COOKING IN THE ELEMENTARY CLASSROOM: A VEHICLE FOR DEVELOPMENT IN THE COGNITIVE, AFFECTIVE AND PSYCHOMOTOR DOMAINS

by

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ABSTRACT

The purpose of this study was to develop a resource manual for teachers to help them utilize cooking experiences in the classroom. A survey was made of the present usage of educational cooking experiences in classrooms using the Tucson Early Educational Model to determine strengths and needs of teachers in this area.

The responses of teachers showed that though they were using cooking experiences, they were reserved for special occasions. Many were aware of the aspects of cooking experiences lending themselves to the practice of skills in reading and mathematics. They were less aware of the skills in the area of science, oral language, listening, and learning to learn skills.

An important outcome of cooking experiences which teachers did not realize, is the opportunity for children to learn and practice skills which will help them move toward more independence.

The manual which was developed as a result of the survey provides rationale for cooking in the classroom and ideas for teachers on ways to implement such experiences. It also stresses the importance of planning and evaluating the activity on the part of both adults and children.

CHAPTER 1

THE PROBLEM

Children learn about the world around them through a medium that is familiar and satisfying (Ferreira 1964, p. 4). Working with food is familiar and satisfying to children and requires the use of all the senses.

The preparation and tasting of food in the classroom has recently been included as part of some school programs. Many educators have viewed cooking as a motivational activity. Others view it as a means of enhancing the self concept since there is some aspect of the cooking process that each child can successfully accomplish. The possibilities for extending the children's language through experiences with food, since one cannot talk about food or the cooking process without using a variety of adjectives, nouns, verbs, and adverbs, has become increasingly evident to educators.

Cooking and tasting experiences, however, lend themselves to an even wider range of skills. In the area of the Cognitive Domain, there is an opportunity to gain and practice skills not only in the language arts, but in the realms of science, mathematics, and social studies. In the Affective Domain, cooking provides an enjoyable occasion for children to work together and accept responsibility. In working with

food, it is also necessary that one have facility with the variety of psycho-motor skills involved.

A child's experiences with food in the classroom should not be considered a recreational activity. They should be considered opportunities for learning and practicing a variety of skills.

Statement of the Problem

Teachers have been encouraged to use cooking experiences in Tucson Early Education Model (T.E.E.M.) classrooms since the beginning of the program. They have been advised to plan these experiences frequently, providing mediation, and allowing the children to do the actual preparation.

In the nineteen communities, some training has been provided to help teachers gain skill in cooking with children as well as increasing an awareness of the potentials for learning inherent in the activity. The amount and depth of training varies across the communities with some teachers receiving more input than others.

To date there has not been a resource manual for T.E.E.M. teachers providing a guide for cooking experiences. The purpose of this study is to develop a manual for teachers. In order to accomplish this, three steps are required: (1) to explore existing literature concerning cooking experiences in the classroom, (2) to determine the present usage of cooking experiences in T.E.E.M. classrooms using a questionnaire which would indicate the areas of emphasis in the manual, and (3) to develop a resource manual based upon the needs assessed by the questionnaire.

Significance of the Problem

The use of cooking experiences in the classroom is not unique to T.E.E.M. Many teachers have been incorporating them into their programs in differing degrees. In the past year, there have been numerous articles, handbooks for teachers, and children's cookbooks published which indicates that other educators are expressing an interest in this area. However, no studies have been conducted, except those dealing with teaching cooking in junior-senior high schools in conjunction with home economics programs.

Since cooking in the classroom has become part of many curriculums, including that of T.E.E.M., but has never been researched to determine the potential for learning opportunities, a study of this area would then be appropriate. Also, T.E.E.M. has advocated the use of cooking experiences, but little training has been provided. A resource manual would be useful to help teachers provide cooking experiences which would be learning experiences.

Setting of the Study

The Tucson Early Education Model (T.E.E.M.) began in 1965 as a three-year cooperative project between Tucson District No. 1 and the Arizona Center for Early Childhood Education at The University of Arizona. In 1968, the Arizona Center was invited to sponsor an early childhood education program for Project Follow Through in fourteen communities throughout the nation. Currently there are nineteen projects in eighteen states.

The philosophy of the program is based upon viewing the child as a learner who requires a variety of concrete experiences related to his own environment and growth pattern. T.E.E.M. has four basic goals to help the child become a learner. They are categorized as:

1. Language Base, language competence gained through a variety of labels, concepts, language forms, and an awareness of the function of language.
2. Intellectual Base, a collection of skills necessary for the process of learning.
3. Motivational Base, a collection of attitudes and behaviors related to productive social involvement.
4. Societal Arts and Skills, classified as reading, writing, mathematical, and social skills.

The classroom environment consists of learning centers through which the children rotate during the day. The centers provide open-ended materials and experiences allowing for different levels of development. Provisions are made by the teacher to combine (orchestrate) all of the goal areas (Language Base, Intellectual Base, Motivational Base, and Societal Arts and Skills) into each planned center activity. Small heterogeneously grouped committees of children have opportunities to interact with materials, each other, and with adults.

Activities, such as cooking, are encouraged by T.E.E.M. as ways for children to develop and practice skills in natural settings. These activities provide an opportunity to help children see a purpose for learning the academic subjects and use them in natural settings.

While the adult is working with the children during a cooking experience, there is an opportunity for her to make informal assessments of individual children's strengths and needs in the three domains.

