



*Supporting the advancement of
teaching and learning quality
in CUHK*

Centre for
Learning
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And
Research

Teaching and Learning Expo 2009

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A Clinical Psychologist's Tips

Everybody Likes CARMEL: Class Arrangement Rationale – Multiple-intelligence Enhancement Learning

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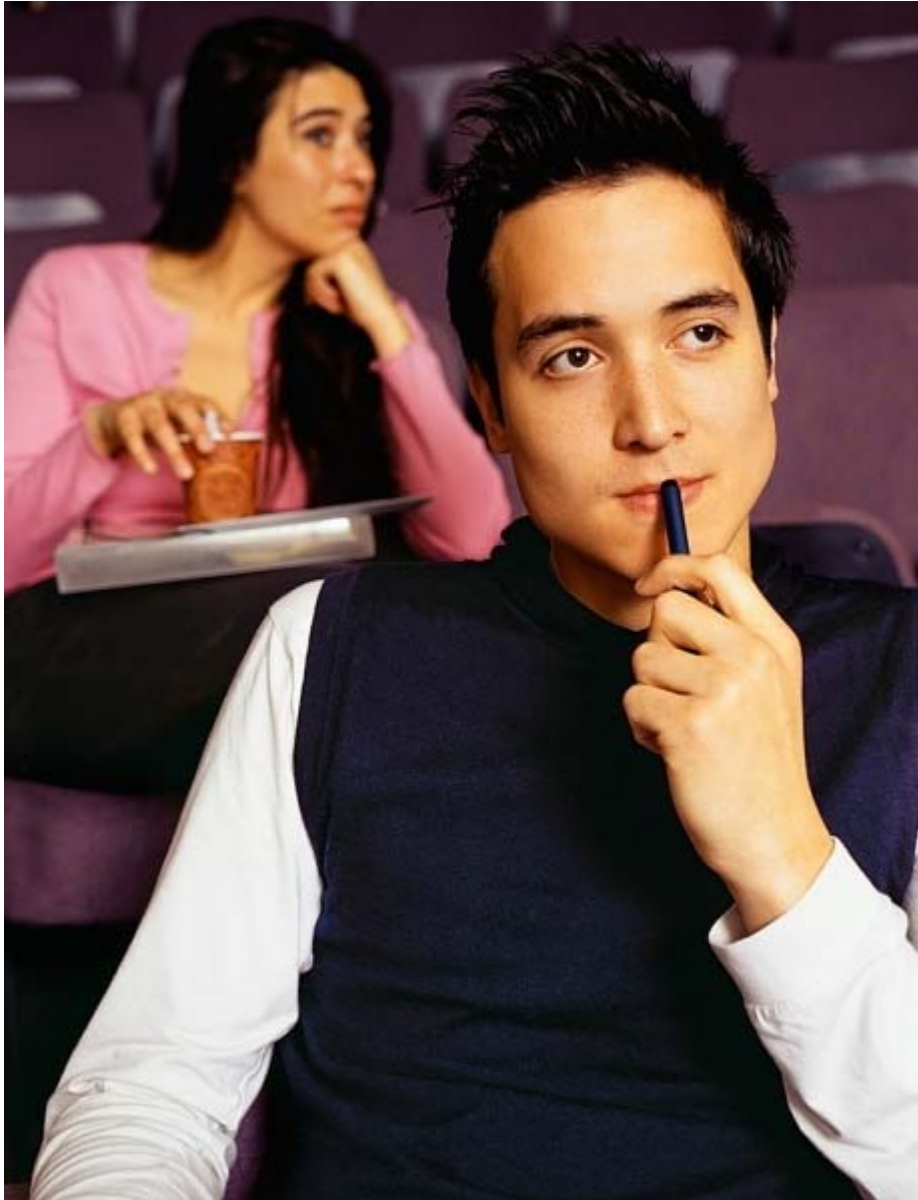
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The Rationale of CARMEL

What teaching and learning method do university students prefer?



The Rationale of CARMEL

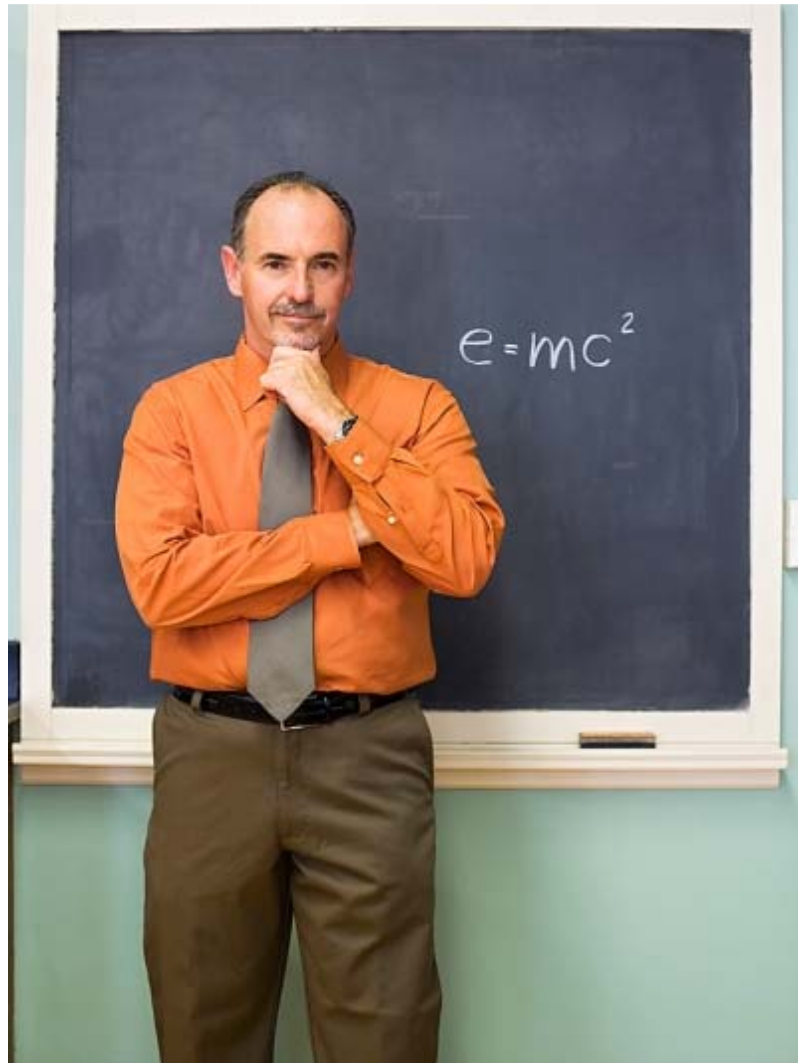
What teaching and learning method do university students prefer?

