-cultural work for twenty years. This is largely because I was raised in a family and a religion that stressed service to others in order to achieve social justice for people who were disfranchised. It appeared to me that many people of diverse cultural backgrounds were hindered in achieving academically. I was taught that it was the job of educators to open up opportunities for these groups.

My sense that there are many different ways of knowing also influenced my decision to enter cross-cultural work. I always had the feeling that the way society represented reality was only one view. There were places in my mind that I could feel but that I didn't know about yet, that held the promises of greater dimensions of knowing. I often had experiences that were different from what schools seemed to convey as learning and thinking. For example, I had strong visual imagery experiences and feelings of knowing, when things would come together in my mind all at once.

When I started graduate school to become a psychologist, I was interested in how the mind comes to know. This interest led me to Piaget's work. Although Piaget was not a psychologist and was not concerned primarily about education, he was interested in epistemology, or the study of the origins of human knowledge. He wanted to know how people come to know. His work gave me a framework for understanding how the mind works in various cultures.

Natural Ways of Learning

During graduate school, I was a teacher-trainer in inner-city schools and on American Indian reservations. I was struck by what a struggle learning was for most people. I spent a lot of time setting up remedial learning programs, which seemed like a patchwork way of improving the educational process. I always had the feeling that learning didn't need to be painful and that there had to be a better way of going about it. I thought the answer was to find out more about the natural way that people learn and then to match instruction to those inclinations. My aim was to create an environment that prompted people's natural impulses to learn.

Later, as a curriculum designer, I set up a number of educational programs, including one for underserved populations in Arizona. I began a program for American Indian teacher aides to help them become certified teachers. As a part of this work, I established an advisory committee of American Indians. To learn more about culturally compatible instruction, I engaged in an activity with this group in which we tried to design the perfect classroom for American Indian students. The committee's recommendations differed markedly from what I usually thought of as college education. I realized that I was stuck in the definition of learning that came from European traditions. Piaget knew a lot about how humans come to know, but his knowledge was culturally laden. There are products of cognitive development besides Piaget's conceptual intelligence. My quest to understand how humans know had taken a multicultural perspective. Other cultures could teach me about other ways of knowing.

Multicultural Cognition, Teaching, and Learning

The process of learning and the definition of intelligence vary from culture to culture. The Wheel Intelligence Model and the Learning Wheel presented in this book form a multicultural cognition model in which many ways of learning are represented and integrated into a whole. Since cognition refers to any process within the mind, a multicultural cognition model naturally includes the different mental processes taught by a variety of cultures.

This book presents a conceptual framework for multicultural cognition, or how various cultures lead their members to know about the world. It describes the symbol of the wheel as an ancient organizational model from Asia, Europe, Africa, and North America. An analysis of wheels from these cultures leads to a system that includes the diverse ways of knowing and learning that these cultures teach. Wheels can organize the relationships of the differences into a unified whole. This book proposes a multiple intelligence model, where intelligences are ways of knowing that are supported by different cultures. The wheel gives these different modes equal emphasis so that we can understand human cognition and match instructional strategies to natural ways of learning. I call this the Wheel Intelligence Model.

Wheel Intelligence Model

I use the Wheel Intelligence Model as a basis for creating the Learning Wheel, which is a concrete tool to construct lesson plans, curriculum, and educational environments. The Learning Wheel helps teachers include each intelligence and the methods that are best suited to those intelligences in every lesson. What results is a comprehensive multicultural system for teaching and learning based on the innovative yet ancient organizational system of the wheel.

Multicultural education is not a unique field in and of itself that only teachers in multicultural settings need to understand. Multicultural education is good education for everyone because it takes into account individual differences. The Learning Wheel methods prescribed in this book are effective not only for groups made up of many cultures, but also for groups of students from the same culture, since there will be great differences among students regardless of culture. The wheel is a useful way to conceptualize curriculum. Teachers can use it to plan a lesson on a particular topic, and curriculum designers, who work in longer time frames and larger units of content, can also use it.

Highlights of the Learning Wheel

What is the wheel? The wheel is a circle symbol, often drawn on paper or marked on the earth, based on the four cardinal directions. People throughout the world have used this symbol for a number of purposes, including orienting themselves to the movement of the sun, understanding unseen forces, depicting cosmology, and balancing diverse energies for wholeness.

What is the Wheel Intelligence Model? The Wheel Intelligence Model is a multiple intelligence model representing five intelligences, one in each of the four directions and one in the middle. The intelligences represent a spectrum of cognitive processes, which cultures help their members acquire and use as a way of becoming intelligent within a particular cultural framework. Assumptions behind the model are that all intelligences are equally important to the human experience and that exposing students to each intelligence is essential to holistic education.

What is the Learning Wheel? The Learning Wheel is a practical, concrete, lesson-planning tool. It is based on the concept of the wheel found in American Indian, European, Asian, and African traditions, as well as on Western learning theory and current information on brain physiology. The Learning Wheel helps teachers create lessons and units to accommodate individual learning styles of students of differing cultural backgrounds. The wheel also speaks to differences among learners of the same cultural background.

What the Learning Wheel is not. The Learning Wheel is not an American Indian medicine wheel, nor is it a reflection of any specific tribe's teaching. The Learning Wheel uses the concept of achieving balance and harmony in any endeavor by attending to each of the unique qualities of the four cardinal directions. The Learning Wheel is designed to help learners in a variety of cultures, not just American Indian learners.

Advantages of the Learning Wheel

The empowerment of differences. An underlying assumption of the wheel is that different cultures teach different modes of processing information to interact successfully with the environment. These modes of processing are called intelligences in the Wheel Intelligence Model. No one intelligence is considered more important than another one. The diverse ways of knowing valued by different cultures are all useful and valuable. The wheel is therefore empowering to many cultures, because all stand on an equal basis around the wheel.

No stereotyping. The Learning Wheel and the Wheel Intelligence Model on which it is based do not claim to be absolute views of the cross-cultural development of intelligence. Rather, the Learning Wheel is one model for understanding and meeting individual differences. Even though one culture may support a certain type of intelligence on the wheel, members of that culture may prefer or excel at a variety of types of intelligence.

Multimodal learning. The Learning Wheel includes a variety of ways to present information (input modalities). These include kinesthetic, visual, auditory, and tactile. The Learning Wheel also includes a variety of ways for learners to express their learning, including art, problem solving, writing, and brainstorming.

Interdisciplinary and integrative. The Learning Wheel methods include art, music, and literature in the instruction of all subjects.

Tapping the unconscious mind and fostering intuition. A strength of the Learning Wheel is that it includes methods to open the 90 percent of the mind that is the unconscious mind and to harness the unconscious for greater learning potential. Intuition is the primary cognitive process of the unconscious mind, and all the methods from the Learning Wheel that include unconscious processes will activate the intuition. Students will practice their intuitive abilities through nonverbal and metaphoric activities, such as art, movement, imagery, storytelling, and music.

Holistic curriculum. All of these methods are integrated in the wheel: imagery, art, music, storytelling, brainstorming, mind mapping, creativity, skill development, movement, problem solving, and higher-order thinking skills.

Appropriate for all ages. Learning Wheel methods can be used with all ages, from preschool children to adults.

How To Use This Book

If you want to use this as a “how-to” book, I recommend that you go to Appendix A and construct the Learning Wheel. Then go to chapter 3, “Learning Wheel Methods,” and chapter 6, “Lesson Plans,” attending to the chart at the beginning of chapter 6 to choose the lesson plans that interest you. This approach will give you a basic introduction and methods for using the Learning Wheel in lesson plans. Appendix B includes forms, based on the wheel, to be used to plan lessons.

If you are interested in the symbol of the wheel and how ancient planetary wheel symbols have influenced the Learning Wheel, I recommend that you start with chapter 1, “Wheels,” and proceed to chapter 2, “Wheel Intelligence Model.”

You may be interested in intuition and the workings of the unconscious mind and may be excited about tapping the vast potential of the unconscious. If so, you will find chapter 4, “Intuition, Imagery, and Expanded Intelligence,” particularly useful. Appendix C includes a form to be used for writing imagery scripts.

Chapter 5, “Cultural Competence,” contains pointers for people interested in working in cross-cultural settings to help them communicate effectively and develop the awareness needed for this work. Appendix D includes a review of the literature on cognitive style differences for African Americans, American Indians, Asian Americans, European Americans, and Hispanic/Latino Americans.

1 The Wheel Model

Wheels as Reflections of the Universe

Many cultures have used wheels to help explain the workings of the universe. In this section, I examine four such wheels: a circular pattern of stones on a mountain in Wyoming, the Celtic board or map of the four directions, the wheel of the Celtic goddess Arianrhod, and the Tibetan sand painting called the Kalachakra. This examination of wheels culls significant qualities that can be used to construct a wheel model of learning.

THIS CHAPTER WILL

- Document symbols in the shape of a wheel as used by people around the world
- Delineate how these wheels are used and the qualities of the wheels
- Summarize commonalities of wheels around the world
- Show how wheels act as organizing tools to accomplish balance and strength in any endeavor
- Explain how wheel models have been used in education
- Lay the groundwork for using the wheel to create a multicultural learning model

INTRODUCTION

This chapter describes a wheel model for organizing diverse qualities and for bringing those qualities into harmony and balance to create a working whole. The chapter catalogues wheels used by cultures around the Earth, the purposes of wheels, and the commonalities of these wheels. I then propose the wheel model as an organizational tool for balancing and achieving harmony amidst the many opposing or differing forces a teacher may find in the classroom. The wheel becomes a metaphor for effectively working with cultural and individual differences, which could include diverse ability levels and diverse learning styles. In this way, the conceptual structure of the wheel provides a model for meeting the needs of diverse populations and for helping students become more whole by strengthening elements in their learning styles that may be weak.

Medicine Wheel

On Medicine Mountain in Wyoming's Big Horn National Forest lies a circular pattern of rocks that has been there since at least 1760 C.E. (Mohlenbrock 1990). Similar wheels, dating back to 750 B.C.E., have been found in Canada. In the Wyoming wheel, there is an opening in the east section of the circle. Radiating from a central cairn, or pile of stones, are twenty-eight irregularly spaced rows of stones, resembling the spokes of a wheel. Archaeologists call this the Medicine Wheel and speculate that it was either the structure of a lodge for Sun Dance ceremonies of the Cheyenne or a burial ground for a chief of the Blackfoot. An astronomer discovered that two of the rock mounds of the wheel line up with the sunrise and sunset of summer solstice, the longest day of the year. In addition, certain stars line up with the rock mounds one month before and one month after the solstice. The Plains tribes considered the summer solstice to be the beginning of a new year, and the Cheyenne held the Sun Dance ceremonies at this time.

Investigators have used the Medicine Wheel to discover information about Earth's relationship to the sun. They did this by standing in the opening of the wheel in the east and orienting toward cairns aligned with certain stars at specific times of the year. The four cardinal directions are also important in this wheel and are represented by stone spokes. The directions create the basis of the stone wheel, which allows a person to orient to his or her position on Earth and to Earth's position in space.

The Medicine Wheel has twenty-eight spokes in all. The significance of this in the context of the Wheel Intelligence Model is that any wheel can be subdivided to represent the diverse qualities of people. The number of subdivisions should be a multiple of four to maintain balance.

The Celtic Tradition

Besides orienting people to their physical location in the universe, wheels can orient people to their universe in a metaphoric way. In other words, the wheel is a symbol that represents information but is not necessarily a literal translation of the facts. Cultures have used wheels to diagram their cosmological stories or stories of how the universe began. For example, the Celts, the tribal people of the

British Isles and Europe in the fourth century B.C.E., told a story of the universe that rested on a wheel and the four directions. Invading peoples had pushed the Celts to the westernmost reaches of the British Isles by the fourth century C.E., but present-day Irish, Scottish, and Welsh peoples are the inheritors of Celtic traditions.

As an extension of their philosophy, the Celts created a game board that explained how the world came into being (Matthews 1990). This metaphoric board was superimposed on the land where the people lived and was aligned to the four cardinal directions. You can see in figure 1.1 that a wind, a color, and a quality were associated with each direction. The Celts considered the middle of the wheel to be the fifth direction, and its position became the center of the land. Kings and heroes touring the land, as well as pilgrims visiting holy sites, used the board, or map of directions, as a guide. The board prescribed the direction taken by travelers' journeys, which were to be completed in a clockwise direction.

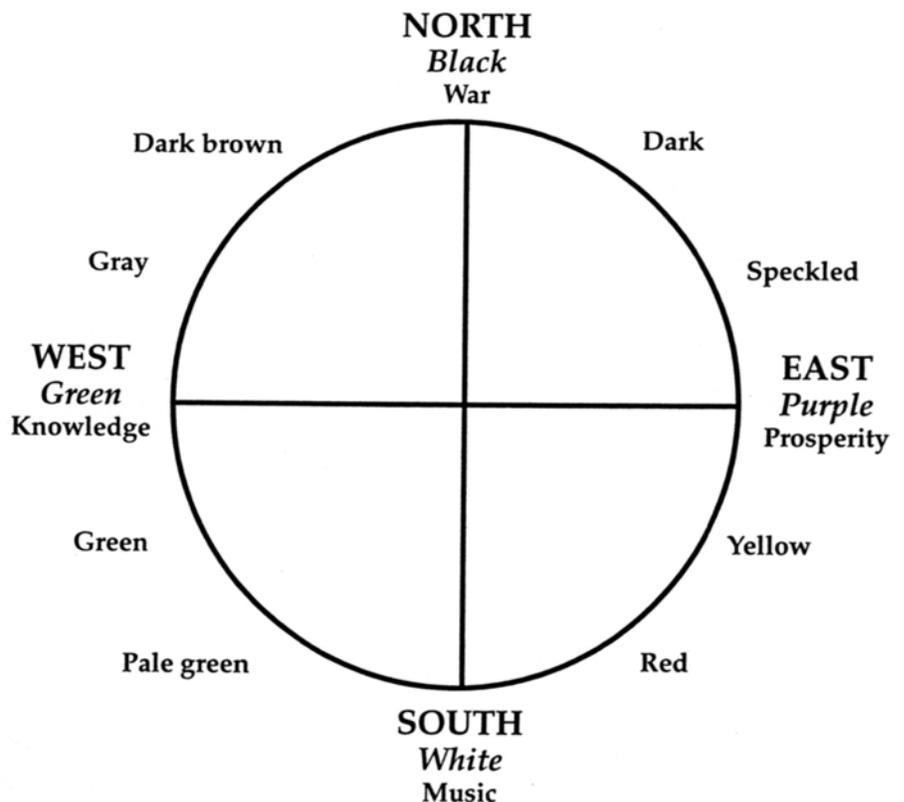


Figure 1.1. Celtic G

depicted at the top. Elements, colors, and seasons accompany each direction (see figure 1.4).

East is denoted by light and the color white and represents spring. This direction deals with life values, beginnings, fortitude, sound teaching, and standards of conduct. It is traditional for Diné children to run toward the east each morning.

South, represented by water and blue, has the qualities that come with the summer. This direction carries the energy for practical things, making a living, sharing, and cooperation.

West is represented by wind and yellow and holds the secrets of fall. This direction has the energy necessary for thinking, planning, teaching, discussing, and the gathering of family.

North is symbolized by matter, black winds, and the color black and is powerful during winter. The essence of this direction is the unity of spirit in nature, which is associated with a reverent attitude. North is the source of the physical element of all creation, since all life has both spirit and matter. Winter is a good metaphor for this concept. You might think of sitting by a fire on a dark wintry evening, contemplating the vast skies and being filled with the awe of creation or spirit united with nature.

As with the Celtic board/map, the center of the Diné wheel is important. In the Diné wheel, the middle represents the convergence of the diverse energies of the four cardinal directions. When each direction has been addressed and given its due, then balance comes to the wheel. At that point, a person has the ability to access the energy in the middle. The middle in this wheel is the union of knowing and loving, intellect and affect. This is an appropriate symbol for those in holistic education who strive to unite the affective and intellectual components of instruction, for it is a convergence of head and heart that creates wisdom.

This wheel is an excellent example of how each direction signifies a specific type of unique energy. In this case the energies of the four directions are depicted as the four seasons of the year. Imagining the energy of the four directions as four seasons provides a concrete way of understanding the qualities and differences of the four points on the wheel. These qualities can be understood also by thinking of the attributes of various times of the day, that is, morning, noon, evening, and night. Each direction signifies an archetypal energy. The four cardinal directions can be subdivided by multiples of four to represent even more diversity. The Diné wheel also shows that if each energy is

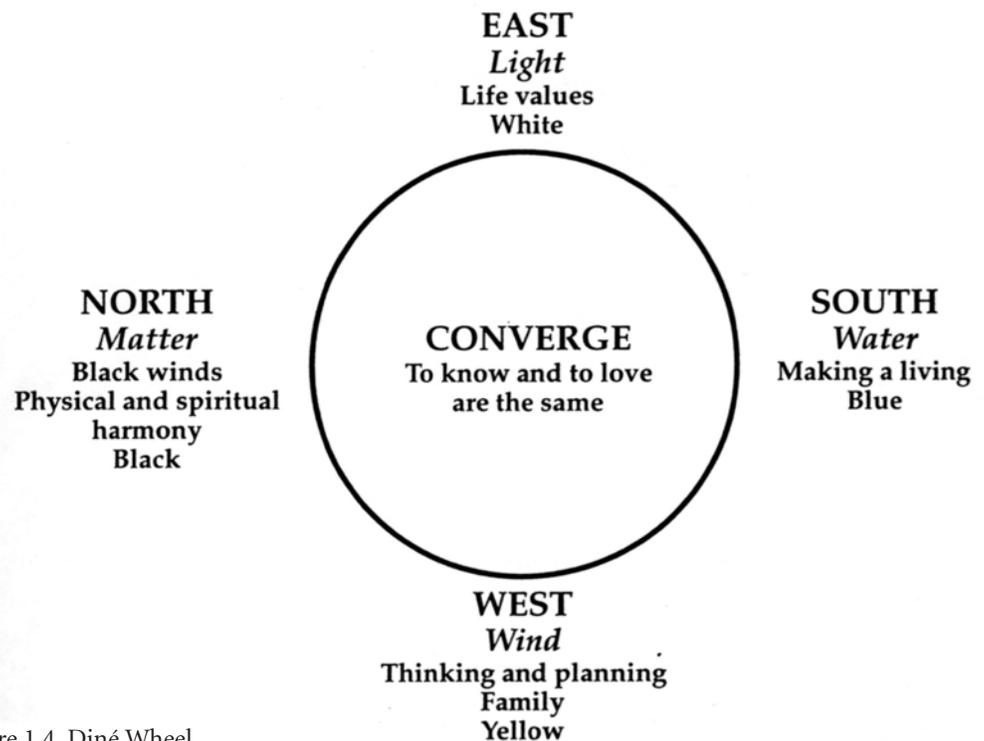


Figure 1.4. Diné Wheel

addressed and given its due, then balance can be achieved and energy shifts into the center of the wheel, creating synergy.

Wheels Reflect Unseen Energies

Wheels are often used to represent unseen energies or invisible forces that affect human activities. Two such wheels are the Roman Wheel of Fortune and the African Yoruba divination tray.

Roman Wheel of Fortune

The Wheel of Fortune was central to the ancient Romans' concept of justice (Olson 1983). The wheel was based on the twelve signs of the zodiac and showed the relationship of events on Earth to the movement of the constellations in the stars above. The Wheel of Fortune would turn, and a person's fortune was determined by where the wheel stopped, demonstrating the working of fate in people's lives. The goddess Fortuna ruled the

wheel, and the emperor of Rome would sleep under the statue of Fortuna, who gave him the right to mete out justice.

The Wheel of Fortune demonstrated how invisible forces, in this case thought to be movement of the celestial constellations, influenced people's lives. This wheel follows the rule of using multiples of four to determine the points on the circle. In addition, there are symbols to represent the diverse points around the wheel. The qualities of the signs of the zodiac metaphorically demonstrate the energies that go into making the whole.

Yoruba Divination Tray

The Yoruba divination tray has certain similarities to the Roman Wheel of Fortune, as it is a tool to communicate with unseen forces. The Yoruba are a tribe in western Africa in the area now known as Nigeria. Their wheel symbol is in the form of a divination tray that is divided into four primary divisions, based on the four directions, with four additional subdivisions (Drewal and Pemberton 1989). The tray conveys the unity of the Yoruba cosmos and is used to call on spirits to divine the future (see figure 1.5). To use the tray, the diviner begins in the eastward direction and calls on the spirit of that direction. Then the diviner proceeds to call on a spirit from each of the eight sections, ending with the center of the tray, which is the location of the lead or crown spirit. The center of the tray is considered to be of utmost importance, because it is the intersection of all the energies around the tray and represents the place where the material and spiritual worlds intersect. By symbolizing each direction and the center crossroads, the tray acts to strengthen the power of concentration of the diviner.

I have included the divination tray because it shows how to use the wheel model by balancing the metaphoric qualities to achieve strength in perceptual clarity and power. Although it may seem out of place to include wheels that depict invisible forces, there is little doubt that subtle energies have a significant effect on learning and teaching. It is likely, therefore, that ancient teachings derived from wheels and the wheel symbol itself may contain some wisdom about the universal forces that affect all of human life.



Figure 1.5. Yoruba Tray

Wheels Are Metaphors

It is important to keep in mind that I am describing wheels from a metaphoric perspective. These wheels provide a model for how to work with diverse qualities to create strength, knowledge, and empowerment. You need not take the meaning of the wheels literally. One of the purposes of this chapter is to show the symbolic meanings that can be derived from the wheel.

Tools for Balancing Diverse and Opposing Energies

Two indigenous North American tribes, the Lakota (Sioux) and Tsalagi (Cherokee), used wheels to prescribe ceremonial procedures for helping individuals and groups balance their energies and achieve wholeness. This section reviews these American Indian wheels as well as a third wheel, the visual symbol of the dharma wheel of Tibetan Buddhism. This dharma wheel demonstrates the cyclic pattern of growth or learning, which also creates balance.

Lakota Wheel

The Lakota wheel is probably best known as the medicine wheel (Strom 1972). The four directions, each one symbolizing the relationship of certain qualities to the whole, make up the wheel (see figure 1.6). As in the Diné wheel, each direction is represented by a word that stands for the quality of that direction. In this wheel, each direction is represented also by an animal. East is illumination, and it is signified by the eagle. South, or innocence, is represented by the mouse. West is introspection and has the bear as its symbol, and north, which is wisdom, is depicted by the buffalo.

The Lakota used this wheel to teach people how to bring balance into their lives. They believed that people were born with a certain energy. For example, a person may be born with the quality of innocence, or the energy of the south. This person's task, then, would be to balance that innocence with the qualities of the other three directions. To do this, the person could spend time with people who had the qualities of the other three directions, or he or she could engage in activities that required those qualities.

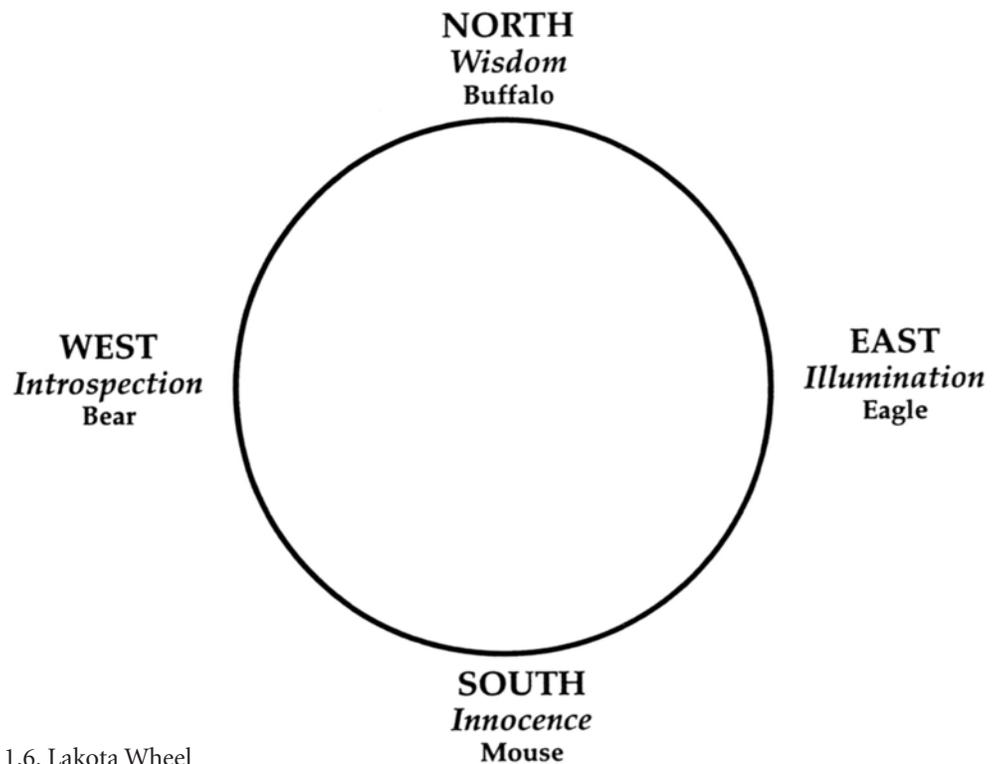


Figure 1.6. Lakota Wheel

The Lakota example shows how the wheel model creates a balanced approach. Instead of presenting the wisdom of the north as superior to the other energies of the wheel, for example, the model places equal emphasis on the development of the qualities of each direction. All directions are necessary to the whole, and each must be addressed.

Tsalagi Wheel

The Tsalagi used a similar wheel (Ywahoo 1987). In theirs, a word and a weather event describe the quality of each direction (see figure 1.7). East is illumination and is symbolized by gentle winds. South is renewal and is associated with wet winds. West is assimilation and is represented by dry winds. North, or wisdom, is symbolized by frozen water. The Tsalagi also used their wheel to create ceremonies for a person to balance his or her own energies. These ceremonies create balance within the self by attending to each of the qualities represented by the four directions of the wheel.

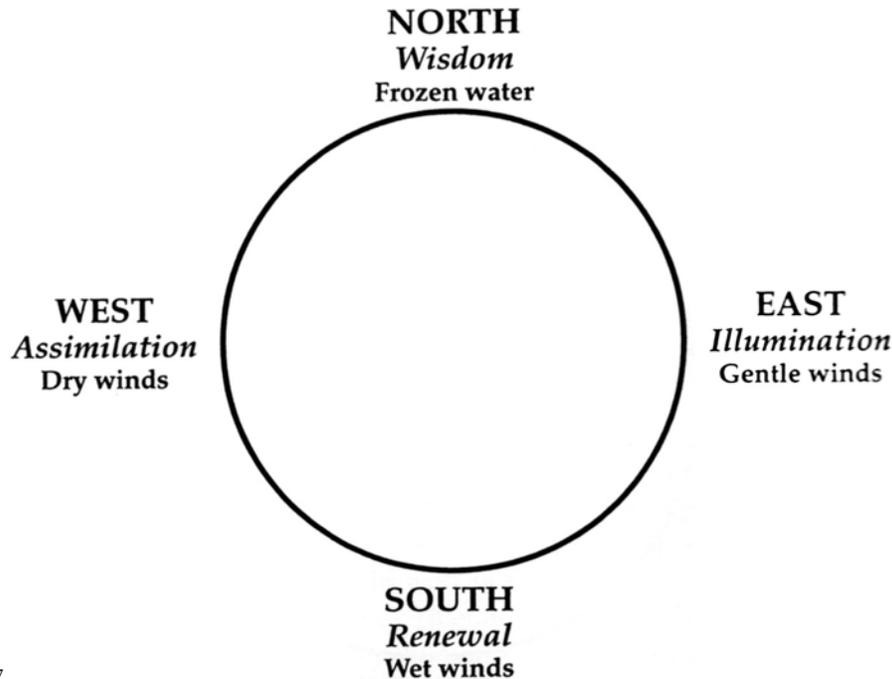


Figure 1.7

Both the Lakota and Tsalagi wheels follow some of the patterns seen in other wheels. The four directions are the basis for the wheels. Words, animals, or weather events are used to symbolize the qualities of the diverse points on the wheels. In addition a clockwise method of addressing the four points, beginning with the east, is prescribed. This method assists people in understanding that no one direction is more important than the others, but each must be addressed in its turn.

Dharma Wheel

The dharma wheel of Tibetan Buddhism depicts the process of personal development (H. H. Tenzin Gyatso, Tsong-ka-pa, and Hopkins 1977). This wheel shows the cycle that people pass through in their pursuit of inner strength and clarity (see figure 1.8). The wheel is turned metaphorically by a person following the teachings of the Buddha. To turn the wheel of dharma is to progress from one state to the next, more developed state. The wheel shows that the path of growth and learning proceeds in a circular rather than in a linear fashion.

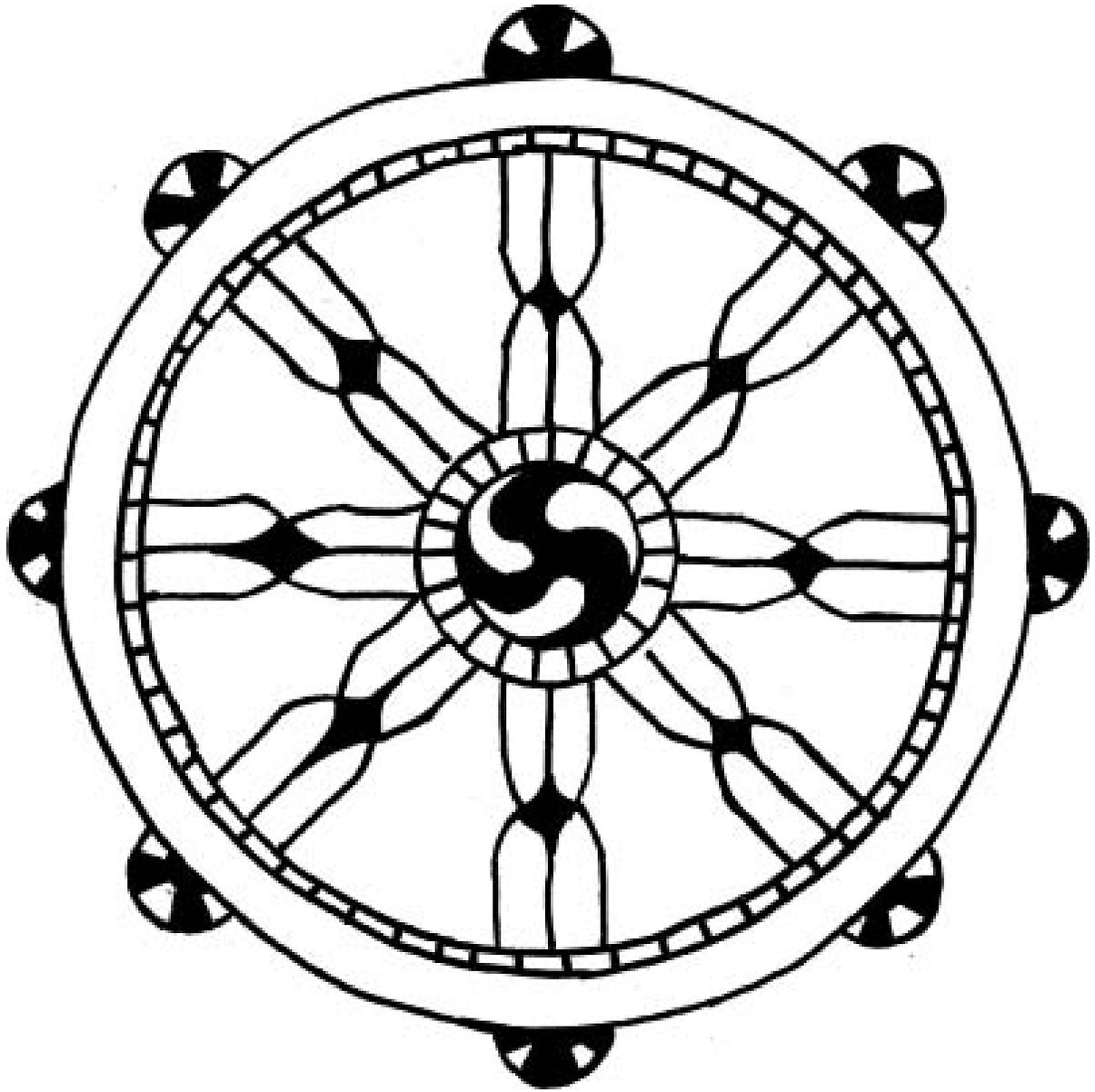


Figure 1.8. Dharma Wheel

Cyclic Approach

This cyclic concept is very different from the linear approach that generally defines success in U.S. schools. The concept offers a less competitive model, since there is not a specific point to achieve; rather each point in the circle is given full attention and is fully developed to reach a balance. Instead of a competitive, achievement-oriented approach to learning, what the wheel model offers is a personal development approach, in which a person's integration and wholeness are the aim of learning. Integration and wholeness come from developing a student's natural strengths and balancing those strengths by promoting other, less noticeable attributes. The cyclic approach is softer and more accepting of differences.