Definition of Terms

The Cognitive Domain: This area pertains to the processes of perception and thought which can be arranged in ascending levels of sophistication: knowledge, comprehension, application, analysis, synthesis, and evaluation. All of the traditional academic subjects utilize all of these levels in differing degrees.

The Affective Domain: Dr. R. V. Allen (unpublished) has arranged the levels of this domain which encompass the realm of feelings about oneself and others in ascending order: recognition, acceptance, reflection, influence, extension, and valuing. This domain also involves the socialization processes of sharing time and objects, and the acceptance of others' feelings.

The Psycho-motor Domain: The physical motions resulting from mental processes, such as the ability to use large and small muscles, coordination, and precision comprise this domain. The levels have been arranged in ascending order by Dr. R. V. Allen: physical imitation, skill manipulation, precise behavior, social articulation, emotional imput, and aesthetic expression.

Cooking Experiences: These are experiences in the classroom which involve the active participation by small groups of children in preparing and tasting foods. Cooking refers to any way of preparing food, not just through the use of heat.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The traditional classroom format does not lend itself to integration of learnings. Such a format reinforces dependency on the part of the learners or provides textbook determined learnings and experiences. It does not lend itself to the inclusion of experiences like cooking.

In order for cooking experiences to be included in the classroom, there is a need for an experiencial or exploratory curricula. A learning center environment with transaction-oriented techniques provides opportunities for learners to develop the motivation and competences leading to independency.

Chapter 2 provides a review of the literature in the fields of experiential learning and cooking experiences in the classroom.

Experiential Curriculum

"Learning is a kind of growing, a moving, and expanding of the person into the world around him" (Holt 1970, p. 11). "Participation in cooking activities in the classroom provides the child with experiences closely related to his world."

The Gestalt psychologists defined experience as a psychological event that involves a person's acting purposefully." Experience is

interaction of a person and his perceived environment" (Bigge 1971, p. 76). Dewey further defines experience when he states that "an experience is always what it is because of a transaction taking place, between an individual and what at the time, constitutes his environment" (Bigge 1971, p. 76).

The concept of using experiences related to the child to further the learning process, has its roots in the philosophy of Jean Jacques Rousseau. He held that concentration upon books was wrong and he would eliminate books and expose the child to things (Frost 1964, Introduction). This exposure to things involves training the senses to a higher level of awareness. Training the senses implies more than merely exercising them; it means learning to use them... We do not know how to touch, to see, or to hear, until we have learned" (Frost 1964, p. 126).

John Locke advocated in "Rewards, Reputation and Curiosity," that perhaps it may not sometimes be amiss to excite their curiosity by bringing strange and new things in their way, on purpose to engage their Enquiry, and give them occasion to inform themselves about them (Locke 1965, p. 71). He also encouraged adults to respond truthfully to children's questions about the world.

The leaders of the Progressive Movement were proponents of experienced-based learning. John Dewey's creed of "learning by doing" has been interpreted in a variety of ways, but Dewey emphasized that just doing something does not constitute an experience. It is not enough to insist upon the necessity of experience, nor even of

activity in experience. Everything depends upon the quality of the experience which is had (Dewey 1938, p. 27).

Piaget also supports the need for experience. He states that the more a child has seen and heard, the more he wants to see and hear (Bower 1965, p. 14). "If the experience presented to the child bears some relevance to what he already knows but at the same time is sufficiently novel...it will be motivating and...challenging intellectually" (Ginsburg and Opper 1969, p. 223). Experience is always necessary for intellectual development but being exposed to the experience is not enough (Duckworth 1973, p. 207). "The child must be actively involved. This involvement comprises acting on material things...doing things... in a group effort...where children must communicate with each other. This is an essential factor in intellectual development" (Duckworth 1973, p. 207). Only through continual and extensive interaction between the child and the environment does the child proceed to logical thought (Weber 1970, p. 19).

Marie Montessori planned a program built around experiences of children. She believed that the most important subject in the curriculum included mastery of self and the environment (Ebel 1969, p. 397). Elaborate didactic materials were designed to promote sensory discrimination skills and concepts of form, size, shape, color, weight, temperature, and texture...The sensory materials were coordinated so that a child's activities were not in any way haphazzard (Evans 1971, p. 33). The practical life activities, also provided, consisted of prescribed

steps the child must practice, rather than being of an exploratory-discovery nature.

Experience and the child's action upon them are important ingredients for learning. Equally important is the need for interaction with others about the experience. The heart of any educational experience lies in the interaction of people, with each other and with their environment (Cohen 1972, p. 23). "One grows as a human being only by incorporating knowledge gained from others...as well as that gained through one's own explorations" (Silberman 1970, p. 239). The interaction is placed on adults guiding the stimulation of children; that is, ordering and arranging the environmental patterns, and pointing out rules to facilitate problem solving and learning (Fowler 1971, p. 30). In order for the adult to guide, it then becomes the task to listen to the children as they interpret and perceive these on-going experiences (Rand 1970, p. 365).

Cooking Experiences in the Classroom

Food and eating are areas of common experience for all children. In spite of having repeated daily experiences with being fed, children often have not had the realistic opportunity to help in preparing food. They need concrete experiences in understanding the magic that seems to take place and in relating the package in the supermarket or the plateful on the dinner table to the raw product on the farm (Peltier 1974, p. 1). "These very real experiences...were found to be far more interesting than mere gestures imitating social activities" (Hill 1967, p. 1969).