Teaching and learning methods: means and standard deviations of ranked scores across all participants							
		Hope		Expect		No thanks	
		Mean	SD	Mean	SD	Mean	SD
Formal lecture	☹️ + ✖️	0.52	1.00	1.69	1.29	0.96	1.36
Interactive lecture	♥️	1.77	1.25	1.30	1.33	0.06	0.37
Student-centred teaching	♥️	0.91	1.19	0.45	0.91	0.10	0.47
Tutorial	♥️	0.88	1.07	0.75	0.97	0.06	0.35
Teaching session based around group work	♥️	0.75	1.00	0.66	0.99	0.09	0.45
Group work	♥️	0.66	1.02	0.37	0.81	0.18	0.64
Private study	☹️ + ✖️	0.36	0.66	0.63	0.83	0.49	1.04
Student role play	✖️	0.09	0.42	0.02	0.17	1.09	1.36
Student presentations	✖️	0.07	0.35	0.13	0.42	0.86	0.24

(Sander et al., 2000)

The Steps of CARMEL

How we can teach our students according to the teaching and learning methods they prefer?



By applying the
CARMEL:
Class Arrangement
Rationale –
Multiple-intelligence
Enhancement Learning



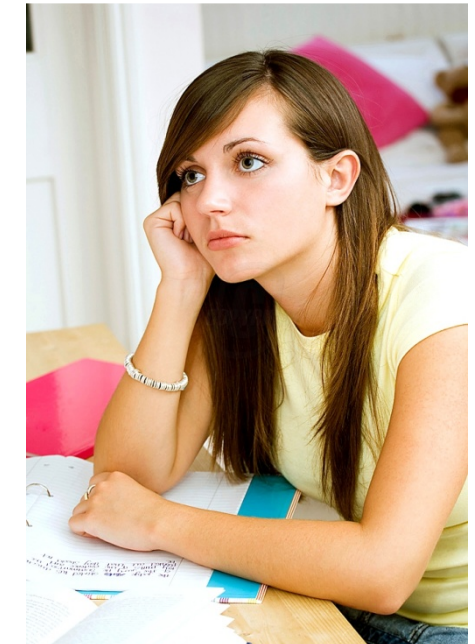
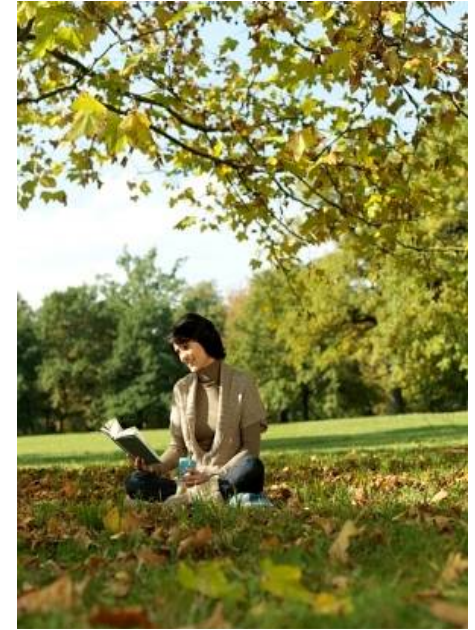
The Steps of CARMEL

3 steps in applying CARMEL:
Class Arrangement **R**ationale –
Multiple-intelligence
Enhancement **L**earning

