

Curriculum Development: A Critical Science Perspective

Bette Montgomery
Northern Illinois University

Standard 5 of the National Standards for Teachers of Family and Consumer Sciences (National Association of Teacher Educators for Family and Consumer Sciences [NATEFACS], 2004) focuses on the development, justification, and implementation of issue or problem-based curriculum. This paper (a) examines the meaning of curriculum; (b) examines family and consumer sciences curriculum from empirical-rational and critical science-based perspectives; and (c) identifies strategies to develop, justify, and implement family and consumer sciences curriculum.

Curriculum development and implementation are important components of a teacher's responsibilities (Danielson, 1996). It is essential that family and consumer sciences (FCS) teachers are able to develop and implement issues-based curriculum in order to meet the needs of individuals, families, and communities today. This is further expressed in Standard 5 of the *National Standards for Teachers of Family and Consumer Sciences* which states that beginning teachers of family and consumer sciences should be able to "Develop, justify, and implement curricula that address perennial and evolving family, career, and community issues; reflect the integrative nature of family and consumer sciences; and integrate core academic areas" (National Association of Teacher Educators for Family and Consumer Sciences [NATEFACS], 2004).

The purpose of this paper is to examine the meaning of Standard 5, Curriculum Development, for family and consumer sciences teachers. More specifically this paper includes an overview of the meaning of curriculum and examination of FCS curriculum from empirical-rational and critical science-based perspectives. In addition, strategies to develop, justify, and implement FCS curriculum will be identified.

Meaning of Curriculum

Broadly, curriculum identifies "what should be taught" in the classroom. More specifically, as defined by Posner (2004), curriculum includes official and operational components. The official curriculum, known as the written curriculum, includes the content to be taught as well as provides the basis for lesson plans, student evaluation, and teacher accountability. The operational, or implemented, curriculum is the content that is actually taught to students, including the importance of what is taught and the learning outcomes for which students are ultimately held accountable. In relationship to Standard 5, it is expected that the teacher will be able to both write curriculum and implement curriculum.

What is actually implemented in the classroom, however, may or may not match the written curriculum. This can have positive consequences. For example, the written curriculum in a high school level family relationships course included the student learning outcome of "identify alternative parenting styles." However, when engaged in the lesson, students moved beyond identification of parenting styles but also engaged in perspective taking (a component of critical thinking) as they role played parent-child interactions from different parenting approaches. In the follow-up discussion, the teacher further emphasized the importance of perspective taking as related to parenting. Lastly, the teacher assigned a poster project upon

which the students were assessed regarding both the identification of parenting styles and their perspective taking ability. In this example, the curriculum that was ultimately implemented in the classroom helped students to exceed the goals of the written curriculum. Conversely, if the written and implemented curricula do not match, it can have negative consequences. For example, if the written curriculum includes parenting styles but students are not taught about this concept, they will have limited understanding of alternative parenting approaches. And, when tested with questions based on parenting styles, points would be deducted for their lack of understanding.

In addition, curriculum should be used with professional judgment. Curriculum which is outdated, inaccurate, hinders learning, or is harmful should not be taught. In addition, there should be room for flexibility to incorporate new knowledge, skills, or teaching and learning strategies. In any case, teachers need to make professional judgments about curriculum and should have the autonomy to do so (Richardson, 2003; White, 1992).

Ultimately, it is the written curriculum that provides the foundation for what happens in the classroom and communicates the focus of family and consumer sciences to other teachers, administrators, and parents. While curriculum development can be a complex undertaking, a written curriculum is important in order to (a) create quality FCS middle and high school programs and courses; (b) build connections among and within FCS subject areas and core academic areas; (c) be accountable to the school, district, and other teachers in FCS and other subject areas, with regard to what is (and is not) taught; (d) communicate to others, including students and parents, the subject matter and significance of FCS; and (e) assist FCS teachers in reflecting upon their teaching practices and beliefs.

To achieve the “develop, justify, and implement curricula” component of Standard 5, there should be a close match between the written and implemented curricula. To help attain this goal in middle and high school level family and consumer sciences education, questions need to be addressed such as:

1. What is the focus of family and consumer sciences education?
2. What is the view of the family upon which the curriculum is based?
3. What subject matter or content should be taught?
4. What is the focus of learning?
5. What is the role of the teacher and the student?

Responses to these questions should help determine the nature of the written curriculum that is developed and the curriculum that is implemented. Teachers should be able to address these questions in order to help provide justification to the family and consumer sciences curriculum. These questions, however, may be answered differently from alternative educational perspectives (Eisner, 1979; Grundy, 1987).