Summary of Wheel Attributes

The previous sections on wheels show the metaphoric knowledge contained in wheel models. The metaphors attempt to explain the mysteries of forces that affect human lives and to show how to use these forces constructively. Culling the concepts that are common to these wheels results in a model for achieving integration and harmony in any undertaking, particularly when diverse elements are at play.

1. Wheels are linked to people's cosmology, and they tell us how to align with the forces that created the Earth and that keep the Earth in orbit. By aligning with these forces, people can tap into their own strengths. Wheels also provide a model for achieving balance in any endeavor. By using the wheel to guide activities, those activities come into balance.
2. Wheels are based on the four directions and each of the directions represents a particular quality. The directions are archetypal symbols of the diverse qualities that combine to make a whole. Wheels symbolize these qualities in a variety of ways (for example, words, colors, spirits, animals, weather, and zodiac symbols), but they all show that differing qualities combine to create a whole. The four directions can be subdivided into other multiples of four, which create eight, sixteen, or twenty-

four divisions to represent even more diversity. Since these diverse qualities are all on an equal footing around the wheel, the wheel offers a system for integrating diversity into a harmonious whole. More energy is available to accomplish a task, because opposing and diverse forces are unified instead of working at odds with each other.

3. The examples show that the wheel model is nonhierarchical in nature; each element is equally important to the whole and must be addressed. I cannot overemphasize the strength of a nonlinear model in working with differences. If any one energy is considered to be more important than the others, then the wheel becomes out of balance and will not function, much like a tire with a very large bump on one side. The wheel revolves but because it is out of balance, progress is very difficult.
4. The wheel prescribes a method for addressing diverse qualities equally. The person using the wheel begins in the east and proceeds in a clockwise fashion to each direction, one by one each direction has its turn. In this way the energies are unified into a whole, allowing more strength and power to emerge than is possible by concentrating on any one of the directions synergy is created.

The four directions can be metaphors for cultural differences among students, as well as differences in learning styles or intellectual abilities among students from the same culture. By using the wheel model, a system can be created wherein each of the elements of diversity is addressed. Therefore students' strengths, from cultural training or learning style preferences, are mobilized for learning. At the same time, students have the opportunity to develop aspects of themselves that may be weak, since all elements are presented in the learning process. Balance and wholeness result.

The wheel model is noncompetitive and inclusive in nature. Using this model for learning will create a nurturing environment. But the environment will also be challenging for the student since the wheel uses the tension of opposites to create a dynamic balance.

Educational Implications of the Wheel

The Diné wheel, described earlier in this chapter, provides a context for using the wheel to achieve harmony in education. Some Diné educators have attempted to bring the traditional wheel philosophy into the modern classroom by using the wheel as a curriculum-making device. They have organized the curriculum around the four directions as follows.

EAST is endowed with dawn light and gives people direction. Areas of study include

- religious studies
- physical education
- philosophy
- ethics
- aesthetics
- language

SOUTH is the water and gives people the means to make a living, as the sun gives people light to work. Areas of study are

- education
- agriculture
- carpentry
- law
- livestock management

WEST is the wind and helps with thinking, planning, teaching, discussing, and the gathering of the family. Subjects include

- family living
- sociology
- history
- psychology
- government

NORTH is the black wind and teaches rest and respectfulness. It is the source of the physical element of all creation. Subjects studied are

natural science
geology
chemistry
biology
ecology
astronomy
physics

Educators use the directions also in making lesson plans to ensure that each energy is addressed. Courses address the following topics:

EAST: sound beliefs and values to make decisions

SOUTH: skills to make the best living

WEST: leadership qualities to help the family
and community

NORTH: reverence for the Earth and all living things

By gaining knowledge of the four cardinal directions, students move toward the center, where the convergence of forces shows that to know and to love are the same. Through education, students learn to develop peaceful and harmonious lives.

Using the model of the four directions to plan curriculum, Diné educators are able to complement mainstream education with its missing elements. The model provides a way to balance the usual stress on acquisition of information, competition, and materialism. Without balance, the current educational system threatens the quality and stability of human relations. It also threatens the health and future of life by striving to conquer nature instead of living in harmony with it and achieving the qualities that come with the north.

Gandhi's Wheel

Mahatma Gandhi also created a wheel that has educational applications. (See figure 1.9. A poster of his wheel is available from Gandhi Ashram, Ahmedabad, India.) Gandhi's wheel explains the elements necessary for creating a healthy society. Education

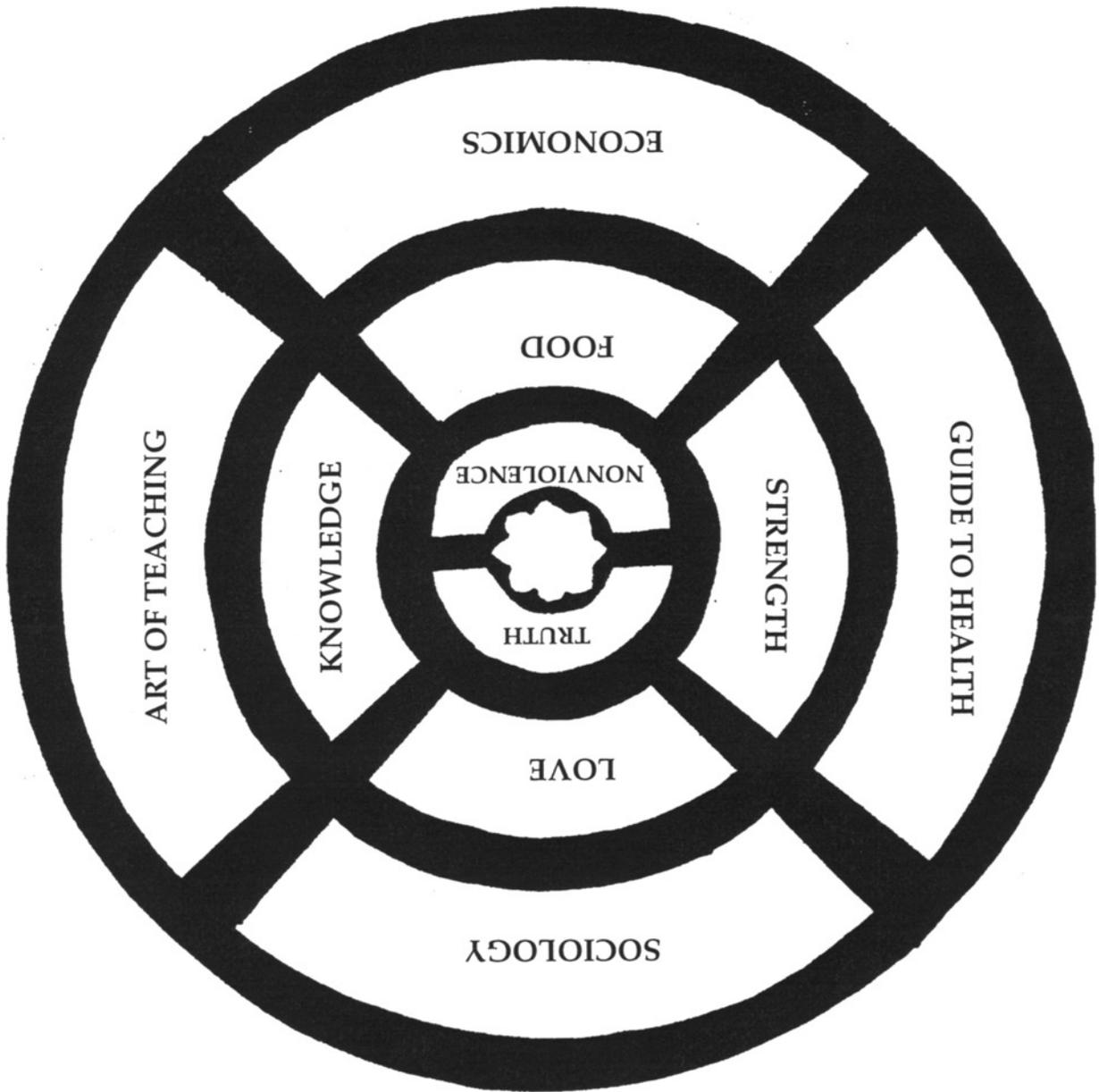


Figure 1.9. Gandhi's Wheel

plays a central role in his wheel, which follows the principles found in other wheels. For example, he used multiples of four. He placed all the elements of a healthy society around the wheel. Strength, love, knowledge, and food are all on the inner wheel. The outer circle includes health, sociology, the art of teaching, and economics. Gandhi's wheel emphasizes teaching and certain subject areas as central to the growth of people and society.

The wheels of Gandhi and the Diné are examples of models for organizing instruction to achieve balance and harmony in life. The wheel can be a tool for creating health, growth, balance, strength, and power in any endeavor, particularly education. Throughout the rest of the book, I use the wheel model to show how to unify cultural and individual differences within and among students to create an optimal learning environment.

Summary of Wheels

Commonalities of the world's wheels include the following points:

- The four cardinal directions are central to the wheel.
- People begin in the east when using the wheel.
- Wheels have divisions that are multiples of four.
- Each point on the wheel must be addressed to achieve balance.
- Metaphors (animals, winds, colors, or zodiac symbols) can be used for each point of the wheel to represent diversity.
- A clockwise motion around the wheel is important.
- By attending to each point on the wheel, a person can move into the center of a circle, which is an integration of all the energies combined. This creates power and strength.
- The wheel model is nonhierarchical and noncompetitive in nature.

- Wheels explain how forces balance the Earth on its orbit.
- Wheels symbolize the creative forces that underlie the land and link the Earth to its galaxy.
- By orienting to the wheel, people can use the strength of these forces.

2 Wheel Intelligence Model

The Educational Process

In a learning environment, the educational process can be distinguished from the content that is presented. The process is the way information is presented and received, and the content is the specific information that is presented. Teachers present information using a certain process but are often unaware of that process, since they are focused on the content of the lesson. Not only does the teacher have a particular process, but also each student has an individual learning process, or learning style. Many people do not notice either the learning processes used by others in the classroom or their own learning styles. The classroom process and individual learning processes are often directed

THIS CHAPTER WILL

- Define the process of learning
- Define modalities
- Examine modalities, the learning process, and intelligence from a multicultural perspective
- Present the roots of the Wheel Intelligence Model
- Define the intelligences of the model: practical, technical, conceptual, creative, and expanded
- Use the wheel to create a multiple intelligence model based on a multicultural perspective
- Use the wheel to understand the roles of the intelligences and their relationships to each other
- Place intelligences supported by different cultures on an equal footing around the wheel

INTRODUCTION

Chapter 2 describes the wheel as an organizational tool to create a multiple intelligence model based on a multicultural perspective. You can use the wheel to understand the role of the intelligences and their relationships to each other. Intelligences supported and trained by different cultures stand on an equal footing around the wheel.

by unconscious forces or assumptions in the teacher's or students' minds.

Cognitive psychologists typically have examined the learning process by breaking it into three different steps. The first step is taking in information, the second step is processing information within the mind, and the third step is expressing or communicating to others. These three steps have been referred to as encoding, processing, and decoding. Each learner or group of learners uses a unique combination of steps to create a learning style. One major component of learning styles is the preferred modality for taking in and expressing information.

Modalities

Modality usually refers to a preferred sensory mode such as visual, auditory, or kinesthetic. For example, some students are primarily auditory learners in terms of taking in information; that is, they learn best when they hear information. Other learners encode visually, which means they learn best when they see information. Still others are kinesthetic; they need to move or to write to learn most efficiently. Learners also have preferred modes of expressing or decoding, such as talking, writing, creating, or acting. There are many combinations of preferred input and output modes. One learner might encode best by hearing and express best by writing. Another learner might prefer to see information and then talk about it. Or a learner might encode by writing and then express learning through acting.

Preferred processing modes for the middle step, interior mental action, usually fall into the categories of linguistic or imagistic. Inner processing that is linguistic uses words to express thoughts in the mind. This type of processing is sequential in nature, since words occur in a certain order. It is also related to analytic thought; information is looked at one piece at a time. Analysis is logical, since phenomena are examined in a cause-and-effect manner. All of this is linear processing.

Imagistic processing, on the other hand, involves sensing internal images that are visual (seeing a picture in the mind), kinesthetic (feeling a movement or sensation in the mind), or auditory (hearing sounds in the mind). With imagistic processing, information is treated in a simultaneous manner; that is, it is taken in and examined all at one time. Imagistic processing is related to intuitive processing since intuition often creates images in the mind.

Cognitive Structures

The learning process is clearly complex. A number of different modalities can be combined with a variety of internal processing styles to create a unique learning process within each learner and each group of learners.

Jean Piaget worked perhaps more than anyone to analyze and define the second stage of cognitive processing, or what happens in the mind when information is processed. Piaget (1973) hypothesized that humans, through their interaction with the environment, create schemas, or interior blueprints, of how the world works. These operational plans of reality are at first in the conscious mind, but as they are used consistently to make sense out of perceptions and explain reality, these schemas move into the unconscious mind. There they become cognitive structures, because they determine how the mind works to process information. A person may not even be aware that these cognitive structures are directing how the mind processes information. For example, after learning to drive a car, a person does not think about the individual steps; the plan for action is automatic and is stored in the unconscious mind. Moving schemas into the unconscious mind to form structures also occurs at a more sophisticated level with abstract information that is processed.

In summary, there are a number of cognitive structures in the unconscious mind that determine how we process information. Since the structures operate in an automatic manner, people may not be aware of their own learning processes or the processes they learned by interacting with the environment under the guidance of their parents, peers, and teachers.

Multicultural Learning Process

It is interesting to look at the issue of cognitive processing (i.e., input, internal action, and output) from a cultural point of view. Different cultures teach and emphasize different modalities of input and expression and emphasize different modes of internal

by unconscious forces or assumptions in the teacher's or students' minds.

Cognitive psychologists typically have examined the learning process by breaking it into three different steps. The first step is taking in information, the second step is processing information within the mind, and the third step is expressing or communicating to others. These three steps have been referred to as encoding, processing, and decoding. Each learner or group of learners uses a unique combination of steps to create a learning style. One major component of learning styles is the preferred modality for taking in and expressing information.

Modalities

Modality usually refers to a preferred sensory mode such as visual, auditory, or kinesthetic. For example, some students are primarily auditory learners in terms of taking in information; that is, they learn best when they hear information. Other learners encode visually, which means they learn best when they see information. Still others are kinesthetic; they need to move or to write to learn most efficiently. Learners also have preferred modes of expressing or decoding, such as talking, writing, creating, or acting. There are many combinations of preferred input and output modes. One learner might encode best by hearing and express best by writing. Another learner might prefer to see information and then talk about it. Or a learner might encode by writing and then express learning through acting.

Preferred processing modes for the middle step, interior mental action, usually fall into the categories of linguistic or imagistic. Inner processing that is linguistic uses words to express thoughts in the mind. This type of processing is sequential in nature, since words occur in a certain order. It is also related to analytic thought; information is looked at one piece at a time. Analysis is logical, since phenomena are examined in a cause-and-effect manner. All of this is linear processing.

Imagistic processing, on the other hand, involves sensing internal images that are visual (seeing a picture in the mind), kinesthetic (feeling a movement or sensation in the mind), or auditory (hearing sounds in the mind). With imagistic processing, information is treated in a simultaneous manner; that is, it is taken in and examined all at one time. Imagistic processing is related to intuitive processing since intuition often creates images in the mind.

percent. One explanation for the great differences is that the current process of education conforms to a definition of intelligence supported by only one or two cultures. It is no wonder that children from other cultures fail in the present school system.

Conceptual Background of the Wheel Intelligence Model

The Wheel Intelligence Model has been designed to bring learning processes from other cultures into the classroom and into other learning environments. The conceptual roots of the Wheel Intelligence Model include information from a wide range of sources, including Western developmental psychology, Hindu philosophy, Western studies of mythology, and American Indian cosmology. The Wheel Intelligence Model should be distinguished from Howard Gardner's (1983) work in *Frames of Mind: The Theory of Multiple Intelligences*. In his book, Gardner defines a number of intelligences, such as musical, interpersonal, and visual-spatial. Based on the previous discussion of the learning process, some of Gardner's intelligences could be defined as input modalities.

Piaget's Work

The Wheel Intelligence Model is based more strongly on Jean Piaget's work, which examines the inner mental process created by cognitive structures. However, Piaget documented only one structure out of a number of different possibilities for becoming intelligent. There was a time when researchers tested people from diverse cultures according to Piaget's stages. Some people never reached the highest level of cognitive thought in Piaget's model, and it was assumed that this reflected a deficit in their culture. An alternative explanation is that these cultures supported the forming of different cognitive structures that were not measured by Piaget's stages. In other words, the final stage of cognitive development may vary from culture to culture.

Wilber's Work

The Wheel Intelligence Model should also be distinguished from Ken Wilber's (1984) developmental spectrum. Wilber has proposed a spectrum model of psychology that charts the development of consciousness through a series of nine stages. The model is hierarchical in that once the first stage is developed, a person moves on to the next stage. However, the stages become nested within each other. In other words, each step adds to what was previously developed. His levels are sensoriphysical, phantasmic-emotional, rep-mind, rule/role mind, formal-reflexive mind, vision-logic, psychic, subtle, and causal. Even though some of these structures overlap with the five intelligences in my Wheel Intelligence Model, Wilber's schema differs in that it is hierarchical in nature. In the Wheel Intelligence Model, a person could be at any point on the circle; the intelligences are all equal. Also, Wilber's model deals with levels of consciousness, or the quality of the mind, as opposed to intelligence, or how the mind works to process information. However, the two models are alike in stipulating that for optimal development, a person needs to experience and integrate all levels of consciousness or all intelligences.

Western Learning Theory

Besides being based on the concept of cognitive structures, certain elements in the Wheel Intelligence Model rely on research in Western learning theory. For example, the model takes into account the fact that multisensory input of information speeds learning and that movement, or kinesthetic input, is the most powerful modality. The model also utilizes information gained from behavioral research showing that rehearsal of information helps store skills and facts in long-term memory. In addition, the Wheel Intelligence Model incorporates ideas from higher-order thinking skills curricula that prescribe the inquiry method to help students learn to think conceptually. And the model makes use of research on the creative process showing that teaching strategies that stress divergent thinking, such as brainstorming or mind mapping, foster creativity. This in turn opens the unconscious mind and allows it to recombine information in novel ways.

Eastern Philosophy

The roots of the Wheel Intelligence Model are based in part on Hindu philosophy and the Vedantic model of the mind (Rama, Ballentine, and Ajaya 1976). In this model, most of the mind is called chitta, or consciousness. But there is also a portion of the mind called the buddhi, which translates as “wisdom” or “the wisdom faculty.” The buddhi is outside of conscious awareness but can be contacted or opened through meditative practice. The Wheel model uses the concept of the buddhi in two ways: First, there is more to education than imparting information; there is also the goal of leading learners toward wisdom, which involves an inner as well as an outer process. Second, the techniques for contacting the buddhi can help teachers in assisting learners to open the unconscious mind to tap mind power. Classroom techniques that would be most like yoga would be eye-hand coordination activities, such as art and crafts that help learners develop their attentional skills by working with their hands.

Campbell’s Work

In addition, the Wheel Intelligence Model rests on the work of Joseph Campbell (1972). His studies of mythology examined how the unconscious mind is contacted through metaphors, rituals, symbols, and stories. Thus, he verified that not all the mysteries of the universe can be understood through analytic or linear thought forms. Instead, these mysteries must be apprehended through an intuitive process. Many times learners have to “sense” the meaning of a story using their intuition, as opposed to logically analyzing its meaning. By including stories in the classroom, teachers can tap the learning and creative forces in the unconscious mind. Campbell’s work implies that exploring intelligences outside the Western paradigm is not only possible, but also necessary to understand the human condition.

American Indian Philosophies

Finally, the Wheel Intelligence Model is based on the American Indian concept of the wheel found in some tribes. The wheel is a circle, oriented to the cardinal directions, which are used to

balance and harmonize energies. Herbert Benally (1988) has also adapted the wheel to education in his writings. Benally demonstrates how the role of the four directions in the Diné creation story can provide a basis to create a balanced curriculum. European traditions use lines as opposed to circles to convey reality. Information begins at a certain point, occurs in a specific sequence, and ends at another point. The circle represents a very different model of reality that is softer and more intuitive. Various aspects of the circle represent unique energies, but all the energies are required to make the whole. As a way of organizing information, the circle concept is fundamentally different from the linear concept, since with the circle there is no assumption that one way is better or more correct than others. In other words, it is not hierarchical in nature.

The intelligences proposed in the Wheel Intelligence Model are practical, technical, conceptual, creative, and expanded intelligences. A given worldview is made up of one or two of these intelligences. For example, the European worldview may emphasize conceptual intelligence, whereas the Asian may emphasize technical intelligence.

As in all models, this model is a screen used to understand reality, and as such, it does not capture all possibilities and has limitations. In addition, the five intelligences depicted in the model do not necessarily align to any given ethnic groups. There is as much variance within ethnic groups as there is between them. However, a given people with like cultural and biological makeup may have a tendency toward one or more intelligences.

Practical Intelligence

Definition

This intelligence deals with accomplishing activities in the physical world to fulfill a goal. Farming, painting, carpentry, cooking, weaving, basketry, and caring for animals are all in the domain of this intelligence. These are tasks that require physical skills. Many of these skills become automatic over time; a person can use them without conscious thought. Translating practical intelligence to the classroom means focusing on skills that will become automatic over time (as opposed to strictly physical skills). These would include skills such as learning facts, vocabulary words, and formulas.

Methodology

The teaching methodology for this intelligence is to model or demonstrate a task and for the student to imitate this model. This type of learning requires observation and attentional skills. Using this teaching method for this intelligence rests on Western learning theory that movement or kinesthetic input is the most effective modality for moving information into long-term memory. The power of movement in learning is probably illustrated by the fact that human infants use movement in their first learning activities (e.g., grabbing and crawling) to gain control of their environment. The thinking involved in this intelligence might be termed “doing.”

Technical Intelligence

Definition

This intelligence is involved in designing ways to use material things to accomplish a goal. People create mechanical or electronic devices, for example, to assist people. Computer programming, architecture, and all types of engineering require technical intelligence. In schools this type of learning involves applying rules or concepts.

Methodology

The teaching methodology here is for the teacher to model ways to solve problems or design solutions. The teacher then poses problems for the student to solve. The student requires much practice to learn to solve problems involving technical intelligence. Component skills for technical intelligence include visualizing three-dimensional objects and transforming them. This type of thinking might be labeled “solving.”

Conceptual Intelligence

Definition

Conceptual intelligence is what college education typically is all about. Conceptual intelligence formulates concepts or laws to explain how the physical world operates and why things are the way they are. Most academic fields rely on concepts for their foundations. Scholars try to extend these concepts or to prove that with new knowledge the concepts are no longer operative.

For mastering conceptual intelligence, prerequisite skills include comprehension of abstract ideas that underlie explanations of phenomena. In addition, the learner must have the ability to analyze one concept and to compare and contrast it with another concept, and the learner must be willing to look at information regardless of its application. In this way, it is the opposite of practical intelligence.

Methodology

Inquiry and questioning are the most effective teaching strategies for developing conceptual intelligence in learners. Once students have stored facts in their memory, then teachers ask questions to prompt learners to move facts around. This methodology is based on models of comprehension that have evaluative and speculative thinking at the higher end of the hierarchy and that prescribe open-ended queries as a procedure to develop these thinking skills. The conceptual intelligence thinking process could be called “analyzing.”

Creative Intelligence

Methodology

Creative intelligence deals with insights and discoveries. Creativity is evident when concepts are synthesized in a new way, for example, in art forms or in new generalizations to explain phenomena. Creativity relies on listening to the intuitive in the unconscious mind. Often an incubation process is necessary for creativity. Ideas and facts about a given concept are collected and then stored into memory with no conclusions or outcome. After a waiting period, an image

may present itself from the unconscious and give an answer or a solution. The creative force in the unconscious mind, which Abraham Maslow (1970) called the actualizing tendency, has recombined the information in memory to create insight.

Methodology

The teaching strategy to foster creativity is helping learners think in a divergent manner. This means to assist learners to become comfortable with ambiguity and to tolerate information in the mind without evaluating it or without coming to a conclusion about it. Creativity curricula include divergent thinking activities, which encourage students to come up with ideas that are not necessarily logically related. This opens the unconscious mind to work on ideas without making them fit a preexisting structure. Brainstorming and mind mapping are both divergent teaching strategies that promote creativity. Creative intelligence might be called “wondering.”

Expanded Intelligence

Definition

This form of thinking occurs in dream states or peak experiences, in which an individual feels that time has been altered. When people experience expanded intelligence, their sense of time is altered and the boundaries that they use to separate themselves from other life forms and other realities may disappear. This intelligence may be looked on as taking the creative intelligence one step further, so that ambiguity is tolerated and judgment is suspended on what is and is not reality. The intelligence merges fully with the experience. However, it is important to note that the learner is not completely lost in the experience but keeps a focus of attention. Practical intelligence is closely aligned with expanded intelligence, since practical intelligence promotes the attentional skills necessary to keep a focus when experiencing expanded states of awareness.

Methodology

Teaching methodology here is not analytical, as with practical, technical, or conceptual intelligence. Since the learner's conception of time is altered, a linear organization of material is not appropriate. Cyclic presentations of information fit this intelligence, as do metaphors and symbols.

Teaching strategies include storytelling, symbol creation, internal images or visions, artwork, or experiences in nature. The teacher guides the learner into an experience to activate unconscious learning forces. Since there is no specific outcome in expanded intelligence, the teacher's role is to create an environment that allows this intelligence to emerge, as opposed to directly teaching it.

Further Defined

Expanded intelligence is closely tied to creativity since there are no correct or incorrect answers, but it goes a step beyond creativity in moving information processing beyond ambiguity to the nonlinear and even nonrational dimension. It is the intelligence of opening fully to the creative force in the unconscious. The world of the unconscious is very different from our normal consciousness and is very important. The unconscious mind uses much more brain mass than the conscious mind does. Accessing the unconscious mind allows much more learning to occur than does accessing the conscious mind alone.

A Metaphor

The trickster coyote is an appropriate metaphor for thinking about how to access the expanded intelligence. The conscious mind needs to be caught off guard to open the doors of the unconscious. In general, nonlinguistic information is most effective for talking to the unconscious. Words do not work. The unconscious prefers images, symbols, metaphors, and stories. That is why imagery is such a powerful teaching technique for opening the unconscious. However, verbal messages that are nonlinear in nature, such as metaphoric

stories, poems, and songs, will also be effective. “Opening” might be an apt descriptor for this intelligence.

The Circle Relationship of Intelligences

A visual model of these intelligences would not be a linear hierarchy since no intelligence is more important than another. A circle is more appropriate for showing the interrelationship of all intelligences. Expanded intelligence is in the center, since it denotes opening the unconscious mind to conscious awareness. Expanded intelligence activates memories and the creative force of the mind. Expanded intelligence can then enhance other intelligences.

Strengths of the Wheel Intelligence Model

The Wheel Intelligence Model represents the mind as a complex, multidimensional entity that defies easy explanations (see figure 2.1). This model assumes that no single intelligence can be

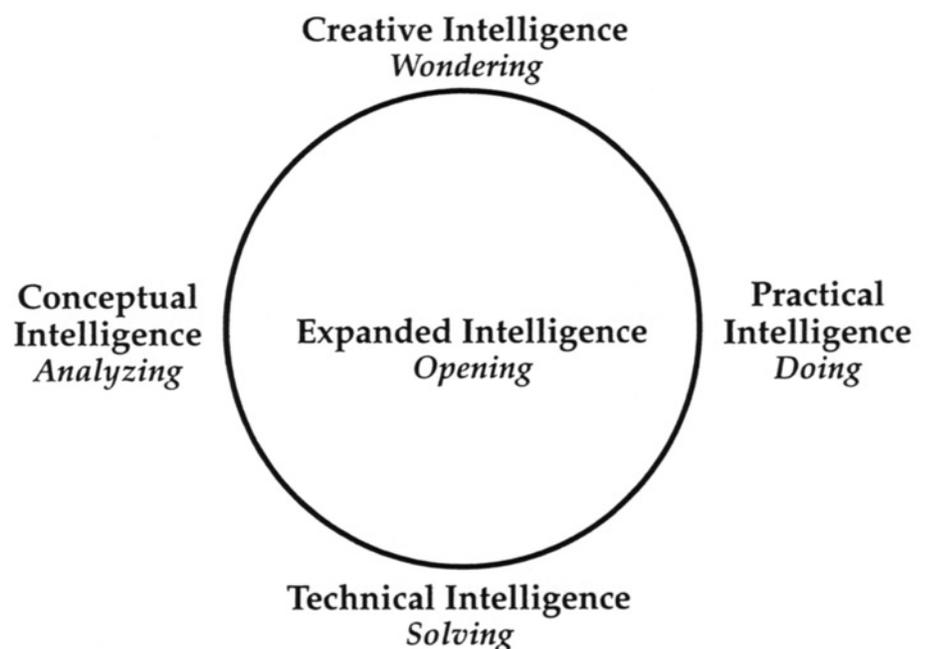


Figure 2.1. Wheel Intelligence Model

defined as true learning. People may be very intelligent in their own worldviews but may not appear to be intelligent in another worldview. The intent of the model is to create a picture that evokes possibilities for the educational process that could tap more of the mind potential of more people than we now do.

Western education is driven by conceptual intelligence or the analytic process of the mind. An interesting shift would occur if education were instead fueled by the intuitive process of the mind. To implement this change, the teacher might use teaching strategies for creative and expanded intelligence to foster insights. Then the strategies for conceptual and technical intelligence could be used to verify, document, and communicate these insights. Practical intelligence strategies would be necessary to teach attentional skills as a basis for working in any other intelligence.

Integrating Differences

The Wheel Intelligence Model uses the concept of a wheel to provide a model for integrating many worldviews of a variety of ethnic groups. This integration can create a multiethnic learning process in the classroom. The model proactively includes individual differences in the instructional process to create an effective learning environment. Differences are seen as an opportunity to create balance and strength for all learners, since many ways of knowing are integrated into instruction. A greater number of learners will be reached, and these learners will be strengthened since they will be exposed to alternative ways of learning.

