Teaching Tools & Techniques

Weaving Technology and Non Technology in the Family Science Classroom: Using the Best of Both Worlds to Meet Student Learning Styles

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Purpose

- Highlight the importance of using a variety of teaching methods within family science courses in order to address the multitude of student learning styles.
- Offer information and resources to enhance instructors' ability to creatively plan lessons that appeal to all students.

Objectives

- Describe 9 different "intelligences."
- Illustrate the multiple intelligences through an action-based activity that can be used in the classroom.
- Demonstrate how the multiple intelligences can be used within family science classes through sample activities and exercises.
- Examine how technology and experiential learning can be paired to facilitate student learning in family science through addressing multiple intelligences.

Rationale

"Too much of any thing in a classroom is a mistake" (Felder & Brent, 2005, para. 14). For example, while there are benefits to teaching by means of lectures, teachers who lecture, in general, and/or who lecture using primarily PowerPoint or transparencies are disregarding a

variety of ways that students learn. Conversely, faculty who only use experiential learning methodologies can also neglect different learning styles.

Recognizing this diversity in ways of learning, Howard Gardner (1993) identified eight intelligences or ways of knowing: verbal skills, mathematical skills, spatial skills, bodily-kinesthetic skills, musical skills, interpersonal skills, intrapersonal skills, and naturalistic skills. Gardner (2000) later added a ninth intelligence, existential intelligence. Although everyone has each intelligence, an individual may be stronger in some intelligences than others (Santrock, 2005, p. 430). Because some students are more spatially intelligent or have better naturalistic skills, teachers need to be careful that they incorporate different types of teaching methodologies which address the different intelligences in their classroom. This article will illustrate how to facilitate student learning in family science using multiple intelligences emphasizing both technology and experiential learning.

Experiential education is, in short, *learning by doing* and can be used to address a variety of multiple intelligences inside and outside the family science classroom. Through experiential learning activities, students may be given the opportunity to work with or visit a human service organization, participate in work placements, or role play simulated experiences within the classroom context. Many of these types of activities utilize intrapersonal intelligence, as students reflect upon the personal implications of the experience, or interpersonal intelligence, as they learn from observing and interacting with others. For example, service-learning methodologies within the family science curriculum can help students become instruments of social change as they incorporate naturalistic learning or clarify personal values and commitments as they apply intrapersonal intelligence (Hamon & Way, 2001). Hands on activities in the community, like

service-learning, also help students to learn responsibility which will help them become better, more informed, employees in the future (Karasik & Berke, 2001).

While many experiential approaches to teaching family science content are effective, the use of technology, too, can address a variety of multiple intelligences. Videos (Smith, 2001) and PowerPoint slides (Felder & Brent, 2001) are useful because the color and movement stimulates spatial skills. Those with mathematical skills may want the logical and straightforward approach of searching Internet databases for scholarly sources, while those who have bodily-kinesthetic skills may want to videotape a dance or skit. Those with verbal skills may learn best by writing a research paper or preparing and delivering a presentation on bottle versus breast feeding. Those with a musical ability may want to record a song to remember a concept or listen to music lyrics for stereotypical messages of aging.

In summary, technological and non technological approaches to teaching can complement and enhance one another and further facilitate student learning by presenting information using a variety of multiple intelligences. This article will illustrate how we utilize both technological and non technological/experiential approaches in our family science courses, being attentive to the multiple intelligences.

Procedures

Family science faculty members should begin with a review of the nine multiple intelligences. See Appendix A for a concise summary. Next they might help their students to explore which intelligences are most useful or appealing to them. The Human Intelligence Hunt, found in Appendix B, is an engaging and helpful tool for assessing the presence of the various intelligences within a particular classroom. Appendix C delineates technological and non technological teaching ideas for use within family science courses for each of the nine multiple

intelligences. Appendix D outlines a specific non-technological, in-class exercise that capitalizes on spatial intelligence when teaching about family systems theory. Appendix E offers details about a technological activity, the creation of a family genogram using computer software, which also maximizes spatial intelligence skills. Appendices F and G provide activities which best reach those with inclinations toward intrapersonal intelligence capabilities. The use of personal journals or portfolios is a non-technological expression of that ability, while the completion of on-line surveys (e.g., temperament, personality, learning styles, family assets) is a technological example. Finally, Appendices E and F provide a visual means for helping faculty to be attentive to the various intelligences in creating their own lesson plans within family science courses.