Educational Perspectives in Family and Consumer Sciences

Two educational perspectives in family and consumer sciences include the empirical-rational science-based perspective and the critical science-based perspective (Brown, 1978; Brown & Paolucci, 1979; Montgomery 2003, 2006). Historically, empirical-rational science provided the foundation for family and consumer sciences education. Many middle and high school level programs continue to be based in this perspective. However, family and consumer sciences education is moving toward a more critical science-based approach.

Empirical-Rational Science-Based Curriculum Perspective

In the empirical-rational science-based perspective of family and consumer sciences curriculum, the primary purpose of education is to prepare adolescents for their future roles within the family or a future career. Families are viewed as producers to meet the needs of the family by making items such as food and clothing. Subject matter is organized by pre-determined and separate subject areas such as food and nutrition or clothing and textiles. Although study of the subject matter may draw from multiple disciplines, including academic areas such as reading or math, greater emphasis is given to the family and consumer sciences subject matter content.

In the empirical-rational science-based perspective, emphasis is placed on hands-on activities in order to apply factual knowledge in the completion of a product (e.g., making a food or clothing product) or the completion of a goal (e.g., complete a research report on child abuse). Students are engaged in decision making or problem solving as a step-by-step process which may or may not include the examination of values related to the problem (Montgomery, 2003). Problems under study are those of a “how-to” nature. For example, the problem of how to ensure kitchen safety and sanitation is frequently taught by giving students the rules of how-to behave in the kitchen (e.g., carry knives with the point down, wash your hands with soap before food preparation, and don’t run in the kitchen). While it is very important to apply safety and sanitation principles, the how-to-do-it remains the focus of the problem.

Family and consumer sciences teachers are viewed as knowledge experts and students are the recipients of teachers’ expertise. Teachers are to be well-prepared in technical actions such as sewing, food preparation, and child care. Students are taught through teacher-as-expert activities such as lectures and demonstrations. A course textbook may serve as another expert source of information. Student-centered activities consist of labs related to the subject itself including clothing construction labs, foods labs, and child development labs. Students are primarily evaluated by paper and pencil tests, and their skill in making products. Although family-based issues may be included as a component of study in empirical-rational science-based family and consumer sciences curriculum, issues are not a central focus.

In the late 1970s and early 1980s, Marjorie Brown and Beatrice Paolucci, as philosophical leaders, proposed critical science-based curriculum as an alternative perspective. Overall, it was perceived that as a foundation for curriculum, the empirical-rational science-based perspective did not fully address the needs of individuals, families, and society, and a change was needed within the profession. Since this time, critical science-based curriculum has taken a more central role in family and consumer sciences middle and high school level education.

Critical Science-Based Curriculum Perspective

In the critical science-based curriculum perspective, families are viewed more as consumers rather than producers of goods and services. Learning experiences focus on the integration of how-to skills and knowledge, as well as critical thinking and problem solving. Students examine their multiple life roles (e.g., as family members, workers, and citizens) and family, career, and community issues. Hands-on activities remain an important component of the learning process, but emphasis also is placed on the development of cognitive and social skills. This is further emphasized in the *National Standards for Family and Consumer Sciences Education* (for middle and high school students) as organizing processes (e.g., thinking, communication, leadership, and management) (National Association of State Administrators for

Family and Consumer Sciences [NASAFACS], 2008). Students may be evaluated by paper-and-pencil tests as well as performance or product assessments (which include evaluation of both the content and processes used). Rather than a knowledge expert, as in the empirical-rational science-based curriculum perspective, the teacher is viewed more as a facilitator who structures active learning experiences in which the students will engage.

The central focus of the critical science-based perspective is for individuals, families, and communities to think about the problems or issues of everyday life and to take action toward the improvement of those problems (Gentzler, 1999; McGregor, 2003). These problems or issues can be persistent in that they occur over and over again across generations, that is, they are perennial (Brown, 1978; Brown & Paolucci, 1979; Montgomery, 1999). Because of this focus, a critical science-based curriculum perspective best addresses the perennial family, career, and community issues component of Standard 5.

Table 1 compares the focus, view of the family, subject matter, focus of learning, and role of the teacher and student for the two perspectives.