Certainly balance and harmony are greatly needed in education today. Only when fundamental changes are made in the educational processes will more children succeed in school. The school reform movement of the last decade for the most part has not helped the situation. Trying to fix education by training teachers in a particular approach will not work. Instead, the process of education must be changed to meet more students' needs. By incorporating a variety of worldviews into the learning process, education can be made more whole.

Joseph Campbell's work gives credibility to the idea of including expanded intelligence in education as an integral force in learning.

He shows us that wisdom lies in the mysteries of the universe and that these mysteries are the territory of the unconscious mind. Conceptual intelligence can give glimpses of these mysteries, but a learner cannot ultimately find them through analysis. These mysteries are accessed only through symbols and metaphors. By using all intelligences, educators can engage learners' intellects, bodies, emotions, and spirits. Perhaps this will lead them to wisdom.

Summary

- Learning can be seen as a three-step process that includes input, processing, and output.
- Educators have defined the end goal of education as teaching students to process information in a manner described by Piaget's model. This is abstract, rational thought.
- Piaget's concept of education has been adopted as the definition of intelligence in the U.S. educational culture, but it reflects only a Eurocentric worldview.
- Other cultures support the development of other ways of processing, or other intelligences.
- To assist people from all cultures to succeed in school, the instructional process needs to reflect other intelligences.
- The Wheel Intelligence Model defines five intelligences:

PRACTICAL-learning skills and facts and working with the hands.

TECHNICAL-using guidelines and strategies to solve problems.

CONCEPTUAL-comparing abstract ideas to discover underlying principles.

CREATIVE-recombining information in novel ways to produce innovation.

EXPANDED-opening to the intuitive process of the unconscious mind for insight.

- By including each intelligence in instructional methods, teachers can reach more students, accommodate individual differences, and accelerate learning.

3 Wheel Intelligence Model

Format of the Wheel

There are four primary sections on the wheel, one for each intelligence. Practical intelligence is in the east, technical in the south, conceptual in the west, and creative in the north. Expanded intelligence is in the middle of the wheel, since unconscious processing can affect each of the four directions.

To help teachers with the lesson-planning process, I have divided each of the four directions of the wheel into three sections. The first section in each direction is the learning objective, and the second section is the teaching method that best fits that intelligence. The third section tells how to access the

THIS CHAPTER WILL

- Put the Wheel Intelligence Model into a form that can be used by teachers in designing lessons
- Explain the Learning Wheel
- Define the sections of the Learning Wheel (teaching objective, teaching method, and accessing the unconscious mind) for each cardinal direction
- Explain how to use the wheel to plan lessons
- Describe each method of the Learning Wheel
- List the modalities used in each direction of the wheel
- Demonstrate how to use the wheel for thematic lesson planning

INTRODUCTION

Chapter 3 further refines this circular model to produce the Learning Wheel, a lesson-planning tool for teachers to ensure that each of the diverse intelligences, or ways of knowing, are addressed in instruction. I recommend that you go to Appendix A before proceeding, and, using the directions provided, cut out and put together the wheel. If you have it available as you read, you will be better able to visualize its use.

The Learning Wheel has the capacity to meet individual differences among students whether or not they come from the same cultural background. Using the Learning Wheel, you can create a harmonious classroom environment for effective learning, since each student's unique learning style and preferred mode of cognitive processing is reflected in the instructional methodology of the classroom.

unconscious, or tap into expanded intelligence, for that particular direction. It is important that the power of the unconscious mind assist learning in all lessons, so I offer this section in the wheel to allow all lesson plans to include access to the unconscious.

Recommendations for Using the Wheel

Refer to figure 3.1 as you read this section. The wheel is designed to be used for lesson planning in the following manner. Begin by choosing a topic for a lesson. For example, a language arts lesson might involve teaching kindergartners how to recognize a sentence; or you could be teaching high school students how to set up an equation for a word problem; or you might be teaching a college communications class in which you are helping students learn to express emotions. Once the topic is set, design a lesson for each direction of the wheel beginning in the east and moving clockwise through the four directions. You can spend one day on each direction and complete the topic in a week. Or you can spend as many days as you need on each direction the schedule can be quite flexible. You may wish to help older students learn to use the wheel so that they can plan their own course of study for a topic. Their plans also should begin in the east and move in a clockwise direction.

In this chapter I summarize each direction of the wheel, then offer guidelines and tips for using the objectives and teaching methods. Chapter 6 includes many lesson plans for a variety of grade levels and disciplines. You may want to choose one lesson plan and use it as a reference as you proceed through this chapter to see specific examples of the application of these recommendations. At the end of this chapter I present an alternative method for using the wheel that is based on an interdisciplinary thematic approach. In this approach the teacher or students choose a topic of study, such as whales, Pueblo tribes of Arizona and New Mexico, or any other topic, and then plan activities using a discipline designated for each direction.

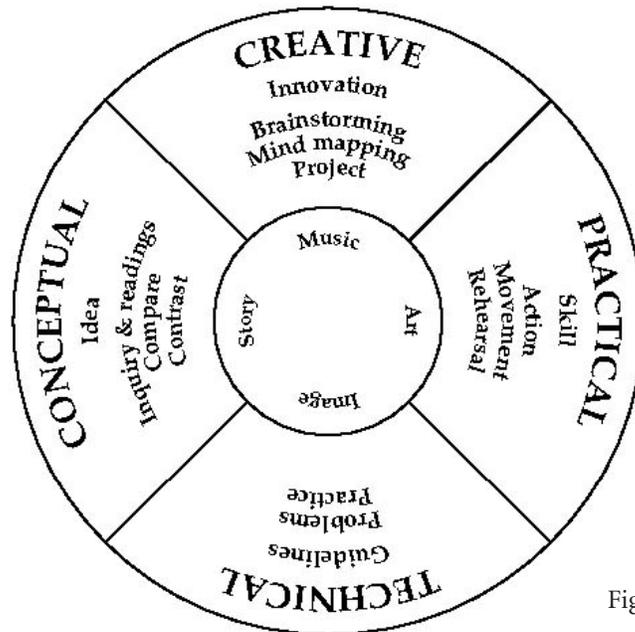


Figure 3.1. The Learning Wheel

Learning Objectives for Practical Intelligence

In this direction, you would present aspects of a topic that are skill oriented (see figure 3.2). What skills, related to the topic, do students need to be able to do automatically? Objectives in this intelligence could be defining words, spelling words correctly, remembering a formula, identifying a plant by its Latin name, using measurement devices, or remembering historical facts. These are all “how-to” types of learning.

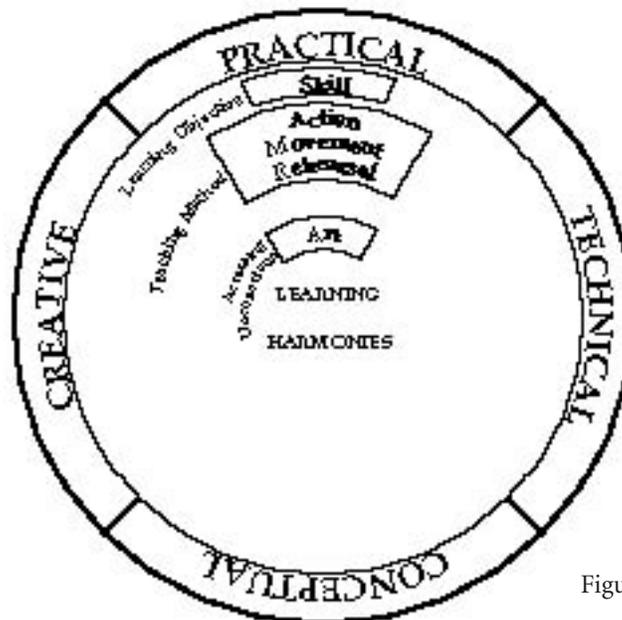


Figure 3.2. Pie of Practical Intelligence

Examples of Skills to Teach from the East

Grade Level	Subject	Topic	Skill
Primary	Language arts	Recognizing sentences	Recognizing words “I” and “am”
Intermediate	Language arts	Locating the main idea	Defining main idea
Secondary	Mathematics	Equations from word problems given operation	Identifying verbs or other words that imply a
Intermediate	Science	Ecological inter- dependence interdependence	Defining ecology and Naming species in a given ecosystem
College	Psychology	Understanding Maslow’s theory of self-actualization	Defining terms actualizing tendency and needs hierarchy Knowing facts and details of Maslow’s life

Teaching Methods for Practical Intelligence

The primary teaching method here is movement, or the kinesthetic sense (the feeling of the muscles moving). Movement is the most basic and powerful way that humans learn. The first skills humans learn, such as getting food to the mouth or clutching an object, involve movement. Teachers can use movement especially when all other teaching methods are failing.

Movement includes both gross (large) motor muscles (e.g., acting out) and fine (small) motor muscles (e.g., drawing or constructing). Using movement does not necessarily mean to have students copy facts or definitions from the board. What I am recommending involves more than writing on a piece of paper.

One way you can use movement is to have students act out something that relates to the skill they are learning. Examples of this are role-playing and playing a game that includes movement, such as walking to the correct definition posted on a wall. You can also use movement by having students make something that deals with the skill, like constructing a chart, creating a drawing or a diagram, or making a model. These methods would be particularly appropriate for older students. Students can also make games that use the skill, for example, a board game with cards that ask the definition of a word. If a student knows the definition, he or she can progress on the board the number of spaces noted on the card.

The second teaching method for practical intelligence is rehearsal. Rehearsal is like practicing for a playsaying and repeating the skills. The trick is to get students to rehearse or to say what is to be learned aloud without making the activity seem like a drill or a boring, repetitive task. You might have students work in pairs. You can prepare a list of questions, and one member of the pair can ask the other member to repeat the skill, definition, or fact. Or you might ask the group or individuals questions that require them to repeat the skills.

Accessing the Unconscious with Practical Intelligence

The practical intelligence method for accessing the unconscious is art, because it is hands-on and thereby uses the kinesthetic sense. Some teachers are intimidated by the idea of incorporating art activities into a lesson because they feel incapable of creating art. Many people have been taught that only artists can create art.

You need not worry about this when using the Learning Wheel, which encourages the use of art as an expressive process. By including art media in your lessons, you are not so much teaching art as giving students an opportunity to express themselves nonverbally. This opens up the learning capacity of the unconscious mind. Students do not need to learn specific art skills

or become artists. Instead, they will use art media intuitively to express information from the unconscious mind. Teachers need to have a nonjudgmental attitude to be successful at getting students to use art to open up the unconscious mind. Whatever the students produce, as long as they take the task seriously and show effort, is acceptable.

Both colors and symbols talk to the unconscious mind, so it is beneficial to incorporate these in art activities. Using colorful markers, paints, pencils, or crayons and presenting symbols for students to incorporate in their art will enhance the effectiveness of the activities. For example, in a math class, students could make a collage of triangles and paint the formula for finding the area of triangles to activate the unconscious mind's learning capacity.

Modalities

The primary modality used for practical intelligence is the kinesthetic sense. The visual sense is also used, since students look at materials while they are constructing them. The auditory sense is used when students hear themselves, peers, or the teacher repeat facts or skills during rehearsal.

Learning Objectives for Technical Intelligence

The learning objectives in technical intelligence have to do with a rule, strategy, or guideline that can be used to solve problems. These objectives are more conceptual than the skills taught in practical intelligence (see figure 3.3). Examples are guidelines for organizing and writing a paper, clues to be used to answer questions, or strategies to solve problems. In effect, the objective is to give students a method they can use to solve a problem or find a solution. This objective focuses the student's attention on the critical element of a task that can be used to find an answer. For example, in a math lesson on story problems, the guideline would help a student locate the unknown variable within the text. If students are able to do this, then they can effectively solve the problem.

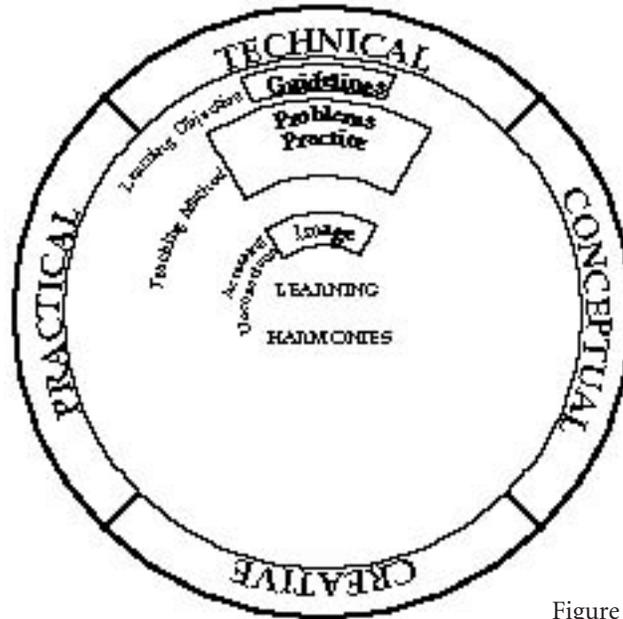


Figure 3.3. Pie of Technical Intelligence

Examples of Guidelines to Teach from the South

Grade Level	Subject	Topic	Guideline
Primary	Language arts	Recognizing sentences	Sentences begin with a capital letter and end with a period.
Intermediate	Language arts	Locating the main idea	How to read a paragraph to understand the most important point.
Secondary	Mathematics	Equations from word problems	Identify the unknown.
Intermediate	Science	Ecological interdependence	Each organism has a relationship to another organism in an ecosystem.
College	Psychology	Maslow's actualizing tendency	Understanding Roger's techniques for setting up an environment to activate the tendency (i.e., trust, unconditional regard, and empathy).

Teaching Methods for Technical Intelligence

The teaching method for technical intelligence is giving students many problems and a lot of practice. Students need a great number of opportunities to apply the guideline or rule of the learning objective. As with the above rehearsal method for practical intelligence, it is important to vary the practice so that it does not become boring. Rote drill teaches students to tune out. Variety and creativity in practice will enhance their ability to pay attention.

The wheel prescribes two levels of problems to teach technical intelligence: easy problems and more difficult problems. The easy problems are straightforward and are a literal application of the guideline.

Beginning problems can be designed to be inductive, leading students to discover the rule themselves. This is done by giving students a number of examples of the guideline. For example, if the guideline to be taught is finding the main idea in a paragraph, you could provide five paragraphs with the main idea underlined. Then you could divide the class into dyads or cooperative groups and ask them to come up with a guideline for how to figure out a main idea. The students use inductive thinking to figure out the guideline. Similarly, if you are working with algebra problems with one unknown, you could show students a number of problems that have been solved and ask students to figure out how the answer was derived.

After students have experience with easy problems, you can present harder problems that ask the student to transfer the guideline or rule to a new situation. This requires the student to internalize the rule or guideline. Internalization of knowledge is important, since it is one of the end goals of education. The learner has made the rule his or her own and can apply it when the need arises.

Accessing the Unconscious with Technical Intelligence

Imagery is the way to access the unconscious in this intelligence. In the simplest sense, imagery is seeing pictures in the mind, but it is more than that. Imagery is also experiencing an internal sensation from any modality without an external event to prompt the sensation. A person may hear a sound, smell an odor, taste something, or feel

something without external input. All of these internal sensations can be considered images. Imagery is powerful in storing and awakening memories, evoking an affective response to teaching, and stimulating creative ideas. Students who excel at science and math are usually high imagers; they often see pictures in their minds to work out problems. Since imagery is such a strong tool for opening the unconscious, I include a special section on imagery in chapter 4.

Imagery is a teaching method that makes the content of a lesson more concrete and meaningful to a student. The basic rule in leading an imagery exercise is to stress all perceptual senses and start the imagery script by describing an initial scene in detail. Three kinds of imagery are used in the Learning Wheel lesson plans in chapter 6. These are imagery for memory, creativity, and content. Chapter 4 has examples of each type of imagery exercise. Lesson plans in chapter 6 also prescribe imagery exercises for certain lessons.

Modalities

The primary modality used in technical intelligence is visual. Students look at problems to solve them and look at pictures in the mind.

Learning Objectives for Conceptual Intelligence

In conceptual intelligence a student understands several abstract ideas and can move them around in his or her mind, comparing and contrasting, or combining the ideas. This intelligence deals with ideas, concepts, and underlying principles that explain things (see figure 3.4). Conceptual intelligence is often included in curriculum under the name critical analysis and is seen as a product of higher-order thinking skills curriculum. Higher-order thinking lessons are based on a taxonomy, or a series of levels of learning that proceed from simple to more complex. For example, literal or rote learning would be at the bottom level of a taxonomy, and evaluation or synthesis would be at the top.

Evaluation is looking at all the information about an idea and then making a judgment about the information. For example, after students have read a story, a teacher might ask an evaluation question such as, “Would you have acted like the main character in this situation?” Or “How did the author use metaphors to make the content more vivid?”

Thinking that involves synthesis is putting two or more ideas from different sources together in a new way. A student could demonstrate synthesis by answering the question “How is a sentence structure used by Hemingway different from or similar to one used by F. Scott Fitzgerald?” Of course, taxonomies apply not only to literature but to other subject areas as well.

In a Eurocentric model of education, acquiring conceptual intelligence is usually the end goal of the taxonomical hierarchy. However, in the wheel model, even though conceptual intelligence is important and needs to be addressed, it is no more important than the other intelligences.

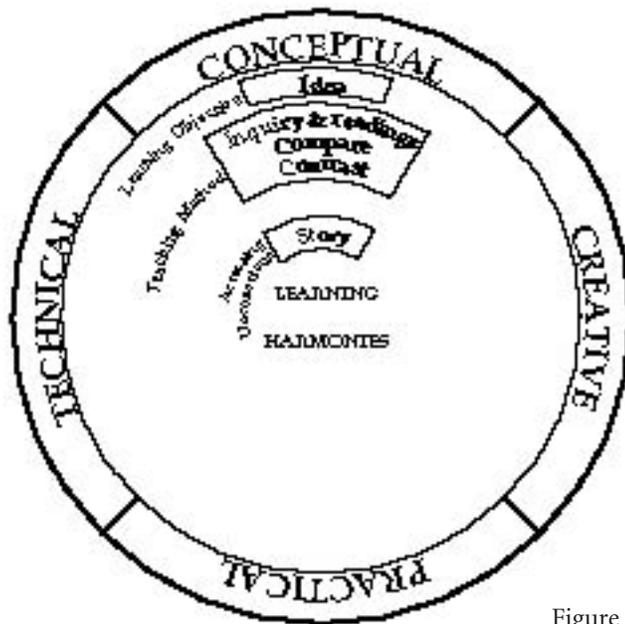


Figure 3.4. Pie of Conceptual Intelligence

Examples of Innovation to Teach from the North

Grade Level	Subject	Topic	Idea
Primary	Language arts	Recognizing sentences	Sentences begin with a capital letter and end with a period.
Intermediate	Language arts	Locating the main idea	How to read a paragraph to understand the most important point.
Secondary	Mathematics	Equations from word problems	Identify the unknown.
Intermediate	Science	Ecological interdependence	Each organism has a relationship to another organism in an ecosystem.
College	Psychology	Maslow's theory of self-actualization	Humanistic psychologists were motivated to develop a "wellness" model of human development, as opposed to creating a model based on studying mentally ill people, as Freud did.

Teaching Methods for Conceptual Intelligence

A primary teaching method for conceptual intelligence is assigning **readings** and then using **inquiry** to review the concepts in these readings. Inquiry is essentially asking questions in the manner that has come to be known as the Socratic method. Socrates taught by asking his disciples questions that would exercise their minds. This is not factual or rote learning and should not be confused with a questioning method designed to aid in remembering information, as might be done in practical intelligence. Questions asked to develop conceptual intelligence encourage students to think on a deeper level by prompting students to look at underlying concepts. For example, "What do you think is happening here?"

Often there is no right answer in the inquiry method. Yes or no answers or specific facts are not appropriate responses to inquiry questions. Instead, what is called for is an opinion or a synthesis of facts with previously learned facts, based on reasoning. Instead of getting the “right” answer students must support with reasoning their answers or opinions.

In this section of the wheel, you may need to assign a reading before the inquiry method is used. If you are spending about a day on each intelligence, you might devote days 3 and 4 to conceptual intelligence. Day 3 could be devoted to reading and day 4 to inquiry. Alternatively, you could assign readings the night before day 3.

Another teaching method for conceptual intelligence is asking students to compare and contrast ideas. This gets students to exercise their abstract reasoning ability. See lesson plans in chapter 6 for examples of this method.

Accessing the Unconscious in Conceptual Intelligence

To bring in the power of the unconscious mind, the wheel prescribes using stories for this intelligence. You can exemplify a concept through a concrete story. This vivifies the content and enhances memory by giving a context. For example, telling a story about Newton working out the principles of gravity by throwing balls off of towers will aid students in comprehending the abstract idea of gravity. It is important that the story be told dramatically, as opposed to a dry recounting of facts.

Since the unconscious mind is nonrational, the stories used to back up conceptual intelligence do not have to relate totally to the concept in a logical manner. Stories can be tangential to the concept. You can find stories from literature that relate to the topic involved. For example, excerpts from *Moby Dick* can be used in a unit on whales. Readings from humanities can be used to teach science, social studies, or mathematics. The wheel helps teachers take an interdisciplinary approach to lesson planning.

Stories can also be human interest pieces from the news, stories of people who have contributed to the field you are studying, or stories from students’ or teachers’ lives. Such anecdotes add a human dimension to the topic.

Modalities

The primary modality of this intelligence is the auditory sense. The visual sense is a supportive modality since students may picture concepts in stories. Good storytelling evokes very vivid images in the mind.

Learning Objectives for Creative Intelligence

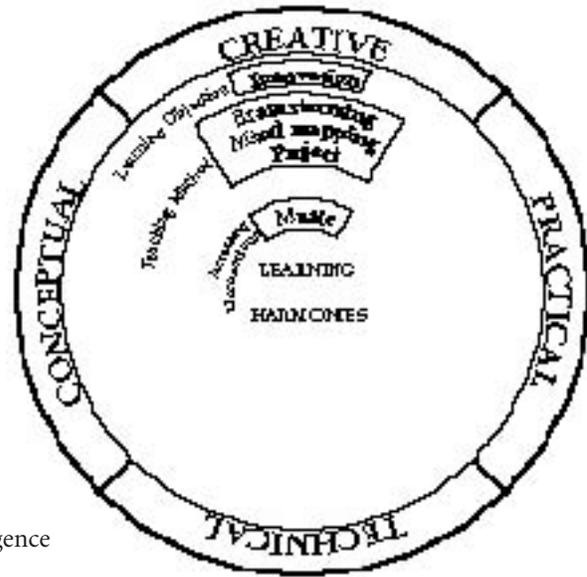


Figure 3.5. Pie of Creative Intelligence

The learning objective for creative intelligence is innovation (see figure 3.5). By this I do not mean to imply that students must come up with totally new ideas. Innovation can imply something novel within the context of a student's own thinking, not necessarily new in relationship to human thinking. With this intelligence students are applying the ideas learned through the other three intelligences or creating something on their own to reflect their learning. The north, or creative, sector of the wheel gives an opportunity to synthesize. This is further internalization of the learning process. The student has made the learning his or her own and now can express it in a tangible form. Students need a vehicle for innovation, so the learning objective in this direction is often a student project or paper.

Examples of Innovations to Teach from the North

Grade Level	Subject	Topic	Innovation
Primary	Language arts	Recognizing	Students make a card with a sentence or sentences written on it to send to a friend.
Intermediate	Language arts	Locating main idea	Students write a paragraph after first determining a main idea for the paragraph.
Secondary	Mathematics	Equations from word problems	Students write story problems for other students to solve.
Intermediate	Science	Ecological interdependence	Students draw the organisms and arrows of interdependence for a given ecosystem.
College	Psychology	Maslow's theory of self-actualization	Students create a classroom model for awakening the actualizing tendency.

Teaching Methods for Creative Intelligence

Research on creativity shows that **brainstorming** is the primary teaching method for creative intelligence. Brainstorming is a way of coming up with answers to a question, ways to solve a problem, or concepts to use to organize an idea. This technique can be used to help students get started on projects. For example, if you were the teacher who was working on the college lesson about self-actualization theory, you might ask students in pairs or in groups to come up with as many ways as they can to create a classroom environment that awakens the actualizing tendency.

For brainstorming to be successful, you must adopt a nonjudgmental attitude toward student responses as long as students are taking the task seriously. However, a little silliness may be in order, since silly answers are sometimes very useful in brainstorming. The goal is to come up with divergent, seemingly unrelated ideas that can be combined in a novel way. The fear of failure, anxiety about performance, or tension about a teacher's possible response will stifle creativity. You will need to tolerate open-ended responses that have no obvious, logical relationship to the question. There is no "right" answer; in brainstorming anything goes. Often after students seem to run out of responses, the more creative ideas will emerge. In other words, when students stop trying and become a little punchy, the conscious mind seems to let go, and the unconscious opens up with ideas.

Mind mapping is a good technique to use to make brainstorming concrete and effective. It is a visual method of organizing information and has been documented by Tony Buzan (1976) and Nancy Margulies (1991). A circle, with a topic or question inside, is drawn in the middle of a piece of paper. Lines and circles are drawn from the main circle to denote ideas produced by the brainstorming. Using colored pencils or markers is very effective since colors seem to have special meanings to the unconscious mind. It is good to let students choose the colors they use in creating their mind maps. Students can mind map individually or as a group. It is best to model mind mapping with the entire class before having individuals or pairs of students mind map. Figure 3.6 is an example of a mind map dealing with the question of setting up an environment that awakens the actualizing tendency.

After a mind map is complete, the rational, conscious part of the mind takes over to figure out how to communicate the information that has been generated. Students pull together related ideas from the mind map by drawing big circles around all the ideas that go together. The students can then put the information into the order in which they will address it in their project or paper. This process is shown in figure 3.7.

You can use this technique to generate ideas in your own work (e.g., lesson planning or planning a special event). You can also use it in any learning task where idea generation is essential, such as writing a paper or working on projects. Mind mapping has never failed me in helping students write papers, even those students with learning disabilities who have difficulty with written expression.

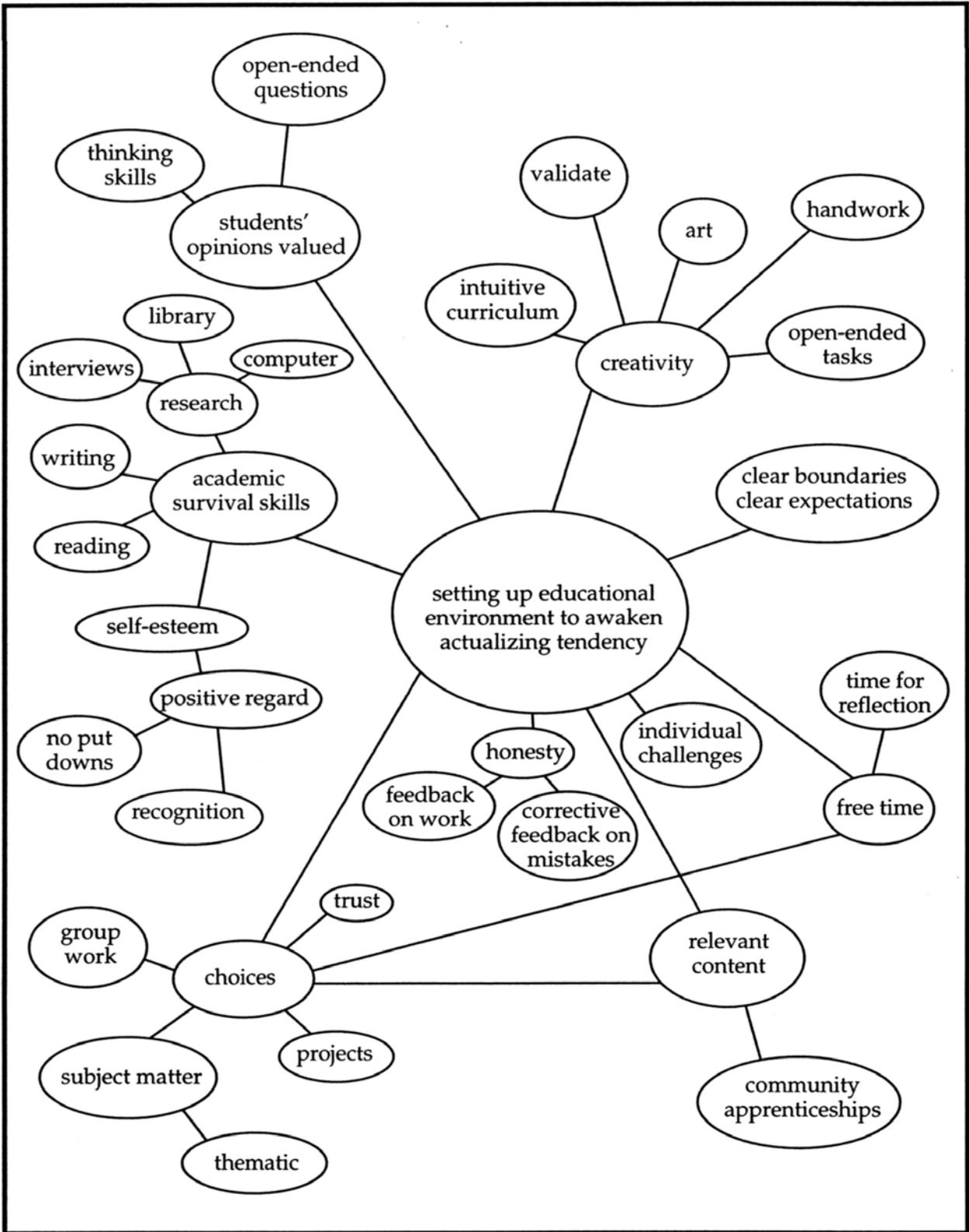


Figure 3.6

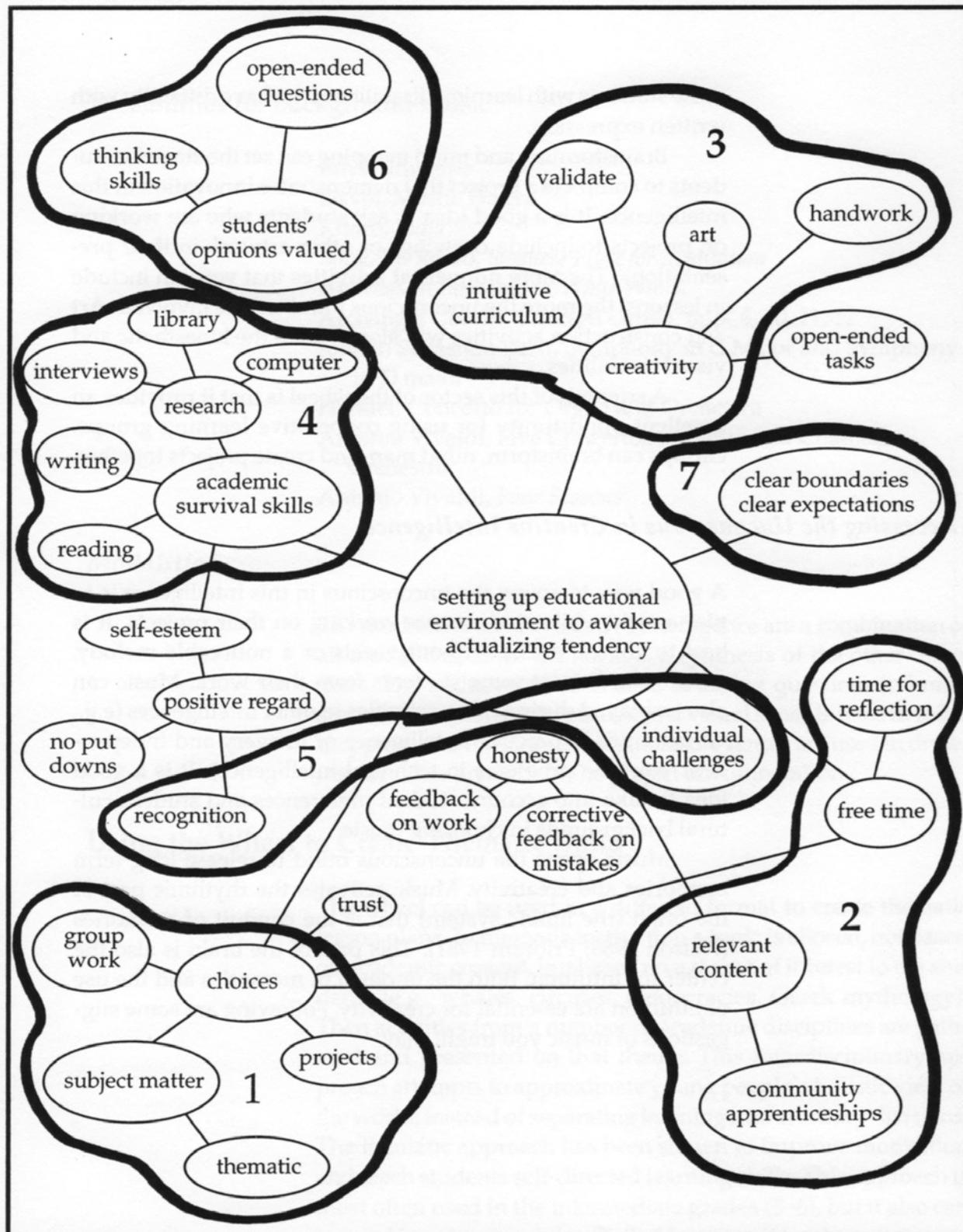


Figure 3.7

Brainstorming and mind mapping can set the stage for students to complete a project that demonstrates innovation in this intelligence. It is a good idea to ask students who are working on projects to include drawings or other artwork in their presentations. The more nonverbal activities that you can include in lessons, the more the unconscious mind will be involved. Art and construction activities will also involve the kinesthetic and visual modalities.