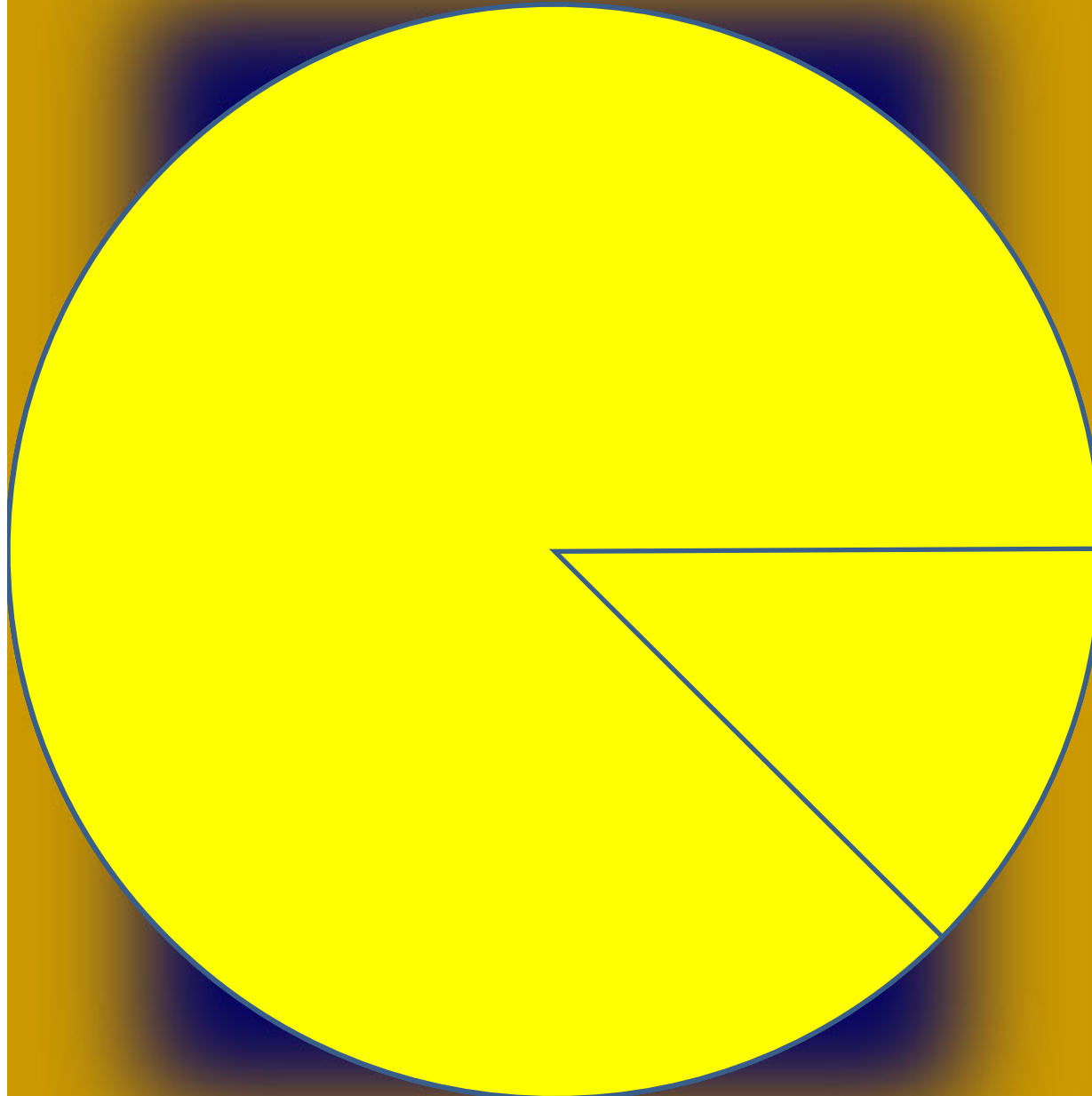
1st Step of CARMEL

Understanding the
features of the multiple
intelligence theory

Multiple Intelligence Theory (Gardner, 1983, 1999)



MULTIPLE INTELLIGENCES



THEORY BY HOWARD GARDNER

Naturalistic Intelligence

Ability to recognize and make distinctions in the natural world and use the ability productively

Strengths, Preferences, and Needs of Students with the Eight Intelligences

Verbal / Linguistic Intelligence

Strengths

Writing, reading, memorizing dates, thinking in words, telling



Preferences

Write, read, tell stories, talk, memorize, work at solving puzzles



Needs

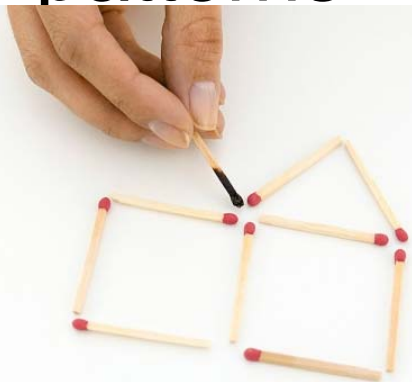
Books, tapes, paper diaries, writing tools, dialogue, discussion, debated, stories, etc.

(Giles et al., 2003)

Logical / Mathematical Intelligence

Strengths

Math, logic, problem-solving, reasoning, patterns



Preferences

Question, work with numbers, experiment, solve problems



Needs

Things to think about and explore, science materials, manipulative, trips to the planetarium and science museum, etc.

(Siles et al., 2003)

Visual / Spatial Intelligence

Strengths

Reading maps
& charts,
drawing,
mazes, puzzles,
imagining



Preferences

Draw, build,
design, create,
daydream,
look at pictures



Needs

LEGOs, video,
movies, slides,
art, imagination
games, mazes,
puzzles,
illustrated book,
trips to art
museums, etc.

(Giles et al., 2003)

Bodily / Kinesthetic Intelligence

Strengths

Athletics,
dancing, crafts,
using tools,
acting



Preferences

Move around,
touch and talk,
body language



Needs

Role-play,
drama, things to
build, movement,
sports and
physical games,
tactile
experiences,
hands-on
learning, etc.

(Gilles et al., 2003)

Musical Intelligence

Strengths

Picking up sounds, remembering melodies, rhythms,



Preferences

Sing, play an instrument, listen to music, hum



Needs

Sing-along time, trips to concerts, music playing at home and school, musical instruments, etc.

(Giles et al., 2003)

Interpersonal Intelligence

Strengths

Leading,
organizing,
understanding
people,
communicating,
resolving
conflicts,
selling

Preferences

Talk to people,
have friends,
join groups



Needs

Friends, group
games, social
gatherings,
community
events, clubs,
mentors/
apprenticeships,
etc.

(Giles et al., 2003)

Intrapersonal Intelligence

Strengths

Recognizing strengths and weaknesses, setting goals, understanding self

Preferences

Work alone, reflect pursue interests



Needs

Secret places, time alone, self-paced projects, choices, etc.



(Giles et al., 2003)

Naturalistic Intelligence

Strengths

Understanding nature, making distinctions, identifying flora and fauna



Preferences

Be involved with nature, make



Needs

Order, same / different, connections to real life and science issues, patterns

(Giles et al., 2003)

2nd Step of CARMEL

Assessing students'
multiple intelligences

Assessing multiple intelligence

Multiple Intelligences

**Developmental Assessment
Scales (MIDAS)**

Verbal linguistic intelligence:

to think in words and to use language to express and understand complex meanings. Sensitivity to the meaning of words and the order among words, sounds, rhythms, inflections. To reflect on the use of language in everyday life.

Expressive Sensitivity: skill in the use of words for expressive and practical purposes.

Rhetorical Skill: to use language effectively for interpersonal negotiation and persuasion.

Written-academic: to use words well in writing reports, letters, stories, verbal memory, reading /

...



(Shearer, 1996)

To think of cause and effect connections and to understand relationships among actions, objects or ideas. To calculate, quantify or consider propositions and perform complex mathematical or logical operations. It involves inductive and deductive reasoning skills as well as critical and creative problem-solving.

Everyday Math: performs well in math at school.

School Math: used math effectively in everyday life.

Everyday Problem Solving: able to use logical reasoning to solve everyday problems, curiosity.

Strategy Games: good at games of



(Shearer, 1996)

To think in pictures and to perceive the visual world accurately. To think in three-dimensions and to transform one's perceptions and recreate aspects of one's visual experience via imagination. To work with objects effectively.

Space Awareness: to solve problems of spatial orientation and moving objects through space such as driving a car.

Artistic Design: to create artistic designs, drawings, paintings or other crafts.