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ALPS: Active learning practices for schools. http://learnweb.harvard.edu/alps/

Genopro. www.genopro.com

Harvard project zero. http://pzweb.harvard.edu/

Multiple intelligences. http://www.chariho.k12.ri.us/curriculum/MISmart/MImapDef.HTM

Multiple intelligences. http://www.newhorizons.org/strategies/mi/front_mi.htm

The national educational technology standards. http://cnets.iste.org

Online MI immersion experiences. http://surfaquarium.com/MI/intelligences.htm

Teaching to the seven multiple intelligences and lesson plans. http://www.mitest.com/

Appendix A: (As seen on next page)

Multiple Intelligences		
The Intelligences	**People with a high degree of this intelligence:**	**Teaching Strategies**
Verbal / Linguistic	• Express themselves well through language • Use words effectively whether speaking or writing • High reading comprehension	• Written reports • Presentations • Essays • Reading assignments • Storytelling
Logical / Mathematical	• Are very good with numbers • Understand various patterns • Patterns include thought, number, visual, color, etc.	• Analogies • Metaphors & similes • Quantitative tests • Data analysis
Musical / Rhythmic	• Understand rhythm, melody, pitch & tones • Express themselves through rhythm, music or dance • Sensitive to sounds in the environment	• Listening to music • Comparing/contrasting music & rhythms • Listening walks • Use rap or songs
Visual /Spatial	• Think in terms of images & pictures • Good at mentally representing ideas • Able to see the world accurately	• Use of art & varying art media • Graphic organizers • Charts & graphs • Photography
Bodily / Kinesthetic	• Use their bodies to express their ideas & feelings • Tuned into their own body • Active learners & learn best by doing	• Movement activities • Field trips • Activities to “walk in another’s shoes”
Interpersonal	• Deep understanding of what motivates other people • Good at understanding other people’s needs • Work well with teams & communicate well with others	• Group discussion • Small group tasks • Group process • Team work
Intrapersonal	• Strong sense of self & ability to examine own thoughts & feelings • Often like to work alone. Introspective, often dreamers • Equipped to make personal decisions about their lives	• Journaling • Reflecting • Opportunities for introspection • Individual tasks
Naturalist	• Love the outdoors & strong connection with the environment • Sensitive to the needs of plants & animals • High appreciation of the natural world	• Nature walks • Comparisons to the environment
Existential	• Think on a universal level • Compare self in relation to the universe • Ponder deep questions—Who are we? Where do we come from? Why do we die?	• Philosophizing • Essential questions • Spiritual comparisons
(Campbell, 1997; Gardner, 1983; 1991; 2000).		

Appendix B:

Human Intelligence Hunt

Find someone who can:

_____ whistle a few notes from Beethoven's Fifth Symphony.

_____ stand on one foot with her eyes closed for at least five seconds.

_____ recite at least four lines from any poem he has learned.

_____ draw a quick diagram explaining how an electric motor works.

_____ briefly share a dream she has had in the past two weeks.

_____ complete this numerical sequence: 36, 30, 24, 18, _____, and explain the logic behind it.

_____ honestly say he is relaxed and comfortable relating to other people during this exercise.

_____ name 3 birds, plants or trees they have seen in Utah.

_____ articulate the meaning of life.

Adapted from:

Lazear, D. G. (1992). *Teaching for multiple intelligences*. Bloomington, IN: Phi Delta Kappa Educational Foundation.

Appendix C:

Teaching Family Science through the Multiple Intelligences

	Technological Method	Non-technological Method
Mathematical-logical	• Use statistics, bar graphs, and pie charts to show trends in marriage, cohabitation, divorce, remarriage, and family structure. • Family budget activity using the internet to look up statistics on the average rent for an apartment in their local area, the average price of a car, the cost of automobile insurance, the average salary in their field, etc. • Watch movies illustrating logic and decision making (i.e., The Family Stone)	• Jigsaw puzzle activity for family theory • Debate homosexual marriage • Time management activity pie chart "How do I spend my time?" • Contraceptive comparison – compare contraceptives in terms of cost, usage, availability, failure rates, etc.
Verbal-linguistic	• Write a research paper, book review, movie critique • Audiotape and/or videotape family stories • Create a family folklore album on CD	• Write a short story from the perspective of a man or woman about to be part of an arranged marriage • Write an autobiographical sketch about love • Write a haiku poem about death
Spatial	• Investigate a family from another culture and create a PowerPoint presentation including information on mate selection and marriage rituals, parenting, birthing practices • Construct a genogram using the computer program • Create a video of different wedding customs	• Creating a systems activity • HIV/AIDS activity • Design a magazine cover for mature adults or a children's magazine

