

Nutrition SPOTLight

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Nutrition Education: Let the Games Begin!

Beginning medical students study how we defend ourselves against disease, 4th year medical students learn imaging techniques, and nurses study infection control with one thing in common: games are the method of instruction. Games can be effective nutrition education tools. Let's turn to **TIMI, THE THEORY OF INTRINSICALLY MOTIVATING INSTRUCTION** to understand why. Core TIMI concepts include the use of fantasy, challenge, and curiosity.

Fantasy may be embedded in the content (e.g. helping the mountain climber find the vegetables needed in the village below) or imposed on the content (e.g. having a mountain climbing theme in a nutrition pyramid lesson.) **Curiosity** may include sensory (e.g. audiovisual stimuli) or cognitive features. Cognitive features include starting out with a quiz or activity to provide surprising information. **Challenge** is present with variable levels of difficulty, hidden information, randomness and uncertain outcomes. TIMI concepts used in material development produce items that are fun.

Are nutrition education games fun? To answer this, researchers reviewed 30 school-based nutrition education activities for elements of fantasy, curiosity and/or challenge. The activities included 20 print, 5 computer, 3 video, and 2 puppetry formats.

Only eight activities had all three TIMI concepts; two of these 8 were print materials. At least one TIMI core concept was found in 16 activities. Computer, video, and puppetry formats all contained at least one TIMI concept, but print materials were decidedly not fun with only six of the 20 exhibiting any TIMI concepts

TIMI is an applied spin-off of **GAMING THEORY**. This theory is a complex mathematical theory developed to explain outcomes; player moves are predicted only when interaction created between players is included in the equation. Successful change in knowledge or behaviors from gaming strategies can be explained by this complex theory; i.e. learning from games is no accident or chance event.

In addition to skillful, theory-based development, success of nutrition education games is related to delivery mode. The **THEORY OF MULTIPLE INTELLIGENCES (TMI)** helps explain the importance of delivery. TMI holds that 8 separate intelligences are available and because each of us has a separate intelligence pattern, educators must consider the entire learner, focus on learner strengths and provide an environment that develops intelligence in areas less strong. The eight intelligences are interpersonal, musical, intrapersonal, bodily-kinesthetic, linguistic, naturalist, logical-mathematical and spatial-visual. Preschoolers presented with a nutrition curriculum based on TMI

showed significant pre/post improvements in willingness to taste foods, vegetable, fruit, and healthy snack identification. Games include components of multiple intelligences, making them useful to more people. An activity requiring a game board, dice, movement of pieces and events that can interfere with those movements tap at least five intelligences. Designing this game to include elements of curiosity, challenge, and fantasy will result in a product labeled effective by educators; players/learners however will only know it's FUN! (BLK)

Sources: Roy D. *Learning and the Theory of Games*. J. Theor Biol 204:409-14; 2000. Matheson D, Spranger K. J Nutri. Educ 33:10-16;2001. Cason KL. J Nutri. Educ 33:161-164;2001.

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Spotlight on K-State's Human Nutrition (HN) faculty: An interview with Dr. Barbara Lohse Knous, Associate Professor

Dr. Barbara Lohse Knous, R.D., L.D., who grew up in northern Minnesota, loves cold winters and snow. She values her experience of studying at a technical school and her professional start as a medical secretary. She used those skills to pay for her expenses as she first earned a B.S. degree in biology and chemistry at the University of Wisconsin—Eau Claire, and then an M.S. in foods and nutrition from the University of Wisconsin—Stout. Her Ph.D. is in Nutritional Sciences from the University of Wisconsin—Madison.

Lohse Knous joined the K-State faculty in Fall, 2000. Her primary appointment is with K-State Research and Extension, where she focuses on nutrition programs for people whose ages span from youth through middle age.

“I love getting phone calls about all aspects of nutrition,” Lohse Knous says of her work. She has written two consumer lessons — one encouraging intake of omega 3 fats and another addressing complementary and alternative medicine (CAM) and provided supporting information for consumers to learn more about each topic. She measured changes in knowledge and intake of omega 3 fats after using the lesson with a group of arthritis sufferers. Another project involves piloting the use of digital photographic display media as an alternative to more commonly used bulky poster board displays. The effect of substance abuse on nutrition practices is another interest of hers, and she believes that K-State Research and Extension could help address these concerns among foster children, as well as among Kansans serving prison time.