Working with Objects: to make. build. fix. or assemble



(Shearer, 1996)

.....
sounds, rhythms, melodies and rhymes. To be sensitive to pitch, rhythm, timbre and tone. To recognize, create and reproduce music by using an instrument or voice. Active listening and a strong connection between music and emotions.

Vocal ability: a good voice for singing in tune and in harmony.

Instrumental skill: skill and experience in playing a musical instrument.

Composer: makes up songs or poetry and has tunes on her mind.

Appreciation: actively enjoys



(Shearer, 1996)

Bodily-kinesthetic

intelligence: To think in movements and to use the body in skilled and complicated ways for expressive and goal directed activities. A sense of timing, coordination for whole body movement and the use of hands for manipulating objects.

Athletics: ability to move the whole body for physical activities such as balancing, coordination and sports.

Dexterity: to use the hands with dexterity and skill for detailed activities and expressive movement.



(Shearer, 1996)

Interpersonal intelligence: To think about and understand another person. To have empathy and recognize distinctions among people and to appreciate their perspectives with sensitivity to their motives, moods and intentions. It involves interacting effectively with one or more people in familiar, casual or working circumstances.

Social Sensitivity: sensitivity to and understanding of other people's moods, feelings and point of view.

Social Persuasion: ability for influencing other people.

Interpersonal Work: interest and skill for jobs involving working with people.



(Shearer, 1996)

and understand one's self. To be aware of one's strengths and weaknesses and to plan effectively to achieve personal goals.

Reflecting on and monitoring one's thoughts and feelings and regulating them effectively.

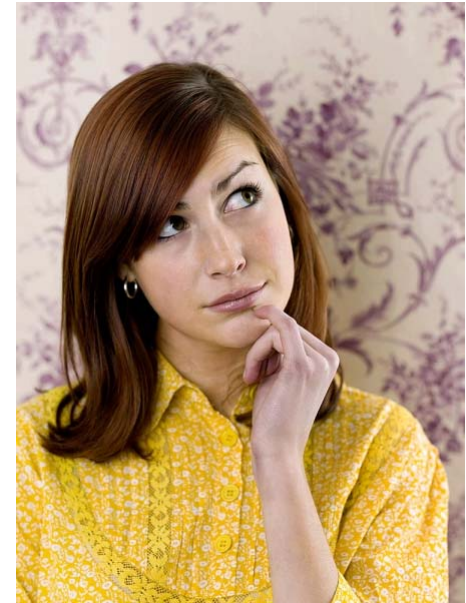
The ability to monitor one's self in interpersonal relationships and to act with personal efficacy.

Personal Knowledge / Efficacy: awareness of one's own ideas, abilities; able to achieve personal goals.

Calculations: meta-cognition; "thinking about thinking;" involving numerical operations.

Spatial Problem Solving: self awareness to problem solving while moving self or objects through space.

Effectiveness: ability to relate oneself well to



(Shearer, 1996)

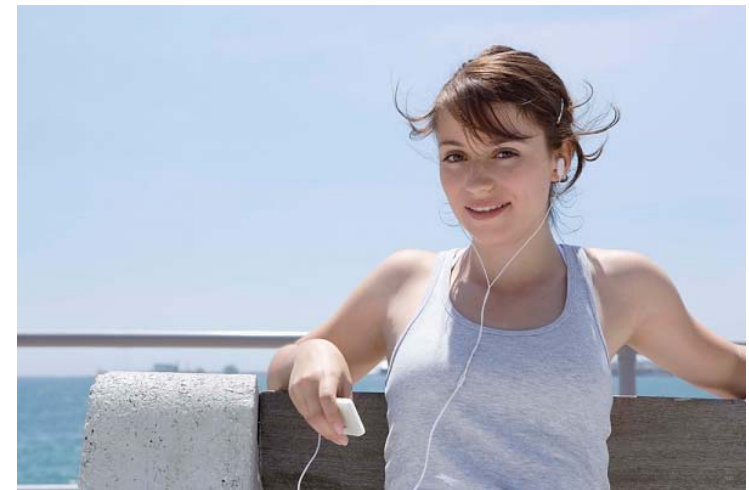
~~Naturalist Intelligence~~

understand the natural world including plants, animals and scientific studies. To recognize, name and classify individuals, species and ecological relationships. To interact effectively with living creatures and discern patterns of life & natural forces.

Animal Care: skill for understanding animal behavior, needs, characteristics.

Plant Care: ability to work with plants, i.e., gardening, farming and horticulture.