A strength of this sector of the wheel is that it provides an excellent opportunity for using cooperative learning groups. Groups can brainstorm, mind map, and create projects together.

Accessing the Unconscious in Creative Intelligence

A good way to access the unconscious in this intelligence is to play music while students are working on their projects. It is best to choose music without vocals or a noticeable melody, which can distract some students from their work. Music can also be played during other activities in other intelligences (e.g., art activities in practical intelligence or imagery and independent work on problems in technical intelligence). It is a good idea to take into account student preferences and student cultural backgrounds in choosing music.

Music opens the unconscious mind to release long-term memories and creativity. Music activates the rhythmic part of the brain (the limbic system) that is the conduit of memories (Nelson 1988; Pribram 1981). This part of the brain is also the center for intuition. Both the retrieval of memories and the use of intuition are essential for creativity. Following are some suggestions of music you might play.

Possibilities for background music

Enya, any tape
Davol, *Mystic Waters*
Kitaro, *India*
Sohkabu Reibo, *Japanese Flute for Meditation*
Andreas Vollenweider, *White Winds*
Archangel Corelli, *Concerti Grossi*, opp. 4, 10, 11, 12
Johann Sebastian Bach, *Symphony in C Major and Symphony in D major*
Handel, *Concerto for Organ and Orchestra*
Antonio Vivaldi, *Five Concertos for Flute and Chamber Orchestra*
Antonio Vivaldi, *Four Seasons*

Modalities

The modalities used in creative intelligence are a combination of all modalities, since the north is a synthesis of the other directions. The auditory sense is used in asking questions in brainstorming and listening to music; the visual sense is used in mind mapping; and the kinesthetic and tactile senses are used in drawings or other artwork in the project documentation.

Using the Wheel to Create Thematic Units

The wheel can be used in a different format to create thematic lesson plans. In thematic instruction a topic is chosen, not based on academic content, but based on a theme of interest to the students (e.g., whales, circuses, democracies, Greek mythology). Then activities from a number of academic disciplines are gathered and presented on that theme. This interdisciplinary approach attempts to approximate young people's holistic view of the world, instead of separating learning into arbitrary divisions. The thematic approach has been shown to improve motivation and teach students self-directed learning skills. This approach is most often used in the intermediate grades (36), but it also can be used in primary grades (K2). However, if teachers can cooperate in terms of curriculum planning, it would be possible to use this approach with students in middle school or secondary school.

You can use the wheel for thematic planning by assigning a subject to each direction and then rotating through the subjects. The objectives and teaching methods for each of the directions would be used to plan the instruction for each subject. Assign subject matter in the following manner:

EAST—Science

SOUTH—Math

WEST—Social sciences

NORTH—Language arts

An example of using this thematic approach for lessons about whales could look like this:

EAST—Science

Objective: Skills. Names of whales, characteristics of whales.

Method: Action/Movement. Create a chart of whale species and their characteristics.

SOUTH—Math

Objective: Guideline. How to chart migration routes, how to figure out the volume of water that a whale displaces.

Method: Practice. Using resources, chart migration for three species of whales. Students will find out average weights for mature male and female whales of each species and then will compute the volume of water that is displaced by these “average” whales.

WEST—Social Sciences

Objective: Idea. Humans’ effects on whales.

Method: Reading and Inquiry. Students read sources on contemporary whaling. Students create questions to use in class discussion; include questions that compare and contrast information.

NORTH—Language Arts

Objective: Innovation. Personal response to whales.

Method: Project. Students create a portfolio of drawings, poetry, and writings about whales.

See chapter 6 for another example of how to use the wheel for thematic units.

Using the Wheel for Classroom Environment

The wheel can also be used for setting up learning centers in the classroom. The cardinal directions can be posted on the appropriate walls of the classroom. Independent activities can be placed at a learning center in each of the directions: practical in the east, technical in the south, conceptual in the west, and creative in the north.

For example, given the topic “dividing fractions,” the following centers could be set up.

EAST: Definition of terms

Game with a partner to name parts of fractions
Activity to cut circles to represent a fraction

SOUTH: Rule for dividing fractions

Sheets with problems to solve with the guideline on the top

WEST: Concept of dividing fractions

Student finds another student and explains how to divide fractions.

NORTH: Project to divide fractions

Students divide the measurements for ingredients of a no-bake cookie recipe for 24 cookies into eighths (to make 3 cookies for each group of students). Recipe includes fractional measures. Students make cookies and taste them to see if their division of the measurements of the ingredients was correct.

Other Strategies with the Wheel

Using students' strengths to bring up weaknesses in learning. Even though there is great variation within ethnic populations on preferred modalities and cognitive processing styles, some research shows certain general preferences within ethnic groups. For example, some American Indians prefer the visual and kinesthetic styles, some African Americans prefer the kinesthetic style, and some Asian Americans prefer the visual style. See Appendix D for more detail.

Note that it is dangerous to stereotype people and that there is always variation within any ethnic group. However, if you notice that some students appear to have a certain preference for a modality or processing style, then you can use the wheel as a means to help students access their strengths, then move into areas in which they are not as strong. For example, if students appear to be strong in practical intelligence and its modalities but weak in conceptual intelligence, you can begin with the practical intelligence and move through technical to conceptual. This will allow students to gain exposure to the topic using their strengths before they move into modes of processing that are more difficult for them. Alternatively, if students are very strong in conceptual intelligence but have very little practical intelligence, you can begin on the wheel in the west and move clockwise through the other intelligences.

Mind mapping with the wheel. The basic wheel with the five intelligences noted can be used as a mind mapping tool. For example, if you want to brainstorm to create a curriculum, you can use the intelligences as a guide to note various topics. See figure 3.8 for an example of using the wheel to mind map a teacher education curriculum.

Mind Map Curriculum Development for Teacher Education

WHEEL INTELLIGENCES

CONCEPTUAL INTELLIGENCE

Analyzing

- humanistic psychology
- ethics in teaching
- role of teaching in society
- role of teacher
- multiculturalism
- diversity in education
- effective models

CREATIVE INTELLIGENCE

Wondering

- holistic education
- experiential education
- use of intuition
- whole language
- creating one's own curriculum
- storytelling
- art media

EXPANDED INTELLIGENCE

Opening

TECHNICAL INTELLIGENCE

Solving

- subject matter in teaching fields
- tests and measurements
- qualitative assessment
- recordkeeping
- report writing
- practice teaching—lots of it

PRACTICAL INTELLIGENCE

Doing

- how to lesson plan
- how to set up behavior management
- how to communicate with students, parents, and staff
- how to set limits, clarify expectations
- observation of teaching
- how to set up the physical space
- how to individualize

Figure 3.8. Mind Map of Teacher Education Curriculum

Using the discovery approach. Even though most wheels are used by beginning in the east, you might want to experiment by beginning in the north and then proceeding clockwise around the wheel. In this way, instruction can begin with an open-ended discovery activity before proceeding to the skills of the east. See discovery lesson plan on seed dispersal in chapter 6 for an example of this order.

Summary

Not only can the wheel be used for lesson planning, but also it provides a conceptual framework for designing all levels of learning. It is, in effect, a curriculum-making tool that will create holistic curriculum for all age levels. The wheel can be used for a week's lesson on a given topic, a thematic unit, a whole year's curriculum in a given subject, a curriculum for a school year that covers many subject areas, or a curriculum at a college level.

- Use the wheel to plan lessons. Decide on a topic or theme.
- Begin in the east, determine objective, method, and a way to access the unconscious.
- Proceed clockwise to each intelligence.
- Present the lessons to students, taking one or more days for each intelligence.
- Use the wheel for thematic instruction by assigning a discipline to each direction (eastscience, southmath, westsocial sciences, and northlanguage arts).
- Use the wheel to set up learning centers in each of the four directions in the classroom.
- Use the wheel to generate a mind map for a curriculum.

4 Intuition, Imagery, and Expanded Intelligence

The Unconscious Mind and the Learning Wheel

A strength of the Wheel Intelligence Model is that it uses current information from brain research to tap the great learning potential in the unconscious mind. Richard Restak (1984), author of the PBS series “The Brain,” has said that only 10 percent of the brain’s six billion neurons and one hundred trillion neural connections is used by the conscious mind. This means that the unconscious takes up a vast amount of the total brain mass. If the unconscious can be opened up and harnessed for learning, students’ potentials will be much greater and teachers’ jobs will be much easier.

THIS CHAPTER WILL

- Discuss intuition and how it relates to the unconscious mind
- Show why accessing the unconscious through expanded intelligence is an essential component to the Learning Wheel
- Explain how imagery is a powerful way of activating the intuition in learning and provide techniques for using imagery in the context of the wheel
- Present information on how expanded intelligence opens the potential of the unconscious mind to accelerate memory, creativity, and higher-order thinking skills
- Explain intuition as the process that presents information from the unconscious mind to conscious awareness
- Describe the expanded intelligence methodologies of art, imagery, storytelling, and music as vehicles for active intuition

INTRODUCTION

This chapter discusses intuition and its relationship to the unconscious mind. It provides sample imagery exercises and tips on developing intuition.

In the Wheel Intelligence Model, expanded intelligence reflects unconscious mind processing. As I mentioned in chapter 2, expanded intelligence deals with nonrational phenomena and is the most creative of the intelligences. The unconscious mind processes information in a way that is not logical, sequential, or linear. It uses a holistic type of processing. Almost by magic, information is recombined and synthesized in the unconscious mind to present insights to the conscious mind. Often there is a waiting or incubation period with this processing. You might think of a question or a problem and hours or days later have an answer pop into conscious awareness. This holistic process of the unconscious is intuition in action.

Expanded intelligence methodologies are intuitive, and they assist in opening the unconscious through imagery, art, storytelling, and music. These methodologies can be seen as the core of the Wheel Intelligence Model; expanded intelligence is in the middle of the wheel. Each of the intelligences on the wheel includes a method for opening the unconscious. This gives the wheel power to accelerate learning by activating the unconscious mind during every lesson. Much as practices of Suggestopedia aim to create an open, intuitive state (Shuster and Gritton 1986), the wheel also aims to awaken intuition to accelerate learning.

What Is in the Unconscious?

One of the many functions of the unconscious mind is to **regulate the autonomic nervous system**, which includes breath rate, circadian or twenty-four-hour rhythms, hormonal cycles, and other body mechanisms. The unconscious mind also stores all types of memories—memories of how to do things, motor movements such as driving a car, memories of faces, memories from childhood, emotional memories, and traumatic memories that the conscious mind suppresses.

The unconscious mind **contains beliefs** about who we are and how we should relate to others. Some of the information is stored in the unconscious preverbally, before the age of about two. This means that we are acting largely out of beliefs that we are not even aware of having. Because the conscious mind works to create a stable reality for people, it acts assertively to block information emerging from the unconscious that may interfere with that stability. There are doors

between the conscious and unconscious minds that are kept closed to ensure our day-to-day survival and stability. But these doors also prevent us from using the many memories and intuitions of the unconscious mind for learning.

In addition to containing memories, motor programs, and family and cultural values, the unconscious **contains an ability to create solutions and insights**. Humanistic psychologists such as Carl Rogers (1969) and Abraham Maslow (1970) have called this ability the actualizing tendency. It is a creative force that guides personal development, leading one toward growth, healing, and learning. This force in the unconscious is the central creative force of the mind.

Teachers can open the unconscious by using the intuitive methods from expanded intelligence to accomplish a number of goals. One goal, for example, is to awaken creativity. Since intuition combines many of the memories stored deep in the unconscious to produce insights, discoveries, and solutions, gaining access to the unconscious will increase our creative capacities.

Teachers can also use intuitive instructional techniques to help students bring long-term memories to awareness. Much subsequent learning rests on the memory of vocabulary words, rules, laws, and problem-solving procedures. Memory is also necessary for higher-order thinking skills. For example, to contrast and compare poems by Dickinson and Whitman, students need to remember the content, or the words and images, of the poems.

What Is Intuition?

Intuition is a feeling or a perceptual sense. In form, intuition is similar to the kinesthetic sense or the feeling of muscles moving. Intuition and the motor or body sense are both in the domain of the unconscious mind; that is, both processes act outside of the conscious mind's awareness. The unconscious mind's process communicates directly to the body sense without the awareness of the conscious mind.

With intuition there is not a logical stream of thoughts but rather a sense of things. Intuition is a form of knowing without knowing why one knows. My dictionary defines intuition as a direct perception without

any reasoning process; insight is an instance of perceiving the true nature of something through intuitive perception. This underscores the emergent nature of intuition as it works outside of conscious awareness. Intuitive insights often pop into the mind in the form of images, sensations, or just a sense of knowing. Intuition is the process that brings information out of the unconscious mind.

Intuition is playful. It operates best when people feel no tension and are not competing or trying to be right. When we play, generally we are not worried about the outcome. One way to think about intuition is that it is the way that young children learn. Children learn best through playing. We may think that adults have outgrown play as a learning mode, but the opposite is true. When a person of any age approaches a task in a playful mood, then the conscious mind is relaxed. The unconscious mind automatically opens. This is why Suggestopedia practices include games, children's stories, and artwork in their methods for adult learners.

Another quality of intuition is that it requires a waiting period. The unconscious mind seems to need time to process in its own unique style. An idea or question is formulated by the unconscious mind and then almost forgotten. After a period of time the answer or information presents itself to the conscious mind.

What Can Intuition Do?

Intuition can **retrieve information from long-term memory**, information that seems to be forgotten. Many students have anxiety about being correct in school and freeze when asked questions or when taking tests. This tension prevents students from accessing memories stored in the unconscious. If students stop trying and relax, often the intuition can awaken memories. You may have had the experience of meeting someone you have met before and not being able to remember that person's name. You try and try to remember, but it is only later, when you have stopped trying, that the name pops into your head. This is intuition in action.

Intuition can **move information into long-term memory without tension**. Since intuition works in a playful manner, the conscious mind is relaxed and open. This allows information to move gently yet steadily into the memory banks of the unconscious mind.

Intuition will **assist with creativity, higher-order thinking skills, and problem solving**. As noted earlier, the intuitive process can recombine and synthesize information that a person may not even be aware of knowing. The intuitive process often creates an “Aha!” response. Suddenly a light goes on in the mind and the student comes up with a new idea.

What Are the Benefits of Addressing Intuition?

Intuition is a holistic process. When you use it in the classroom, you **integrate the emotions** or the affective dimension with education. The part of the brain that activates intuition also regulates emotions. When you include intuition, the affective dimension is naturally included, and issues related to affective development, such as self-concept and self-esteem, can be addressed.

In addition, when you address intuition, you **include the modalities of learning that are often ignored** in classrooms. The modes of the unconscious intuitive process are primarily nonverbal, including movement (kinesthetic), and symbols and imagery (visual). These modes will help you reach learners whose modality preference is usually excluded from the classroom because of the current strong emphasis on linguistic processing in schools.

Another benefit of intuitive instructional modes is that they **activate the imagination**. Playful, non-outcome-based activities help learners flourish through the imagination. Intuitive practices are inherently motivating, because there is no pressure, and students usually enjoy making things with their hands and creating with their minds.

Intuitive practices are interdisciplinary by their very nature. The unconscious mind is holistic, not divided into logical divisions. Therefore, areas within the humanities, such as art and music, can naturally be a part of all instruction.

What Are Methods for Including Intuition in Instruction?

Intuition is aided by including movement in instruction, both full body movement, such as in dancing or walking, and fine motor movement, as is used in construction and art activities. These types of activities tend to move the mind out of the conscious dimension into the unconscious. This gives students practice in the “body sense,” which is closely aligned to intuition.

You can help students tap into intuition by including **visual representations**, in the form of pieces of art (student made or professional), symbols, diagrams, and charts, in the classroom. Teachers need to show through their actions that visual representations are as meaningful as words in expressing and developing learning. This takes planning and a concerted effort, since U.S. school systems generally teach us that the most valuable means of expression are reading and writing.

Intuition improves with **practice**. To improve the intuitive sense and students’ confidence in their intuition, provide regular activities that tap intuitive processes. We all carry cultural programming that tells us intuition is not to be taken seriously, and we therefore need help in overcoming this. Usually from the time students enter first grade, they are taught to be logical and to put aside their daydreaming and imagination. Students need consistent practice to overcome their programming. Like other cognitive processes, such as reading or computing, which improve over time with repeated practice, intuition will also improve.

The **lack of a specific outcome or goal** fosters intuition, which requires an openness or even a “blankness” of the mind. Remember that the conscious mind actually interferes with the intuition. Therefore, the conscious mind needs to be “opened up” to let intuition have its space to bring up insights from the unconscious. A person must, in effect, make a blank screen on which the unconscious can project itself.

Intuition also needs a **lack of tension** to operate optimally. In other words, to foster intuition we must ease the pressure on students to do a good job or get the right answer. The more tense students are, the less intuitive they will be. Also, students need to believe that they have the capacity to sense information through intuition. A belief that one is capable of insight and that one has interesting ideas is essential to the process.

Finally, intuition needs a **period of incubation**, as mentioned earlier. Students need to know that it is necessary to wait on intuition at times. They may begin an activity or start working on the solution to a problem but not know how to proceed. “Sleeping on it” gives the unconscious mind time to complete its unique processing of creation and recombination.

NOTE OF CAUTION: It is important not to jump on the intuitive bandwagon and become dualistic, assuming that intuition is “good” and every other thought form is “bad.” Students still need to learn to reason. Neither mode of thinking, intuition or logic, needs to exclude the other. Even though intuition is different and a little mysterious since it happens outside of awareness, it is just another cognitive skill, like thinking logically to solve math problems. However, since our society has not valued intuition, it may take a little extra effort to include intuitive methods in the classroom.

Practical Pointers

A few practical pointers may help you when using intuitive practices in the classroom. First, you need not use the word intuition or say that you are teaching it. I provide the information in this chapter as a foundation to emphasize the importance of including intuition in instruction, but you may simply include methods from the Expanded Intelligence section on the wheel to make sure that intuition is addressed in the classroom. However, the attitude with which you present these activities will affect whether or not you actually activate students’ intuition. If you include an art activity but you are rigid about how the task is to be performed, tension will lock out the intuition. You will find that an open-ended, accepting attitude is necessary.

It has been said that we teach more through how we act than through what we say. Therefore, the best method for helping students develop their intuition is for you to nurture your own intuition and use it in the classroom. Here are a few “nonrational” activities you could include in your life to strengthen your intuition:

- Color without any purpose for ten minutes, just to see the colors on the page. Do this before writing a lesson plan.
- During a lunch break, go on a walk with no goal in mind just see where the body wants to go.
- Sometime during the day check in with your “body sense.” What’s happening in the muscles of the body? Is there a warm place, a cold place, a tight place, or a smooth place in your muscles?

Imagery and Intuition

Intuitive methods such as art, stories, music, and movement are important and are included in the lesson plans in chapter 6. In this section, I offer imagery as a primary method for including intuition in instruction.

People often report spontaneous imagery pictures or other sensations in the mind as the product of their intuitive insight. Some examples of how intuition presents insights in the form of mental pictures are very well known.

- Einstein “got” the basic concept of relativity when he imagined himself traveling alongside a beam of light. He realized that time would not pass at that speed (Shepard 1978).
- Tesla had worked for years to create an alternating-current motor, without success. One night at sunset he was struck by a blinding yellow light and suddenly saw the motor fully created in his mind (Chaney 1981).
- Enid Boyton, a children’s author, shuts her eyes and sees characters performing and creating a story. She then writes down the story (Sommer 1978).

Natural Process

Thinking in images is a natural human cognitive process. All humans image, or produce an internal perceptual sensation in the mind, such as a noise, a vision, a smell, a movement, a taste, or a touch. Imagery is multisensory and can include all of the senses. You can see a lemon, taste a lemon, smell a lemon, move a lemon, and touch a lemon within your mind all of these sensations are images.

Unique Styles

Each person has a unique imagery style. People usually are either visual or kinesthetic imagers. However, a minority of people are neither. For example, some people are such strong auditory imagers that they cannot see pictures in their minds. The form and intensity of people's imagery also vary. Some have very vivid images; others see or feel vague or amorphous shapes. Still others have images that change quickly or flit from one sensation to another. The best strategy when using imagery in the classroom is to validate each student's personal imagery style. Learners need to be assured that however they image is acceptable. Remember that imagery does not refer to visualization only.

Effectiveness

Imagery has been called the primitive language of the body by psychologist and author Jeanne Achterberg (1985). She makes this claim because she has demonstrated that imagery can control autonomic bodily functions. Her patients with cancer have been able to increase the number of white blood cells in their bodies after imaging an increase. Achterberg demonstrates that, through images, people can affect their blood chemistry, a function previously thought to be outside the control of the conscious mind. Achterberg concludes that imagery can act to direct other functions of the body controlled by the unconscious, as well. Some researchers have reported that imagery can effect changes in autonomic functions such as blood pressure and heart rate.

Achterberg's work demonstrates the effectiveness of imagery. Just as it can increase blood cells, imagery can also affect other unconscious functions, including creativity, memory, and problem solving. Imagery is particularly good at opening the unconscious mind because imagery is nonverbal. Words seal the doors between the conscious and unconscious mind, while images slip in and out cracks in the doors, taking in and retrieving information.

Pointers for Leading Imagery Exercises

- Take time with imagery.
- Let students know that everything is okay.

Eyes can be open or shut.
Students can follow or not follow instructions.
The time can be used simply for relaxation as long as people are quiet and not bothering others.
Any type of imaging is fine, even if a person does not "see" anything.
Students can put their heads down if they wish.
- You might walk around the room as you lead an exercise, encouraging students to be quiet and still.
- Assure students that their ability to image will improve over time.
- Give students a rationale for why imagery is important.
- Write out a few imagery exercises to practice.
- Do imagery exercises regularly in the classroom.
- Start the imagery with a very specific scene stressing perceptual details.
- Talk slowly.

- Keep instructions simple and brief.
- Include many questions to prompt people to pay attention to perceptual details during the exercise. (What colors do you see? Can you reach out and touch something? What is the texture of what you touch? Do you hear anything? Are there any smells?) This makes a person's imagery multi- sensory, and the brain interprets multisensory imagery as if the act is really happening.
- Play music to promote relaxation during the imagery exercise.
- Use your intuition when leading imagery. Don't be afraid to change things or ad lib as your inner sense directs.
- Have a specific ending to the exercise.
- Follow with a debriefing, giving students a chance to talk to the group or a partner if they want to.

Types of Imagery Used in the Learning Wheel



MEMORY IMAGERY OR MENTAL REHEARSAL. This imagery is designed to store information into long-term memory. These procedures stem from sports psychology research in the 1940s showing that practice with imagery is as effective as actual physical practice in improving sports performance. What is important in this imagery is to stress the kinesthetic or the feeling of movement in the imagery.

EXAMPLE: Learning spelling words _____

Rationale for students: Researchers have found that when you practice a skill with imagery, it is just as good as physically practicing that skill. Images open the door to your memories so that you can store facts into your long-term memory. Ancient Greek orators often used images to remember very long speeches. They might have an image for each section of the speech.

Script: *As I say the word and spell the word, see and feel your hand actually write the word. Concentrate on the movement of your hand. Watch and feel your hand move, just as you would feel your foot move if you were pedaling a bicycle.*

(Say a word and spell it slowly. Before spelling the word, say, “Remember to watch and feel your hand writing the word.” Pause at least a minute.)

Now let the image fade. Feel yourself coming back to this time and space.

NOTE: In a research project I found that this type of exercise decreased errors on spelling tests by 50 percent. You can present three words each day; each word should be repeated for at least three days.

2

CREATIVITY IMAGERY. The key in using imagery exercises for creativity is to help students relax and not to try to be creative. The idea is to empty the mind and to give the creative force of the mind permission to produce something novel. This exercise can be used before art activities, writing tasks, or other projects.

EXAMPLE: Creating a design

Rationale for students: Artists create by using the force in their unconscious minds that brings up new ideas. The unconscious mind cannot be contacted with words. Therefore artists think a lot in images. If you can make an image of your artwork before you create it, it is quite possible that you will come up with something novel.

Script: *Take a minute to get in touch with your body. Take your attention to your feet, your legs, your arms, your chest, your back, and your head. Feel your body slowing down. Go to your heart and open a space there as if you were opening a door. Move the energy of your heart down through your chest and down both of your legs. Feel your heart slowing down. Feel your arms and legs getting warmer.*

Relax your feet, your calves, your knees, your thighs. Feel your hands, fingers, and arms getting warmer and heavier. Feel your backbone getting longer, almost as if someone is pulling your head and your legs away from each other.

The task today is to create a design on a piece of paper using cut-outs from other colored paper. Since it is a design, it does not need to look like anything you have already seen.

See the piece of paper that you will use for your base. See it on your desk or table. Now imagine that shapes cut from other colors are moving around, almost as if they were flying in the sky in your field of vision.

(Pause at least a minute.)

Take time to let the colors and forms move of their own accord. If you don't see anything, that is okay. Just stay with the feeling that you had when you looked at the paper that you will use for the base. This feeling may seem like a certain color. If so, start with that color. Or maybe you saw something that looks very vague. If so, just keep looking at the vague form or color and see if it comes into view.

Take time with this.

Now let the images fade and come back to this time and place.

Debrief: Sketch the design with the colors that came in the imagery. If there were no images, just stay with the feeling and try to sketch the first thing that comes to you.

3

CONTENT IMAGERY. The idea in this imagery exercise is to make a concept or principle more “real” by having students see a scene in their minds almost as if they were watching a movie. By using all the senses in this imagery, you vivify the scene, and it is more likely to be remembered. Imagery is a great way to make abstract information in science concrete. As taught in learning theory (Jean Piaget) and in the progressive education movement (John Dewey) the best way to get a concept across is to make it

concrete. Imagery works very well at accomplishing this since learners can create concrete images in their minds.

EXAMPLE: Studying surface area _____

Rationale for students: There is a famous saying that a picture is worth a thousand words. If you can see a scientific concept in your mind's eye, then you are apt to remember it better than if you only read or hear me talk about it.

Script: *A general principle regarding surface area is that the larger a surface is, the greater the heat loss will be. Conversely, the smaller a surface is, the less heat loss there will be.*

Imagine that you are a great big grizzly bear. It is summer, and you are walking around on all fours looking for berries. You are walking in a streambed, with small bushes around you. You look down and see what it is like to have paws with claws. You also notice the color and texture of your fur. Is your fur brown, tan, or blond? What is it like walking on all fours? What is it like to look at bushes when you are as tall as a bear?

You find a lot of berries, pull them off the branches, and gobble them down. Notice the taste of the berries and how it feels to chew them.

Soon you are ready for a nap. You want to find a place in the sunshine to rest. You like the sun because it warms you. You find a place where you would like to take a nap, either on a rock ledge or a soft, grassy bed. Both are in the sun. You stretch out and get comfortable. Your body gets warmer and warmer under the sun. You find that you naturally stretch out even further and put your arms and legs out to both sides. You notice that the more you stretch out, the cooler you feel.

Now let that scene fade. You are still a bear, but it is now November and the snows are falling. You have been stuffing yourself for weeks and there is so much fat around your body that you find it a little hard to move. You are feeling a little chilly even with your layers of fat and fur. Some of the snow on your coat melts as you

move, and the water drips onto your skin. You walk a bit and find a cave to crawl into. As you crawl into the cave you curl up your body, tighter and tighter, until the warmth in the center of your body spreads to every part of you.

How does your body feel when you curl up into a little ball in the cold? (Pause.) How did your body feel when you were stretched out in the sun? (Pause.)

Let that image fade. Come back into this time and space now.

Debrief: Talk in pairs or draw the two scenes of the bear.

4

IMAGERY FOR SELF-ESTEEM, SELF-CONCEPT, AND RELAXATION. Imagery is natural for working with the affective dimension of learning. The same centers of the brain (i.e., the limbic system) regulate both emotion and imagery. Almost all imagery has an emotional component; that is, students feel at the same time that they image. Here are a couple of imagery scripts for learner empowerment that you could use any time.

EXAMPLE: Learning empowerment _____

Rationale for students: Many times we don't learn something or don't try something because we don't think we are capable. Expectations, or what we think will happen, are the biggest determinants of success. Therefore believing that we can learn or can do something is central to a successful learning experience. This imagery exercise is designed for you to create a symbol of success. This symbol will be one that no one else can see, but it will make you feel that you can succeed.

Script: *Having an image in your mind is like watching a movie at a theater. You create a picture in your mind as I talk and then you let that picture roll, just as a movie rolls on a screen.*

See yourself at your desk in school. Start noticing perceptual details, or what your senses take in noises, smells, sights, feelings. What color is your desk? What is the surface like? What does it feel like when you move your hand over it?

Look around you in the image. Whom do you see? Notice details about other students' clothes. What is your neighbor wearing? Who is talking in the image? How many voices do you hear? Do you hear anything outside the classroom from windows or from the hallway?

Imagine that your teacher is handing back some work that you had previously turned in. You feel very good about the work. You tried your best, and you spent time on the assignment. As your teacher hands the assignment back to you, the teacher smiles at you. You notice that "Great job" is written on the paper. You look around the room and feel, "Yes. I can succeed."