Table 1
Alternative Family and Consumer Sciences Curriculum Perspectives

| Perspective | Empirical-Rational Science-Based | Critical Science-Based |
|---------------------------------|---|--|
| Focus | Students prepare for their future roles in a single context (e.g., the family or specific job/career). | Students examine current and future roles within multiple contexts (e.g., the family, work, and community settings,) and their interrelationship |
| View of the Family | Producers <ul style="list-style-type: none"> • Emphasis on technical or “how to” actions. | Consumers <ul style="list-style-type: none"> • Emphasis on multiple actions: technical, interpretive, reflective. |
| Subject Matter | Selected and organized by pre-determined subject areas: <ul style="list-style-type: none"> • Food Preparation and Nutrition • Clothing and Textiles • Family Relationships • Parenting/Child Development • Housing and Interior Design • Consumer Education | Selected based on perennial and evolving family, career, and community issues, such as: <ul style="list-style-type: none"> • What should be done about family and human development? • What should be done about food and wellness? • What should be done about consumerism and family resources? |
| Focus of Learning | Emphasis on: <ul style="list-style-type: none"> • Facts, how-to skills; narrow topics • Make product or complete goal • Decision making • Hands-on learning • Paper-and-pencil tests | Emphasis on: <ul style="list-style-type: none"> • Broad concepts • Apply processes • Problem solving, critical thinking • Active learning • Tests, performance, and product assessment |
| Role of the Teacher and Student | Teacher as expert; students are recipients of knowledge. | Teacher as facilitator, students and teachers as co-investigators. |

Perennial problems. Although the word problem may create a negative image, perennial problems are not necessarily negative. According to Brown (1978), “‘Problem’ is used to mean a difficult question for thought or inquiry” (p. 14). For example, parenting is a problem which requires ongoing attention. Parenting may involve somewhat ordinary and everyday questions which need to be addressed, such as: (a) What should I feed my child? (b) Why should they eat those foods and not eat others? (c) What stories should I read to my child? and (d) When and why should I start reading to my child? However, some parenting problems may require more in-depth consideration, such as: (a) How can I best facilitate the development of my child until they become an adult? (b) How can I help my child achieve their career goals? and (c) What resources do I need in order to nurture, as well as financially support my child? Based on this definition of problem, parenting involves difficult questions that require thought and inquiry.

There can be instances, however, when the problem is not addressed and a gap results in meeting the needs of the individual and/or family. Evidence that family needs may not be met include, for example, a high degree of marital conflict, domestic violence, child abuse or neglect, family income at poverty levels, or family members who are malnourished. Gaps such as these indicate a need for further individual or family support, intervention, community resources, and/or preventive education.

Perennial problems are never fully resolved and may be responded to in different ways from generation to generation. For example, the problem of teenage pregnancy will never be fully resolved. In 1991, 39 of every 1,000 teens between the ages of 15 and 17 became pregnant. In 2003, 22 of every 1,000 teens were pregnant (Federal Interagency Forum on Child and Family Statistics, 2005). Although teenage pregnancy rates have declined, the problem is still significant. Different generations may pose different solutions to a perennial problem. Over the past century, solutions to teen pregnancy have included marriage, adoption, single-parenting, abortion, and/or education regarding pregnancy prevention. Even the meaning of what is a good parent has changed over the past century. In the idealized 1950s a good father was a breadwinner; a good mother was a stay-at-home mom and the primary caregiver. Today, a good parent (father or mother) may be viewed as a nurturer who shares parenting responsibilities. In any case, a recurring issue for the family is a perennial problem that is never answered once and for all time, and may be answered in different ways across generations.

Posing these perennial problems in the form of a question helps to take a more inquiry-based approach to both curriculum development and implementation. These questions are usually stated as “what should be done about” questions. Examples of perennial problems which may guide curriculum include: (a) What should be done about the family and human development? (b) What should be done about nutrition, food and wellness? and (c) What should be done about consumerism and family resources? In developing a written curriculum document, questions such as these guide teachers’ decisions about “what should be taught” (Montgomery & Davis, 2004; Nebraska Department of Education, 1995).

As shown in Table 2, each question may be further broken down into sub-questions. For example, in thinking about the perennial problem of human development, sub-questions such as the following may be included: What should be the individual, family, and community’s responsibilities regarding human development? What should be done to nurture human development across the lifespan? What should be done to insure that human development needs are met? What should be done about parenting?

Adolescents also need to understand perennial problems. As stated in the *National Standards for Family and Consumer Sciences Education*, middle and high school students

should be able to “analyze recurring [perennial] and evolving family, workplace, and community concerns” (Reasoning for Action, Standard 2, NASAFACTS, 2008).