Science: knowledge of natural living energy forces including

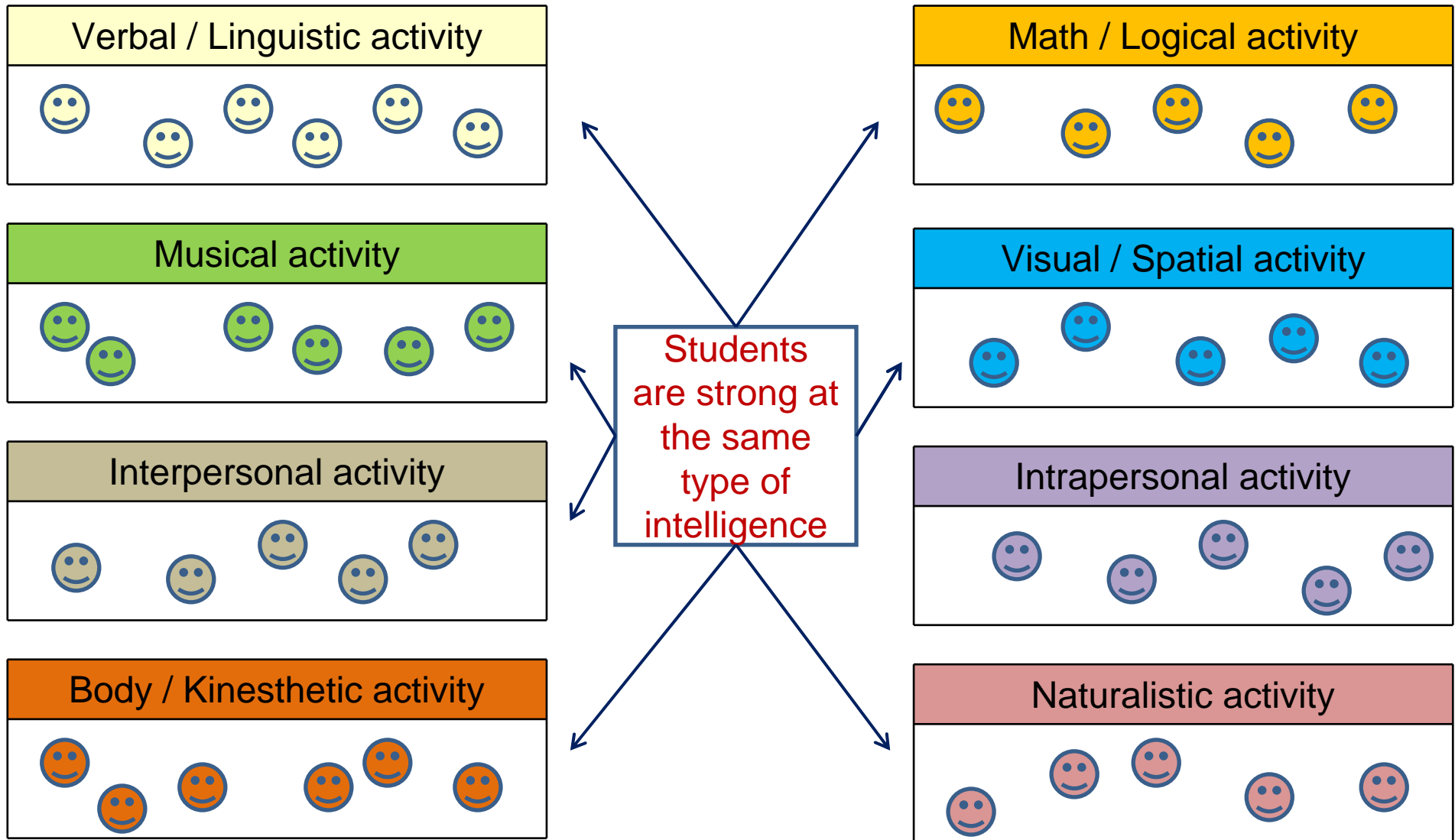


(Shearer, 1996)

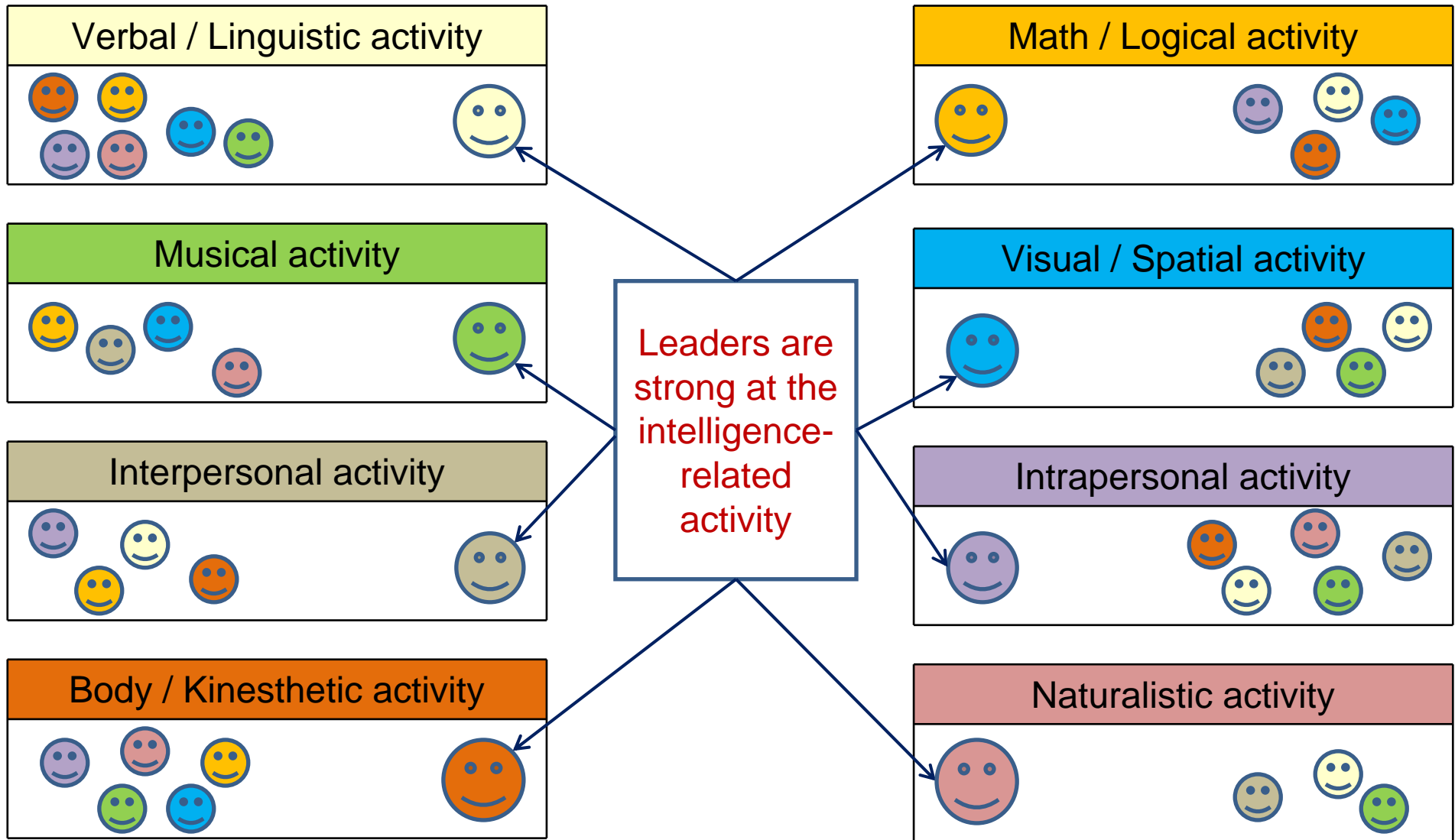
3rd Step of CARMEL

Involving students in
suitable student-centred
activities

Involving students in suitable student-centred activities: **Example 1**



Involving students in suitable student-centred activities: **Example 2**



Verbal / Linguistic Intelligence

Learns best through: Hearing and seeing words, speaking, reading, writing, discussing and debating