Optional addition: Imaginary animal helper

The class is busy working on an assignment, and no one notices you. You have a feeling that time has stopped and something special is about to happen. You are looking at one corner of the room and you notice out of the corner of your eye that there is a movement on your desk.

You look in that direction and there is a little imaginary animal on your desk. You look quickly around to see if anyone else sees, but no one does. Only you can see your imaginary helper on your desk. It can be a real animal or a mythical creature. When you look at the helper you have a feeling inside that you can succeed that you can do things that you can make things happen.

You notice details about the helper the color of the fur or feathers. Your helper will help you when things get hard. You may want to say something to it, or it may want to talk to you.

(Long pause.)

Now let the image of your helper fade, but know you can call it back anytime you want. And no one else will know about the helper. It will be your special friend.

Debrief: Create art, talk in pairs, write in journal, or share with group.

EXAMPLE: Creating an ideal self-image _____

Rationale for students: How you see yourself is important to your school progress. If you don't believe that you can be what you want to be, then you will never succeed. But if you realize that you can make choices to be what you like, your choices will actually happen. A positive self-image will help you succeed in school.

Script: *See yourself outside on a grassy hill. It is during a time of year that you like, and it is not too hot or too cold. You can have other people there if you want. If you do have other people, have them be busy at other things. They do not notice you.*

You start noticing the colors around you. What color is the grass? Are there trees? What are the leaves like? Is there a breeze on your cheeks? Do you hear any sounds, maybe birds singing? Move around the hill for awhile and feel your feet as they move. Pretty soon find a place where you would like to lie down and rest. You lie down and look at the sky. You are feeling happy and are feeling no pressure to do anything. You look up and notice the sky. You notice the shade of blue of the sky, and you may see clouds going by.

Soon you see a gigantic screen in the air. On the screen you see yourself as you would like to be. You notice what you are wearing and how you look. You notice something about the way you look that you really like. It feels good to see yourself that way. You feel proud of yourself.

(Long pause.)

Now let that image fade, but keep that sense with you that you could be whom you like.

Debrief: Create art, talk in pairs, write in journal, or share with group.

EXAMPLE: Relaxation

Comments: Have students take a comfortable position, one in which they won't have to move a lot. Have them uncross legs and put feet on floor.

Rationale for students: Many times we don't do well in school because we are worried or stressed. When we are stressed our bodies secrete adrenalin, and we are in emergency mode. Our mind gets focused and narrowed, and we miss a lot of what we need to take in to learn efficiently. Therefore, it really helps to learn to relax to become a successful learner.

Script: *Start with your toes and give them firm, positive suggestions to relax. Relax your toes on your right foot. Relax your toes on your left foot. Feel your right leg get heavier and warmer. Relax your right calf, knee, and thigh. Feel your left leg get heavier and warmer. Relax your left calf, knee, and thigh.*

Relax your stomach, your lungs, and your heart. Feel air move into the lungs as you inhale. Feel your chest become warmer and heavier.

Now move your attention to your right hand. Relax each of your right fingers. Feel your palm get heavier and warmer. Relax your left hand. Feel each of your left fingers get longer. Feel your left palm become heavier and warmer. See a colored ball in your right hand and see another colored ball in your left hand. You may see red or orange in your right hand. See blue or green in your left hand.

Now go to the base of your spine and walk up your back, vertebra by vertebra. Relax the back of your neck. Relax your ears. Unlock your jaw. Feel that your cheeks are heavier and warmer. Feel that your eyes are like two heavy marbles sinking to the back of your head.

Feel your whole body relaxed and warm.

(Pause for two minutes.)

Now come back to this time and place.

Debrief: Give students a few minutes to reorient to the classroom.

Imagery, Intuition, and the Inner/Outer Brain Model

Some people may say that if intuition is nonverbal, visual, and kinesthetic, then it is really what has been called right-brain activity. Readers not familiar with the right brain/left brain model may not know that the model was developed from research on epileptics who had the 200 million fibers between the two cerebral hemispheres cut (Springer and Deutsch 1981). This created a situation in which the two hemispheres of the brain could not “talk” to each other, or send electrical signals back and forth. Over time these “split-brain subjects” showed odd behaviors, primarily because the language and the visual-motor functions in their brains were separated. For example, after touching something without seeing it, they could choose what they had felt by touch, but they could not name it.

Researchers observing such behaviors began to develop a right brain/left brain model. They described the right side as having the following qualities: intuitive, divergent, sensual, imaginative, metaphoric, horizontal, continuous, concrete, impulsive, free, existential, multiple, timeless, holistic, tacit, subjective, simultaneous, and visual-spatial. The left brain was the opposite, and its functions were described as having these qualities: intellectual, convergent, deductive, rational, vertical, discrete, abstract, realistic, directed, differential, sequential, historical, analytic, explicit, objective, successive, and linguistic.

However, there are several problems with this right brain/left brain model from a physiological viewpoint. First, there are approximately 200 million nerve fibers between the two hemispheres, so electrical signals are zapping back and forth all the time. It is somewhat simplistic to concentrate on one or the other hemisphere as the source of specific activities. Also, there are great variations among people as to where functions are located.

For example, in women the language function generally is distributed across both hemispheres rather than being just on the left side. In addition, researcher Martha Farah (1984) has demonstrated that some functions previously thought to be in the right hemisphere, such as dreaming, are actually the domain of the left hemisphere.

New Model

Many people would consider the functions I have attributed to intuition to be right-brain functions. But my focus on intuition instead of on right-brain functioning opens up the possibility for diverse views of how the brain might work. The intuitive model might be termed an inner/outer brain model.

In this model, the conscious mind is “outer” and the unconscious is “inner,” and intuition provides an interface between the two. Some support for such a model comes from Karl Pribram (1981), who located a number of functions, including imagery and intuition, in the limbic system of the brain. The limbic system is a rimlike structure threading underneath the cortex in the inner brain. Pribram postulated a holographic view of the brain that shows that clarity of thinking is related to the amount of brain mass involved in the thought activity. When teachers use intuition in the classroom, they are activating the inner brain to combine with the processing of the outer brain. The power of thought grows because the amount of brain mass used increases. Intuition can be seen as a way to integrate the outer and inner brain toward the synergy of whole-brain thinking.

Summary

- The unconscious mind has a unique processing mode that is holistic and intuitive.
- Expanded intelligence methods of imagery, art, storytelling, and music tap the intuition.
- Addressing the unconscious mind with instructional strategies will awaken creativity, retrieve long-term memories, and accelerate learning.

- Intuition is similar to the kinesthetic sense or the sense of movement.
- Intuition operates outside of conscious awareness. Insights “pop” into the mind.
- Intuition is playful.
- Intuition requires a waiting or incubation time.
- Methods for including intuition in the classroom are adding movement, using art and symbols, scheduling activities with no specific outcome, reducing tension, and helping students believe that they can be intuitive.
- Imagery is a powerful way to include intuitive practices in instruction.
- Imagery exercises can assist in memory and creativity, enliven academic content, improve self-esteem and self-concept, and help students relax.

5 Cultural Competence

What Are Culture and Cultural Competence?

Culture is the human environment that surrounds children as they grow into adulthood. This cannot really be separated from the natural world, since the physical environment influences certain living patterns and beliefs. This human and natural envelope that surrounds children as they grow includes values and beliefs about how to interact, what is “good” and “bad” or unacceptable, how humans come to know about the world, and what is important in life. Cultures also communicate what they accept as knowledge and what they accept as reality.

THIS CHAPTER WILL

- Define culture, cultural competence, and cultural relativism
- Explain how cultural programming occurs and is stored in the unconscious mind
- Examine the difficulty in working with people of a variety of cultures when interactional patterns differ
- Detail the usual pitfalls in interacting with people of cultures other than your own
- Review concepts of self that impinge on cross-cultural work
- Present techniques for learning about different cultures
- Review techniques for working with parents and students from a variety of ethnic and/or cultural groups
- Foster an awareness that each teacher has his or her own cultural roots
- Share techniques people can use to investigate their own cultural roots

INTRODUCTION

This chapter presents an overview of issues involved in cross-cultural work. Teacher attitudes and teacher awareness are as important in effective instruction as using the culturally compatible instruction recommended by the Learning Wheel. In fact, research documents that the one most consistent variable that predicts student achievement is teacher attitude (Rosenthal and Jacobson 1989). If a teacher knows nothing about working with students from other cultures but can offer respect to others regardless of differences, then that teacher has made great progress on the road to being effective in cross-cultural work.

In this chapter I offer some personal stories from my cross-cultural work. People often have emotional reactions to cross-cultural interactions, since values that they hold dear may be challenged. It is important to keep a sense of humor about oneself, not to take everything personally, and to ride the waves of cross-cultural teaching and interaction.

Everyone Belongs to a Culture

Sometimes people, particularly Americans of European descent, say that they “do not have a culture,” because they do not have specific foods, clothing, dances, or rituals that identify them as unique. But everyone belongs to a culture. The relics and artwork found in museums and the classical music people enjoy are only very specific and limited expressions of culture, but everyone has been raised by humans who have values, beliefs, attitudes, and views of reality. Any culture can contain many subcultures. Irish rock star Sinéad O’Connor came to Los Angeles and concluded that America has no culture since the record industry is based on materialistic, acquisitive values. But she missed the point; these material values define this particular subculture. However, the record industry is only one subculture within Los Angeles. Other subcultures might be labeled intellectuals, Asian Americans, African Americans, Latinos, working-class people, or welfare recipients. And each of these subdivisions could contain subcultures as well. Use the worksheet in Appendix E to help you examine your own culture.

Culture is a varied and complex phenomenon, and everyone is a product of cultural training. Everyone has certain assumptions about life and reality. Some of those assumptions come from the human environment that surrounded people at an early age. Even if people consciously reject their culture, the cultural influences in their background set the stage for them to question their culture. For example, people who eat healthy foods and are interested in spiritual growth might consider themselves to be part of an “alternative” culture. These people are usually well educated and have been raised in a culture that accepts intellectual questioning. This support for questioning the system of which they were a part allows them to create a different subculture.

Cultural Competence

Cultural competence is the ability to communicate with members of a variety of cultures. Cultural competence is not a state of achievement; it is a process of learning how to learn about other cultures. When people come from one culture and move into another culture, they will undoubtedly make mistakes. They will offend people or will do

things that cause others to laugh at them. This is because they do not have the benefit of the unconscious cultural programming that comes at an early age to natives of a given culture. But by developing cultural competence, people gain tools to understand people of other cultures. They can learn how to interact in a way that opens doors rather than creates barriers.

Cultural competence does not mean always understanding or accepting members of other cultures and interacting smoothly. It does mean having the skills to develop understanding of and to communicate with others. A culturally competent person has developed a secure self-image, strategies for non-biased perception, and the ability not to be threatened by difference. This in turn gives a person the strength of self, flexibility, and resiliency needed to move into another culture and to interact effectively.

The Roots of Cultural Programming

Most human beliefs and interactional patterns are stored in the unconscious mind. Such information includes how to greet a new person, how to approach a stranger, what is polite, and what is rude. Much of this is learned through imitation. Parents or significant adults who deal with children do not say, “This is the culture, and this is how you behave.” People model culture.

Cultural Programming

Young children may have been taught, through modeling and imitation, that when they see someone they are to smile and say hi. If these children meet someone they have met before and the person doesn't smile and say hi, the children may automatically assume that the person is not a friend, does not want to interact with them, or does not like them. This processing is happening at an unconscious level and is a result of cultural programming. Techniques for bringing to conscious awareness assumptions about how other people behave can be very useful. These techniques allow people to perceive differences in expected behaviors as cultural differences rather than as insults or rejections.

Unconscious Programming

Unconscious cultural programming also creates reactions to differences in values. For example, the value of individualism and the value of community often come into conflict when different cultural groups interact, because some cultures teach children to be independent, and other cultures teach the value of acting in the best interest of the community. These two values can come into conflict in a school setting. Some students may be doing what they can to get the best grades while other students are doing what they can to help their peers. The two groups would perceive each other as not doing their best.

Behavioral Meanings

Another confusing aspect of cross-cultural interaction is that at times the same behavior can mean very different things in different cultures. Eye contact is a good example of this. For some European Americans, eye contact connotes interest and carries the message “I’m listening.” In some American Indian cultures, eye contact is disrespectful, and lowering the eyes conveys respect. For some Latinos, eye contact conveys sexual interest, and for some African Americans, eye contact signifies confrontation or hostility. Therefore a teacher who makes eye contact may be misunderstood, or students may interpret the contact in a way that is quite different from what the teacher intended. Some students may be offended by eye contact, while some may be encouraged. If students don’t “pay attention” through eye contact, some teachers may assume that the students are not interested. It is important, therefore, that teachers not make assumptions about what eye contact means. Awareness of such assumptions helps teachers screen reactions and better perceive what they are actually communicating.

Attitudes that Hinder Cross-Cultural Work

Paternalism

If you hear a teacher of one ethnic group talking about students of another ethnic group using words such as “poor children” or other sympathetic phrases, then there’s a good chance that paternalism is operating. Paternalism is looking down at another group and wanting

to help that group. It assumes that one group has the answers about reality or about how to live and that another group must be given those answers. The “superior” group is going to make the other group like the superior group and thereby “help” or “fix” the other group. In the 1970s the words “culturally deprived” were used to describe African American children in the inner cities. The unconscious assumption behind this phrase was that the “true” culture was the white middle-class culture. Since African American children did not have the supposed benefit of having this middle-class culture, then they did not have culture. This is a highly paternalistic approach. Of course, African Americans can be members of many different subcultures.

Paternalism is dangerous because implicit in the attitude is the assumption that one culture is superior to another. This could be called ethnocentrism; one assumes that one’s own culture carries the true assumptions about reality and can be used as a yardstick to measure other cultures. The concept of cultural relativism is important here, since it insists that rules from one culture cannot be used to judge another culture.

“Eurocentrism” is a unique form of ethnocentrism. Eurocentrism is defining learning and education based on the cultural traditions of Europe. For example, the “classical” approach to the humanities, stemming largely from the Greeks and Romans, excludes African and Asian traditions. To put a European worldview above others is to promote a false view of the world. Every culture provides a viewpoint but not the whole picture.

To help overcome paternalism, you may want to think about the difference between sympathy and empathy. Being sympathetic toward another person or group of people carries an edge of superiority. It is almost like saying, “I have all the answers, and I feel sorry that you don’t. Let me help you learn them.” Empathy, on the other hand, is seeing from another person’s eyes or walking in the other person’s shoes. It is an attempt to take on another’s worldview to understand a situation. There is no superiority involved. Empathy is a technique that fits the wheel model of understanding diversity, since all cultures and subcultures are on the same level.

Romanticism

Romanticism is in some ways the opposite of paternalism. Instead of looking down at another culture, one is looking up at the other culture, or elevating it. For example, many people are attracted to the mystical view of nature found in various American Indian cultures. This may seem positive at first, since the mainstream U.S. culture puts a high value on technology and tends to examine nature in a mechanistic way. Nature is dissected, analyzed, and used. Therefore, a person may be drawn to another culture's teachings on the sacredness of nature.

It is good to want to learn from other cultures and to have the attitude that other cultures hold information that is missing from our own culture. However, when we elevate information from another culture, making it better than our own, we put people in that culture in an awkward position. We have expectations that every person in that culture has special qualities. Instead of interacting with each person on a one-to-one basis as a human, we interact with people as if they are special in a particular way. If those people do not meet our expectations we are disappointed. Thus romanticism clouds interaction, because our expectations of others interfere with seeing them as they are.

Romanticizing other cultures can interfere with effective instruction. For example, if a teacher has an Asian American student and has made the assumption that Asian Americans are very good at math, what happens if the student is having a hard time in math? The teacher might think the student is not trying, is being lazy, or is being obstinate. The teacher therefore might not extend the same help that he or she would to another student.

Stereotyping

Both paternalism and romanticism are forms of stereotyping. Stereotyping is assuming that all members of a given group have a certain trait; for example, thinking that all African Americans are poor, that all Latino adolescents are gang members, that all American Indians are mystical, or that European Americans are rich. These assumptions are based mainly on the way people look.

Obviously, stereotyping robs people of their individuality and imbues them with a trait that they may or may not have. There may be as many differences within a group as there are between groups. If some members of a group have a certain strength or behavioral trait, there are probably just as many members of that group who do not have that trait. And there are members of other ethnic groups who do have that trait.

Sometimes teachers assume that, because a student is a member of a given ethnic group, he or she is an expert or spokesperson for that culture. For many reasons, this is not a good assumption. For one thing, that student may have parents from two different cultures. Such a student might know both cultures one of which might be the same as the teacher's very well. Teachers must not assume that they know what a student's background is because of the way a student looks.

The best strategy for overcoming stereotyping attitudes is to become aware that all people have them. Admitting to stereotyping of other groups is the first step to changing that attitude. Working on certain behaviors is also useful. Avoid saying "They are," "These people are," or "You people" when referring to a group other than your own. Also, avoid singling out a student from a particular ethnic group when talking about that ethnic group. For example, a history teacher may be talking about the invasion of Pearl Harbor while looking at a student of Japanese descent. It may appear as if the teacher wants feedback or feels that the student has special knowledge of the event. Clearly, the teacher is stereotyping the student as a representative of the Japanese population. The student might feel very strongly that he or she is American rather than Japanese.

Techniques Useful to Cross-Cultural Work

Self-Concept

Even though everyone makes mistakes in cross-cultural work, there are some strategies that can help. Two basic and necessary attitudes are respect for one's self and respect for others. Working on one's self-concept is critical to gaining cultural competence. Many people are attracted to cross-cultural work because they are dissatisfied with or alienated from their own culture.

They may feel rejected by it, or they may feel that they do not belong. These people are looking to another culture for what they are missing.

It is true that we can find in other cultures ways to complement our own background. We can become dynamic creators of our own unique cultures, but it is almost impossible for us to become members of another culture. We do not have the benefit of the early training or know the many unconscious assumptions about values and reality. At a certain point in cross-cultural work, we are turned back to our own roots and culture. “Where did I come from? What were those early influences that made me the way I am?” Therefore, we must always look to ourselves first in cross-cultural work. “Do I know my culture? Do I respect myself? What type of unconscious assumptions do I have about reality, politeness, learning, and so on?” Use the worksheet in Appendix E to help you answer some of these questions.

Some people are drawn to cross-cultural work because of feelings of personal inadequacies. These feelings can occur in the conscious mind or can erupt from an unconscious level. When people do not feel good about themselves, they may compensate for this in one of two ways. The first way is to romanticize another culture and try on some level to become part of that culture. The second way is to react to differences as if the differences are threatening or to overprotect the self by perceiving people who are different as enemies or adversaries. If people perceive incidents or differences as threats to their egos, their minds may push the events into the unconscious and at the same time stereotype the other group in a negative manner.

Therefore, to work effectively in cross-cultural settings, teachers must become aware of their emotional needs and take care of them. Explore your own cultural roots. What do you like about yourself and where did these positive attributes come from? There will probably be aspects of your background that you do not like, but the point is to validate yourself. Celebrate the values you are proud of. Even working on self-esteem will help, because the more secure you feel, the less you need to romanticize or stereotype other cultures.

Understanding Codependency

The concept of codependence is relevant to this discussion. “Codependence” is a term that comes from the systems theory of

alcoholic families. The basic idea is that an alcoholic does not exist alone but within a family system in which other members contribute to the addiction. For example, these members may gain their sense of self-worth by having someone dependent on them. If one person has troubles and another person can be of help, that second person then has a specific role and a way to measure his or her worth. Some people therefore define themselves by making others dependent on them, which is called “codependency.”

The concept of codependence can be generalized outside of an addiction system. If, for example, people like to help those they perceive as less fortunate than themselves, it may be that some of their motivation is not healthy. Helping others may reinforce their sense of being worthwhile and important. This does not mean that all people who help others are codependent or that helping is a conscious attempt by people to make themselves feel okay. It does mean that people need to examine their motivation in helping others. The goal in teaching or helping is to empower others to be independent and respectful of themselves, not to keep them in a state of dependency.

Be Authentic

It is also important not to try too hard to understand another culture. We need to be authentic with who we are. If we are sincere, other people will sense it and forgive our mistakes. But if we are trying hard to fit in or become like members of another culture, other people may become tense and even hostile, especially if they are members of a culture that has been dominated by another culture. Being honest does not always mean that we react to a situation and say what we are thinking. It may be necessary to hold our response.

Let us say, for example, that an environmentalist is sitting next to an Inuit who is eating whale meat. The environmentalist is having a strong negative emotional reaction to someone eating an endangered species. The environmentalist can be honest with the reaction inside but should not be quick to judge the Inuit by expressing an opinion. Inuits have eaten whales for centuries without depleting the number of whales. The environmentalist could refrain from eating the meat to stay true to his or her values but at the same time remain silent.

Observation

Children learn their own culture by watching and imitating. This is a sound natural strategy for adults to use as well when learning about another culture. The strategy is to wait, watch, wait some more, and then try to imitate.

If you have students in your classroom whom you don't understand and with whom interactions are clouded or difficult, you need to step back, stop trying, and watch the students to see if you can discover what is happening. For example, let us say that you have sent a note home asking for a student's parents to come to a meeting at school. After this, you notice that the student becomes very withdrawn and does not complete or turn in homework. What is happening? After watching for a bit, you may see that the student's behavior reflects that the parents interpreted the note as a reprimand. The student now feels ashamed. You could find a time to talk individually to the student and seek advice on the next step. The student may not respond, but you have made an effort. You could find out if it would be appropriate to make a home visit to clarify the situation or whether it is better to let the matter drop. You might also find a way to recognize the student's efforts in a culturally appropriate manner.

Observation also is a great help in learning interactional patterns. For example, you may be going to an event in the students' neighborhood. Perhaps you notice that people do not greet each other when entering but move to the sides of the room to wait for things to begin. You may then do the same, instead of expecting people to come up to greet you.

Intuition

Relying on intuition is very helpful in cross-cultural work. The nonverbal part of the unconscious sends up signals or feelings that can guide a person's actions. The intuitive mind works deep in the unconscious mind, below the level of cultural programming. Therefore, if people can learn to sense their intuition, they can tap a dimension that will give valid information about what is happening in their interactions.

Intuitive feelings may run counter to the advice that the mind provides in a cross-cultural situation. I was once at a meeting where I was the only member of my ethnic group. I represented a college that was trying to deliver services to the people at the meeting. I was attacked in an aggressive manner and challenged on how serious and committed the college was to delivering those services. My mind told me to try to fit in and not to make waves, but my intuitive feeling ran counter to that advice. So I defended myself and the college. After the meeting I thought I had failed, but several people came up to me individually and offered me very helpful information. I realized that I had done inadvertently the culturally appropriate thing in the situation. It was positive in this setting to be warriorlike rather than conciliatory.

Nonjudgmental Attitude

This is essential in cross-culture work. If a teacher's attitude toward another culture is judgmental, students from that culture are going to be alienated. You have to watch, be honest with yourself about your internal reactions, and not react overtly. You can use the skills of observation and intuition to assist in maintaining a nonjudgmental attitude. If an interaction or event is troubling, you can learn to observe your internal reaction before responding and making a judgment. After a time of observing, you will know how you want to respond.

Respect

Students apprehend immediately whether or not respect is shown toward them. Many students will tune out if they do not feel respected. Tangible ways of showing respect are not putting students down, not making stereotypes about groups, not putting down other people's values or lifestyles, and not using words that convey stereotypes. Bringing in music, symbols, writings, and other tangible objects from students' cultures also shows respect. To make appropriate choices that do not offend students, we can ask advice from students or parents.

A British person of African descent once said to me that if she had known that Cleopatra and Moses might have been black, it would have

made a huge difference in her childhood. Because there were no black heroes in her school environment, she assumed she could not achieve within that environment. Research shows that when students of diverse cultures see their cultures represented in the classroom, they are empowered. If students do not see their own culture reflected in the classroom, they will assume that they are not welcome in the environment and will be disempowered.

Teachers can reflect students' cultures by bringing in guest speakers, parents as speakers, and artwork or literature by artists and authors of the students' cultures. Teachers can also schedule field trips to settings where members of the students' cultures are in empowered positions.

Find a Friend

Sometimes a teacher cannot learn anything by observation and cannot get in touch with an intuitive response. Even though that teacher may be offering respect and is being nonjudgmental, communication is still not happening. It is probably time for the teacher to find a friend, someone to go to for advice. However, it is important to note that in some cultures asking questions about how to do things is not appropriate. Also, in some cultures, people may not give straight answers when asked how to do things. They act as tricksters, giving either incorrect or misleading answers. This may be because in the past information has been misappropriated by another culture for its own use, or it could be that people think it is funny to fool other people. Therefore, choose carefully when you are looking for someone to talk to.

Students may not be a good avenue, since some cultures teach young people not to talk in front of respected adults, such as teachers. It is probably best to talk to someone who has made some overture already and who may understand both your culture and the students' culture. If an informal contact does not work out, you might try to contact another professional. Another teacher is a good choice, as is a person who, as part of his or her job, provides cultural information (e.g., a director of an ethnic studies program, director of education for a tribe, or a spokesperson for a community organization). The idea is to find someone who can be asked, "Is it okay if I do this?" or "How do I

handle this situation?” or “What can I do to reach this student?” or “What’s an appropriate way to contact parents?”

Humility

People must never assume that they have achieved a cross-cultural understanding that will allow them to be culturally competent in all situations. Cross-cultural communication is always a process.

No Assumptions about Interactional Patterns

Interactional patterns vary greatly among different cultures. For example, in some cultures it is impolite to say thank you after someone does something for you because it implies that you are surprised that the person did something special. In some cultures people do not greet each other or say good-bye, and in other cultures appearing kind or willing to help is perceived as a weakness. The person who offers the kindness will be attacked or tested in some way. Talking in front of a group is often inappropriate culturally because it draws attention to the individual when the cohesiveness of the group is more important. I have heard some teachers say, “If the students would just talk in class then we could work with them.” It may be that it is inappropriate in the students’ culture to talk in a group. The teacher who makes this statement is showing an ethnocentric attitude. It is the teacher’s job to find out the natural cultural mechanism for prompting a response from students.

It is important for teachers to realize that they have certain expectations that define what is accepted as a response. If what teachers expect is not forthcoming then they might assume there is no response. For example, if parents do not come to a school meeting, teachers might assume that the parents do not care about their children. But this is not necessarily the case. There could be great cultural differences that make a parent afraid of coming to school. If parents do not respond in a way that a teacher understands, then the teacher must find out what is a culturally appropriate way to involve parents. It may be that parents would not come to school for a meeting, but they would come for a community event like a potluck. Parents also might come to a church or to the home of a community member for a meeting but not come to the school building.

Teachers also must be aware that they may misinterpret student behavior, since the same behaviors mean different things in different cultures. For example, students who share work may not be cheating but may be using the cultural value that the good of the community is more important than the good of the individual. Another student who is purposely getting low grades may not be lazy but may be trying not to look superior to other students.

What Do You Do about What You Dislike in another Culture?

Most people find it very difficult not to react to certain cultural differences because those differences violate very personal and important values. Examples could be the acceptance of violence in another culture or the way women and children are treated in another culture. It is difficult to be nonjudgmental and to use cultural relativism in such cases, since it is hard to see from the other cultures' eyes how these situations are acceptable. It is possible to develop some intellectual understanding about how the conditions came about or how societal forces are operating to reinforce values that you find repugnant. However, it is still impossible to accept certain values or actions from the other culture.

The key to this situation is to realize that no one needs to accept or like all aspects of other cultures. In other words, people must validate their own values. However, it is still important to respect individuals from other cultures in personal or professional interactions, to treat people as individuals and not as representatives of their culture.

It is important to make a choice about how to react to what we do not like. Sometimes it may be very appropriate to talk about our values regarding certain issues or to create a dialogue in which people can exchange ideas. This is probably most appropriate after we have become friends with someone from another culture and have established a certain level of trust.

Although it is always important to be authentic with our own beliefs and to offer respect to other humans, at times we may need to draw a line and say that a certain situation is not okay. This may have no effect, since people might not hear us, and it might even be dangerous

to express our opinion. It is best to rely on our intuition about when to be quiet or when to speak up.

What Do You Do When You Are Stereotyped?

When we work with people from cultures other than our own, we may experience being stereotyped as a representative of our culture. Usually the best approach to this form of racism or ethnocentrism is to act from a stance of self-protection. If we want to help others find respect for themselves and their culture, then it is essential that we do the same for ourselves. Stereotyping is never appropriate, and we need to let others know through our words and actions that it is not okay.

If you are in a situation in which stereotyping continues even after you speak up for yourself, you may need to remove yourself from the setting. If you do, you should be prepared for criticism. It may be a no-win situation if you are criticized for being there and also for leaving. You will need to decide what course is best for your well-being and self-development.

The Benefits of Cross-Cultural Work

Cross-cultural work is difficult, and it can even be humiliating when we realize how little we know. But making a connection across cultures can be a dynamic and exhilarating experience. It is energizing to realize that beyond even huge cultural differences, there is a human commonality. Differences and diversity can enrich and strengthen the human experience, since no culture holds all of the answers. Combining the varieties of cultural knowledge found in each direction of the wheel creates the whole of human experience and awareness. Cross-cultural work extends us beyond our cultural programming and strengthens our sense of self and resiliency. Our scope of experience, understanding, and learning capacity grows as a result.

Summary

It all comes down to respect, working on self-esteem and self-love, and learning how to learn about other cultures. Here is a summary of the pointers and techniques to remember:

- Develop your self-concept and self-respect.
- Talk to students one to one. Never correct or reprimand students in front of other people.
- Wait and watch instead of reacting.
- Don't assume that parent or student responses mean what they appear to. Do a little research.
- Be creative and intuitive.
- Feel and validate your own responses without expressing them overtly.
- Try home visits.
- Bring in diverse cultural symbols, art, music, and literature. (Make sure that authors are actually from the culture about which they are writing.)
- Avoid stereotyping, romanticizing, and paternalizing. Avoid using "they" and "these people."
- Examine your own motives.
- Celebrate what you like about your own background.
- Use your intuition to sense what is happening in an interaction.
- Find a friend from the culture in which you are working.
- Find a technique that allows observation without reaction and judgment of others.