Although the term “evolving” is used in Standard 5 of the *National Standards for Teachers of Family and Consumer Sciences* and in the Reasoning for Action standard of the *National Standards for Family and Consumer Sciences Education* (for middle and high school students), the concept of evolving issues or concerns is not readily defined in family and consumer sciences literature. To extend Brown’s (1978) thinking about perennial problems, it can be assumed that evolving problems or issues are much like perennial problems in that they require thought and inquiry, but are new in that they have not been readily addressed before. Examples of evolving issues in our society today include homeland security, genetic manipulation, and global warming. While these are examples of broad societal issues, they have direct implications for family, work, and community life. The nature of the perennial or evolving problem determines what actions are needed to help address the problem.

Table 2

Examples of Perennial Problems

What should be done about the family and human development?

- What should be the individual, family, and community’s responsibilities regarding human development?
- What should be done to nurture human development across the lifespan?
- What should be done to insure that human development needs are met?
- What should be done about parenting?

What should be done about nutrition, food, and wellness?

- What should be the individual, family, and community’s roles regarding nutrition, food, and wellness?
- What should be done to meet individual and family needs regarding nutrition both within the United States and globally?
- What should be done to empower individuals and families in order to achieve health and well being?
- What should be done to meet the nutritional needs of all family members?

What should be done about consumerism and family resources?

- What should be the individual, family, and community’s roles regarding consumerism?
 - What should be done about the responsible use of family resources?
 - What should be done about obtaining food, clothing, and shelter?
 - What should be done about developing and sustaining resources?
-

Adapted from: Montgomery & Davis, 2004; Nebraska Department of Education, 1995

Systems of action. To address both perennial and evolving problems, multiple forms of action may need to be taken by individuals, families, or communities. Although in-action may be a choice, without taking action a perennial or evolving problem will not be resolved on its own. There are at least three forms of action that may be needed: technical, interpretive, and reflective. They are viewed as a system because the actions are interrelated and all three types of action

may be required. Reasoning for action, including technical, interpretive, and reflective actions, is a central process for middle and high school level students (NASAFACS, 2008).

Technical actions are those which are considered to be how-to actions in which there is a pre-specified goal or the completion of a product. Once the goal is achieved or the product is finished the action is complete. Within the family, examples of technical actions include how to prepare nutritious food or balance the family budget. Employees or volunteers, within the workplace or community, might help families identify available community services, guide individuals in completing the forms to receive assistance, or provide direct financial assistance through fund-raising events. Technical actions are those which are most frequently emphasized in the empirical-rational science-based curriculum perspective

The second of the three forms of action, interpretive, are those which help to achieve shared beliefs or mutual understanding. These actions focus on engaging in deeper communication in which family members transmit culture and family traditions, or develop nurturing relationships. Examples of interpretive actions include, for example, a couple coming to an understanding about how they will share the responsibilities of their home and family, or parents coming to a shared set of values important to raising their children. Interpretive actions may also occur within the workplace, as a family services worker, for example, may facilitate a dialogue among parents about the meaning of culture in their own families. Community members may engage in interpretive actions by coming to a mutual agreement regarding the development and implementation of family-based policies.

Reflective actions, the third form, are the deeper questions which need to be examined regarding beliefs and assumptions about perennial and evolving problems. For example, a Caucasian couple, in preparing for the adoption of an African-American child, need to examine their own assumptions about African Americans and parenting a child of a race different from their own. Critical questions the parents need to ask themselves include: (a) What are our beliefs about African Americans? (b) Why do we hold these beliefs? (c) What will it be like to parent an African-American child? and (d) How will others perceive our family? A family services worker would also need to examine their own beliefs, or pose questions for others, such as: (a) What assumptions do I hold about families? (b) What do I believe families should look and act like? (c) Why do I believe this? (d) Is this belief held by everyone? and (e) If my beliefs are different should I change my perceptions? The community itself may need to also address critical questions. For example, in a local high school, it has become apparent there are racial tensions among students. Students, teachers, administrators, and others within the community need to examine critical questions, such as: (a) Why do these racial tensions exist? (b) What are the distorted beliefs about students of different races? and (c) Why do these distorted beliefs exist within the school? All three actions, technical, interpretive and reflective, need to be considered in addressing perennial and evolving problems.