During the spring semester, Lohse Knous teaches HN 800, *Nutrition Education and Communication*. This web-enhanced course uses online discussions and assignments, and



includes a supervised service learning component. Students practice providing nutrition education to “real audiences” in various Kansas cities. They work on their project in teams, in cooperation with county Extension agents, businesses, teachers or dietitians. Additionally, Lohse Knous looks forward to providing an on-line nutrition class in 2003 to nutrition assistants working in the Kansas Family Nutrition Program.

Along with her extension and teaching responsibilities, Lohse Knous conducts research. She has mentored 13 graduate students and published 10 papers in peer-reviewed journals. She currently advises one doctoral and one master's student. The three funded projects that she, her students and project staff are working on are multi-state collaborations. One involves developing materials that will encourage young adults to increase their fruit and vegetable consumption. One of four types of messages will be sent to each participant, based on his or her readiness to change eating practices, as measured during telephone interviews. A second

study is designed to help increase dietitians' knowledge of omega 3 fats, and to help them be able to give appropriate advice to their clients. The third study focuses on validating a survey that measures “competent eating.” This phrase refers to eating that encompasses nutrition as a goal, along with enjoyment and positive food purchasing and preparation attitudes, and that is responsive to internal appetite cues. In a recently completed study, Lohse Knous surveyed use of herbals in children from low-income families in Kansas and Wisconsin. She now is working with Extension specialists in New Hampshire to complete the survey there as well.

Lohse Knous is pleased to have developed a nutrition education laboratory this year. “This room will facilitate research projects, by providing meeting space and computers for developing on-line surveys or analyzing data, as well as for centrally housing photocopies of relevant research articles. Having a lab will also be useful when my class is working on their projects, and it will help with Extension education when we develop educational materials,” she explained.

Lohse Knous is president-elect of the local dietetics association, serves as the continuing professional educator for a CAM newsletter, and is very involved with the Society of Nutrition Education. She is married to Dr. Ted Knous, associate vice-provost for research administration at K-State. An avid reader, she is learning to play the piano and has recently taken up both Middle Eastern dance and golf. She has two grown children, a son who lives in Wisconsin and a daughter who is a student at K-State. (MMH)

Bingo, Bridge, Jigsaws and Crossword Puzzles...

Is Life Just All Fun and Games?

Recent research is confirming the wisdom of the ages. A healthy dose of playing each day is good for us! Put mental exercise on your daily “To Do” list—it’s easy and fun.

A Pennsylvania study with 2,802 subjects ages 60 years and older found that those who did three simple mental exercises during ten hours of training had increased memory for two years or more. People can stimulate their memory skills on their own, however, without having to take special sessions¹. Most losses in memory that result from “aging” are really the result of a lack of mental exercise or stimulation.

To keep your mental skills sharp, do activities that enhance alertness, problem solving, clear thinking, goal setting, learning and memory. Be involved in learning, planning, and setting goals. Stimulate your mind by reading, talking, actively listening or writing. Plan a week’s worth of healthy menus, a garden or a party. Learn how to cook or use a computer. Play strategy games like chess, checkers, bingo, bridge, etc.; solve word, math, or other puzzles; or go somewhere, even locally. Take up knitting, fly tying, dancing, tai chi, yoga, drama or art, such as working with playdough. Make, build or repair something. Use your non-dominant hand to do simple tasks. Memorize something, learn to play an instrument, or learn a new language. Do something that you have never done before. These can help you maintain mental fitness and agility.

In a study involving 800 Catholic clergy ages 65 years and older from multiple groups across the U.S., people who more frequently did these types of mental activities that require thinking were less likely to have cognitive decline as they aged, and were less likely to develop Alzheimer’s disease².

British psychologist Julie Winstone tested 112 women ages 18-40 and 60-82 in a study reported in July, 2002. She found that both age groups of bingo players often were faster and more accurate than non-bingo players. And in certain tasks, older bingo players significantly outperformed young players. Bingo requires speed, concentration, accuracy and pattern recognition. Also, the game’s tension, excitement and social aspect could all be beneficial to mental skills³.