6 Lesson Plans

Lesson Plan Chart

TITLE	LEVEL	DISCIPLINE	PAGE	COMMENTS
Career planning for unemployed	Adult	Survival skills	111	
Using “I” statements	College	Interpersonal communication	114	
Recognizing a sentence	Primary First grade	Language arts	117	
Division with remainder	Primary Third grade	Mathematics	120	
Main idea Intermediate	Fourth grade	Language arts	123	
Ecological interdependence	High school	Science	126	
Surface area	Intermediate Fifth grade	Science	129	
Poetry	High school	English	132	
Numbers	Early Primary	Mathematics	135	
Word problems	High school	Mathematics	138	

Lesson Plan Chart *(continued)*

TITLE	LEVEL	DISCIPLINE	PAGE	COMMENTS
American Indian structures	Primary Third grade	Social science	141	
Equations	Middle school	Mathematics	144	
Percents	Middle school	Mathematics	147	
Seed dispersal	Intermediate Fifth grade	Science	150	Begins with North for discovery
Ocean floor	High school	Biology	153	
Maslow's self-actualization theory	College	Psychology		
Metaphors	High school	English	159	
Herbs	Intermediate	Inter- disciplinary	162	Thematic
Whales	Intermediate	Inter- disciplinary	165	Thematic

The Learning Wheel

Lesson Planning Form 1

TOPIC:	Career Planning for Unemployed Adults	
LEVEL:	Adults	
EAST	Practical: Learning to Prepare	
	Objectives	
	Skill to teach	→ How to examine past activities or jobs to find out what skills one has that could be applied to a new job
	Definition of what terms	
	Memory of what words or facts	
	Method: Movement	
	What to act out	→ Students act out past jobs or activities that may seem to be unrelated to their current job interests but may indicate skills that would generalize to other jobs. Other students brainstorm about what skills are needed to perform the job or activity. For example, a housewife in acting out shopping or transporting kids may be showing time management and planning.
	What to make or construct	
	Method: Rehearsal	
	What to write or orally rehearse	→ Students create a mind map of jobs and activities they have been involved in. Students are encouraged to put down everything, even items that seem unimportant.
	Accessing the Unconscious	
	Art activity	→ Students draw portraits of themselves doing something that they are good at.
SOUTH	Technical: Learning to Solve Problems	
	Objectives	
	Rule to learn	→ Skills from one job or activity can be generalized to another one.
	Guidelines to learn	
	Strategy to learn	
	Method: Practice	
	Easy problems to practice	→ Present jobs or activities (e.g., server, fixing the plumbing at home, volunteering for a committee in an organization, finding a safe place to sleep). Students list skills that are necessary to perform these functions.
	Method: Practice	
	Harder problems to practice	→ In pairs, students take one activity or job each has had and list job skills used at that job or activity.
	Accessing the Unconscious	
	Imagery to see: Check type	→ Lead students on an imagery exercise in which they see themselves doing a job they would like to be doing.
	_ Memory _ Creativity x Content	

The Learning Wheel

Lesson Planning Form 1 *(continued)*

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → Every task you do in life requires skills. Everyone has skills that can be applied to something he or she wants to do. People can build confidence based on the skills they already have.

Readings

————→ Bolles, Richard. *What Color Is Your Parachute?* Berkeley, Calif.: Ten Speed Press, 1992.

Method: Inquiry

Inquiry questions to ask —————→ “How do you figure out what skills you already have?”
“How would you determine what skills are needed for a job you might like to do?”

Method: Compare and Contrast

Examples to compare and contrast → “What skills do an executive and a server in a restaurant have in common? What skills do they have that differ?” More compare-and-contrast questions can be generated by having students list jobs they already have and jobs they would like to have. You can combine these randomly to compare and contrast.

Accessing the Unconscious

Story to tell —————→ Tell the story of “Cinderella” and then have students list skills that Cinderella used as a house cleaner and maid. Have students tell which skills could be transferred to her duties as a princess.

The Learning Wheel

Lesson Planning Form 1 *(continued)*

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept



Students can transform the skills they now have and can acquire new skills to get their dream job.

Method: Brainstorm and Mind Map

Brainstorm to do



Students draw pictures of themselves at the jobs they want. On one side of the picture they put the skills they already have that will apply. On the other side of the picture they put the skills they will need to acquire to get the job they want.

Method: Project

Project to do



Students interview someone who has the job they want and find out how the person acquired the needed skills. Students create a plan for themselves to develop these skills (e.g., volunteer at an appropriate place, go to school, read books, etc.).

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]



Students lip-synch to rock-and-roll songs about getting a job. If students think this activity seems too silly, they can listen to background music while creating the picture described above.

The Learning Wheel

Lesson Planning Form 2

TOPIC: Using "I" Statements to Express Feelings

LEVEL: College or high school

EAST Practical: Learning to Prepare

Objectives

Skills to teach → Finding an emotion in the body; sensing it and then labeling it.
Definition of what terms
Memory of what words or facts

Method: Movement

What to act out → List with your students scenes that would usually make someone frustrated, angry, sad, contented, or happy. Students working in pairs choose a scene and then act out the scene.
What to make or construct

Method: Rehearsal

What to write or orally rehearse → Students talk about the feelings they had as they were acting out the scenes. Students choose one scene that evoked a strong feeling. Students find that feeling in their body (e.g., stomach, top of the heart, head). Students describe the feeling to a partner (e.g., "I feel this pressure on my head."). Then students use an "I" statement to express a feeling, such as, "I feel very worried."

Accessing the Unconscious

Art activity → Students draw a picture that conveys the emotion described above. The picture can be any type of representation. For example, it could be a circle, a picture of the student, colored lines, or anything that comes to the student.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn → If one can find an emotion in the body and sense it, then one can name the emotion.
Strategy to learn
Guidelines to learn

The Learning Wheel

Lesson Planning Form 2 *(continued)*

Method: Practice

Easy problems to practice → Talk about the emotions mad, sad, and happy. Ask students to remember a time when they felt one of these emotions. Students find where they feel the emotion in the body (head, heart, stomach, etc.) and tell a partner.

Method: Practice

Harder problems to practice → Ask students to think of a time recently when they had a very strong emotion. Have them find the emotion in the body and tell a partner where in the body they feel the sensation of that emotion.

Accessing the Unconscious

Imagery to see: Check type → Ask students to image a scene of a time when they felt a strong emotion. Have them describe the scene in detail. It is best if students use present tense, describing the scene as if it were happening now. It is also good to stress the perceptual details of the scene.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → When a person uses an "I" statement to express an emotion, it usually does not make another person defensive. It is a way of owning emotions and not implying that another person has created the emotion.

Readings

Method: Inquiry

Inquiry questions to ask → "Why do you think it is helpful to use the body to find an emotion?"
 "Why might your body be better than your head in giving you information about an emotion?"
 "Why do you want to be able to find out what you are feeling?"
 "Why might it be helpful to express the way you are feeling to someone else?"

The Learning Wheel

Lesson Planning Form 2 *(continued)*

Method: Compare and Contrast

Examples to compare and contrast → “What would be the difference between saying ‘I’m sad’ and saying ‘You jerk, why did you leave me alone?’”
“How does anger feel similar to or different from happiness?”

Accessing the Unconscious

Story to tell → Show the movie *The Fisher King* (or another appropriate movie if your students are under 17) and lead a brainstorming session on how the main characters express their feelings.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept → Experiment with ways to find an emotion in the body and use the technique in daily life.

Method: Brainstorm and Mind Map

Brainstorm to do → Ask students to brainstorm ways to use the technique in their daily lives.

Method: Project

Project to do → Ask students to choose one item from the brainstormed list and apply it to their lives (e.g., finding an emotion in the body when they feel stressed during the day; drawing a picture of an emotion each day).

Accessing the Unconscious

Song to play or sing → Play songs about emotions (e.g., love songs and blues songs) throughout the activities, particularly when students are working alone or in pairs.
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel

Lesson Planning Form 3

TOPIC: Recognizing a Sentence
LEVEL: First grade
EAST **Practical: Learning to Prepare**

Objectives

Skill to teach —————> Recognition on sight of the words *I* and *am*.
 Definition of what terms
 Memory of what words or facts

Method: Movement

What to act out —————> Ask students to act out the following sentence:
 What to make or construct "I am (flying, running, hiking, singing, laughing etc.)." Students generate words after you give them a few examples.

Method: Rehearsal

What to write or orally rehearse —————> Put sentences on the board and have students copy one of the sentences that they like.

Accessing the Unconscious

Art activity —————> Have students draw pictures of themselves performing the actions in the sentences they copied.

SOUTH **Technical: Learning to Solve Problems**

Objectives

Rule to learn —————> Sentences begin with a capital letter and end with a period.
 Strategy to learn
 Guidelines to learn

Method: Practice

Easy problems to practice —————> Give students a group of sentences conforming to the "I am . . ." format. Ask students to circle the capital letters and the periods.

Method: Practice

Harder problems to practice —————> Give students another set of sentences, some of which have capitals and periods, and some of which do not. Have students correct the sentences.

The Learning Wheel

Lesson Planning Form 3 *(continued)*

Accessing the Unconscious

Imagery to see: Check type → Lead students on an imagery exercise in which each writes a friend a note. During the imagery, have students watch their hands as they write a sentence beginning with a capital letter and ending with a period.
x Memory x Creativity _ Content

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → A sentence communicates an idea, message, or thought to someone else.

Readings

Method: Inquiry

Inquiry questions to ask → "What is a sentence?"
"Why would someone want to write a sentence?"
"Why do you think there are rules about writing a sentence?"

Method: Compare and Contrast

Examples to compare and contrast → Write phrases and sentences on the board, using simple sight vocabulary that students know. Ask "Which ones are sentences? How do you know?"

Accessing the Unconscious

Story to tell → Think of a topic, for example, going to an ice cream store. Ask students to talk about the topic. Write the sentences students use to talk about the topic, then tell the students the story that they composed. You can also tell a story about a person shipwrecked on an island. The person writes a sentence and puts it in a bottle. In order to be saved, the person must make sure that someone else can understand the sentence. Write several sentences or sentence fragments on separate sheets of paper. Students can choose the best sentence or fragment to put into the bottle.

The Learning Wheel

Lesson Planning Form 3 *(continued)*

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept → Use complete sentences to communicate something important about you to other people.

Method: Brainstorm and Mind Map

Brainstorm to do

→ Students generate ideas on something that is important to them that they want to tell someone else.

Method: Project

Project to do

→ Working individually with you or a parent volunteer during an appropriate time, students dictate and then copy sentences they would like to communicate to someone. They make cards to put their sentences in.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

→ Sing a favorite song with your students and write a sentence from the song on the board.

The Learning Wheel

Lesson Planning Form 4

TOPIC: Division of Two-Digit Numbers with a Remainder

LEVEL: Third grade

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms → Division symbol, divisor, dividend, and quotient

Memory of what words or facts

Method: Movement

What to act out

What to make or construct

→ Write on the board a problem that will have a remainder, whose dividend is two less than there are children in the room. One child has a sign with the divisor on it, one child has a sign with the division symbol, and the rest of the children are the dividend. The divisor puts the dividend children into groups of the divisor number. Children count the groups and the remainder.

Method: Rehearsal

What to write or orally rehearse →

Write the problem and the answer on the board while the students do the same on sheets at their desks. Together, rehearse orally the terms divisor, dividend, and quotient and point out which numbers correspond to the terms in the problem.

Accessing the Unconscious

Art activity

→ Students make up a problem and draw a number of their favorite objects to correspond to the dividend. Students can complete the problem by drawing circles around the correct number of objects.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ Students are to learn the strategy of estimating how many times the divisor goes into the dividend.

The Learning Wheel

Lesson Planning Form 4 *(continued)*

Method: Practice

Easy problems to practice → Give students division problems and have them estimate how many times the divisor goes into the dividend. They will check their estimation by multiplying the quotient by the divisor.

Method: Practice

Harder problems to practice → Give students problems and have them circle the ones that they estimate will have a remainder.

Accessing the Unconscious

Imagery to see: Check type
 x Memory _ Creativity_ Content → Lead students on an imagery exercise in which they see themselves solving problems with remainders successfully. Use specific problems, talk the students through each step of the solutions, and then tell them the answers and the remainders while they see and feel themselves write the answers and remainders on an imaginary page.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
 Concepts to remember → The remainder is what is left over after the dividend has been divided into equal groups.
 Underlying principle to remember

Readings

Method: Inquiry

Inquiry questions to ask → "Why would you ever want to divide numbers?"
 "Why are there remainders when you divide?"
 "What do you think when you divide a number?"
 "What do you think when you estimate an answer?"

The Learning Wheel

Lesson Planning Form 4 *(continued)*

Method: Compare and Contrast

Examples to compare and contrast → Give students two-digit division problems, some with remainders and some without. Have students work in pairs and choose the ones with remainders.

Accessing the Unconscious

Story to tell → Tell the story "Jack and the Beanstalk," only each time Jack climbs down the beanstalk, he brings an odd number of items (i.e., 5 geese that lay golden eggs). When he gets to the bottom, he has to divide the items between his mother and himself. Since he goes up the beanstalk three times, he will always have a remainder. Have students speculate on what Jack can do with the remainder.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept → Have students use division in a real-life situation.

Method: Brainstorm and Mind Map

Mind map to do → Mind map ways people use division in everyday life (i.e., carpentry, sewing, making posters).

Method: Project

Project to do → Ask students to use division to do a project, such as making a poster for the school or making a cookie recipe they have divided in half.

Accessing the Unconscious

Song to play or sing
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.] → Play the song "Breaking Up Is Hard to Do" during the project.

The Learning Wheel

Lesson Planning Form 5

TOPIC: Locating the Main Idea in a Reading Selection

LEVEL: Fourth grade

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts

→ Define what we mean by the main idea in a paragraph or in a story.

Method: Movement

What to act out

What to make or construct

→ Have students read a selection, then work in groups of three to plan, prepare, and act out what they thought the main idea of the selection was.

Method: Rehearsal

What to write or orally rehearse

→ Students rehearse orally the definition of a main idea. They also write out what they determine is the main idea after watching the different groups act out their renditions of the main idea for the reading selection.

Accessing the Unconscious

Art activity

→ Have students read another selection and draw their concepts of the main idea.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ A main idea is determined by reading a paragraph or a story and then thinking about what idea seems the most important to you. The main idea is often in the first sentence or the last sentence. People often have different opinions about what the main idea is. The important thing is for readers to be able to say why they think the idea they chose is the main idea.

The Learning Wheel

Lesson Planning Form 5 *(continued)*

Method: Practice

Easy problems to practice → Give the students a number of paragraphs, each selected from a different story. Have them circle what they determine is the main idea in each paragraph.

Method: Practice

Harder problems to practice → Give students a story to read and ask them to write about the main idea.

Accessing the Unconscious

Imagery to see: Check type → Read a chapter from a children's literature selection. Ask students to visualize the story as you read it. When you have read the story, ask students which mental image was the strongest. This image is probably the main idea.
_ Memory x Creativity _ Content

WEST Conceptual: Learning to Reflect**Objectives**

Ideas to remember

Concepts to remember

Underlying principle to remember → The main idea is pivotal in writing. Writers need to make their main points very clear. When you write something you need to think through the main idea.

Readings**Method: Inquiry**

Inquiry questions to ask → "Why is it important to find the main idea in what you read?"
"After you read something, how do you find out the main idea?"
"Can there be more than one idea in a paragraph or story?"
"How do you determine the main idea, or could there be more than one main idea?"

The Learning Wheel

Lesson Planning Form 5 *(continued)*

Method: Compare and Contrast

Examples to compare and contrast → Give students a number of paragraphs with two main ideas listed for each paragraph. Have students discuss how the main ideas are alike or different.

Accessing the Unconscious

Story to tell → Tell a traditional fairy tale, such as "The Seven Swans," and have students work in pairs to determine what the main idea is. The pairs will present their choices of main ideas to the class.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept → Students can use the concept of the main idea in their own writing.

Method: Brainstorm and Mind Map

Mind map to do → Have students mind map a topic for a story.

Method: Project

Project to do → Have students write a story, making sure that there is a main idea in each paragraph.

Accessing the Unconscious

Song to play or sing
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.] → Have students bring in tapes of their favorite songs. Play the songs while students speculate on the main idea in each song.

The Learning Wheel

Lesson Planning Form 6

TOPIC: Ecological Interdependence

LEVEL: High school or junior high

EAST **Practical: Learning to Prepare**

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts



Ecological interdependence in an ecosystem

Method: Movement

What to act out

What to make or construct



Go on a walk with your students; as you walk, have students point out and describe examples of interdependence among insects, animals, plants, and earth.

Method: Rehearsal

What to write or orally rehearse



Have students write, repeat aloud, and match terms with definitions.

Accessing the Unconscious

Art activity



Ask students to make collages from magazine pictures of animals and plants in a given ecosystem. Ask students to draw arrows to note what organism is dependent on other organisms.

SOUTH **Technical: Learning to Solve Problems**

Objectives

Rule to learn

Strategy to learn

Guidelines to learn



Ecological interdependence means that each organism is essential to the ecosystem.

Method: Practice

Easy problems to practice



Give students cards with plants, soil types, weather conditions, and animals written or pictured on them, one item per card. Have students group the cards into ecosystems.

The Learning Wheel

Lesson Planning Form 6 *(continued)*

Method: Practice

Harder problems to practice → Give students problems in which one specific species is removed from an ecosystem (i.e., the wolf in the arctic tundra). Have students work in pairs to speculate on what changes the removal would make in the ecosystem.

Accessing the Unconscious

Imagery to see: Check type
_ Memory _ Creativity x Content → Lead the students on a detailed imagery exercise in which you describe an ecosystem and all its elements, emphasizing perceptual components (i.e., textures, sounds, noises, colors, shapes). Emphasize the activity in the ecosystem as well so that students get a vivid sense of the interaction between the species.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → Everything in nature is interrelated.

Readings

Method: Inquiry

Inquiry questions to ask → “Why is it important to see an organism as a part of its ecosystem?”
“If one element of an ecosystem is destroyed, what happens to the rest of an ecosystem?”
“Why do humans need to learn the principle of interdependence exemplified by an ecosystem?”

Method: Compare and Contrast

Examples to compare and contrast → How are two ecosystems in Arizona alike and different? You might choose the desert system and the riparian system.

The Learning Wheel

Lesson Planning Form 6 *(continued)*

Accessing the Unconscious

Story to tell



Choose an ecological region and tell a story of the different ecosystems that have developed, flourished, and changed across evolutionary and geological time.

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept



Understand how ecosystem concepts can help prevent environmental destruction. Create a diorama or mural showing a healthy ecosystem.

Method: Brainstorm and Mind Map

Mind map to do



Have students mind map what has happened to a local ecosystem over the last 100 years.

Method: Project

Project to do



Have students document the current state of the ecosystem they live in through drawings, field trips, specimen collection, and bird identification. Students will present their results on a poster or in a journal.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

Have students bring in music that is related to the Earth, such as Paul Winter's music.

The Learning Wheel

Lesson Planning Form 7

TOPIC: Surface Area and Temperature Regulation

LEVEL: Fifth grade

EAST **Practical: Learning to Prepare**

Objectives

Skills to teach

Definition of what terms → heat loss
Memory of what words or facts → surface area

Method: Movement

What to act out

What to make or construct → Take students outside to the playground, first to a sunny area and then to a shady area. In the sunny area, have them sit or lie down with their bodies extended. After five minutes, instruct them to notice how warm or cold they are. Then ask them to curl up, bringing their limbs into their body. After five minutes, instruct them to judge how warm or cold they are again. Move them to the shady area and repeat the exercise. Have students construct a chart counting the number of students who felt warmer and colder in the two positions and in the two settings.

Method: Rehearsal

What to write or orally rehearse → Have students write a poem about stretching out on a sunny day.

Accessing the Unconscious

Art activity → Have students draw pictures of animals hibernating in the winter and taking naps outside in the summer.

SOUTH **Technical: Learning to Solve Problems**

Objectives

Rule to learn → The formula for computing the surface area of a cube ($6 \times s^2$) and a rectangular solid ($6 \times [w \times l]$).
Strategy to learn
Guidelines to learn

The Learning Wheel

Lesson Planning Form 7 *(continued)*

Method: Practice

Easy problems to practice → Model how to draw the sides of a cube on grid paper, then cut the cube out and tape the sides together to construct a three-dimensional solid. Show students how to use the grid to measure the length of the sides of the cube and then to compute the surface area. Have students draw and construct a large and a small cube out of grid paper, computing the surface area of each. Have students speculate on which would lose the greatest heat.

Method: Practice

Harder problems to practice → Have students repeat the preceding exercise for rectangular solids.

Accessing the Unconscious

Imagery to see: Check type → Lead students on an imagery memory exercise in which they review the steps of modeling the solids and then computing the surface area. Have students image choosing one of the solids and rehearse drawing it, cutting it out, writing down the length of the sides, looking at the formula, writing down the formula with the dimensions, and writing down the answer to the problem. Stress all senses and perceptual features (color, texture, movement of hand).
x Memory _ Creativity _ Content

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → The larger the surface area the greater the heat loss. The smaller the surface area the smaller the heat loss.

Readings

→ Have students read stories about animals that hibernate and about structures that people from around the world use. Include indigenous people's dwellings, such as yurts, tepees, and igloos.

The Learning Wheel

Lesson Planning Form 7 *(continued)*

Method: Inquiry

- Inquiry questions to ask →
- “If you were very hot, how could you cool off using the heat-loss principle?”
 - “If you were stranded in the mountains during a winter storm, how big would you make your ice cave?”
 - “How do elephants’ ears act to decrease or increase their heat loss?”
 - “What posture would you take to rest on a very hot day?”

Method: Compare and Contrast

- Examples to compare and contrast → Compare how a bear and a snake reduce heat loss while hibernating.

Accessing the Unconscious

- Story to tell → Tell the story of “The Little Match Girl.” Have students speculate on how the little girl could reduce heat loss so that she doesn’t die from the cold.

NORTH Creative: Learning to Create

Objectives

- How to innovate
How to apply concept
How to create with concept → Have students design a shelter that reduces heat loss. Give them or have them choose a specific climate in which to build their shelter.

Method: Brainstorm and Mind Map

- Mind map to do → Have students work in groups to mind map structures or natural formations (i.e., caves) that they could use to shelter themselves. The structures should utilize the heat-loss principle.

Method: Project

- Project to do → Have groups of students make models of shelters.

Accessing the Unconscious

- Song to play or sing
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.] → Play background music as students complete a project.

The Learning Wheel

Lesson Planning Form 8

TOPIC: Literature: Introduction to Poetry

LEVEL: High school

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms → Meter schemes

Memory of what words or facts

Method: Movement

What to act out

What to make or construct → Read a poem and have students tap out the meter as you read. Have students use visual representations (i.e., dashes or marks) of the rhythms of different meters to make a chart.

Method: Rehearsal

What to write or orally rehearse → Place students into pairs. Have one member of the pair read a poem and the other tap out and name the meter.

Accessing the Unconscious

Art activity → Have students draw or paint a picture after hearing a poem with a strong emotional tone. Emily Dickinson's work would be a good choice for this exercise.

SOUTH Technical: Learning to Solve Problems

Objectives

Rules to learn

Strategy to learn → Rules of rhyme

Guidelines to learn

Method: Practice

Easy problems to practice → Give students a number of poems and ask them to circle rhyming words. Some of the poems should not have obvious rhyming words.

The Learning Wheel

Lesson Planning Form 8 *(continued)*

Method: Practice

Harder problems to practice → Ask students to write a poem using a rhyme scheme.

Accessing the Unconscious

Imagery to see: Check type → Lead students in a visualization in which each is a great prophet in the community. Have them see themselves addressing a group of people, giving a very important message. The message comes out as a poem.
 _ Memory x Creativity _ Content

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
 Concepts to remember → The purpose of poetry is to express emotional content and deep metaphoric meaning.
 Underlying principle to remember

Readings → Give students a variety of readings, including different kinds of poems and some short essays.

Method: Inquiry

Inquiry questions to ask → Divide students into pairs and have them ask each other what they judge the purpose of each piece of writing to be. They should take notes on what they think the purposes are.

Method: Compare and Contrast

Examples to compare and contrast → Ask students to choose which pieces of writing are poetry and which are not. The students are to support their conclusions based on the purpose of the piece.

Accessing the Unconscious

Story to tell → You or a student reads excerpts from Shakespeare's *A Midsummer Night's Dream*.

The Learning Wheel

Lesson Planning Form 8 *(continued)*

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept → Have students write a poem.

Method: Brainstorm and Mind Map

Mind map to do → Have students mind map certain images or emotions that they would like to include in their poems.

Method: Project

Project to do → Have each student write a poem or several poems and illustrate at least one of them.

Accessing the Unconscious

Song to play or sing → Experiment with playing different types of music while your students are working on their poems (i.e., rap, classical, rock and roll, jazz). Since lyrics are a form of poetry, you could also ask students to bring in their favorite "musical poem."
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel

Lesson Planning Form 9

TOPIC: Math: Recognizing Numerals (Visual Representation of Numbers)

LEVEL: Kindergarten

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts → The names of numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (i.e., students would be able to name a number they are shown)

Method: Movement

What to act out

What to make or construct → Choose two numerals each day, write them on as large a sheet of paper as possible, and tape the paper to the floor. Have students walk on the numbers and say them as they do.

Method: Rehearsal

What to write or orally rehearse → Bring tutors into the classroom from second grade. Have each tutor make flash cards, one numeral per card. The tutor will mix up the cards and ask the kindergarten partner to name the numbers. If the kindergarten student is having a difficult time, the tutor may work on only a few numbers a day.

Accessing the Unconscious

Art activity

→ Have students paint numbers and decorate the numbers with flowers, colors, or shapes, or turn the numbers into people or animals.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ Number charts will help students remember numerals.

Method: Practice

Easy problems to practice

→ Have students make a chart with numerals and the correct number of objects next to the numeral. Students can use their favorite shapes for the objects.

The Learning Wheel

Lesson Planning Form 9 *(continued)*

Method: Practice

Harder problems to practice → Show students a given number of objects and have the students write the corresponding numeral on a sheet of paper.

Accessing the Unconscious

Imagery to see: Check type
x Memory _ Creativity _ Content → Show students a large poster of a numeral and ask them to shut their eyes and see the number in their minds. Do this activity with each numeral you want them to learn.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → A written numeral stands for a certain number of things.

Readings

Method: Inquiry

Inquiry questions to ask → Give students sheets with different numbers of objects on them. The sheets imply the inquiry "How many objects are there?" Have the students write the correct numeral on each sheet.

Method: Compare and Contrast

Examples to compare and contrast → Give each student a piece of paper with a number of boxes on it. Each box will have a different number of objects. Have students write the numeral that corresponds to the number in each box.

The Learning Wheel

Lesson Planning Form 9 *(continued)*

Accessing the Unconscious

Story to tell

→ Tell the story of “The Eight Little Pigs.” The story is the same as “The Three Little Pigs,” but you are adding five more. The first pig builds a house out of straw; the second, out of sticks; the third, out of brick; the fourth, out of plastic; the fifth, out of metal; the sixth, out of adobe; the seventh, out of old tires; and the eighth, out of wood. Assign eight students to play the pigs and pin a big numeral to the actors’ shirts. When each pig is mentioned, the student wearing the appropriate number stands up.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept

→ Have students find objects in nature and count the objects.

Method: Brainstorm and Mind Map

Brainstorm to do

→ Take students on a field trip to a park. With your students, brainstorm all the different things to count.

Method: Project

Project to do

→ Divide students into teams. Each team chooses something to count (i.e., trees, rocks, leaves). The teams count the objects and write the correct numeral on a poster.

Accessing the Unconscious

Song to play or sing
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

→ With your students, sing a song with numbers (e.g., “The Ants Go Marching One by One”).

The Learning Wheel

Lesson Planning Form 10

TOPIC: Math: Word Problems

LEVEL: High school

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts → The various types of word problems (i.e., ratio, perimeter, algebra equation) and formulas that go with each type, where appropriate.

Method: Movement

What to act out

What to make or construct → Have students make a chart of the types of problems and the formulas that go with each type.

Method: Rehearsal

What to write or orally rehearse → Give students a word problem that represents each of the above types. Have students label each type.

Accessing the Unconscious

Art activity → Ask students to draw a sketch or diagram to display what is happening in one of the problems.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn → How to identify the unknown.

Method: Practice

Easy problems to practice → Give students a number of word problems. Have the students work in pairs to underline the unknown elements.

The Learning Wheel

Lesson Planning Form 10 *(continued)*

Method: Practice

Harder problems to practice → Have students work in pairs and choose one of the problems to solve. Students will determine the type of problem and the pertinent formula and then write the unknown element and unknown pertinent information from the problem. Students solve the problem.

Accessing the Unconscious

Imagery to see: Check type
 x Memory x Creativity _ Content → Ask students to visualize what is happening in the "story" of the problem that they just solved. You may play music and ask students to sit quietly for 3 to 4 minutes and to review the events in the story problem in their mind's eye, as well as the steps the students took to solve the problem.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
 Concepts to remember
 Underlying principle to remember → The words in the problem represent an equation or series of equations with an unknown element to determine.

Readings

Method: Inquiry

Inquiry questions to ask → Give students a number of word problems. Using the following questions, lead a discussion of each problem.
 "What is the unknown?"
 "What information does the problem give you?"
 "What question do you want to answer?"
 "What type of problem is it?"
 "How could you set up an equation?"

Method: Compare and Contrast

Examples to compare and contrast → Have students work in pairs to take two of the word problems you handed out and determine how the problems are alike and different.

The Learning Wheel

Lesson Planning Form 10 *(continued)*

Accessing the Unconscious

Story to tell

→ Read the following story problem to the students. Ask them to visualize the events in the story as you read: "Students need to be transported to an away game. There is only one bus because the rest of the buses are in the shop. The bus can carry 50 people and will take three hours to get to the other school. The game starts at 7:00 P.M. and there are 230 people who need to go to the game. What time does the bus have to leave on its first trip to get all the people there?"

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept

→ Have students work in groups of 4 to write a story problem for the rest of the class to solve.

Method: Brainstorm and Mind Map

Mind map to do

→ Take your students on a tour of your building, visiting the kitchen, the maintenance shop, the home economics classes, the computer classes, and the technology or shop classes. After the tour, have groups of students do mind maps of possible topics for word problems.

Method: Project

Project to do

→ Have students write problems and compute the answers. The class puts a story problem booklet together that includes advice to other students about how to approach story problems and drawings to illustrate each problem.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

→ Play music as students work on the project.

The Learning Wheel

Lesson Planning Form 11

TOPIC: Social Science: American Indian Living Structures

LEVEL: Third grade

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts → Visual identification and labeling of various indigenous structures including pueblo, brush house, long house, tepee, igloo, cliff dwelling, and nomadic tent.

Method: Movement

What to act out

What to make or construct → Have students choose one structure and construct a model of it.

Method: Rehearsal

What to write or orally rehearse → Have students use pictures of the structures posted in the room to quiz each other on the names of the structures.

Accessing the Unconscious

Art activity

→ Tell students or have them read information about the structures indigenous people in your area lived in. Have students draw a scene of people living and working centuries ago.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ The type of structure used was based on the natural materials available and the climate.

Method: Practice

Easy problems to practice

→ Give students a number of climates and environments and ask them to determine what structure would fit in each environment.

Method: Practice

Harder problems to practice

→ Have students work with partners to choose the structure that would best fit their environment.

The Learning Wheel

Lesson Planning Form 11 *(continued)*

Accessing the Unconscious

Imagery to see: Check type → Lead students on an imagery exercise of a
_ Memory _ Creativity x Content Lakota tribe going on a buffalo hunt, tanning the
hides, and constructing a tepee. Stress the visual
features inside the tepee.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
Concepts to remember
Underlying principle to remember → Indigenous structures are designed to keep in
heat so fuel is conserved.

Readings

Method: Inquiry

Inquiry questions to ask → Give each student a cone-shaped cup and a flat-
bottomed cup of equal sizes. Have students fill
both cups with water.
“Which holds more water?”
“If a tepee is in the shape of a cone, would it take
less or more wood to heat than a square struc-
ture?”
“What other indigenous structures have round
sides?”
“Why do you think they are made this way?”

Method: Compare and Contrast

Examples to compare and contrast → Ask students to find out how much fuel it takes
to heat their homes and to compare it to the
amount of fuel it takes to heat a tepee.

The Learning Wheel

Lesson Planning Form 11 *(continued)*

Accessing the Unconscious

Story to tell

→ Read a story about an American Indian or Inuit group that includes descriptions of their living structures.

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept

→ Students create their own structures.

Method: Brainstorm and Mind Map

Mind map to do

→ Have students work in groups of four to mind map the kinds of structures they could make and the kinds of materials they would need to make the structures.

Method: Project

Project to do

→ Set a day aside for students to build their structures, recruiting parents to help bring materials and to help students implement their plans.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

→ Play music during the mind map session.