Musical	• Listen to songs with different perspectives on death and dying or midlife crisis • Create a musical video for children like Baby Mozart • Write and perform a song illustrating gender • Select a song which describes your family	• Identify songs that discuss death and dying or midlife crisis and write down relevant lyrics • Do a content analysis of song/hymns about marriage • Interview parents or grandparents about songs that were significant in their lives
Intrapersonal	• Compare online dating services and then create your own dating profile • Take an online inventory, i.e., a personality test • Design a family crest or coat of arms	• Take a pen/pencil inventory • Journal about sexuality • Write a self assessment of your views of cohabitation and marriage • Identify and compare the criteria desired in a date and a mate
Bodily-Kinesthetic	• View videos on cross cultural interpersonal communication • Explore cultural dances, sports, games, family rituals, and activities either online or through videos • Wear empathy belly and record feelings as you wear the belly and/or use “Baby Think It Over”	• Do a values clarification exercise on four corner scale • Family sculpting activity • Charades • Mold concepts of love out of play dough
Interpersonal	• Online teaching • Blackboard discussions • Participate in a chat room or family science listserve	• Use interpersonal skills in a self disclose exercise • Define love in small groups • Family strengths exercise • Social exchange exercise
Naturalistic	• Learn about cultures that live in different environments. How do their family structures,	• Discuss how different biological environments may

	living arrangements, division of labor, etc. differ? • View birthing videos from multiple cultures and/or multiple practices • View "March of the Penguins" and discuss gender roles	have effect families • Conduct a family health history • Interview a genetic counselor
Existential	• View videos such as "Tuesdays with Morrie" or "Life or Something Like It" • Write a song exploring "Who am I?" • Create a video documenting your life	• Write a self assessment paper on "Who am I?" • Identify personal goals for a course, an internship, etc. • Investigate different religious traditions and compare to your own beliefs

Appendix D:

Example of Spatial Intelligence: Non Technological

Creating a "System"

This exercise is useful for when teaching family systems theory by demonstrating concepts like boundaries, cohesion/distance, rules, roles, patterns, etc.

1. Tell students that you will be asking for volunteers and that what you will be asking them to do will not be embarrassing.
2. Ask for the first volunteer to come to the front of the room, being sure to assume a position that he/she could comfortably hold for several minutes.
3. Ask for a second volunteer to come forward and join the picture. The only instruction is that he/she must touch the first person in some way.
4. Ask for a third volunteer and instruct this person to join the group. Again the instruction is that he/she needs only touch one other person (though he/she is allowed to touch both).
5. Add several more people with the same instruction, that each needs to touch at least one other person in the group.
6. After a total of about 6-7 people are in the group, ask the remainder of the class to take particular note of this sculpture. Remember it.
7. Then, the instructor should begin removing one "family" member at a time. (I typically try to remove a more "central" figure first so that gaps exist between remaining members.)
8. When all student volunteers have been asked to return to their seats (one at a time), pose the following questions for discussion:
    - To the first volunteer: What did it feel like being up front by yourself? Did you feel differently as others were added? How and why?
    - To the group members: Why did you decide to position yourselves as you did? Did you feel like you were an important part of the group or did you feel isolated and unimportant? How did you feel as each person left/was taken from the "family." What accommodations did you make (e.g., move to fill an empty space), if any? If you didn't make any changes, why not?
    - To observers: How would you describe the process of adding members to this system? Remembering the full complement of family members, what do you envision the relationships were like within this family? Which were most cohesive/distant? Do you think there were any alliances or coalitions? Who do you think had the most power in the group and why? As family members were removed, how adaptable did this family seem to be? How did they maintain homeostasis, if they did so? Did you note any positive or negative feedback? How do you see this exercise relating to family systems theory? Relate other systems theory concepts as possible.