Broad concepts. Rather than an emphasis on factual knowledge and skills, as in the empirical-rational science-based approach, broad concepts become the foundation of critical-science based curriculum. After consideration of the perennial or evolving problem, as well as the actions needed to help resolve the problem, broad concepts (in effect, the subject matter) are selected for study in the middle or high school level classroom. Broad concepts selected for study should be those which lead to enduring understanding. “Enduring refers to the big ideas, the important understandings, that we want students to ‘get inside of’ and retain after they’ve forgotten many of the details” (Wiggins & McTighe, 1998, p. 10). For example, when considering the perennial problem “what should be done about parenting?” broad concepts, such

as family, systems of action, care giving, communication, leadership, and human development, should be the focus of the curriculum. Examination of concepts such as these will help students understand more fully the meaning, responsibilities, and problems related to parenting. Wiggins and McTighe suggest emphasis should be placed on studying a few concepts in which students may delve deeply rather than on the coverage of many topics. Hauxwell and Schmidt (1999) further state that a focus on broad concepts helps to see the whole picture as well as make connections between sub-concepts. Broad concepts are not meant to be used only by teachers, rather these concepts should be a clear component of the written curriculum and explicitly used with students as part of the implemented curriculum.

Because curriculum is driven by perennial and evolving problems, the subject matter studied in family and consumer sciences becomes more integrated. This subject matter includes both family and consumer sciences subject areas as well as core academic areas (Daggett, 2003). For example, to examine problems related to parenting, students need to learn about concepts such as human development, selecting and preparing nutritious food, making appropriate clothing choices for children, creating a safe emotional and physical living environment, and maintaining/developing family resources. In addition, students integrate core academic areas such as math, language arts, or science. For instance, mathematics is used as family financial resources are examined, reading and comprehension are required to understand food labels, and biological sciences are incorporated when learning about fetal development during pregnancy. In contrast to the empirical-rational science-based curriculum perspective, the critical science-based approach does not maintain clear subject matter boundaries.

A critical science-based curriculum perspective best meets the intent of Standard 5. In this curriculum perspective, major emphasis is placed on perennial and evolving problems of individuals, families, and communities (as well as the actions needed to help move toward their resolution). In addition, the critical science-based perspective reflects the integrative nature of family and consumer sciences and core academic areas. Teachers with an understanding of this perspective should be able to develop, justify, and implement curricula from this approach as stated in Standard 5. Teachers may engage in several strategies to help facilitate this process.

Strategies to Develop, Justify, and Implement Curriculum

Through curriculum development and implementation, teachers engage in a decision making process (Burden & Bryd, 2007). There are several strategies that teachers may use to assist in making decisions as well as provide justification or support of their decisions. Strategies include:

1. *Examine the perennial or evolving problem.* Complete a gap analysis exercise as outlined in Table 3. Examine a perennial or evolving problem and identify the current state of affairs and the ideal state of affairs. From this information, identify the gap which exists between “what is” and “what should be” with regard to the problem (Johnson & Montgomery, 1997).
2. *Develop a curriculum rationale statement.* Write a statement which addresses questions such as: (a) What is the perennial or evolving problem? (b) What are the consequences for addressing or not addressing this problem? (c) Based on this problem, what are the concept(s) which are the focus of this program, course, or unit

of study? and (d) Why is it important for middle school and/or high school level adolescents to understand these concepts? (Kister, 1999).

3. *Develop key curriculum questions.* Key questions are broad questions which are developed to help establish an inquiry mode to education (Holcombe & Fedje, 1983). Examples of key questions related to parenting include: (a) What is parenting? (b) What assumptions do people hold about parenting? (c) In what ways might parenting differ across cultures, socio-economic levels, and generations? and (d) What are my beliefs about parenting and why do I hold these beliefs? Comer, Hittman, and Fedje (1997) also suggest technical, conceptual, and critical questions as a framework, as illustrated in Table 4.
4. *Identify broad concepts.* Use the criteria identified by Wiggins and McTighe (1998) to identify and further reflect on the concepts selected. Ask to what extent each concept: (a) Represents a big idea having enduring value beyond the classroom for individuals, the family, and society? (b) Resides at the heart of the discipline? (c) Addresses perennial or evolving issues? (d) Examines the systems of action? (e) Requires in-depth study or examination – something that can be delved into? and (f) Offers the potential for engaging students?

Strategies such as these can assist teachers in curriculum development.

Table 3
Gap Analysis

-
1. Create an initial list of questions related to the perennial or evolving problem.
 - a. Identify questions based on a perennial or evolving problem.
 - b. Generate a list of questions important to the problem.
 - c. Group content, valued end, alternative means, and consequence questions in separate categories (i.e., practical reasoning process). Revise/add questions.
-
2. Develop initial thinking on the “current state of affairs” or “what is.”
 - a. Hypothesize potential answers to the questions based on your own thinking and experiences.
 - b. Develop initial thinking on the “ideal state of affairs” or “what should be.”
 - c. Brainstorm possible statements for the ideal state of affairs which are free from bias and based on understanding human principles.
-
3. Investigate the problem and develop a chart and/or write a paper.
 - a. Find resources to support or revise the current state of affairs.
 - b. Find resources to support or revise the ideal state of affairs.
-