The Learning Wheel

Lesson Planning Form 12

TOPIC: Math: Solving Equations with One Variable

LEVEL: Middle or high school

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts → unknown
equal sign

Method: Movement

What to act out

What to make or construct

→ Help students make 3"-x-5" cards with one symbol or number on each. Include the following numbers and symbols: 1, 2, 3, 4, 5, 6, 7, 8, 9, -, +, =, x, y, n, ÷, (,). Write an equation on the board (i.e., $4(x - 5) = 10$). Have students replicate the equation using the cards. Ask students to read the equation, stressing the unknown and the definition that applies. Write other equations on the board for students to duplicate, using different letters for the unknown element. Review the meaning of any symbols that tend to confuse students, such as the parentheses.

Method: Rehearsal

What to write or orally rehearse

→ Give students a sheet with a number of problems that have one unknown element. Have students work in pairs to read the equations to each other, pointing out the unknown.

Accessing the Unconscious

Art activity

→ Have students do a painting or collage incorporating symbols.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guideline to learn

→ The basic guideline in solving for an unknown is that one can do anything to one side of the equation, as long as one does the same to the other side.

The Learning Wheel

Lesson Planning Form 12 (continued)

Method: Practice

Easy problems to practice → Demonstrate how to isolate the unknown on the left side of the equation through a series of operations that you do to both sides of the equations $3x = 12$ (both sides are divided by 3 to isolate the x) and $x + 5 = 10$ (subtract 5 from both sides). You may need to review negative numbers.

Method: Practice

Harder problems to practice → Present the more difficult problems that follow, modeling the solution to each and asking students to work the model at their desk. Then move among the students to check that they are solving the equations.

$$\begin{aligned} 5y + 4 &= 6y - 3 \\ -3(a + 1) &= 6a + 12 \\ -3(n - 3) &= 2n + 5 \\ 8(y + 5) &= -20 \end{aligned}$$

Accessing the Unconscious

Imagery to see: Check type \underline{x} Memory _ Creativity _ Content → Put one equation on the board and model the steps to the solution. Then lead students on a mental rehearsal imagery. As you talk through each step to the solution again, students close their eyes and see the equation, seeing their hands move as they write the steps to the solution and the final answer. Talk through the steps carefully so that students can visualize each step clearly.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → In order to solve the equation, the unknown needs to be isolated on one side of the equation.

Readings

Method: Inquiry

Inquiry questions to ask → Give each pair of students an equation to solve. Students work in pairs to brainstorm by asking themselves questions about how they would solve the equations.

The Learning Wheel

Lesson Planning Form 12 *(continued)*

Method: Compare and Contrast

Examples to compare and contrast → Give each pair of students two equations that have similarities and differences. Each paired team lists how the problems are alike and how they are different.

Accessing the Unconscious

Story to tell → Tell the story of the life of a great mathematician such as Neils Bohr. You could also have books in the class on a variety of mathematicians. Students could read about one mathematician's life and give an informal report to the class.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept → Have students work in teams of four to write guidelines or a step-by-step strategy that will help other students solve equations with one unknown.

Method: Brainstorm and Mind Map

Mind map to do → Have each team mind map ideas for solving the equations.

Method: Project

Project to do → Have each team organize their mind map and write helpful hints for other students.

Accessing the Unconscious

Song to play or sing → Play music during the work sessions.
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel

Lesson Planning Form 13

TOPIC: Math: Percents
 LEVEL: Sixth grade
 EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts



Definition of a percent: 1/100th of the total

Equivalent relationship between percents and decimals: 30 percent = .3

Method: Movement

What to act out

What to make or construct



Give each student 100 paper clips. Ask students to take out various percentages of the 100 paper clips (for example, 10%, 15%, 23%, and so forth). Ask students to write down the percentage and to read it once they set aside the correct number of paper clips.

Method: Rehearsal

What to write or orally rehearse



Put ten students in front of the class and ask different percents of the group to step forward. Students at their desks write the percent as well as the decimal representation.

Accessing the Unconscious

Art activity



Have students divide a sheet of grid paper into one hundred parts, then color in the parts to illustrate a certain percentage.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn



The formula for computing percents. For example, 30 is what percent of 50? 30 is divided by 50 and rounded off to two decimal places, the decimal is removed, and a percent sign added.

Method: Practice

Easy problems to practice



Have students work in pairs to solve a number of problems expressed in a simple format (for example, 50 is what percent of 60?).

The Learning Wheel

Lesson Planning Form 13 *(continued)*

Method: Practice

Harder problems to practice → Give students practical problems using percents (for example, "If you are buying a shirt that is on sale at 25 percent off and its regular price is \$16.00, how much money do you save?")

Accessing the Unconscious

Imagery to see: Check type
x Memory _ Creativity _ Content → Work through one of the harder problems on the board. Then have students work through the problem at their desks. Do a mental rehearsal exercise for memory. Ask students to shut their eyes and see the problem, then ask them to watch in their mind's eye as their hands write down each step in the solution.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → Percents are used in the real world for computing sales, profits, taxes, and for other activities.

Readings

→ Give each student a variety of news clippings and advertisements that mention percents.

Method: Inquiry

Inquiry questions to ask → "Why are percents helpful?"
"Have you ever computed the sales tax on something that you were going to buy?"
"Do you think it is fair for very rich people to pay more than 30 percent of their income in taxes?"
"Have you ever bought anything on sale? What percent did you save?"

Method: Compare and Contrast

Examples to compare and contrast → Give each pair of students two percent problems that vary in how the percent is used (for example, "What percent is 23 of 63?" "How much is 13 percent of 57?"). Students solve both problems, noting how the strategies are different.

The Learning Wheel

Lesson Planning Form 13 *(continued)*

	Accessing the Unconscious		
	Story to tell	→	Read a story problem that involves percents and ask students to visualize what is happening in the problem.
NORTH	Creative: Learning to Create		
	Objectives		
	How to innovate		
	How to apply concept	→	Have students determine a fair federal income tax percentage for different income levels.
	How to create with concept		
	Method: Brainstorm and Mind Map		
	Brainstorm to do	→	Have students work in teams of 4 to discuss what the current tax percentage is and share their opinions about what it should be.
	Method: Project		
	Project to do	→	Have each team make a chart of federal income tax percentages by income level and present the chart to the group.
	Accessing the Unconscious		
	Song to play or sing	→	Play the Beatles' song "The Tax Man."
	(See p. 63 for a list of music.)		
	[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]		

The Learning Wheel

Lesson Planning Form 14

TOPIC: Science: Seed Dispersal

(You may want to start with the field trip in the North, and then proceed clockwise to the East, South, and West, which will allow your students to find the seeds they need in the East activity. The activity should also be scheduled in early fall when the most seeds will be available.)

LEVEL: Fifth grade

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms → dispersal, fruit, seed coating, nucleus, endosperm, and embryo

Memory of what words or facts → Identification of fruits and seeds from different plants.

Method: Movement

What to act out

What to make or construct → Set out a variety of fruits and seeds and either pictures or specimens of the plants the fruits come from. Possibilities include pine cones, box elders, mesquites, acacias, ironwood, palo verdes, acorns, and piñones. Ask students to make charts in which the seeds are glued in one column and the names of the plant that the seeds come from written in the next column. Next, show students a model of the parts of a seed and have students draw a picture, labeling the parts with the vocabulary words above.

Method: Rehearsal

What to write or orally rehearse → Have students work in pairs and use their charts to quiz each other on what plants the seeds come from.

Accessing the Unconscious

Art activity → Have students create a collage with seeds they collect on a field trip and from the kitchen (dried corn, dried beans, lentils, and so on).

The Learning Wheel

Lesson Planning Form 14 *(continued)*

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn
Strategy to learn
Guidelines to learn

→ There are three primary methods of dispersal (being carried by the wind, being stuck to an animal and carried, being eaten by an animal). When students find a seed they can speculate on whether it was carried there by the wind or by an animal.

Method: Practice

Easy problems to practice

→ Have students do research on each of the seeds on their charts, noting the dispersal methods.

Method: Practice

Harder problems to practice

→ Have students choose a seed that is dispersed by animals and find out which animals are responsible for its dispersal.

Accessing the Unconscious

Imagery to see: Check type
_ Memory x Creativity x Content

→ Take the students on an imagery journey in which you describe the entire life cycle of a plant, starting with the dispersal of the seed. Use very graphic and explicit details, almost as if you were watching a nature movie on the life cycle. You can end the imagery with the maturity of the plant and the dispersal of another seed.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
Concepts to remember
Underlying principle to remember →

A plant's continued existence is based on the successful dispersal of its seeds.

Readings

Method: Inquiry

Inquiry questions to ask

→ "Why do seeds have different methods of dispersal?"
"Which method do you think is most effective?"
"If you were a seed, how would you choose to be dispersed?"
"What variables can affect the success of seed dispersal?"

The Learning Wheel

Lesson Planning Form 14 *(continued)*

Method: Compare and Contrast

Examples to compare and contrast → Divide the group into pairs and give each pair the names of two plants. Have each pair compare and contrast their plants' seed dispersal methods.

Accessing the Unconscious

Story to tell → Tell the story of a plant whose future is in doubt because its seed dispersal method has been interrupted by influences on its environment.

NORTH Creative: Learning to Create

Objectives

How to innovate
How to apply concept
How to create with concept → Take the class on a field trip to collect seeds.

Method: Brainstorm and Mind Map

Mind map to do → With your class, do a mind map of where to go on the field trip, when to go, how to discover seeds, how to collect seeds, and whatever else you need to plan your trip.

Method: Project

Project to do → Have students take field notes on the trip, including where they discovered seeds and what kind of seeds they discovered. Encourage students to draw a plant they find during the trip. They may include the drawing in their journals.

Accessing the Unconscious

Song to play or sing
(See p. 63 for a list of music.)
[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.] → Play tapes of natural sounds that occur in the woods during other parts of the lesson.

The Learning Wheel

Lesson Planning Form 15

TOPIC : Biology: Topography of the Ocean Floor

LEVEL: High school

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts



ocean basin, land elevation, ocean depth, trench, rift valley, submarine canyon, continental rise, kilometer

Method: Movement

What to act out

What to make or construct



Have students make a drawing showing each of the terms.

Method: Rehearsal

What to write or orally rehearse



Have students work in pairs to quiz each other on the terms.

Accessing the Unconscious

Art activity



Have students paint or draw with colored pencils their vision of what it would be like under the ocean, including the topography.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn



How to make scale drawings of the ocean floor; how a cross-section of a map represents the change in elevation on the ocean floor

Method: Practice

Easy problems to practice



Give students a grid with depth in kilometers labeled on the vertical side and distance in kilometers labeled on the horizontal side. Have students measure a string the length of a kilometer so they have a visual idea of how long a kilometer is. Then have them plot the mid-Atlantic Rift on their grid based on a cross-section in a text.

The Learning Wheel

Lesson Planning Form 15 *(continued)*

Method: Practice

Harder problems to practice → Give students a topographical map of the continental shelf and slope outside of Los Angeles. Have students work in pairs to explain the map and scale to each other.

Accessing the Unconscious

Imagery to see: Check type → After showing students a video of the ocean floor, ask them to see the most vivid scenes again in their mind's eye. Encourage students to imagine that they are moving in the scene as a diver or marine animal.
_ Memory _ Creativity x Content

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember
Concepts to remember → Appropriate section in text.
Underlying principle to remember

Readings

Method: Inquiry

Inquiry questions to ask → "What is the relationship between the plates and the placement of the rifts?"
"Are rifts in the same areas as the intersections of the plates?"
"What specific plate action do you think is responsible for creating rifts?"

Method: Compare and Contrast

Examples to compare and contrast → Have students work in pairs to compare a major rift in the Atlantic with one in the Pacific, noting how the rifts are alike and different.

The Learning Wheel

Lesson Planning Form 15 *(continued)*

Accessing the Unconscious

Story to tell



Read sections from *Mind in the Waters*, which gives a viewpoint of the ocean from a dolphin's perspective, or *Sounding*, which gives the viewpoint of a sperm whale.

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept



Reading topographic maps on land.

Method: Brainstorm and Mind Map

Brainstorm to do



Divide students into teams of five and give each team a USGS topographical map of your area. Have students brainstorm ways to approach the map to understand the geographical forms represented by the maps.

Method: Project

Project to do



Have one member from each team explain the group's map to the class and how they might use the map to plan a hike.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]



Play music during work sessions.

The Learning Wheel

Lesson Planning Form 16

TOPIC : Psychology: Abraham Maslow's Actualizing Tendency and the Roots of Humanistic Psychology

LEVEL: College

EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms → actualizing tendency, needs hierarchy, peak performance, self-actualization, unconscious mind, collective unconscious

Memory of what words or facts → Historical facts about Abraham Maslow's life

Method: Movement

What to act out

What to make or construct → Have students draw a diagram or chart of the needs hierarchy and the relationship between the unconscious and conscious mind.

Method: Rehearsal

What to write or orally rehearse → Have students review terms and definitions, either orally with a partner or by writing them down.

Accessing the Unconscious

Art activity → Have students use pastels, markers, or colored pencils to draw a representation of self-actualization.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn → There are ways to create an environment that awakens the actualizing tendency. Carl Rogers's work documents these ways (for example, empathy, trust, positive regard, and client or student choice).

The Learning Wheel

Lesson Planning Form 16 *(continued)*

Method: Practice

Easy problems to practice → Give students case studies that list facts about a child's home and school environment. Have students work in teams to determine what facts would be helpful or not helpful in awakening the actualizing tendency.

Method: Practice

Harder problems to practice → The second assignment presents more detailed case studies.

Accessing the Unconscious

Imagery to see: Check type → Lead students on an idealized self-image exercise in which they see themselves as they would like to be. Initially, take the students to an outside setting where they have been happy before. Emphasize all the senses (i.e., the color of the grass, the sounds of birds or wind, the smells of the plants, the texture of a leaf that students reach out and touch, and the feeling of movement as students walk through the outside setting). After a time, ask the students to lie down in the image and notice the sky: its color and the clouds. Tell them that suddenly a giant movie screen appears in the sky. Have students look up and see an image of themselves as they would like to be. Direct students to see as much detail as possible, or if the image is fuzzy, to keep looking and pay attention to any feelings that they may have. Close the imagery by asking students to come back to this time and place and to bring back a sense that the students can become who they would like to be.

WEST Conceptual: Learning to Reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember → Humanistic psychology broke from Freud's model of studying people who were mentally ill to understand human development and healing. Maslow studied people who surpassed our view of mental health.

Readings

→ Works of Maslow, Rogers, and Perls

The Learning Wheel

Lesson Planning Form 16 *(continued)*

Method: Inquiry

Inquiry questions to ask → “What are characteristics of peak performers?”
 “Why do two people from the same harsh, damaging, or debilitating environment turn out differently?”
 “Have you ever had a peak experience? What was it like?”

Method: Compare and Contrast

Examples to compare and contrast → How did Maslow’s work differ from Freud’s?

Accessing the Unconscious

Story to tell → Have students choose a peak performer (e.g., Albert Schweitzer, Mother Teresa), research that person’s life, and tell that person’s story to the class.

NORTH Creative: Learning to Create

Objectives

How to innovate
 How to apply concept
 How to create with concept → Have students complete a project on how to set up a classroom or other environment to awaken the actualizing tendency.

Method: Brainstorm and Mind Map

Mind map to do → Have students mind map conditions that the classroom environment would need to have.

Method: Project

Project to do → Have students document the environment that they would set up with a description and drawings.

Accessing the Unconscious

Song to play or sing → Play music during the imagery exercises as well as during the mind map session.
 (See p. 63 for a list of music.)
 [I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel

Lesson Planning Form 17

TOPIC: English: Metaphors
LEVEL: Middle school
EAST Practical: Learning to Prepare

Objectives

Skills to teach

Definition of what terms → metaphor

Memory of what words or facts

Method: Movement

What to act out

What to make or construct → Give students visuals of possible metaphors in stories from oral traditions (for example, herb, old hag, princess, king, queen, mountain, river, death). Model the first one, saying that an herb could stand for life or healing. Have students work in pairs and write as many concepts as they can think of that the picture could be a metaphor for.

Method: Rehearsal

What to write or orally rehearse → Have students review the definition of metaphor with a partner and write one metaphor.

Accessing the Unconscious

Art activity

→ Have students use colored pencils to draw a representation (which can be abstract) of one of the metaphors above.

SOUTH Technical: Learning to Solve Problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ Metaphors are not literal translations of concepts, but a metaphor stands for or resembles the concept.

Method: Practice

Easy problems to practice

→ Give students several pieces of prose and poetry that contain metaphors. Have students circle words or phrases that may be metaphors.

The Learning Wheel

Lesson Planning Form 17 *(continued)*

Method: Practice

Harder problems to practice → Have students find a piece of writing that they believe contains metaphors.

Accessing the Unconscious

Imagery to see: Check type → Have students choose a favorite book or movie. Lead them on an imagery exercise in which they see scenes from the book or movie as vividly as possible. Encourage them to take on the role of one of the characters and to allow the imagery to move of its own accord, as if the movie were running.
_ Memory x Creativity x Content

WEST Conceptual: Learning to Reflect**Objectives**

Ideas to remember
Concepts to remember → Metaphors are a way to convey deep meaning from the collective human unconscious. The mysteries of existence are expressed in stories and poems. This information is not necessarily logical or scientific, but it captures and expresses information that is significant.
Underlying principle to remember

Readings → Have students find and read stories from a European oral tradition, such as Grimm's fairy tales, or from a North American oral tradition, such as the Diné creation story.

Method: Inquiry

Inquiry questions to ask → "What is the purpose of a metaphor?"
"How do you know when you are reading that a word or a phrase is a metaphor?"
"Do you like writing with metaphors? Why or why not?"

Method: Compare and Contrast

Examples to compare and contrast → Contrast metaphoric knowledge to scientific knowledge. Do science and metaphors contradict each other? Can they exist together?

The Learning Wheel

Lesson Planning Form 17 *(continued)*

Accessing the Unconscious

Story to tell

→ Tell your favorite story from a European and an American Indian oral tradition. It could be one of your favorite stories from childhood.

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept

→ Have students write a story using metaphors or tell a story that has metaphors.

Method: Brainstorm and Mind Map

Mind map to do

→ Have students mind map ideas for their story.

Method: Project

Project to do

→ Have students write their story. You may encourage them to do a private imagery exercise before they begin to write. You might direct them to put on some of their favorite music, and then to empty their minds and see if any images come up that they would like to work into their stories. You can play music during the work sessions.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel

Lesson Planning Form 18

THEME: Herbs
LEVEL: Intermediate
EAST Science

Objectives

Skills to teach → visual identification of herbs by leaves or flower, medicinal uses of herbs

Definition of what terms → tincture, aromatics, poultice
Memory of what words or facts → structure of a chlorophyll molecule

Method: Movement

What to act out
What to make or construct → Have students create a chart with the leaves or flowers of herbs, their common names, the Latin names, and the medicinal uses if any. Have students prepare a tincture and a poultice from two different herbs. Have students draw the structure of the chlorophyll molecule.

Method: Rehearsal

What to write or orally rehearse → Have students review the chart and vocabulary terms with partners. Partners quiz each other by asking each other to name an herb after looking at the leaf or flower.

Accessing the Unconscious

Art activity → Have students use colored pencils to draw one of the herbs with its leaves and flowers, using a reference text.

SOUTH Mathematics

Objectives

Rule to learn
Strategy to learn → How to measure dry herbs using gram weights;
Guidelines to learn how to combine certain proportions of two or more dry herbs using gram weights.

Method: Practice

Easy problems to practice → Ask students to measure certain amounts of specific herbs.

The Learning Wheel

Lesson Planning Form 18 (continued)

Method: Practice

Harder problems to practice → Give students the proportions of herbs in a given mixture and ask them to make the mixture. Then have them write a formula to show what they did.

Accessing the Unconscious

Imagery to see: Check type
 Memory Creativity Content → Lead students through an imagery exercise, rehearsing the steps in measuring the herbs.

WEST

Social Studies

Objectives

Ideas to remember → Indigenous people in your area used plants for medicine, shelter, and ceremonies.
 Concepts to remember
 Underlying principle to remember

Readings → Books on ethnobotany of your region.

Method: Inquiry

Inquiry questions to ask → "How were plants used by the local tribe?"
 "How were the plants gathered and dried?"

Method: Compare and Contrast

Examples to compare and contrast → Contrast the way indigenous people use plants to the way you and your family use plants.

Accessing the Unconscious

Story to tell → Tell students a story in which an herb is used to heal. One example would be the Indian tale *Ramayama*.

The Learning Wheel

Lesson Planning Form 18 *(continued)*

NORTH Language Arts

Objectives

How to innovate

How to apply concept

How to create with concept



Have students begin a journal on their studies of herbs. They should include drawings, documentation of medicinal uses, ethnobotany, measurements of dry herbs, and poems or prose pieces they have written about herbs.

Method: Brainstorm and Mind Map

Mind map to do



Have students mind map what they know about herbs, then use the mind map as the basis for a piece of writing about herbs.

Method: Project

Project to do



Have students assemble a journal.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]



Play music from a local tribe, if possible.

The Learning Wheel

Lesson Planning Form 19

THEME: Whales

LEVEL: Intermediate

EAST Science

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts → characteristics of different species of whales
migratory routes of at least two species of whales
songs of at least two species of whales
Label pictures of whales according to their species. Identify the migratory routes of at least two species of whales. Identify the songs of at least two species of whales.

Method: Movement

What to act out

What to make or construct → Have students draw each species of whale with its name in a journal. They will also draw the migratory routes of the whales.

Method: Rehearsal

What to write or orally rehearse → Have students get in pairs and review the species of whales.

Accessing the Unconscious

Art activity → Have students paint pictures as they listen to whale songs.

SOUTH Mathematics

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

→ How to compute weight of two specific species of whales; how to draw scale models of whales.

Method: Practice

Easy problems to practice

→ Have students make a life-size, two-dimensional model of a blue whale out of newsprint. Then have them draw a scale model on a grid sheet.

The Learning Wheel

Lesson Planning Form 19 *(continued)*

Method: Practice

Harder problems to practice → Give students the dimensions of several whales and ask them to compute the weight of each.

Accessing the Unconscious

Imagery to see: Check type → Show students a video on whales, then lead the students in an imagery exercise in which they become whales swimming in the water. Play whale songs during the exercise. Take time with the imagery and encourage students to use all their senses during the exercise.
_ Memory _ Creativity x Content

WEST Social Studies

Objectives

Ideas to remember
Concepts to remember → Inuit depend on whaling; industrial whaling
Underlying principle to remember has a grave effect on whale populations.

Readings → Information on Inuit and industrialized whaling

Method: Inquiry

Inquiry questions to ask → "How are Inuit dependent on whales?"
"Did Inuit hunting of whales deplete whale populations?"
"How were the whales used by the Inuit?"
"What do you think of Inuit hunting whales today?"
"What have been the effects of industrialized whaling on whale populations?"

Method: Compare and Contrast

Examples to compare and contrast → Compare and contrast Inuit whale hunting to industrialized whale hunting.

The Learning Wheel

Lesson Planning Form 19 *(continued)*

Accessing the Unconscious

Story to tell

→ Have students research the life cycle of their favorite species of whale. Then have them tell the story of one whale from birth to maturity, including the place of birth, the relationship with parents, the way they find food, migration, and mating.

NORTH Language Arts

Objectives

How to innovate

How to apply concept

How to create with concept

→ Have students create a piece of writing and a collage or painting about whales.

Method: Brainstorm and Mind Map

Mind map to do

→ Have students mind map their piece of writing.

Method: Project

Project to do

→ Have students write about whales and illustrate their writing.

Accessing the Unconscious

Song to play or sing

(See p. 63 for a list of music.)

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

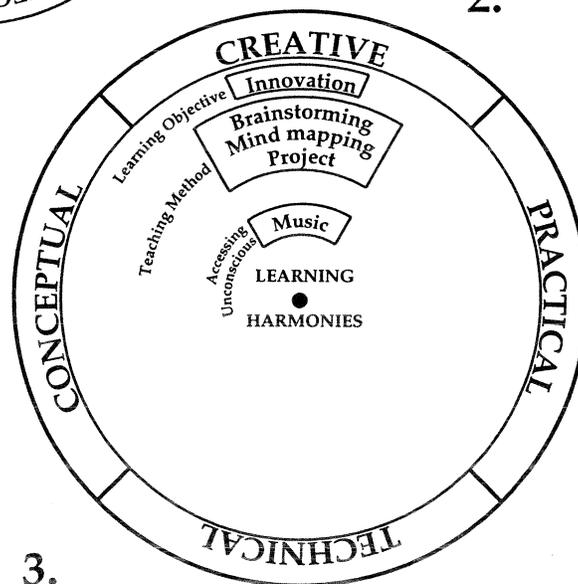
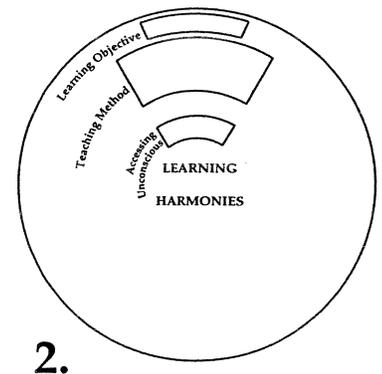
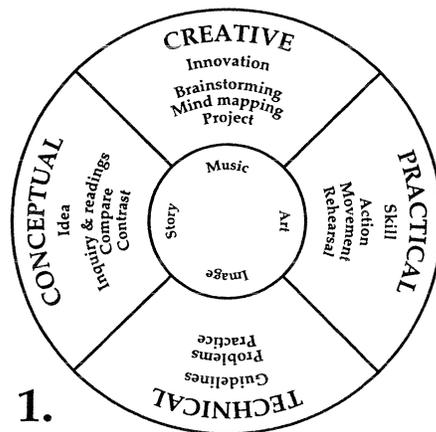
→ Play music by Paul Winter with sounds of whale songs.

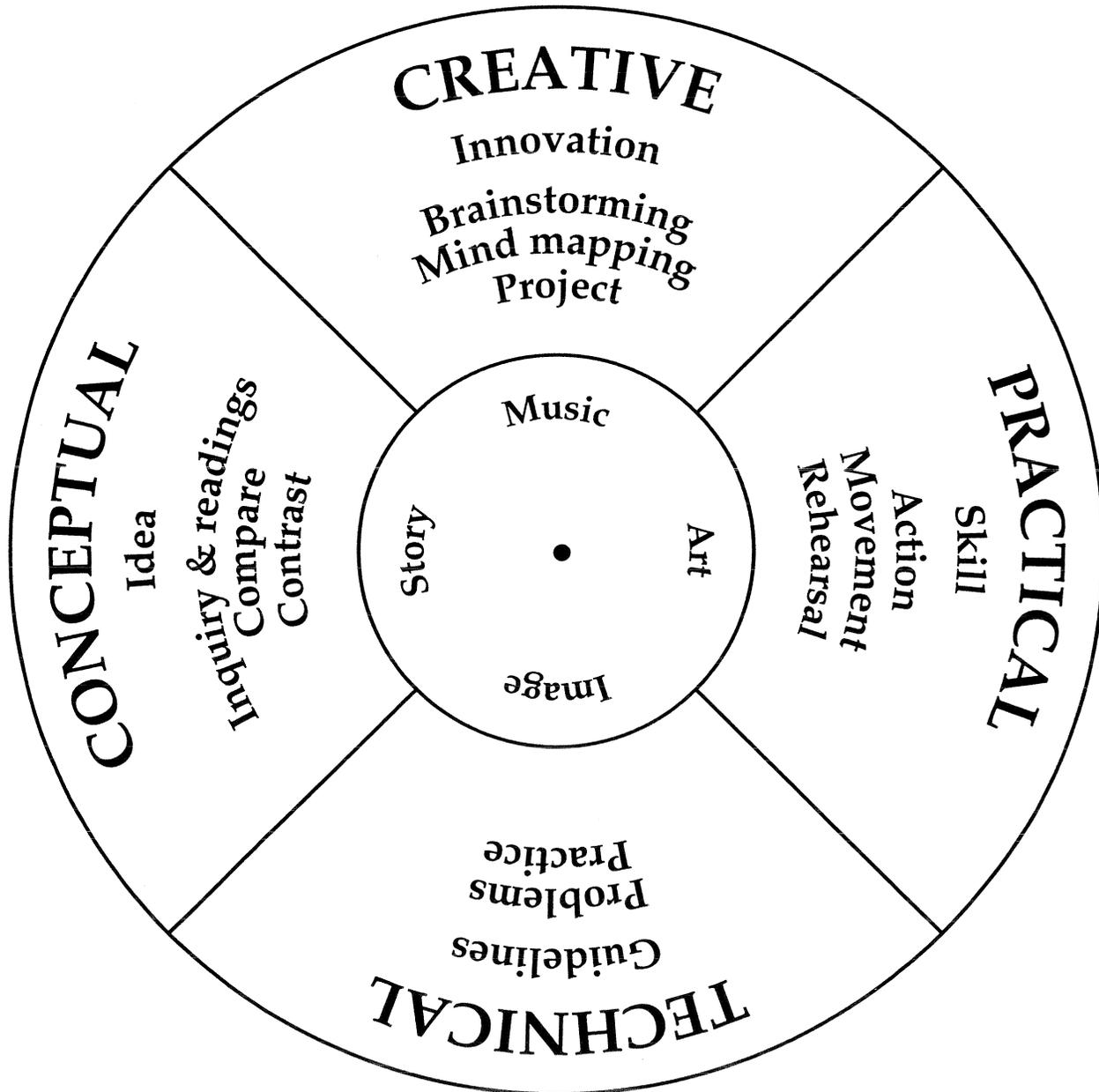
Appendixes

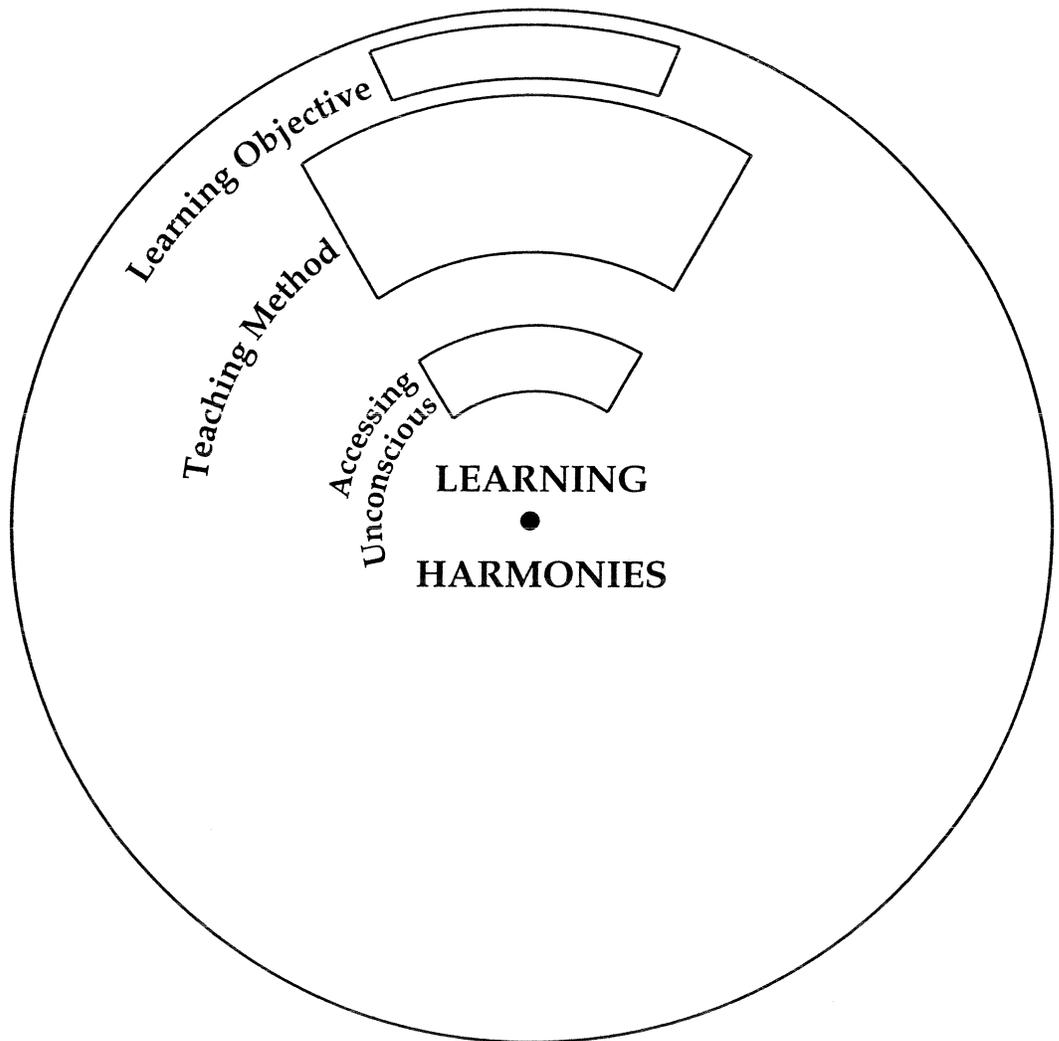
The Learning Wheel

Directions

Cut out the two circles provided. Then use a razor blade to cut out the windows in the smaller circle carefully, exactly on the lines. If you wish, you can color the larger circle: red in the east, yellow in the south, green in the west, blue in the north, and purple in the center. Use a needle or other pointed object to make a hole through the middle dot on both circles. Place the smaller circle on top of the large circle, with centers aligned. Put a brad through the center holes to attach the two circles. You should be able to rotate the top circle smoothly over the bottom circle.