Being curious, creative, optimistic and flexible can help your brain develop healthier nerve connections, and even make new ones in the areas that are responsible for learning and memory.

Nutrition games are a way to provide competition, peer interaction, and visual stimulation while teaching about healthy eating practices. (MMH)

¹ Nov. 12, 2002, *Journal of the American Medical Association*; Dr. Sherry Willis, lead author.

² February 13, 2002, *Journal of the American Medical Association*; Dr. Robert S. Wilson, lead author. ³For more details, see www.independent.co.uk/story.jsp?story=314297

Nutrition Games

Nutrition Jeopardy is a game approach to teaching nutrition. One version of this game increased nutrition knowledge among adolescents with regard to calcium, weight management, healthy snacking, and fruits and vegetables. Since older adults also enjoy competitive game approaches to learning, the activity could be adapted to senior citizen audiences by changing the board categories and questions. Groups of varying sizes can play the game together. The activity is described and pictured in a GEM article in the *Journal of Nutrition and Behavior*, 2002;34:117-118. For more information, write to Dr. M.T. Burns at the School of Family and Consumer Sciences, Eastern Illinois Univ., 600 Lincoln Ave., Charleston, IL 61920; phone 217-581-6680; FAX 217-581-6090; email mdburns@eiu.edu

Pyramid Power is a fun way to learn, through 300 questions, about a wide variety of food trivia. For instance, the board game teaches players about which foods belong in which food group, how many servings from each group are recommended for daily consumption, and what portion constitutes a serving size, based on the Food Guide Pyramid. The game is described in the *Journal of Nutrition and Behavior*, 2002;34:126. Cost is \$45/game + shipping and handling from Aims Games, c/o Amy Peterson, 112 Silverridge Court, Cary, NC 27513; phone 919-395-8874; FAX 919-708-6141; email amypet@mindspring.com

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Movement, Fun (and Games)—With Preschoolers

Physical activity is needed for the healthy growth and development of young children. Through active play, children learn about their bodies, their physical abilities, and how to control their bodies within their environment.

They learn about movement itself and how movement can be done in a variety of ways. They use thinking skills to identify the body parts that they are moving or to count the number of times they march, hop, or skip. Children begin to understand how movement feels good when they do it alone or as part of the group.

Successful Movement with Preschoolers - Ages 3 to 5 years

Children in this age group enjoy running, jumping, bouncing, and catching a ball. They like to bend, twist, swing, and stretch into shapes that mirror or mimic what they see. They need opportunities to practice and to repeat these skills while at the same time having successful experiences with movement.

What is a successful movement experience for a preschooler? It's an experience that is fun! Preschoolers are not interested in the number of minutes that they marched, the number of sit-ups that they did or the number of points that they scored. Before we enroll children in competitive sports, let's give them a chance to build motor skills, play cooperatively, and enjoy movement. Movement and games can be positive experiences for everyone!

Games and activities can include ways to be cooperative, rather than competitive. Start with movements that allow all children to be active at the same time (like Follow the Leader). Eventually, play games that include movements with partners. Finally, do games that involve cooperation in taking turns, as long as no one is inactive for more than a brief period of time.

*Some Suggestions to Move and Learn***

- Encourage and praise your children's efforts to be physically active. Let them know it's important to you-and it will become important to them, too!
- Children need plenty of space to play and to "practice" using their large muscles. If they are in child care, be sure that their caregiver has a safe spaces-both indoors and outdoors-where child can move and play. If your own living space isn't large enough, maybe you can find a park or free indoor space where you and your child could move together.
- When your children are outside, encourage them to run and climb. Providing simple equipment (such as balls of different sizes) will promote more activity than motorized toys (and cost less!).
- Be active as a family. Go walking or bike riding. If you walk while doing an errand, take your child with you.
- If you need to be indoors, find some music with a good beat and hold a parade with your child. Play "follow the leader" as you march or do other movements. Or just be active and enjoy how good it feels!

Fun and Games for You and Your Children

Help Your Neighbor

Each child moves around the room with a beanbag on this head.