Adapted from: Johnson & Montgomery, 1997

Table 4
Framework for Questions

Technical Questions: “Technical questions have absolute, concrete, and readily available answers” (Coomer, Hittman, & Fedje, 1997, p. 175). There are three types of technical questions: cause and effect, factual, and means-end. Examples include:

- Cause and Effect: What is the effect of family income on meeting needs for clothing, shelter and food?
 - Factual: According to the U.S. Census Bureau, how many families live in poverty?
 - Means-End: What actions are needed in order to raise family income levels?
-

Conceptual Questions: “Conceptual questions focus on the language and meaning of various concepts” (Coomer, Hittman, & Fedje, 1997, p. 176). These questions help in the clarification of concepts, revealing the meanings that people hold, what they think or believe. Examples include:

- What is the meaning of family for individuals, the family itself, or the community?
 - What are family traditions? What do these traditions symbolize? Are these meanings the same for all cultures? Different?
 - How is the meaning of family developed within one’s own family? How are meanings of parenting developed?
 - How is the concept “household” similar or different from a family? Why do you believe this?
-

Critical Questions: Critical questions help us to *analyze* and *evaluate* assumptions, meanings and beliefs. “The knowledge produced by critical questions helps us to critique meanings and beliefs in terms of their truth and rationality” (Coomer, Hittman, & Fedje, 1997, p. 177). Critical questions are often the kinds that cannot be answered once and for all. (There may not be one “right” answer.) Examples include:

- What are your beliefs about families? Why do you believe this to be true? Where did these thoughts/beliefs come from? Would everyone hold these beliefs?
 - What are taken-for-granted assumptions regarding the family?
 - What actions taken by the family may be based on power/control? Is this an appropriate use of power? Does this use of power facilitate or hinder growth and development?
 - Where did these thoughts and beliefs about the family come from? How are they determined to be the truth?
 - Where did these thoughts and related feelings or beliefs come from? How are they determined to be right or the most appropriate among alternatives?
-

Adapted from: Coomer, Hittman, & Fedje, 1997; Coomer & Hittman, 1982

With regard to the implementation of curriculum, teachers should select or develop instructional strategies which are consistent with the critical science-based perspective. One framework for doing this is to use the actions (i.e., technical, interpretive, and reflective) as an instructional framework. For instance, students understanding of technical actions can be supported through hands-on activities, such as labs with emphasis also placed on the processes used (e.g., communication, collaboration, and resource management). While students may love to do hands-on lab experiences, teachers are responsible for balancing this with other

instructional strategies to facilitate students' understanding of perennial and evolving problems, and the actions needed to help resolve them.

An understanding of interpretive actions can be achieved through concept-based instructional strategies, such as Taba's inductive reasoning model (i.e., list, group, and label ideas related to the concept) or Brunner's concept attainment model (i.e., compare and contrast "yes" and "no" examples of the concept) (Burden & Byrd, 2007). An understanding of reflective actions can be facilitated as students are engaged in problem solving processes, such as practical reasoning. In the practical reasoning process the goals, context, consequences, and alternative ways of solving the problem are examined, in order to form a judgment about "what to do" in relationship to the problem (Olson, 1999).

Summary

As stated in Standard 5, Curriculum Development, beginning family and consumer sciences teachers should be able to "Develop, justify, and implement curricula that address perennial and evolving family, career, and community issues; reflect the integrative nature of family and consumer sciences; and integrate core academic areas" (NATEFACS, 2004). There are different forms of curriculum (written and implemented) as well as alternative curriculum perspectives. Both the form of curriculum and the perspective upon which curriculum is based need to be considered in making curriculum decisions. Historically, family and consumer sciences curriculum has been based in an empirical-rational science-based curriculum perspective. Ongoing movement is being made toward a more critical science-based approach. The critical science perspective best supports Standard 5 with regard to developing, implementing, and justifying perennial and evolving problem-based curriculum. In addition, the critical science-based perspective supports the integrative nature of family and consumer sciences and the core academic areas. In order to develop, justify, and implement curriculum, teachers may engage in several strategies to facilitate this process. Instructional strategies should also support a problem-based curriculum approach. One framework for further assisting in this process is the systems of action (technical, interpretive, reflective), as these can be used to help further select or develop instructional strategies.

Curriculum development, justification, and implementation are important professional responsibilities of FCS teachers. It is through these components that we define and communicate the nature and significance of family and consumer sciences.