"The...justification for kitchens in the school is not just that they afford opportunities for activities, but that they provide opportunities for the kind of activities...which lead...to consideration of the way things interact with one another to produce different effects" (Dewey 1938, p. 85).

"Cooking is not an isolated event, but rather an integrated part of the whole...program, just as it is in everyday life"(Ferreira 1964, p. 4). A wide variety of learning experiences crisscrossing the disciplines like so many tic-tac-toe games take place (Cruikshank 1973, p. 51). Besides being an enjoyable activity, it provides the opportunity for discussing, planning, taking turns, following directions, learning quantitative measurement, using desirable health habits and developing scientific concepts (Leeper 1974, p. 152). Cooking activities also provide many language development opportunities. The sensory stimulation brings out spontaneous language, interest in description, and a need for identifying ingredients and utensils. Children also learn about the processes involved (Rudolph 1973, p. 44).

A cooking activity also lends itself to parent involvement because most mothers...feel confident in the areas of cooking and the home making arts. Mothers who would be reluctant to take part in another kind of activity can easily and willingly join in cooking sessions and enrich them with their own knowledge and experience (Cross 1974, p. 41).

"Most children feel comfortable working with food and cooking time frequently becomes a favorite part of the school program...cooking

at school gives the child the feeling that they can do it themselves" (Ferreira 1973, p. 26). Thus such an experience can give children a feeling of self confidence and strengthen their self concepts.

During cooking experiences, the adult should focus on the experience and learning of the children and not be concerned with her idea of success (Rudolph 1973, p. 49). Cooking time should be an "experience not a lesson" (Ferreira 1973, p. 4). In order to utilize the experiences children bring to school, it would seem logical to draw upon their knowledge of food and cooking in planning and implementing experiences (Dunn 1970, p. 90).

The Nuffield Project advocates many pre-cooking activities in order for the children to "play at cooking" (The Nuffield Mathematics Project 1967, p. 30). This would include role playing with cooking utensils in the home center and manipulating clay by rolling and squeezing activities. The children would also practice clean up activities in conjunction with paste and paint projects so that "they will be more capable of washing up mixing bowls and spoons..." (Nuffield 1967, p. 30).

The children need to be actively involved in all aspects of the cooking experience. They should be encouraged to "mix the ingredients ...with their hands so they can compare the feeling of raw meat with gelatinous quality of the eggs" (Croft 1971, p. 8).

Cooking experiences have become part of the regular activities in primary classrooms both in the United States and in Britain. The British Infant School, whose basic educational ideas came from those of Susan and Nathan Issacs and the work of Piaget, utilize cooking in

their classrooms: "The cooking corner in a primary school in Oxfordshire complete with sink, stove...baking pans...etc. along with a large chart with the names and pictures of the various implements and ingredients. Five children reading a recipe card, are busy measuring, weighing, and mixing ingredients for a cake they are about to bake, with an occasional assist from a teacher" (Silberman 1970, p. 247).

In another classroom: "...A group of three or four children have been weighing and measuring ingredients preparatory to making a cake. A teacher gathers them together to work through the mathematics involved...making sure that the ones who seemed to be having difficulty understand..." (Silberman 1970, p. 226).

David Weikart makes the following comments about cooking in his program: "Since the teacher would probably accept the dictum that 'all children love cooking,' making pudding might be an activity she would use as a lesson in temporal relations. The specific temporal goal would be sequencing of events in time...In any given activity the teacher deals with only one concept at a time" (Weikart 1971, p. 15).

In T.E.E.M. classrooms, the teacher trys to emphasize and orchestrate elements of language, intellectual skills, motivation, and academic and social skills into the cooking activity, because "it is believed that the skills, attitudes, information and aspiration are not acquired independently of one another. The emphasis we give to environment arrangement and work that, hopefully, evokes complete involvement of the child, is recognition of the process of orchestration" (Hughes 1969, Introduction).

their Title I and Title III projects such as Prolexia in Riverside, California, and Language Experience programs in North Carolina, Texas, Louisiana, Pennsylvania, and New York, also use cooking as an important part of their programs. The Exploratory Learning Center in Tucson houses an outside center for cooking experiences which children use for independent cooking experiences.

Every child, without exception, has an innate and unquenchable drive to understand the world in which he lives and to gain freedom and competence in it. Whatever truly adds to his understanding, his capacity for growth and pleasure, his powers, his sense of his own freedom, dignity, and worth may be said to be true education (Holt 1969, p. 3). Cooking experiences, since they can help the child learn more about his world in a motivating and satisfying way, can be a vehicle for "true education."

CHAPTER 3

SURVEY PROCEDURES

This chapter describes: (1) the design of the study, and (2) the sample population, (3) the instrument for gathering data, and (4) the results of the survey.

Design of the Study

The purpose for the study is to develop a resource manual for T.E.E.M. teachers. In order to accomplish this, two steps are required: (1) a survey of literature regarding the importance of experiential learning and cooking experiences in the classroom, and (2) a survey questionnaire to determine the present usage of cooking experiences by T.E.E.M. teachers which would indicate the areas to emphasize in the resource manual (Appendix C).