If this beanbag should fall off, he must "freeze." He cannot move until someone can pick up his bean bag and place it on his head. Keep encouraging the children to "help their neighbor" and praise them when they do.

I See

Leader says: "I see." Children say: "What do you see?" Leader says: "I see people galloping around the room." All follow leader's command. Change the command to include a variety of movements. Take turns being the leader with your child.

Statues

The children perform various locomotor skills around the space. When the leader says “stop,” the children must hold whatever position they are in at the time. The leader then counts to ten slowly, and the children may not move until the counting is finished, holding their bodies like statues. When the leader says “go” the children continue moving as directed.

Broccoli and Cheese

This game is a fun way for young children to explore galloping. Explain to the children that when they gallop, the lead foot always stays in the front. The back foot catches up, but never passes the lead foot. Pretend that the lead foot is the “broccoli” and the back foot is the “cheese” trying to catch the broccoli. The broccoli always gets away. Continue play, switching the lead foot.

Be the Mirror

Play a “mirror” game. Have your child face you and make the same shapes you make (as if they were looking in a mirror). Now let the child make the shapes and you become the mirror.

Think of games that you played as a child. Were they fun, but involve too much competition or inactivity? Maybe you can “tweak” them to increase cooperation and activity. Here’s an example that may give you an idea.

Musical Chairs

Remember how to play this game? All you need is chairs, people and music!

Put chairs back-to-back in a circle, with one chair less than the number of persons.

Let people know that, when the music stops, each person should find a chair to sit on. However, there will not be enough chairs for everyone. So some people will need to share! Then, start the music. Move around the chairs (hop, march, skip, etc.) until the music stops. Then everyone finds a chair to sit on, with two people “sharing” a chair! Remove another chair and start the music again.

Nobody goes out and everyone will eventually get a chance to share a chair-and maybe share it with more than one person!

Healthy Habits - A Most Important Gift

One of the most important gifts that parents and caregivers can give to children is the love for physical activity. It is easier to shape habits early than it is to change habits later in life. Many of our habits and “likes” began as young children. By showing that movement feels good and that activity is fun, adults help children move, learn and grow in positive, healthy ways. (BR)

*Source: Nutrition: Good for You! Lesson 3-“Let’s Move, Learn, and Have Fun!” and **Take Note, Issue Number 2-Moving and Learning, by Rae Pica*

Nutrition Games

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The **Food Pyramid Bingo® for Older Adults** game helps older adults visualize and learn about healthy foods while playing an interactive style of bingo. It outlines the USDA Food Guide Pyramid recommendations for each of the five major food groups, as well as teaching players about portion sizes, how to make healthy foods choices from 95 favorite to not-so-common foods, and what foods to eat in moderation. It includes 30 easy to

read, enlarged bingo cards, 95 picture squares and checking chart and guidelines for older adults. The game received a Gold Award in the 2000 National Mature Media Awards Programs for its overall excellence in design, content, creativity and relevance to the senior market. This game helps seniors understand the importance of making wise food and lifestyle choices to stay healthy while having fun. Cost is \$26.95 from

SmartPicks, Inc., P.O. Box 771440, Lakewood, Ohio 44107; phone 888-712-3144; FAX 216-226-5413; email games@smartpicks.com (MMH)

Words Olé

Got some time? Try these rhymes...do you know what each food or cooking term means?