Suggested Resources

Critical Science

Johnson, J., & Fedje, C. (Eds.). (1999). *Family and consumer sciences curriculum: Toward a critical science approach*. (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>) Provides a foundation for the critical science-based perspective, examines core FCS concepts and curriculum transformation process.

- McGregor, S. L. T. (2003). Critical science – A primer. *Kappa Omicron Nu Forum* 15(1). Retrieved November 20, 2007, from http://www.kon.org/archives/forum/forum_archives.html#f11a
Provides an overview of the critical science-based approach, as well as using critical science in the classroom.
- Staaland, E., & Strom, S. (1996). *Family, food and society: A teacher's guide*. Madison, WI: Wisconsin Department of Public Instruction.
Excellent critical science-based curriculum example.
- Thorsbaken, P., & Schield, B. (1999). Family systems of action. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 117-131). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>)
Examines the systems of action (technical, communicative, and reflective/critical) and includes reflections of one teacher in applying these ideas to the classroom.
- Vincenti, V., & Smith, F. (2004). Critical science: What it could offer all family and consumer sciences professionals. *Journal of Family and Consumer Sciences*, 96(1), 63-71.
Examines critical theory and critical science; attention given to dispositions of curriculum development.

Curriculum

- Eisner, E. W. (1979). *The educational imagination: On the design and evaluation of school programs*. New York: Macmillan.
Examines alternative curriculum orientations.
- Grundy, S. (1987). *Curriculum: Product or praxis?* New York: Falmer.
Discussion of curriculum as a product or process; examines curriculum from technical, interpretive, and critical perspectives.
- Plihal, J., Laird, M., & Rehm, M. (1999). The meaning of curriculum: Alternative perspectives. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 2-22). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>)
Examines alternative meanings of curriculum in family and consumer sciences.
- Posner, G. J. (2004). *Analyzing the curriculum*. New York: McGraw-Hill.
Examines alternative meanings of curriculum and theoretical approaches.
- Staaland, E. (1987). *A guide to curriculum planning in home economics*. Madison, WI: Wisconsin Department of Public Instruction.
Excellent critical science-based curriculum example.

Perennial and Evolving Problems

Benton, R. (Writer/Director). (1984). *Places in the heart* [Motion picture]. United States: Tri Star.

A film set in the 1930s follows a Texas family through crises and getting back on their feet. The problems and issues the family encounters provide a foundation for discussing perennial and evolving problems.

D'Aluisio, F., & Menzel, P. (1996). *Women in the material world*. San Francisco: Sierra Club. Although centered on women, this book provides narrative and photographs which illustrate perennial problems and family actions across cultures.

Montgomery, B. (1999). Continuing concerns of individuals and families. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 80-90). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>)

Examines perennial problems as opposed to technical problems.

Shaw, S. (Producer) (2002). *Frontier house* [Television series]. United States: Public Broadcasting Service. (Available from the Public Broadcasting Service, www.pbs.org) A series which followed families taking part in a living history project, it provides a snapshot of alternative family actions. Teaching resources and other information for this series are available at: <http://www.pbs.org/wnet/frontierhouse/resources/index.html>

Teaching Methods

Burden, P. R., & Byrd, D. M. (2007). *Methods of effective teaching*. Boston: Pearson.

Includes both planning and implementing instruction. Provides a framework for thinking about teaching models consistent with the critical science-based curriculum perspective.

Gunter, M. A., Estes, T. H., & Schwab, J. (2007). *Instruction: A models approach*. Boston: Allyn & Bacon.

Focuses on teaching models that can be used to help implement a critical science-based perspective in the middle and high school level classroom.

Joyce, B., & Weil, M. (with Calhoun, E.) (2000). *Models of teaching*. Boston: Allyn & Bacon.

Focuses on in-depth teaching models or strategies which can be used to implement

Love, C., Nelson, B., Gloeckner, G., Malette, D., & Yahnke, S. (1994). *Teaching strategies to facilitate learning*. Ellensburg, WA: Home Economics Education Association. (Available from the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>)

Family and consumer sciences teaching examples to facilitate the understanding of perennial problems.