To determine the extent to which T.E.E.M. teachers are utilizing cooking experiences in the classroom, the questionnaire survey was made of all T.E.E.M. teachers in the nineteen communities. The instrument was designed to provide information regarding: (1) whether cooking experiences take place with children working in small groups and initiation of experiences, (2) whether cooking experiences occur at least once a week and are considered a regular center activity and not reserved for special occasions, (3) how the teacher views the adult

role and whether different adults share the role, (4) whether children are allowed to plan the experience and cook independently, (5) whether teachers include planning, evaluating, sharing, and extending as part of the cooking experience, (6) whether teachers are aware of the learning inherent in cooking experience, (7) whether a variety of cooking experiences are taking place, (8) whether teachers are providing a variety of recipe forms, and (9) whether teachers are aware of and utilize a variety of resources for cooking experiences.

The Sample

In order to gain information regarding the usage cooking experiences in T.E.E.M. classrooms, all 390 teachers in the nineteen T.E.E.M. projects in seventeen states were polled. The T.E.E.M. sites which responded are listed in Appendix A.

A cover letter (Appendix B) and three-page questionnaire was mailed on January 11, 1974, to sixteen communities. The Director of each project was instructed to distribute the questionnaires to each of his/her T.E.E.M. teachers. The completed questionnaires were returned to the writer. The Field Representatives for the remaining three communities, Abbeville, Louisiana, Chickasha and Shawnee, Oklahoma, brought in the cover letter and questionnaires and personally returned the completed forms to the writer.

By June 1, 1974, 67 questionnaires had been returned by the Field Representatives and 222 by the Directors. The total number of returns made the N or the study 289. Of the 289 responding, 26 were pre-school, 256 primary, and 7 intermediate level teachers.

The Data-Gathering Instrument

A three-page questionnaire (Appendix C) to survey the present usage of cooking experiences by T.E.E.M. teachers was developed by the writer using suggestions made by members of the Arizona Center staff. Each item on the questionnaire was based upon expectations within T.E.E.M. regarding cooking experiences.

Results of the Survey

The responses of teachers are recorded by percentages where applicable. In some instances the percentages will not equal 100% because teachers responded to more than one option within an item.

Preceding each table is a brief statement of the expectation within within the T.E.E.M. model providing the basis for the item on the questionnaire. Following the table is a discussion of the responses.

Item 1: Grade Levels of Teachers

T.E.E.M. teachers are encouraged to utilize cooking experiences with children in all grade levels. A majority of the teachers work with Primary level children, but several communities have extended the program into the Pre-school and Intermediate levels.

Item 1 provides information concerning the levels taught by the T.E.E.M. teachers in the sample.

Table 1: Grade levels of teachers responding to the questionnaire.

Pre-school	Primary	Intermediate
26	256	7

Since there is a larger percentage of Primary teachers than Pre-school and Intermediate level teachers, this sample is representative of the ratio of Pre-school, Primary, and Intermediate teachers in the T.E.E.M. population.

Item 2a: Grouping of Children

Cooking experiences take place in T.E.E.M. classrooms with children working in small groups. There is a balance between child and adult selection of these groups.

Item 2a supplies information about the grouping of children for cooking experiences.

Table 2: Percentage of teachers cooking with children in small groups based upon teacher and child selection of grouping.

	Pre-school	Primary	Intermediate
Small groups	77%	84%	86%
Total groups	4%	1%	0
Both	12%	11%	0
No response	7%	4%	14%
Teacher selected	15%	30%	29%
Child selected	12%	16%	14%
Both	15%	1%	0
No response	58%	53%	57%

The data in Table 2 shows that Pre-school teachers are cooking in small groups. There appears to be a balance between teacher and child selection of these groups. A slightly higher percentage of teachers base the selection of grouping upon adult choice.

Among the Primary teachers, cooking experiences are taking place in small groups. Some teachers occasionally cook in total group settings. There is less balance between child and adult selection since more teachers made decisions about the grouping.

Intermediate teachers are cooking in small groups exclusively. More teachers base group selection upon adult choice.

Item 2b: Initiation of Cooking Experiences

There is a balance between child and adult initiation of cooking experiences.

Item 2b supplies information about initiation of cooking experiences (Table 3).

Table 3: Percentage of adult initiated and child initiated cooking experiences.

	Pre-school	Primary	Intermediate
Child initiation	12%	22%	0
Adult initiation	50%	31%	71%
Initiated by both	38%	41%	29%
No response	0	6%	0

A majority of Pre-school cooking experiences are adult initiated. A smaller percentage of these experiences are initiated by children.

Among the Primary teachers there is more of a balance between child and adult initiation of experiences. A slightly higher percentage of cooking experiences are adult initiated.

Intermediate level cooking experiences are also predominently adult initiated.

Item 3: Frequency of Cooking Experiences

Cooking experiences are considered an important aspect of the curriculum in T.E.E.M. and occur at least once a week. They are

regarded as a regular center activity and not reserved for the preparation of holiday foods or the culmination of an activity.

Item 3 provides information about the frequency of cooking experiences and whether they occur for special occasions or as a regular classroom activity.

Table 4: Percentage of daily, weekly, or monthly cooking experiences and those utilized for special occasions or regular activities.