Exercise designed by Raeann Hamon for use in HDFS 339 - Dynamics of Family Interaction

Appendix E:

Example of Spatial Intelligence: Technological

Family Genogram Assignment Using Computer Software

A genogram is a visual representation of families that depicts family process over at least three generations. Using appropriate symbols, students will construct a family genogram inclusive of their own (i.e., brothers, sisters, step-siblings, cousins), their parents' (i.e., stepparents, aunts, uncles and their spouses) and their grandparents' (i.e., grandparents and their spouses and grandparents' siblings' spouses) generations. Students should identify themselves with a double circle or double square. The genogram should include basic biographical information (e.g., complete birth date; death date and cause of death, if appropriate; education; occupation; religious affiliation; health conditions; ethnic heritage) for each person on the genogram. Complete marriage and divorce dates should also be recorded on the marriage line. The graphic depiction should also include relationship lines (e.g., conflictual, fused) and a significant events time line (including dates of geographical relocations, job losses, promotions, immigration, illness diagnoses, hospitalizations, etc.). In addition, a 1-2 page reflection paper which identifies themes or patterns and how they impact individual behavior and family relationships should be appended to the project. A theme represents a family's fundamental view of reality and how it responds to that view, its collective identity. "Living according to a theme necessitates the development of various patterns of behavior, which affect how members interact with the outside world, how they interact with each other and how they develop personally" (Galvin, Bylund, & Brommel, 2004, p. 42). Try to identify themes by looking for **recurring** events or situations (e.g., many males on father's side are pastors), patterns of spoken or unspoken expectations (e.g., children are expected to be produced early in the marriage), patterns of behavior, or relationship line patterns (e.g., three generations of conflictual mother-daughter relationships). Themes can occur around traditions and rituals related to religion or ethnicity; legacies; areas of strength and resiliency; military or public service; substance abuse; domestic violence; gender roles; communication or conflict resolution; occupations; parenting; marital patterns of divorce or remarriage; or successes. Sample themes include: "Working together keeps us together;" "We have responsibility for those less fortunate than we are;" and "Education is essential." Identified themes must be present in some way in all three generations. McGoldrick, Gerson, and Shellenberger's *Genograms in Family Assessment (2nd ed)* is on reserve in the Murray Library as a resource guide for rules about genogram construction. *Genopro*, software to assist with genogram construction, is available in the computer labs. In addition to classroom instruction, students will practice creating an ecomap and family genogram for a family in a film that we view in class. **The information included on the genogram is confidential; only the instructor will see your genogram.** Students who find this assignment too painful may speak to the professor about an alternative assignment. The genogram will be evaluated using the criteria on the attached grading rubric and is worth **100 points.**

Appendix F:

Example of Intrapersonal Intelligence: Non-Technological

Personal Journals or Portfolios
The purpose of the personal journal or portfolio is to help provide a channel of communication between you as a student and myself, the professor, and to help you relate your personal and social lives to this course.

Journal entries should demonstrate that you have completed the assignments and understand the content. They should include your reactions to the assigned readings, class discussions, speakers, videos, etc. You should relate what you are reading and hearing with other things you have read, discussed and/or experienced inside and outside of the course. Did the lecture, text, video, speaker, etc., change or influence your current attitudes and/or behavior? How do you think it will affect you in the future? What prior misconceptions did this information cause you to re-evaluate? Where did those misconceptions come from?

Portfolio entries: The specific writing assignments that you choose to undertake will vary from person to person. I will expect to see a summary of at least one piece of outside reading, and a discussion of its relevance. You might also consider writing short stories or poems related to what we are learning in class. Your portfolio might also contain one or more of the following: (a) a write-up of a class exercise and its relevance to your life and course material; (b) a draft of a short story related to love, decision making and gender issues; (c) a letter written by a parent to a child describing the process of puberty; or (d) a summary of a journal article that you read.

Journal/Portfolio format: There is no set length to the entries, although each entry should be a minimum of ½ single-spaced typed page or 1 double-spaced typed page **per entry**. It is essential that your journal//portfolio entries be kept up to date. Please remember, your anonymity will be guaranteed unless you choose to reveal who you are. **To aid me in keeping a record of journals/portfolios handed in each time, please make up a fake name/number and place it at the top of each entry in place of your real name. Date each entry and keep the entries in chronological order.**

In addition, you are also expected to write on the following two questions.
1. The first question will be to write on the topic of "Who I Am Sexually." Reflect on your past sexual development; family background; past and present feelings about gender, body, and sex; views on societal sex norms; strong convictions, doubts, and ambivalences about sexuality; and anything else you consider pertinent to your present state of sexual being.

2. The second question will be a follow-up entry at the end of the semester focusing on how you think you did or did not change your sexual attitudes and behavior as a result of this course. Discuss also how meaningful and/or difficult you found each topic of the course, and why; tell whether you would recommend adding or deleting any topic, and why; and give a general assessment of your sexual selves at this point, including which aspects please you and which you would like to change.

This assignment is taken from Debra Berke's HDFS 244 - Human Sexuality syllabus.