The Learning Wheel Lesson Planning Form— *Long Form*

TOPIC:

LEVEL:

EAST Practical: Learning to prepare

Objectives

Skills to teach

Definition of what terms

Memory of what words or facts

Method: Movement

What to act out

What to make or construct

Method: Rehearsal

What to write or orally rehearse

Accessing the Unconscious

Art activity

SOUTH Technical: Learning to solve problems

Objectives

Rule to learn

Strategy to learn

Guidelines to learn

The Learning Wheel Lesson Planning Form *(continued)*

Method: Practice

Easy problems to practice

Method: Practice

Harder problems to practice

Accessing the Unconscious

Imagery to see: Check type

___ Memory ___ Creativity ___ Content

WEST Conceptual: Learning to reflect

Objectives

Ideas to remember

Concepts to remember

Underlying principle to remember

Readings

Method: Inquiry

Inquiry questions to ask

Method: Compare and contrast

Examples to compare and contrast

The Learning Wheel Lesson Planning Form *(continued)*

Accessing the Unconscious

Story to tell

NORTH Creative: Learning to Create

Objectives

How to innovate

How to apply concept

How to create with concept

Method: Brainstorm and mind map

Brainstorm to do

Method: Project

Project to do

Accessing the Unconscious

Song to play or sing

[I encourage teachers to use music throughout instruction, particularly during art activities, imagery, independent work, or partner work.]

The Learning Wheel Lesson Planning Form— *Short Form*

TOPIC: Practical Intelligence

SKILL

Movement & Art

Technical Intelligence

GUIDELINE

Practice & Imagery

Conceptual Intelligence

CONCEPT

Story & Discussion

Creative Intelligence

INNOVATION

Cooperative Projects & Music

Imagery Script Form

LESSON:

LEVEL:

TYPE OF IMAGERY SCRIPT:

___ Memory or mental rehearsal

Use music.

Stress kinesthetic sense (watch the hand move).

___ Content—make information come alive

Emphasize initial scene.

Use all senses in the scene.

Encourage student to become character in scene.

Scene moves as a movie.

___ Creativity

Use music.

Ask student to clear mind.

Ask student to visualize a symbol of question or problem.

Ask student to wait to see what comes.

___ Self-concept or self-esteem

___ Relaxation

What music will you play?

How will you use all the senses (sound, sight, movement, touch, smell, taste)?

How will you debrief students after it is over?

How will you stress kinesthetic sense if imagery is used for memory?

Imagery Script Example

Lesson: Solving for one unknown

Level: Middle school

Type of Imagery Script:

X Memory or mental rehearsal

Use music.
Stress kinesthetic sense (watch the hand move).

X Content—Make information come alive

Emphasize initial scene.
Use all senses in the scene.
Encourage student to become character in scene.
Scene moves as a movie.

X Creativity

Use music.
Ask student to clear mind.
Ask student to visualize a symbol of question or problem.
Ask student to wait to see what comes.

X Self-concept or self-esteem

X Relaxation (Do short relaxation first)

What music will you play?
Davol, Mystic Waters

How will you use all the senses (sound, sight, movement, touch, smell, taste)?

Mainly I will stress looking at the problem, hearing oneself read the problem, and watching the hand move as the problem is solved.

How will you debrief students after it is over?

See if anyone has anything to share after practicing.

How will you stress kinesthetic sense if imagery is used for memory?

As above

Imagery Script Example *(continued)*

SCRIPT: Look carefully at the problem you just solved. Now take a comfortable position in your chair so that you won't have to move for about five minutes. You may want to uncross your legs. You can put your head down on your desk if you like. You can close your eyes or keep your eyes open as you practice mental rehearsal. The main thing is not to move.

I am going to play some music as we do this. The rhythm in the music will talk to the part of your brain where you remember things. I am also going to talk you through a short relaxation exercise, because when you are relaxed you can learn faster and better.

Do relaxation script.

SCRIPT: Start with your toes and give them firm, positive suggestions to relax. Relax your toes on your right foot. Relax your toes on your left foot. Feel your right leg get heavier and warmer. Relax your right calf, knee, and thigh. Feel your left leg get heavier and warmer. Relax your left calf, knee, and thigh.

Relax your stomach, your lungs, and your heart. Feel air move into the lungs as you inhale. Feel your chest area become warmer and heavier.

Now move your attention to your right hand. Relax each of your right fingers. Feel your palm get heavier and warmer. Relax your left hand. Feel each of your left fingers get longer. Feel your left palm become heavier and warmer. See a colored ball in your right hand and see another colored ball in your left hand. You may see red or orange in your right hand. See blue or green in your left hand.

Now go to the base of your spine and walk up your back, vertebra by vertebra. Relax the back of your neck. Relax your ears. Unlock your jaw. Feel that your cheeks are heavier and warmer. Feel that your eyes are like two heavy marbles sinking to the back of your head.

Feel your whole body relaxed and warm.

(Pause for two minutes.)

Now come back to this time and place.

Now pretend in your mind's eye that you see the problem you just solved. See the equation on the paper: $x + 5 = 10$. Notice each symbol and number carefully. Hear yourself read the equation: $x + 5 = 10$. Good.

Now see yourself writing the steps to solve the problem. Actually feel your hand move as you write the steps in the movie playing in your mind.

You subtract 5 from each side of the equation. Watch yourself writing the -5 on each side of the equation. Now see yourself subtracting the 5.

See yourself writing the answer: $x = 5$. You hear yourself saying the answer: $x = 5$.

Imagery Script Example *(continued)*

Good. You've solved the problem. You've rehearsed in your mind so that you will remember it.

Come back to the classroom now.

Does anyone have anything to say about that practice? Did you like it? Did you dislike it? Do you think it will help you remember?

Ethnicity and Learning Style

Research shows that culture affects learning style (More 1990), but it is not clear which specific learning style correlates with a given ethnic group (Kreuze and Payne 1989). This is because the types of tests researchers use to assess learning style may not be reliable, the definitions of learning styles vary among educators, and the definition of the composition of a given ethnic group changes from study to study. For example, studies of Asian learning styles could include a variety of groups, such as Hmong, Vietnamese, Chinese living in Hong Kong, or Japanese Americans in San Francisco. These groups are very different from each other.

The data on learning styles could vary greatly because of differences among these groups. Therefore, it is best not to take learning style data too seriously. Realize that there may be great variations within a group and that it is dangerous to stereotype a member of any group.

Learning style information is at best a guideline. The most effective way to address learning style differences is to ensure that all modalities for receiving information are presented (visual, auditory, and kinesthetic modes) and to ensure that a variety of modes for expressing information are also included, such as written work, verbal responses, and drawing. In addition it is essential to include in instruction both basic types of processing—linguistic or sequential and imagistic or simultaneous processing. You tap linguistic processing when lecturing, assigning papers or written responses, and in holding discussions. You activate imagistic processing when using diagrams, visual symbols, music, imagery, and drawing. (See beginning of chapter 2 for more information on these terms.)

A great deal of learning style research deals with *field dependence* and *field independence*. Field-independent learners can work well regardless of what is happening around them. These students would thrive in an independent, self-directed instructional mode. Conversely, field-dependent learners are strongly influenced by what is around them as they work. Students who are field dependent work well in cooperative groups or in the presence of a supportive relationship with a teacher.

Various researchers have reported a number of learning style strengths for many Latino students. These include working in cooperative groups (Muscella 1987), being field dependent, preferring to process information holistically such as in imagistic-simultaneous manners (Contreras 1985), enjoying visual-spatial inputs (Taylor and Richards 1991), and expressing learning in an oral mode (O'Donnell and O'Donnell 1987). In terms of the learning wheel, these strengths imply that emphasizing practical intelligence would match the learning strengths of these students. In addition you would do well to focus on art in practical intelligence, cooperative groups for projects in creative intelligence, and discussions, instead of written responses, for conceptual intelligence.

For some Asian American students, research reports strengths in graphic representation (O'Donnell and O'Donnell 1987) and cognitive analysis (Hsia 1981). By stressing technical and conceptual intelligences on the learning wheel, you would match these strengths.

Analytic, abstract thinking as well as field independence are reported to be strengths for some European American students (Taylor and Richards 1991). Conceptual intelligence fits this strength. It may also be appropriate to allow some students to have the choice to work independently during projects in creative intelligence to create a field-independent atmosphere.

Many African American students seem to prefer kinesthetic-tactile input (Jones 1986) as well as active learning styles (Lee 1986), and using the creative arts as expressions of learning (Jackson 1990). One researcher reports that African American students do best in relational learning activities (Mikkelsen 1991). Therefore, cooperative groups would be appropriate for matching this strength. Verbal expression also appears to be a strength for African American learners (Taylor and Richards 1991). Taken together, these strengths imply that practical intelligence, emphasizing art, and creative intelligence activities would match African Americans' strengths. In addition, cooperative groups for projects in creative intelligence and verbal expression in discussions for conceptual intelligence should be stressed. Another good possibility would be cooperative groups for the inquiry questions in conceptual intelligence. You could assign students to groups and give each group a different question. The group could then choose a spokesperson to present the answer to the class.

Some American Indian learners reportedly prefer pattern symbolic thinking (Walker, Dodd, and Bigelow 1985), enjoy spatial processing (Diessner and Walker 1989), and demonstrate strengths in visual, kinesthetic, and tactile learning modalities (Wauters, Bruce, Black, and Hocker 1989). Imagery has also been demonstrated to be an effective instructional strategy for American Indian learners (Nelson 1991). Storytelling is also effective since it has roots in traditional American Indian teaching methods (Tofoya 1982). Lining up these strengths with the wheel suggests that practical intelligence should be emphasized for American Indian students as well as art, storytelling, and imagery.

Guidelines for Working with Learning Strengths by Ethnicity

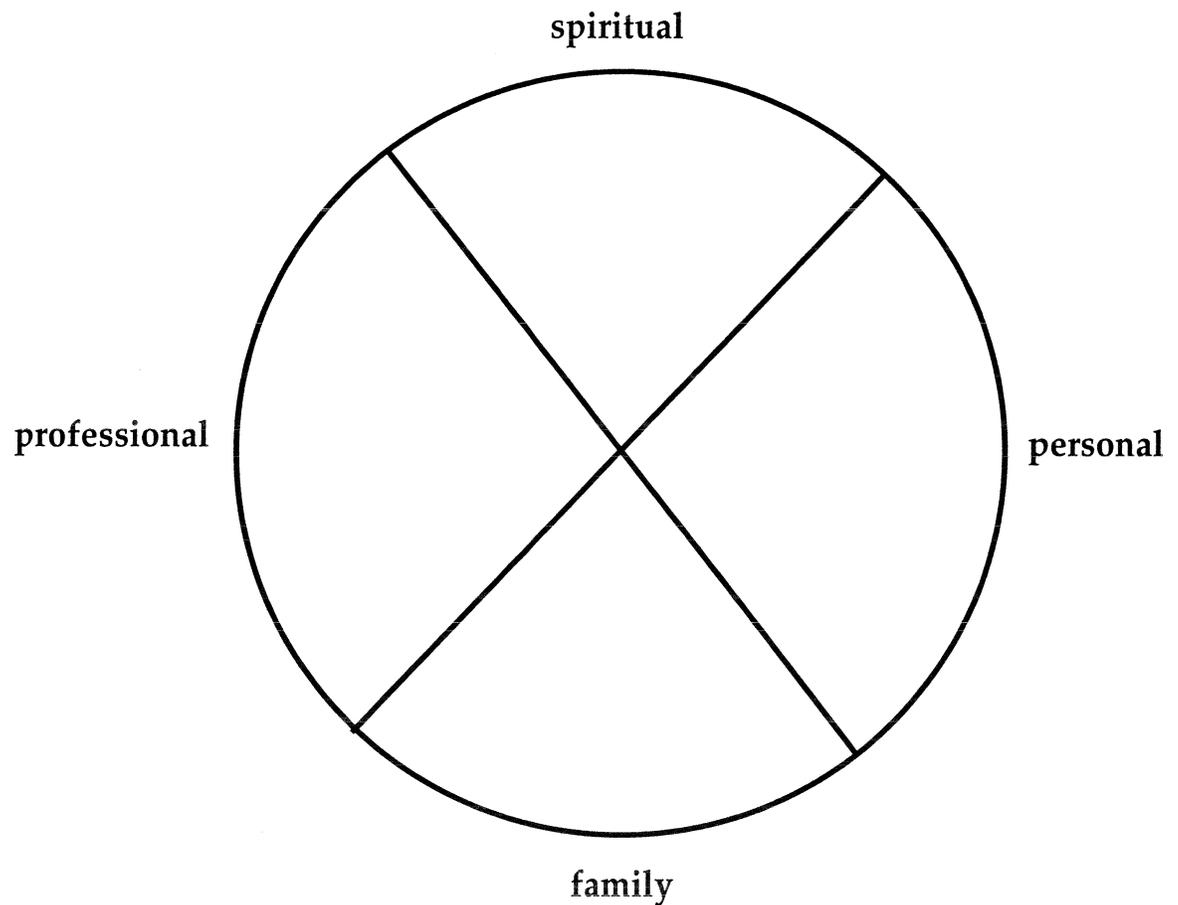
	Learning Wheel Intelligence to Begin with (then proceed clockwise to all other intelligences)	Learning Wheel Features to Emphasize	Cooperative Groups or Independent Working	Way to Express Learning
Latino	Practical	Art	Cooperative	Verbal
African American	Creative or practical	Art Movement	Cooperative	Verbal
Asian American	Technical	Inquiry		Graphic representation (i.e., diagrams, art)
European American	Conceptual	Inquiry	Independent	
American Indian	Practical	Storytelling Art Imagery		Art

Remember there will be great diversity within ethnic groups. These are *supposed* strengths according to certain research, but they may not fit the individual learning styles of particular students within any given ethnic group.

Learning about Your Own Culture

Worksheet

On the wheel below, jot down what is important to you in each of the four categories. Also note whether or not you feel satisfied with that part of your life.



Learning about Your Own Culture

Jot down a few words about your beliefs/feelings about each of the following:

diet

Earth

religion/spiritual life

politics

work

play

family

extended family

community

status of women

status of men

education

What is the most important thing in your life?

What three adjectives would you use to describe yourself?

What values do you have that you feel pride in?

List two or three people who had an important influence in your early life.

What events have had a significant influence in your life?

Can you trace any of the above values or beliefs back to their cultural roots (parent, teachers, friends, extended family, heroes in books or popular media)?

You may want to make a book of what you consider your culture to be. Include names of people, symbols, or pictures. You may want to interview someone who was significant in your past to find out more about influences on your life.

What do you believe is appropriate social interaction?

What do people do that you consider rude?

What do people do that you consider polite?

How do you think parents should support their children in school?

How do you think students should conduct themselves in school?

Remember that there can be cultural differences in the above types of interactions. It is important not to take differences personally. Differences are not insults. The more aware you are of what you consider appropriate the less reactive you will tend to be to differences.

Bibliography

- Achterberg, J. *Imagery in Healing: Shamanism and Modern Medicine*. Boston: New Science Library, Shambhala, 1985.
- Begay, D. H., and M. B. Beckett. "These Are Ancient Tradition and They Don't Grow Old." *Tribal College* (Spring 1990): 10–15.
- Benally, H. "Diné Philosophy of Learning." *Journal of Navajo Education* 6 (1988):7–13.
- Bolles, R. N. *What Color Is Your Parachute?* Rev. ed. Berkeley, Calif.: Ten Speed Press, 1992.
- Buzan, T. *Use Both Sides of Your Brain*. New York: E. P. Dutton, 1976.
- Campbell, J. *The Hero with a Thousand Faces*. Princeton, N.J.: Princeton Univ. Press, 1972.
- Chaney, N. *Tesla: Man Out of Time*. Englewood Cliffs, N.J.: Prentice Hall, 1981.
- Constable, G., ed. *Mexico*. Chicago: Time-Life Books, Inc., 1986.
- Contreras, M. *Hemisphere Learning and the Hispanic Student*. Washington, D.C.: ERDS, 1985.
- Diessner R., and J. I. Walker. "A Cognitive Pattern of the Yakima Indian Students." *Journal of American Indian Education* (August 1989): 84–88.
- Drewal, H. J., and J. Pemberton. *Yoruba: Nine Centuries of African Art and Thought*. New York: Harry N. Abrams, 1989.
- Farah, M. J. "The Neurological Bases of Mental Imagery: A Componential Analysis." *Cognition* 2 (1984):55-76.
- Gardner, H. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books, 1983.
- His Holiness Tenzin Gyatso (the Fourteenth Dalai Lama), Tsong-ka-pa, and J. Hopkins. *Tantra in Tibet*. Ithaca, N.Y.: Snow Lion Publications, 1977.
- Hsia, J. *Cognitive Assessment of Asian Americans*. Los Alamitos, Calif.: National Center for Bilingual Research, 1981.
- Jackson, S. A. "Accelerating Achievement for Poor Black Students: Transforming the Teaching-Learning Environment and Behaviors to Accommodate the Preferred Learning Styles of African American Students." Paper presented at the Conference of the National Alliance of Black School Educators. Dallas, Texas, November 16–20, 1990.
- Jones, D. J. "Cognitive Styles: Sex and Ethnic Differences." Paper presented at the Annual Meeting of the American Educational Research Association. Washington, D.C., November 13–15, 1986.

- Kreuze, J. G., and D. D. Payne. "The Learning Style Preferences of Hispanic and Anglo College Students: A Comparison." *Reading Improvement* 26 (1989):166–69.
- Lee, M. J. "The Match: Learning Styles of Black Children and Microcomputer Programming." *Journal of Negro Education* 55 (1986):78–90.
- Margulies, N. *Mapping Inner Space: Learning and Teaching Mind Mapping*. Tucson, Ariz.: Zephyr Press, 1991.
- Maslow, A. *Motivation and Personality*. New York: Harper and Row, 1970.
- Matthews. *The Elements of the Celtic Tradition*. London: Element Books Limited, 1990.
- Mikkelson, N. "Building Sociocentric Classrooms: What Ethnic Minorities Can Teach Us." Paper presented at the Annual Meeting of the American Educational Research Association. Chicago, Illinois, April 1991.
- Mohlenbrock, R. H. "Medicine Mountain, Wyoming." *Natural History* (January 1990): 25–27.
- More, A. E. "Learning Styles of Native Americans." Paper presented at the 98th Annual Meeting of the American Psychology Association. Boston, August 13, 1990.
- Muscella, D. "Uncovering Beliefs about Learning: Multi-trait Research." Paper presented at the Annual Meeting of the American Educational Research Association. Washington, D.C., April 20–24, 1987.
- Nelson, A. "The Role of Imagery Training on Tohono O'odham Children Creativity Scores." *Journal of American Indian Education* May (1991): 24–32.
- Nelson, A. "Imagery's Physiological Base: The Limbic System, a Review." *Journal of the Society for Accelerative Learning and Teaching* 13, no. 4 (1988):363–73.
- O'Donnell, W. J., and T. J. O'Donnell. "Cognitive Preferences and Ethnicity." Paper presented at the National Meeting of School Science and Mathematics. Billings, Montana, October 15–16, 1987.
- Olson, C., ed. *The Book of the Goddess Past and Present: An Introduction to Her Religion*. New York: Crossword, 1983.
- Piaget, J. *The Child and Reality*. New York: Grossman, 1973.
- Pribram, K. H. *Language of the Brain: Experimental Paradoxes and Principles in Neuropsychology*. New York: Brandon House, 1981.
- Rama, S., R. Ballentine, and S. Ajaya. *Yoga and Psychotherapy: The Evolution of Consciousness*. Honesdale, Penn.: The Himalayan International Institute of Yoga Science, 1976.
- Restak, R. M. *The Brain*. New York: Bantam Books, 1984.
- Rogers, C. *Freedom to Learn*. New York: C. E. Merrill, 1969.
- Rosenthal, R., and L. Jacobson. *Pygmalion in the Classroom: Teacher Expectation and Pupil's Intellectual Development*. New York: Irvington, 1989.
- Shepard, R. N. "Externalization of the Image and the Act of Creation." In B. S. Randhawa, ed., *Visual Learning, Thinking, and Communication*, 133–89. New York: Academic Press, 1978.
- Shuster, D. H., and C. E. Gritton. *Suggestive Accelerative Learning Techniques*. New York: Gordon and Breach Science Publishers, 1986.

- Sommer, R. *The Mind's Eye Imagery in Everyday Life*. New York: Delta, 1978.
- Sopa, L., R. Jackson, and J. Newman. *The Wheel of Time: The Kalachakra in Context*. Ithaca, N.Y.: Snow Lion Publications, 1985.
- Spence, L. *The Gods of Mexico*. Great Britain: Frederick A. Stokes Co., 1923.
- Springer, S. P., and G. Deutsch. *Left Brain, Right Brain*. San Francisco: W. H. Freeman, 1981.
- Strom, H. *Seven Arrows*. New York: Harper and Row, 1972.
- Tafoya, T. "Coyote Eyes Native Cognition Styles." *Journal of American Indian Education* 21 (1982): 21–33.
- Taylor, R. L., and S. B. Richards. "Patterns of Intellectual Differences of Black, Hispanic, and White Children." *Psychology in the Schools* 28 (1991): 5–9.
- Walker. *The Women's Dictionary of Symbols and Sacred Objects*. San Francisco: Harper, 1990.
- Walker, B. J., J. Dodd, and R. Bigelow. "Learning Preferences of Capable American Indians of Two Tribes." *Journal of American Indian Education* (August 1985): 63–71.
- Wauters, J. K., J. M. Bruce, D. R. Black, and P. N. Hocker. "Learning Styles: A Study of Alaska Native and Non-Native Students." *Journal of American Indian Education* (August 1989): 63–71.
- Wilber, K. "The Developmental Spectrum and Psychopathology. Part 1: Stages and Types of Pathology." *Journal of Transpersonal Psychology* 16, no. 1 (1984): 75–118.
- Yazzie, E., ed. *Navajo History*. Chinle, Ariz.: Navajo Curriculum Center, Rough Rock Demonstration School, 1971.
- Ywahoo, D. *Voices of Our Ancestors*. Denver: Shambhala, 1987.

A

actualization, 156–58
African American culture, learning style within, 184
American Indians: living structures of, 141–43; ways of learning, 2, 35–36, 185; and wheels, 8. *See also individual groups*
Arianrhod (Celtic goddess), 10
art, 5; and lesson planning, 111–67
Asian American culture, learning style within, 184
authenticity, 99–100
Aztec calendar stone, 12

B

biology, 153–55
Blackfoot, 8
brain, models of, 87–88
brainstorming, 59, 62
buddhi, 35
Buddhism, Tibetan, 10, 20

C

Campbell, Joseph, 35
career, planning of, 111–13
Celts: creation story of, 9; game board of, 9; wheels of, 8–10
Cheyenne, 8
classroom environment, 65
codependency, 98–99
cognitive structures, 31, 33

competition, 23, 27
conceptual intelligence, 38, 67; learning objectives for, 53–57; modes for, 57; teaching methods for, 55–56; and the unconscious, 56
creative intelligence, 38–39, 67; learning objectives for, 57–63; mode for, 63; teaching methods for, 58–62; and the unconscious, 62–63, 73
cross-cultural work, 1, 23, 32; benefits of, 105; hindering attitudes, 94–97; successful techniques, 97–103
culture, 1, 91–106; attitudes toward, 101–2, 103; competence within, 92–93, 187–89; definition of, 91; interaction within, 102, 103, 104–5; observation of, 100; and programming, 93–94, 183
curriculum: holistic, 6; integrative, 5, 42–43
cycle, learning process as, 41

D

Dharma wheel;
Diné, 12–15
Diné wheel, 12–15, 36; as model for curriculum, 24–25
directions, cardinal, 8, 10, 12–14, 18, 19, 20, 22–23, 25; and developing curriculum, 64, 65, 111–67; and personal qualities, 18, 23
division, with remainder, 120–22

E

Eastern philosophy, 35
ecology, 126–28
education: holistic, 14; multicultural, 31–33, 183[–85; process of, 2, 22, 29–31; 37, 38, 39, 40
empowerment, 5, 83–84
equations, solving, 144–46
ethnicity. *See* culture; *individual groups*
ethnocentrism, 95
eurocentrism, 95
European American culture, learning style within, 184
expanded intelligence, 39–41, 69–89

F

fate, 15
field dependence, 183–84
field independence, 183–84

G

Gandhi, wheel of, 25–27; as model for curriculum, 27
Gardner, Howard, 33

H

herbs, 162–64
hierarchy: learning process as, 33, 34; needs, 156–58
Hinduism, 35
Hispanic culture, learning styles within, 184

I

imagery, 76–88; for creativity, 80–81; effectiveness of, 77–78; for empowerment, 83–84; exercises, 79–87; for learning content, 81–83; and lesson planning, 111–67; for memory, 79–80; natural process of, 77; planning of, 179–81; pointers, 78–79; as rehearsal, 79–80; for relaxation, 86–87; to develop self-esteem, 83–86; types of, 79–87; unique styles of, 77
intelligence: cultural impacts on, 32–33. *See also* conceptual intelligence; creative intelligence; expanded intelligence; practical intelligence; technical intelligence
intelligences, multiple, 1, 33
intuition, 5, 35, 71–78; abilities of, 72–73; benefits of, 73, 100–101; definition of, 71–72; development of, 75–76; and imagery, 76–88; methods for including, in education, 74–76

K

Kalachakra, 10–12;

L

Lakota, 18–19; wheel of, 18–19
Latino. *See* Hispanic culture
Learning Wheel: advantages of, 5–6; and classroom environment, 65; construction of, 6, 171–3; definition of, 4; format of, 45–46; highlights of, 4–5; methods of, 45–68; origins of, 1–2; and thematic units, 63–65; use of, 46, 63–65, 66
literature, 5, 132–34, 159–61

M

main idea, location of, 123–25
 Maslow, Abraham, 156–58
 math, 135–40, 144–449
 medicine wheel, 8, 18–19
 metaphors, 159–61
 Milky Way, 10
 mind mapping, 59–62, 66, 67
 modes, of learning, 30–31, 50, 53, 57, 63, 73; and ethnicity, 183–85; in lesson planning, 111–67
 multiculturalism: and cognition, 2–3; and education, 3, 23, 31–33; and Learning Wheel, 2–3; and Wheel Intelligence Model, 2, 33
 multimodal learning, 5
 multiple intelligences, 3, 5, 30–31
 music, 5; and lesson planning, 111–67; use of, 62–63

N

numerals, recognition of, 135–37

P

paternalism, 94–95
 percents, 147–49
 Piaget, 1, 2, 31, 33; and culture, 2, 32
 poetry, 132–34
 practical intelligence, 36–37, 67; learning objectives for, 47; mode for, 50; teaching methods for, 48–49; and the unconscious, 49–50
 problem solving, 73, 144–46
 psychology, 156–58

R

romanticism, 96

S

science, 150–55, 162–67
 seeds, dispersal of, 150–52
 self-image, 83–86; 97–99
 sentences; construction of, 114–16; recognition of, 117–20
 Sioux. *See* Lakota
 stereotyping, 5, 94–97, 104–5
 storytelling, 35
 Sun Dance, 8

T

technical intelligence, 37, 67; learning objectives for, 50–53; mode for, 53; teaching methods for, 52; and the unconscious, 52–53
 temperature regulation, 129[–31
 thinking skills, 73
 topography, 153–55
 Tsalagi wheel, 19–20

U

unconscious, 5, 31, 34, 38–39, 69–71; and conceptual intelligence, 56; and creative intelligence, 62–63; and culture, 94; definition of, 70–71; and lesson planning, 111–67; and practical intelligence, 49–]50; and technical intelligence, 52–53

E

Eastern philosophy, 35
ecology, 126–28
education: holistic, 14; multicultural, 31–33, 183[–85; process of, 2, 22, 29–31; 37, 38, 39, 40
empowerment, 5, 83–84
equations, solving, 144–46
ethnicity. *See* culture; *individual groups*
ethnocentrism, 95
eurocentrism, 95
European American culture, learning style within, 184
expanded intelligence, 39–41, 69–89

F

fate, 15
field dependence, 183–84
field independence, 183–84

G

Gandhi, wheel of, 25–27; as model for curriculum, 27
Gardner, Howard, 33

H

herbs, 162–64
hierarchy: learning process as, 33, 34; needs, 156–58
Hinduism, 35
Hispanic culture, learning styles within, 184

I

imagery, 76–88; for creativity, 80–81; effectiveness of, 77–78; for empowerment, 83–84; exercises, 79–87; for learning content, 81–83; and lesson planning, 111–67; for memory, 79–80; natural process of, 77; planning of, 179–81; pointers, 78–79; as rehearsal, 79–80; for relaxation, 86–87; to develop self-esteem, 83–86; types of, 79–87; unique styles of, 77
intelligence: cultural impacts on, 32–33. *See also* conceptual intelligence; creative intelligence; expanded intelligence; practical intelligence; technical intelligence
intelligences, multiple, 1, 33
intuition, 5, 35, 71–78; abilities of, 72–73; benefits of, 73, 100–101; definition of, 71–72; development of, 75–76; and imagery, 76–88; methods for including, in education, 74–76

K

Kalachakra, 10–12;

L

Lakota, 18–19; wheel of, 18–19
Latino. *See* Hispanic culture
Learning Wheel: advantages of, 5–6; and classroom environment, 65; construction of, 6, 171–3; definition of, 4; format of, 45–46; highlights of, 4–5; methods of, 45–68; origins of, 1–2; and thematic units, 63–65; use of, 46, 63–65, 66
literature, 5, 132–34, 159–61