	Pre-school	Primary	Intermediate
Every day	0	0	0
Once a week	23%	21%	0
Once a month	31%	24%	43%
No response	46%	55%	57%
Special occasion	23%	53%	72%
Regular activity	19%	24%	0
Both	27%	15%	14%
No response	31%	8%	14%

The second category of item 3 was to the right of the first of the questionnaire. Because of the placement, many teachers omitted this option.

Of the Pre-school teachers responding to part one (Table 4), more have cooking experience once a month. There is little difference between the number of teachers using cooking experiences for special occasions and those providing cooking experiences as a regular activity.

Many teachers marked both special occasions and regular activity which might indicate that some are using cooking experiences for special occasions and as regular center activities at different times during the year.

Among the Primary teachers responding, there is little difference between the number of teachers cooking once a week and those cooking once a month. More teachers are utilizing cooking for special occasions than those providing it as a regular center activity. This might indicate that Primary teachers still view cooking as an activity for holidays or culmination of another project or unit.

The Intermediate teachers who responded, are cooking once a month. It would appear that they view cooking as an activity reserved for special occasions or culmination of a unit and not as a regular part of the curriculum.

Item 4a: Teacher's Role in Cooking Experiences

Usually one adult participates in cooking experiences, acting as a mediator, asking questions to foster observational and thinking skills, providing labels when necessary, and encouraging the use of mathematical and scientific knowledge.

Item 4a provides information about the view teachers hold of the role of the adult during cooking experiences.

Table 5: Percentage of teachers viewing the role of the adult in cooking experiences as a mediator, supervisor, or dominator.

	Pre-school	Primary	Intermediate
Mediator	96%	91%	86%
Supervisor	0	3%	0
Dominator	0	1%	0
Varies	4%	5%	14%

Most of the Pre-school teachers view their role in cooking experiences as a mediator (Table 5). A small percentage consider a dominator and a supervisor part of the role.

The Primary teachers also see the adult role as one of mediator, with a small percentage seeing it as a combination of mediator, supervisor and dominator. A few teachers view the role as a supervisor or dominator.

Most Intermediate teachers view the adult role as a mediator. A few see the role as a combination of mediator, supervisor and dominator.

Item 4b: Participation by Adults

T.E.E.M. also suggests that teachers as well as other adults share the responsibility of being mediator, rather than one adult always assuming the role. The adults in the classroom should plan the experience together and discuss the outcomes so that it will be a learning experience.

Table 6: Adults participating during cooking experiences.

	Pre-school	Primary	Intermediate
Teacher only	7%	3%	14%
Teacher assistant only	0	4%	0
Parent only	0	0	0
Teacher and assistant	35%	50%	43%
Teacher, assistant and parent	58%	42%	43%
No response	0	1%	0

Teachers, teacher assistants and parents share in cooking experiences in Pre-school classrooms. It is difficult to determine from the data available whether one adult assumes the major responsibility. If the question were changed to: "which adult usually participates in cooking experience," more information might be available.

Among the Primary teachers, it would appear that the teacher or teacher assistant are the major adults participating in cooking experiences. Parents are occasionally utilized.

Intermediate teachers and assistants are the adults participating in cooking experiences. Parents infrequently cook with children.

Item 5a: Planning by Children

The development of independent learning skills are encouraged by T.E.E.M. Participation in planning for cooking experience and

cooking without adult supervision afford children an opportunity to practice these skills.

Item 5a supplies information concerning how often teachers include children in planning for cooking experiences.

Table 7: Percentage of teachers encouraging planning by children for cooking experiences.

	Pre-school	Primary	Intermediate
Never	12%	9%	0
Occasionally	65%	57%	86%
Most of the time	23%	33%	14%
No response	0	1%	0

Most Pre-school teachers are infrequently encouraging planning by children for cooking experiences (Table 7). A few teachers are including children in the planning more often.

Among the Primary teachers, a few are including children in the planning process.

The Intermediate teachers are planning with children occasionally. Again, only a few involve children in the planning aspect of the experience on a regular basis.

Item 5b: Independent Cooking Experiences

Cooking without adult supervision enables children to practice a variety of independent learning skills.

Item 5b provides information about the frequency of independent cooking experiences.

Table 8: Percentage of teachers allowing children to cook independently.

	Pre-school	Primary	Intermediate
Never	85%	71%	57%
Occasionally	15%	25%	29%
Most of the time	0	2%	0
No response	0	2%	14%

The data in Table 8 indicates that most Pre-school teachers do not allow children to cook independently. A few occasionally provide this kind of experience.

Most Primary teachers do not provide independent cooking experiences. A few teachers have encouraged such experiences on a limited basis.

A majority of the Intermediate teachers do not permit independent cooking experiences, but there are slightly more Intermediate than Primary teachers providing this type of experience.

Item 6: Planning, Evaluation and Extending the Experience

Cooking experiences involve more than the preparation of food. Included in the experience is planning, evaluating, and extending the skills and information gained into other areas.

Question 6 provides information concerning planning with children, evaluation with children, preparation of materials to share the experience and extending the experience into other areas.

Table 9: Percentage of teachers providing activities in conjunction with cooking experiences.

	Pre-school	Primary	Intermediate
Planning with children	100%	88%	71%
Evaluating with children	81%	77%	71%
Sharing experiences	65%	65%	29%
Extending the experience	81%	80%	86%
Other	4%	15%	14%

Most Pre-school teachers are planning with children for the experience. Fewer teachers are providing opportunities for evaluating, extending and sharing the experience.