Examples of class activities:

- Student Presents Material
- Students read content and prepare presentation for his/her classmate
- Students discuss an issue



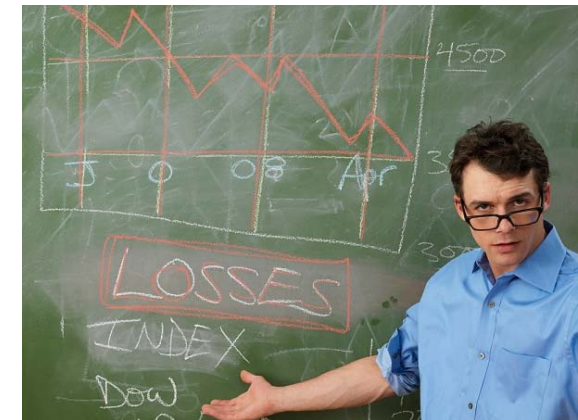
(Bellamy & Baker, 2005; Giles et al., 2003)

Logical / Mathematical Intelligence

Learns best through: Working with relationships and patterns, classifying, categorizing, working with the abstract

Examples of class activities:

- Students categorize information in logical sequences for organization.
- Students create graphs or charts to explain written info.
- Students participate in WebQuests associated with the content



(Bellamy & Baker, 2005; Giles et al., 2003)

Visual / Spatial Intelligence

Learns best through: Working with pictures and colors, visualizing, using the mind's eye, drawing

Examples of class activities:

- Have students work individually or in groups to create visuals pertaining to the information:
- Posters; timelines; models; PowerPoint slides; maps; illustrations, charts; concept mapping



(Bellamy & Baker, 2005; Giles et al., 2003)

Bodily / Kinesthetic Intelligence

Learns best through: Touching, moving, knowledge through bodily sensations, processing

Examples of class activities:

- Students use computers to research subject matter.
- Students create props of their own explaining subject matter (shadow boxes, mobiles, etc...)
- Students create review games.



(Bellamy & Baker, 2005; Giles et al., 2003)

Musical Intelligence

Learns best through: Rhythm, singing, melody, listening to music and melodies

Examples of class activities:

- Create a song or melody with the content embedded for memory
- Use well known songs to memorize formulas, skills, or test content



(Bellamy & Baker, 2005; Giles et al., 2003)

Interpersonal Intelligence

Learns best through: Comparing, relating, sharing, interviewing, cooperation

Examples of class activities

- Encourage collaboration among peers
- Group work strengthens interpersonal connections
- Peer feedback and peer tutoring
- Students present to the class
- Encourage group editing



(Bellamy & Baker, 2005; Giles et al., 2003)

Intrapersonal Intelligence

Learns best through: Working alone, having space, reflecting, doing self-paced projects

Examples of class activities:

- Journaling
- Individual research on content
- Students create personal portfolios of work



(Bellamy & Baker, 2005; Giles et al., 2003)

Naturalistic Intelligence

Learns best through: Working in nature, exploring living things, learning about plants and natural events

Examples of class activities:

- Students organize thoughts using natural cycles
- Students make relationships among content and the natural environment (how has nature had an impact?)
- Students perform community service



(Bellamy & Baker, 2005; Giles et al., 2003)

Does the application of
Gardner's theory of multiple
intelligence in teaching /
education enhance students'
learning?

Applying MI theory in educational

- MI is important in the **social work** educational setting overall **social work practice** and culturally competent practice (Matto et al., 2008).



- Applying MI in **nursing education** facilitated a higher scores on standardized achievement test (O'Hare, 2002) and promoted students' satisfaction on the educators (Amerson, 2006).



- Applying MI theory helped students perform better in the learning and application of **information literacy (IL) skills** (Mokhtar et al., 2007).



If we are unable to assess
students' multiple intelligence
individually or we only teach a
class once,
what should we do?

General guidelines of applying
CARMEL

A qualitative study in Hong Kong

University students hoped for the following teaching skills:

- ❑ Present materials clearly and systematically
- ❑ Pitch the teaching at the appropriate level for the students
- ❑ Creative use of learning aids: visual materials, etc.
- ❑ Arouse the interests of the students
- ❑ Encourage students to learn actively
- ❑ Stimulate students to think critically and independently

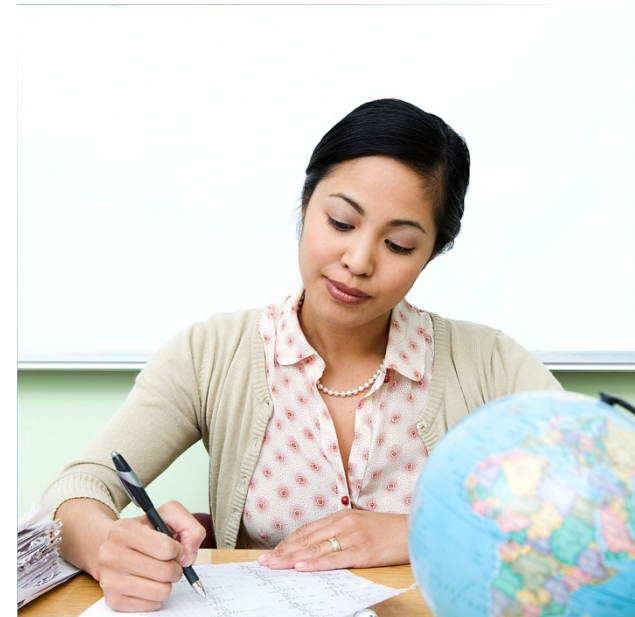


(Kwan & Jones, 1999)

Present materials clearly and systematically

□ “She teaches us very systematically. She is always well prepared for her classes. She covers a lot of materials in a lesson and there is no time for us to day-dream.” (LAW)

□ “He presented his lectures in a logical order, I could learn more from this subject than the others.” (ENC)



(Kwan & Jones, 1999)

Pitch the teaching at students' level

❑ “The lecturer teaches us the theories in depth, progressing gradually from the easy to the more difficult parts. It is helpful, as most of us...do not have the background knowledge in physics...That makes me particularly interested in his lectures.” (ITC)



❑ “It is important for the lecturer to pitch his teaching at the right level for his students. The lecturer knows his subject deeply and



(Kwan & Jones, 1999)

Creative use of learning aids

- “She teaches in a creative way. She does not simply talk to us in a monologue. She shows us some videos and tapes, and asks us to have an oral practice. (BUSS)



- “The lecturer uses a lot of materials such as videos or films to help us understand the subject matter. In this way, we learn how to think by ourselves, and it is a very effective way of learning. We can absorb most of the information presented to us.”