References

- Brown, M. M. (1978). *A conceptual scheme and decision-rules for the selection and organization of home economics curriculum content*. Madison, WI: Wisconsin Department of Public Instruction.
- Brown, M. M., & Paolucci, B. (1979). *Home economics: A definition*. Washington, DC: American Home Economics Association.
- Burden, P. R., & Byrd, D. M. (2007). *Methods of effective teaching*. Boston: Pearson.
- Coomer, D., & Hittman, L. (1982, November). Questioning: A basic skill. *JC Penney Forum*, 8-9.
- Coomer, D., Hittman, L., & Fedje, C. (1997). Questioning: A teaching strategy and everyday life strategy. In J. Laster & R. Thomas (Eds.), *Thinking for ethical action in families and communities* (pp. 173-183). (Family and Consumer Sciences Teacher Education Yearbook 17). Peoria, IL: Glencoe/McGraw-Hill.
- Daggett, W. R. (2003). *The future of career and technical education*. Rexford, NY: International Center for Leadership in Education. (ERIC Document Reproduction Service No. ED476028).
- Danielson, C. (1996). *Enhancing professional practice: A framework for teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Eisner, E. W. (1979). *The educational imagination: On the design and evaluation of school programs*. New York: Macmillan.
- Federal Interagency Forum on Child and Family Statistics. (2005). *America's children: Key national indicators of children's wellbeing 2005*. Retrieved June 1, 2006, from <http://childstats.ed.gov/americaschildren/hea9.asp>
- Gentzler, Y. S. (1999). What is critical theory and critical science? In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 23-31). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>)
- Grundy, S. (1987). *Curriculum: Product or praxis?* New York: Falmer.
- Hauxwell, L., & Schmidt, B. (1999). Developing curriculum using broad concepts. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 91-102). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>).
- Holcombe, M., & Fedje, C. (1983). The TLP: An approach to planning. *Journal of Vocational Home Economics Education*, 1(1), 39-48.
- Johnson, J., & Montgomery, B. (1997). *Advanced instructional theory resource packet*. Lincoln: University of Nebraska-Lincoln.

- Kister, J. (1999). Forming a rationale: Considering beliefs, meanings, and context. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 45-57). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>).
- McGregor, S. L.T. (2003). Critical science – A primer. *Kappa Omicron Nu Forum* 15(1). Retrieved November 20, 2007, from http://www.kon.org/archives/forum/forum_archives.html#f11a
- Montgomery, B. (1999). Continuing concerns of individuals and families. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 80-90). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>).
- Montgomery, B. (2003). Reasoning for action in consumer education. *Journal of Consumer Education*, 21, 1-11.
- Montgomery, B. (2006). Rethinking sewing as an educational experience in middle and high schools. *Journal of Family and Consumer Sciences*, 98(1), 47-52.
- Montgomery, B., & Davis, S. (2004) Building strong families and communities: A critical science rationale for family and consumer sciences. *Journal of Family and Consumer Sciences*, 96(1), 52-56.
- National Association of State Administrators for Family and Consumer Sciences (NASAFACS). (2008). *National standards for family and consumer sciences education* (2nd ed.). Retrieved December 14, 2007, from the American Association of Family and Consumer Sciences (AAFCS) Web site: <http://aafcs.org/FCSstandards/>
- National Association of Teacher Educators for Family and Consumer Sciences (NATEFACS). (2004, December). *National standards for teachers of family and consumer sciences*. Retrieved October 7, 2008 from <http://www.natefacs.org/National%20Standards%20for%20Teachers%20of%20Family%20and%20Consumer%20Sciences.pdf>
- Nebraska Department of Education (1995). *Nebraska framework for family and consumer sciences education curriculum development*. Lincoln, NE: Author.
- Olson, K. (1999). Practical reasoning. In J. Johnson & C. Fedje (Eds.), *Family and consumer sciences curriculum: Toward a critical science approach* (pp. 132-142). (Family and Consumer Sciences Teacher Education Yearbook 19, Education and Technology Division, American Association of Family and Consumer Sciences). Peoria, IL: Glencoe/McGraw-Hill. (For information on availability, contact the Family and Consumer Sciences Education Association, <http://www.cwu.edu/~fandcs/fcsea/>).
- Posner, G. J. (2004). *Analyzing the curriculum*. New York: McGraw-Hill.

- Richardson, V. (2003). The dilemmas of professional development. *Phi Delta Kappan*, 4, 401-406.
- White, P. A. (1992). Teacher empowerment under “ideal” school-site autonomy. *Educational Evaluation and Policy Analysis*, 14(1), 69-82.
- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

Author

Bette Montgomery is an Associate Professor in the School of Family, Consumer, and Nutritional Sciences at Northern Illinois University in DeKalb, Illinois.

Citation

Montgomery, B. (2008). Curriculum development: A critical science perspective. *Journal of Family and Consumer Sciences Education*, 26(National Teacher Standards 3), 1-16.
Available at
<http://www.natefacs.org/JFCSE/v26Standards3/v26Standards3Montgomery.pdf>