Most Primary teachers are planning with children. Fewer teachers are extending, evaluating and sharing the experience.

Unlike the Pre-school and Primary teachers, more Intermediate teachers provide activities to extend the experience. Many teachers provide opportunities for planning and evaluating the cooking experience with children. Fewer teachers encourage sharing experiences.

More information may have been obtained if this item had been changed to include the frequency of each type of activity: "How often

does planning with children take place prior to cooking experiences; never, sometimes, or always, etc."

Item 7: T.E.E.M. Goal Areas and Cooking Experiences

Cooking experiences provide an opportunity to learn and practice skills in T.E.E.M.'s four goal areas: Language Base, Motivational Base, Societal Arts and Skills, and Intellectual Base.

Item 7 provides information concerning the teacher's awareness of the learnings taking place during cooking experiences. The items have been classified into the four Goal Areas with listings of possible learnings in each area.

The information from the items is presented in four tables, one for each Goal Area. A discussion follows each table.

Table 10: Percentage of teachers aware of the language skills involved in cooking experiences (T.E.E.M.'s Goal Area 1: Language Base).

	Pre-school	Primary	Intermediate
New vocabulary	100%	96%	100%
Extending meanings of known words	85%	80%	86%
Spontaneous talk	100%	90%	86%
Tying together an object and the label	92%	75%	86%
Other	12%	10%	0

Pre-school teachers are aware that new vocabulary and a chance for spontaneous talk are present in cooking experiences (Table 10). Fewer teachers are aware of the extended meanings of known words which can be generated during a cooking activity.

Primary teachers are also aware of the presence of new vocabulary and spontaneous talk during cooking experiences. They are less aware of the possibility for extending meanings of words and associating an object with the label.

Among the Intermediate teachers, they are more aware of the new vocabulary generated, but have not considered other aspects of language growth; extending meanings, spontaneous talk and the tying together of an object and its label.

Table 11: Percentage of teachers aware of the motivational skills involved in cooking experiences (T.E.E.M.'s Goal Area 2: Motivational Base).

	Pre-school	Primary	Intermediate
Task persistance	62%	55%	71%
Working from the familiar to novel	54%	59%	43%
Anticipation	77%	84%	100%
Seeing the relationship between school subjects and a home activity	73%	82%	86%
Tasting the finished product	100%	95%	100%
Manipulating materials	96%	89%	100%
Reinforcement	77%	77%	43%
Other	0	8%	0

Most of the Pre-school teachers are aware that tasting the finished product and manipulating materials are motivational aspects of cooking experiences for children. Fewer considered reinforcement gained through such an activity and the anticipation involved. The two areas closely allied to learning to learn skills, task persistance and working from the familiar to the novel are less familiar to the teachers. A small percentage of the teachers were also not aware of the relationship between home and school that is inherent in cooking activities.

Most Primary teachers were aware of the motivation of tasting the product and manipulating materials. They were less aware of the presence of task persistance and working from the familiar to the novel.

Most Intermediate teachers are aware of the tasting and manipulation of materials and anticipation involved, but the involvement with working from the familiar to the novel and the reinforcement from the activity are less obvious to them.

Table 12: Percentage of teachers aware of the societal arts and skills involved in cooking experiences (T.E.E.M.'s Goal Area 3: Societal Arts and Skills).

	Pre-school	Primary	Intermediate
Functional reading	88%	91%	100%
Copying the recipe	27%	71%	86%
Measurement	92%	98%	100%
Telling time	58%	76%	72%
Fractions	58%	78%	86%
Changes in state of matter	96%	83%	72%
Chemical reactions	65%	51%	43%
Origin of ingredients	73%	63%	57%
Working in a group	100%	55%	100%
Other	0	5%	0

Working in a group, functional reading, measurement and attendance to changes in state of matter are the skills most recognized by Pre-school teachers as aspects of cooking experiences (Table 12). It is

possible that they do not consider reading, copying recipes, time and fractional concepts, and chemical reactions as appropriate to this age level.

Primary teachers are aware of the reading and measuring skills present in cooking experiences, but do not consider time, fractions, and group work as much a part of such an experience.

Reading, measurement and group work are considered important parts of cooking experiences of Intermediate teachers. Time, fractions, chemical reactions and origin of ingredients which might be stressed more at this level, are not viewed by the teachers as being present in cooking experiences to any large extent.

Table 13: Percentage of teachers aware of the intellectual skills involved in cooking experiences (T.E.E.M.'s Goal Area 4: Intellectual Base).

	Pre-school	Primary	Intermediate
Recalling	92%	82%	100%
Ordering	73%	66%	72%
Comparing	96%	85%	72%
Classifying	73%	72%	86%
Predicting	92%	80%	100%
Inferring cause and effect	65%	63%	72%
Planning and organizing	85%	87%	86%
Sequencing	85%	86%	100%
Evaluating	85%	80%	86%
Generalizing	77%	63%	72%
Creating	62%	75%	100%
Other	0	7%	0

The area of Intellectual skills shows a wider range of responses than the other Goal Areas (Table 13). The teachers are more aware of the skills of recall and prediction being present in cooking experiences. A correlation might be found between the low percentage of responses to preparing a food more than once and the lower percentage of responses to creating and generalizing. There might also be a correlation between the smaller percentage of responses to inferring cause

and effect and sequencing and the limited use of child-dicatated recipes.