(Kwan & Jones, 1999)

(OT)

Arouse the interests of the students

- ❑ “I think the most important thing is to make students interested in the subject. The lecturer shows us the work of some of the famous designers which helps to get us interested.” (ITC)



(Kwan & Jones, 1999)

Encourage students to learn actively

- ❑ “Some lecturers teach us through questioning. They will ask us a series of questions in class. As we have to think through the questions actively by ourselves, we can understand the subject matter much better.” (OT)



- ❑ “In the lesson, the lecturer will give his opinions and then ask us to discuss and share our views. This is a more effective way to learn because in our discussions, we have to think through the issues.” (ACS)



(Kwan & Jones, 1999)

Stimulate students to think critically & independently

- ❑ “If the lecturer simply tries to present a lot of information and ask me to copy down the notes, he cannot stimulate me to think. But if he can express his views and then challenge me to think, or if they can answer questions that I do not know the answers of, then I can really gain something.” (FA)
- ❑ “The good lecturer also guides us to think. He always gives us feedback after we have answered his questions. We can therefore



(Kwan & Jones, 1999)

Any MI guidelines for designing
and carrying out **field studies** in
science courses?

Designing and carrying out field studies

- ❑ Approach the topic in an orderly and creative fashion;
- ❑ Introduce topics with situations recognized by the students;
- ❑ Emphasize the broad nature of the topic;
- ❑ Ask students to explore relationships within or among topics;
- ❑ Ask students to analyze materials or information;
- ❑ Help students to see patterns;
- ❑ Provide problem-solving opportunities;



(Manner, 2001)

Designing and carrying out field studies

- ❑ Create “What if?” situations;
- ❑ Set up situations that require hunches about outcomes;
- ❑ Set up field-based experiences that go beyond the text or lectures;
- ❑ Use problem-solving group work;
- ❑ Provide cultural as well as scientific experiences;
- ❑ Offer leadership opportunities;
- ❑ Give options for students to acquire mastery of material (i.e., don’t limit yourself to pencil-and-paper tests; include journals, group projects, and photographic



(Manner, 2001)

Besides MI theory, any other theories are useful for enhancing students' learning?

CARMEL:

Class Arrangement

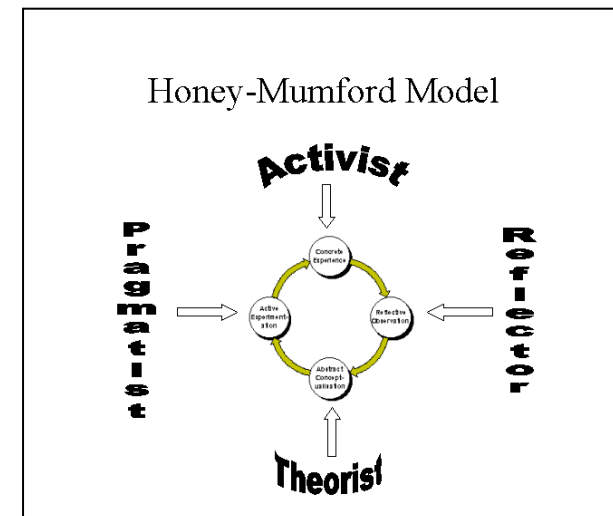
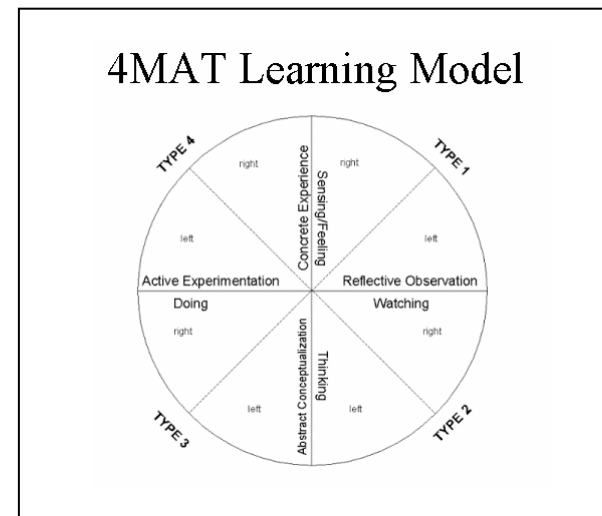
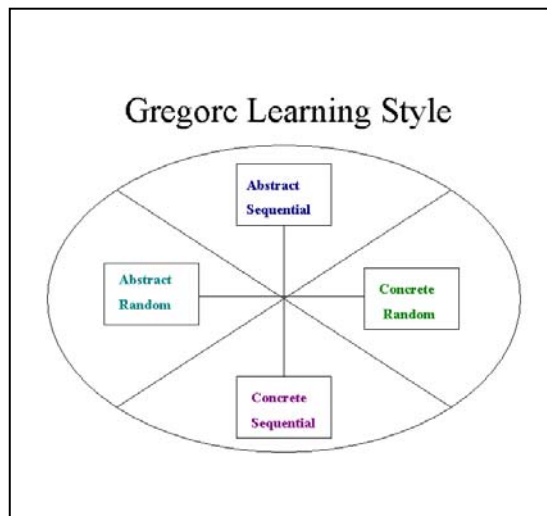
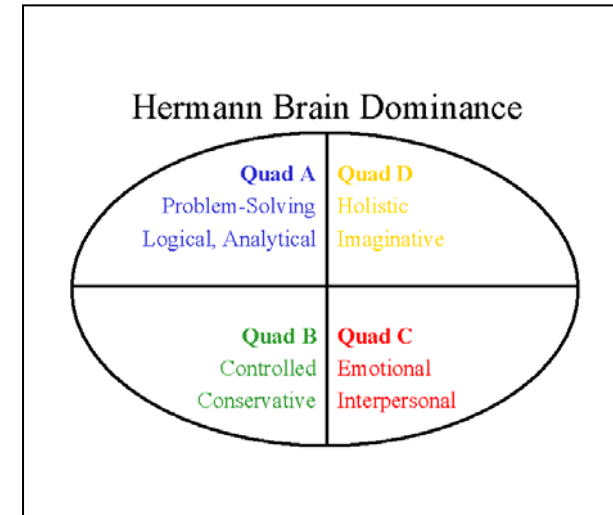
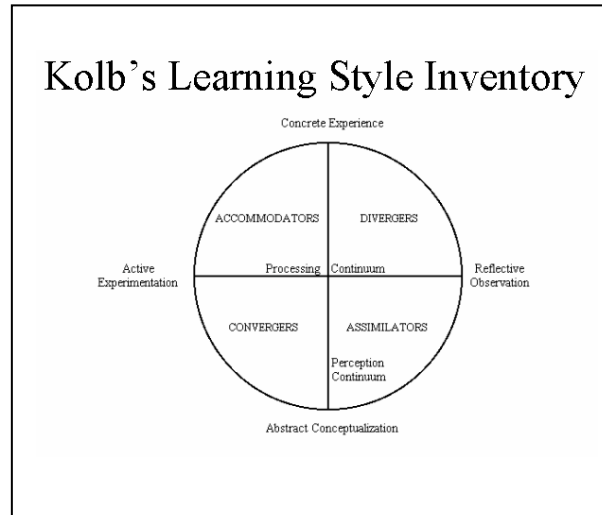
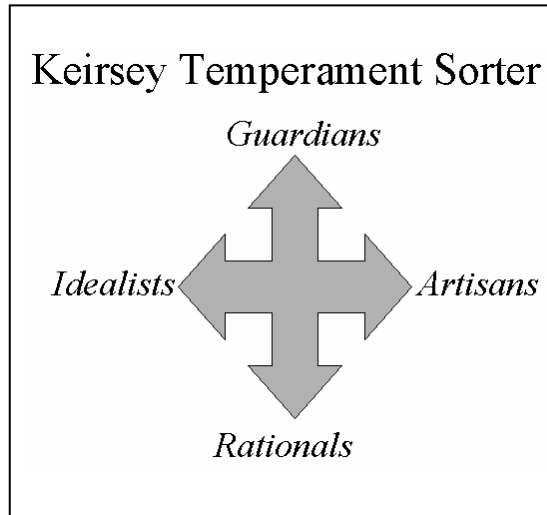
Rationale –