Appendix G:

Example of Intrapersonal Intelligence: Technological

Have students complete an on-line inventory, respond to directed questions, and then discuss in class. I have used the Keirsey Temperament Sort to teach about adult development and personality. Students first completed the inventory and totaled their scores. They then wrote responses to questions such as: “Does this inventory truly measure personality? Is this inventory accurate in assessing who you are? We then discussed their response to these questions as well as the implications of personality type for choice of employment, marital and parenting roles, etc. The Keirsey Temperament Sorter website is below as are additional websites with other kinds of inventories.

Keirsey Temperament Sorter

http://www.advisorteam.com/temperament_sorter/register.asp?partid=1s

Learning Styles Inventory

http://www.engr.ncsu.edu/learningstyles/ilsweb.html

Multiple Intelligences Inventory

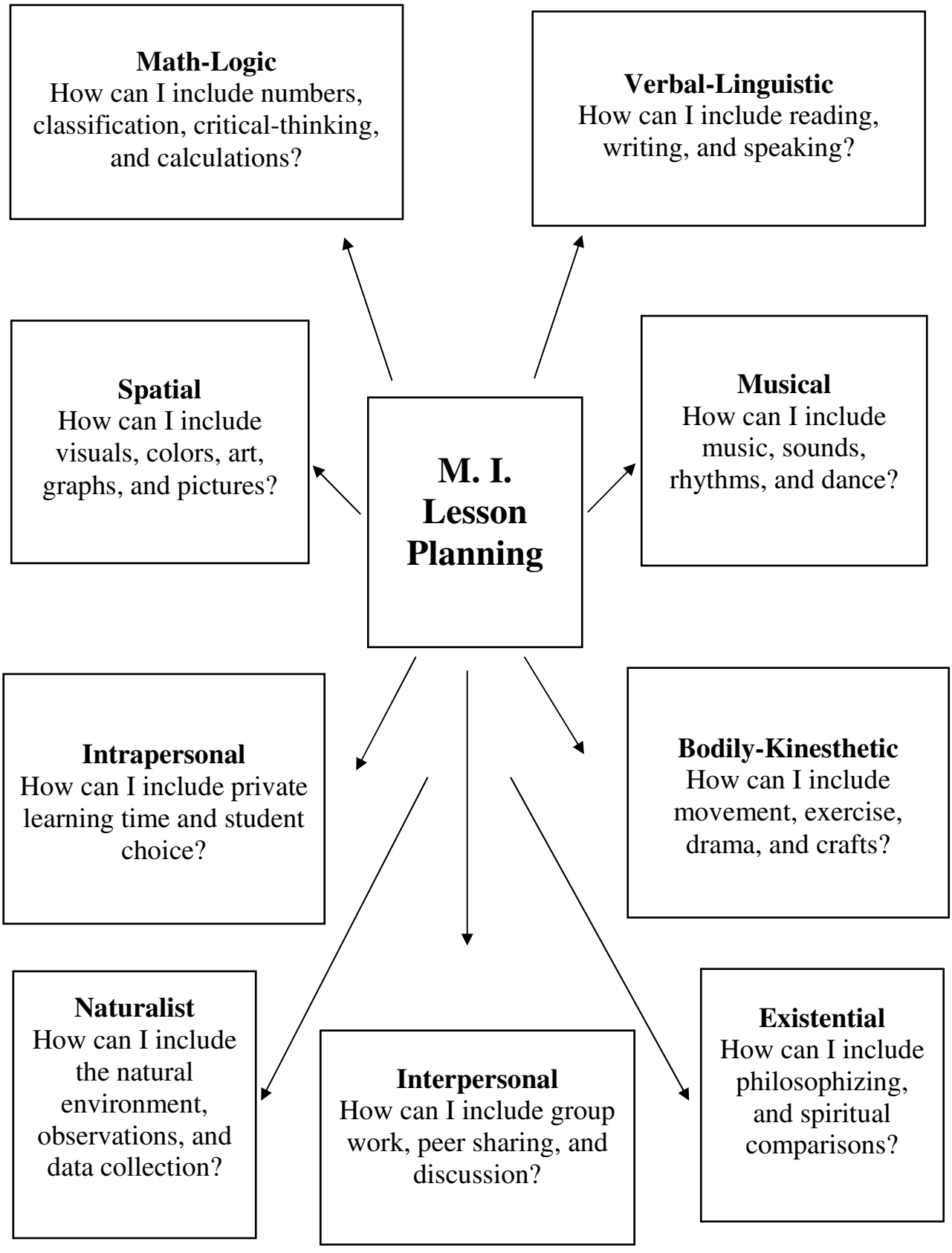
http://surfaquarium.com/MI/inventory.pdf