Item 8a: Types of Foods Prepared

In order to expand children's knowledge and skills, it is necessary for them to be involved in a variety of experiences which provide opportunities to describe, compare and contrast, and generalize, etc.

Item 8 provides information regarding the kinds of foods prepared during cooking experiences.

Table 14: Percentage of teachers providing experiences with different classifications of food.

	Pre-school	Primary	Intermediate
Beverages	31%	21%	14%
Breads and cereals	50%	41%	29%
Cakes	35%	39%	14%
Candies	62%	42%	14%
Casseroles	4%	6%	0
Cookies	100%	50%	43%
Dairy foods	31%	17%	0
Fruit	46%	22%	29%
Meat, poultry and fish	27%	29%	14%
Pastries	19%	15%	0
Pudding and jello	58%	33%	14%
Salad	23%	21%	14%
Soup	19%	14%	0
Vegetables	58%	24%	0
Regional dishes	58%	13%	14%
Holiday and special occasions	100%	35%	29%
Miscellaneous*	77%	44%	57%

*Miscellaneous includes popcorn, nuts, peanut butter, jellies, and playdough.

Most of the teachers provide cooking experiences for the purpose of making cookies and other sweets (Table 14). Over half of the Pre-school teachers are also preparing regional dishes and vegetables. Approximately one third of the Primary teachers cook holiday foods or foods for special occasions such as birthday cakes.

Item 8b: Foods Prepared with Changes

When foods are prepared more than once with minor changes made each time, there is an opportunity for the children to generalize information and be creative.

Item 8b provides information concerning the preparation of foods more than once with minor changes made each time.

Table 15: Percentage of teachers having cooking experiences using some foods prepared more than once with minor changes made.

Pre-school	Primary	Intermediate
42%	35%	17%

Most teachers are not preparing foods more than once to provide opportunities for generalization and creativity. This might correlate with the data from Table 13 which shows a lower percentage of teachers considering these areas important aspects of cooking experiences.

Item 9a: Recipe Forms Used

The use of recipes in the classroom can provide a means of individualization if they appear in a variety of forms. These different forms also help children to generalize information.

Item 9a provides information concerning the variety of recipe forms utilized by teachers.

Table 16: Percentage of teachers using different types of recipes.

	Pre-school	Primary	Intermediate
Rhebus (picture chart)	81%	37%	29%
Chart (word)	92%	90%	86%
Cookbook	58%	57%	57%
Mother's recipe	38%	32%	57%
Other	24%	25%	0

Most Pre-school teachers are utilizing two forms of recipes, word charts and rhebus (Table 16). A majority of Primary and Intermediate teachers also use charts. It is possible that the teachers have not provided a variety of recipe forms because there has not been much training in this area.

Item 9b: Use of Child-Dictated Recipes

The practice of utilizing recipes dictated by children provides the teacher with an informal means of evaluating a variety of skills and understandings such as time, temperature, amounts, labels and procedures.

Item 9b provides information regarding the teachers' usage of recipes dictated by children.

Table 17: Percentage of teachers using recipes in cooking experiences which the children have dictated.

Pre-school	Primary	Intermediate
4%	15%	0

It would appear from the data in Table 17 that this is area most teachers have not considered. Training also has not been provided for them.

Item 10: Resources Used by Teachers

T.E.E.M. teachers are encouraged to utilize a variety of resources to assist them in cooking experiences.

Item 10 provides information regarding the kinds of resources teachers are utilizing.

Table 18: Resources utilized by teachers.

	Pre-school	Primary	Intermediate
Books	8%	10%	50%
Cookbooks	62%	40%	33%
Handouts	4%	2%	0
Magazines	15%	11%	0
Newspapers	4%	5%	0
People	0	34%	16%
Miscellaneous*	0	9%	0

*Miscellaneous refers to use of T.V., recipes on packages and cans, pamphlets, field trips, utensils, and filmstrips.

Cookbooks are the main resource for Pre-school and Primary teachers (Table 18). School staff members and parents are utilized as resources by approximately one-third of the Primary teachers. Books other than cookbooks are a resource for most of the Intermediate teachers.

CHAPTER 4

DISCUSSION AND EDUCATIONAL IMPLICATIONS

The purpose of this study was to develop a resource manual for T.E.E.M. teachers in order to assist them in providing educational cooking experiences in the classroom. In order to determine the training needs of teachers, a questionnaire survey was conducted to ascertain the present usage of cooking experiences.

This chapter describes (1) the strengths of T.E.E.M. teachers in the area of educational cooking with a discussion of those sections of the manual (Appendix D) which will extend upon these strengths, (2) the needs of T.E.E.M. teachers in this area with a discussion of the sections of the manual which will provide more training, and (3) a summary statement with additional educational implications.

Strengths of Teachers

According to the data from the questionnaire presented in Chapter 3, it would appear that T.E.E.M. teachers have several areas of strength in regard to cooking in the classroom.

Teachers are cooking in small groups (Table 2), which according to T.E.E.M., provides more opportunity for learning to take place. In the resource manual (page 66) there is a discussion of some reasons for working in small groups.

"Cooking in small, rather than total groups, allows each child more opportunity to talk, manipulate, and observe the changes taking place. Since each child can be involved, there will be fewer inappropriate behaviors. The adult (teacher, aide or parent) can interact with and observe each child, thus allowing for more individualization."