Multiple-Model

Enhancement

Learning

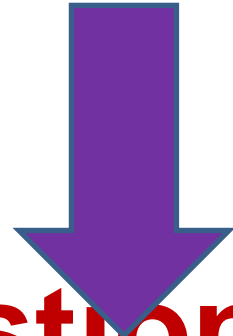
Learning Styles Models (Gordon, 2004)



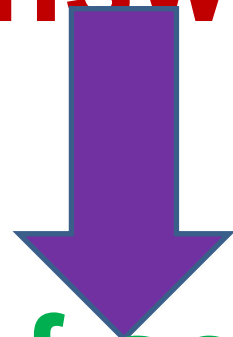
Learning Styles Models (Gordon, 2004)

<p>Keirsey Temperament Sorter II</p> <ul style="list-style-type: none"> • <i>Guardians</i> are conformity-oriented, and prefer systematic, structured learning • <i>Idealists</i> are interpersonal-oriented, and prefer to learn through discussion • <i>Artisans</i> are play-oriented, and are free-wheeling and creative • <i>Rationals</i> are learning-oriented, and prefer to learn by theorising, analysing and creating models 	<p>The Kolb Model</p> <ul style="list-style-type: none"> • <i>Converging</i> learners like to learn by solving problems and doing technical tasks, good at finding practical uses for ideas • <i>Accommodating</i> learners are people-oriented, hands on learners, who rely on feelings more than logical analysis • <i>Diverging</i> learners prefer to learn by observation, brainstorming and gathering information, are imaginative and sensitive • <i>Assimilating</i> learners prefer to learn by putting information in concise logical order, and using reflective observation 	<p>Hermann Brain Dominance</p> <ul style="list-style-type: none"> • <i>Quadrant B</i> likes to learn in a sequential and organised way, and when instructional exercises are structured and detailed • <i>Quadrant C</i> has an interpersonal preference, is emotional and kinaesthetic. • <i>Quadrant D</i> prefers to take a holistic approach, is a very innovative learner and is strongly visual • <i>Quadrant A</i> is a factually-oriented learner, takes a logical, analytical, quantitative approach to learning tasks
<p>The Gregorc Model</p> <ul style="list-style-type: none"> • <i>Concrete Sequential</i> are hardworking, conventional learners, who are always dependable and organised • <i>Abstract Random</i> are sensitive, and compassionate learners, who are spontaneous and flexible • <i>Concrete Random</i> are quick, curious and intuitive learners, who combine a creative streak with a realistic outlook • <i>Abstract Sequential</i> are analytical, objective learners, who are thorough, structured and logical 	<p>The 4MAT Model</p> <ul style="list-style-type: none"> • <i>Type 3 (Common Sense Learners)</i> interested in how things work, prefer concrete experiential learning activities • <i>Type 1 (Innovative Learners)</i> interested in personal meaning, prefers co-operative learning, likes brainstorming • <i>Type 4 (Dynamic Learners)</i> interested in self-directed discovery, they rely heavily on their own intuition, like roles-playing and games • <i>Type 2 (Analytic Learners)</i> interested in acquiring facts in order to deepen their understanding of concepts and processes, likes lectures and analysis of data 	<p>The Honey-Mumford Model</p> <ul style="list-style-type: none"> • <i>Pragmatists</i> prefer when the topic under study has an obvious link to the real world, and like to be given immediate opportunities to implement what they have learned • <i>Activists</i> enjoy new experiences and challenges, like teamwork and problem-solving, and enjoy leading discussions • <i>Reflectors</i> prefer to watch, think and ponder on activities, can carry out careful detailed research, and don't like pressure or tight deadlines • <i>Theorists</i> like to learn from models, concepts and theories, like to analyse and evaluate, and use logic

End of Presentation



Question and Answer



End of session Thanks for joining us!!



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