Family Assets Inventory

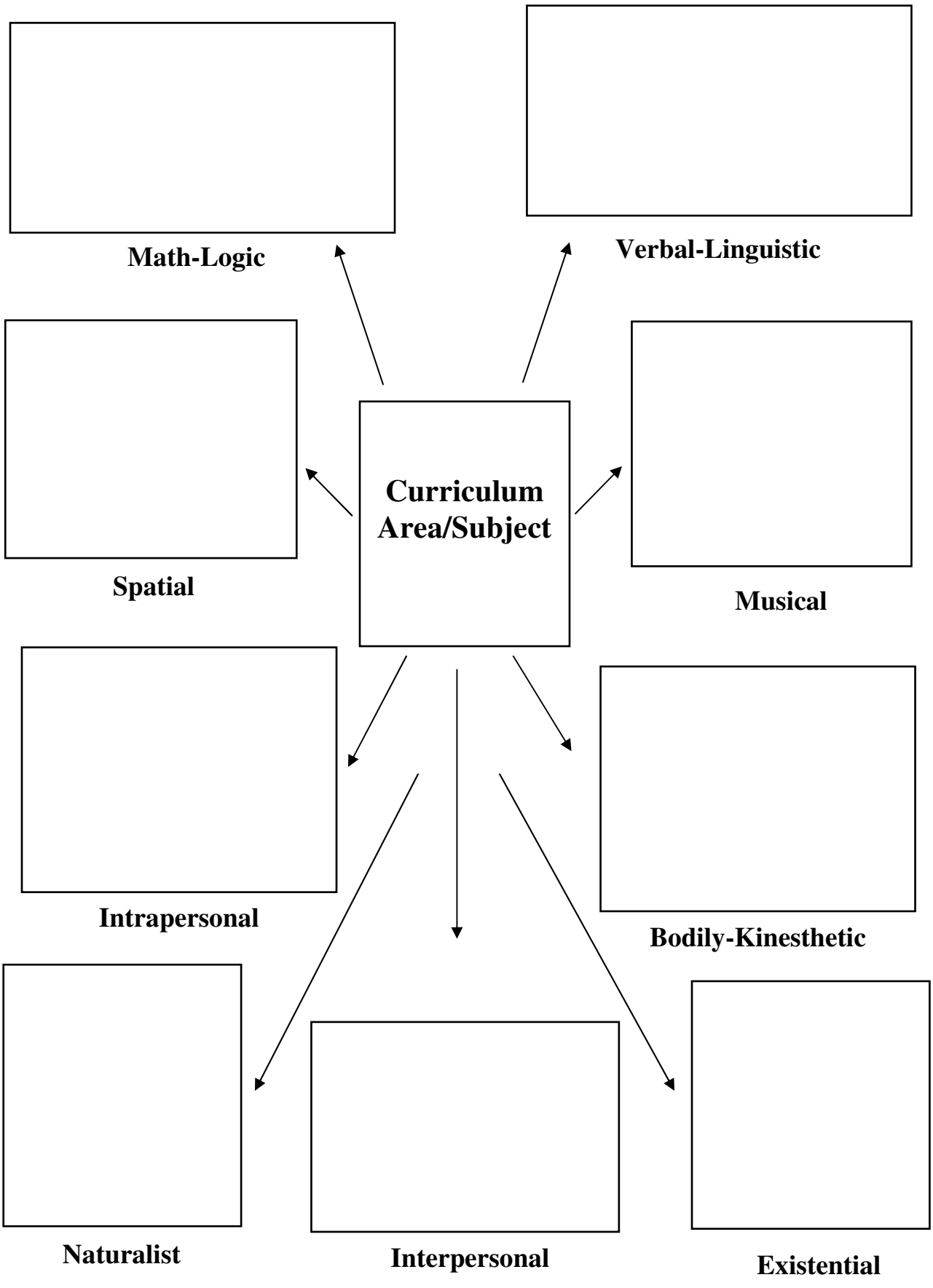
http://lancaster.unl.edu/famliv/inventory.htm

Appendix E and F: (As seen on next 2 pages)

Multiple Intelligences Lesson Plans



Lesson: _____


Math-Logic
Verbal-Linguistic
Curriculum Area/Subject
Spatial
Musical
Intrapersonal
Bodily-Kinesthetic
Naturalist
Interpersonal
Existential