- | | |
|--|--|
| 1. ____ Mole [MOH-lay] | A. A fermented soybean cake, with a texture similar to that of soft tofu and a yeasty, nutty flavor. |
| 2. ____ Parfait [par-FAY] | B. A dish of ice cream with a topping including syrup, fruits, nuts, or whipped cream. |
| 3. ____ Entrée [AHN-tray] | C. Short, curved tubes of pasta. |
| 4. ____ Sundae [SUN-day] | D. A smooth, cooked blend of onion, garlic, chilies, ground seeds, and Mexican chocolate. |
| 5. ____ Sorbet [sor-BAY] | E. French doughnut, square shaped, minus the hole, lavishly sprinkled with powdered sugar. |
| 6. ____ Crème Brûlée
[krehm broo-LAY] | F. Sprinkling certain foods with liquor, then igniting just before serving. |
| 7. ____ Soufflé [soo-FLAY] | G. The main course of a meal. |
| 8. ____ Puree [pyuh-RAY] | H. To cook food quickly in a small amount of oil. |
| 9. ____ Tempeh [TEHM-pay] | I. A thick, spicy stew of crayfish and vegetables served over white rice. |
| 10. ____ Filet [fih-LAY] | J. Any food that is finely mashed to a smooth, thick consistency. |
| 11. ____ Magliette
[mah-LYAY-tay] | K. A boneless piece of meat or chicken. |
| 12. ____ Pâté [pa-TAY] | L. Ice cream layered with flavored syrup or fruit and whipped cream. |
| 13. ____ Sauté [saw-TAY] | M. Baked, fluffy dessert or main dish of milk, egg yolks, stiffly beaten egg whites, and seasoning. |
| 14. ____ Beignet [BEN-yay] | N. Various elegant well-seasoned ground meat preparations. |
| 15. ____ Étouffée[ay-too-FAY] | O. A frozen mixture of sweetened fruit juice and water. |
| 16. ____ Flambé [flahm-BAY] | P. Chilled, stirred custard, sprinkled with brown or granulated sugar, then caramelized under a broiler. |

(KW)

9. A 10. K 11. C 12. N 13. H 14. E 15. I 16. F
1. D 2. L 3. G 4. B 5. O 6. P 7. M 8. J

Key:

Sausage Egg Soufflé

12 servings

- 1 pound sausage
- 6 slices fresh bread
- 4 eggs, beaten
- 2 cups skim milk
- 1 cup shredded cheddar cheese
- 1 teaspoon dry mustard

(Prepare the day before serving)

In a skillet, cook sausage until browned. Drain well on paper towel.

Discard crust from bread, cube slices of bread, combine with sausage and remaining ingredients in a large bowl.

Pour mixture into an 8x11 inch pan coated with cooking spray. Cover with foil and refrigerate over night.

Bake covered in a 325 degree oven for 45 minutes. Uncover and bake 15 to 20 minutes or until brown. To serve, cut into squares. Refrigerate leftovers. (KW)

Nutrition Facts

Serving Size 1-12 of soufflé (115g)
Servings Per Container 12

Amount Per Serving

Calories 240 Calories from Fat 140

% Daily Value*

Total Fat 15g 30%

Saturated Fat 6g 30%

Cholesterol 100mg 34%

Sodium 510mg 21%

Total Carbohydrate 6g 3%

Dietary Fiber 0g 0%

Sugars 4g

Protein 14g

Vitamin A 6% + Vitamin C 2%

Calcium 15% + Iron 6%

*Percent Daily Values are based on a diet of other people's misdeeds.

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Calcium 15% + Iron 6%

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Make It Fun *and* Meaningful

If you teach nutrition to children, you KNOW the lesson has to be fun, or you are wasting your time. They may let you know that you're wasting theirs, too! So, how do you develop a nutrition education program that delivers the message neatly wrapped in a layer of FUN? Connie Evers, MS, RD, has discovered the key. In her book *How to Teach Nutrition to Kids*, Evers writes that "effective nutrition education with children" must be "fun, integrated and behavioral." She calls this the F.I.B. approach, and she believes it enables kids to tune in to the lesson and retain more information after the lesson is over.

Evers has used costumes, characters and even her own baby to enliven her nutrition points. What props, games or tools do you use for fun? What *could* you do to better engage your audience? Evers recommends brainstorming about the point you want to make, then **integrating** nutrition into other areas of the children's day. Maybe the school cafeteria would allow a related poster, or maybe a note to families encouraging "ask me about" the fun subject you taught. While these steps take planning time, they increase your effectiveness. How will you know? Evers points out that we want to know what **behaviors** change as a result of our work, and behavior change is easier with children than any other age group. After the lesson, are more fruits and vegetables eaten? Is eating breakfast a more common occurrence? Improved nutrition behaviors lead to improved habits that enable students to learn better. Evers believes that "nutrition education done right is a boost for education in general." And that's no F.I.B.! (SP)

Source: Evers, Connie L. *How to Teach Nutrition to Kids*. 1995, 24 Carrot Press, Tigard, OR. 1-800-291-6098.

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