A second area of strength is the view that teachers have of the role of the adult (Table 5). During cooking experiences, most teachers act as a mediator. A discussion of the adult role is provided in the manual (page 80).

> "Get involved and participate with the children. Listen to their questions and observations. Give information only when needed. Encourage the children to observe and ask questions about what is happening to the ingredients as they cook.
>
> Most important, RELAX and enjoy the experience. Teach the children how to use the utensils safely, then let them do the mixing, cutting and pouring, etc. In order for the children to gain as much from the experience as possible, they need to be actively involved and not just observers."

There is also a chart (page 81) which provides more suggestions about mediation.

A third area of strength involves the Language Base (Table 10). Most teachers are aware of the opportunity for learning new vocabulary present in cooking experiences. Most Pre-school and Primary level teachers also consider spontaneous talk an important aspect of the experience. A list with brief explanations of the language skills which can be part of the cooking experience appears in the manual (page 73).

LANGUAGE

_____ Spontaneous talking about what is happening (likes, dislikes, projections, etc.)
_____ New vocabulary development:
  _____ utensils
  _____ ingredients
  _____ processes (verbs)
  _____ descriptive words (color, size, shape, texture, sound, smell, taste)
  _____ extending meanings of known words (different definitions for words like "batter" or "whip")
  _____ associating label with object (naming utensils and foods)
  _____ associating label with action (naming processes)
  _____ discussion skills (question asking, listening, taking turns, explaining)

There is also a section entitled, "The Language of Cooking" (pages 97-100), discussing the use of labels for utensils, processes, recipes and foods.

A fourth area of strength is the recognition of some motivational aspects of cooking experiences (Table 11). Most teachers are aware of the motivation of tasting the finished product and the opportunity to manipulate materials. A list with brief explanations of the areas of motivation is presented in the manual (page 77).

MOTIVATION

_____ Extension of home activities into school learning.
_____ Satisfaction of handling tools and ingredients both familiar and new.
_____ Anticipation of tasting the end product.
_____ Satisfaction of staying with a task and seeing an end product.
_____ Reinforcement from peers and adults.
_____ Ability to help choose recipe and role.
_____ Reinforcement from materials.
_____ Sharing and tasting the end product.
_____ Evaluation of role and end product.

A few aspects of the goal area of Societal Arts and Skills (Table 12) provides a fifth area of strength. Most teachers are aware of the opportunity to practice and learn more about measurement during the experience. The social skill of working in a group is also considered important by Pre-school and Intermediate teachers. Practicing reading in a functional setting is considered an important aspect of cooking experiences by most Primary and Intermediate level teachers. On pages 74 and 75 of the manual there is a listing of the Academic and Social Skills present in cooking experiences.

ACADEMIC AND SOCIAL SKILLS

_____ Functional reading (identifying words, reading recipes, following directions, comprehension, etc.)
_____ Measuring (full, level, rounded, half, whole, etc.)
_____ Social skills (taking turns, patience, sharing, leadership)
_____ Research skills (origins of ingredients, price, variations of recipe, origin of recipe, etc.)
_____ Time concepts (how long food will cook, starting time, when food will be done, etc.)
_____ Writing recipe or thoughts about product or experience (spelling)
_____ Science experiences:
  _____ cause and effect (adding liquid to dry; adding too much or too little)
  _____ chemical reactions (baking powder or yeast added)
  _____ changes in state of matter (butter - solid or melted)
  _____ difference in time required using electric vs. hand beater
  _____ difference in exactness using a blender or grinder vs. human cutting, chopping or mixing
  _____ concept of temperature
  _____ substitution of ingredients (for baking powder or chocolate, etc.)
_____ Other math skills:
  _____ addition
  _____ division (dividing recipe)
  _____ multiplication (doubling recipe)
_____ Motor skills (grinding, pouring, beating, squeezing, kneading, pounding, stirring, cutting, etc.)
_____ Following directions

A sixth area of strength is the awareness of the possible use of recall and prediction in cooking experiences (Intellectual Base, Table 13). On page 76 of the manual there is a description of the Intellectual Skills involved in cooking experiences.

THINKING SKILLS

_____ Recalling where ingredients were used before.
_____ Sequencing - what procedure is to be followed. (following directions)
_____ Comparing food before and after chopping or cooking; comparing procedures.
_____ Classifying which ingredients are liquid or solid; which utensils are similar.
_____ Predicting what would happen if an ingredient was omitted or too much was added.
_____ Planning and organizing roles and materials needed.
_____ Evaluating the end product and group work.
_____ Generalizing - knowing that adding sugar will make something sweeter.
_____ Creating - decorating or putting new foods together.
_____ Discriminating which utensil would be appropriate.

Needs of Teachers

The responses of teachers to the questionnaire also provided information about areas in which more training is needed.

There needs to be a balance between child and adult selection of groups for cooking rather than adults doing most of the selection. There is a brief discussion of group selection in the manual (page 65).

> "The adult and children should share in the selection of children for each group so that all of those who will be cooking can have an active part in all aspects of the cooking experience. They may want to elect a group leader or 'head chef' who would be responsible for making sure that all ingredients and utensils are available, checking the recipe for the proper sequence and amounts, and making sure that the group cleans up after the experience."

A second area of concern is the need for a greater balance between child and adult initiation of the activity instead of adult initiating most of the activities (Table 3). On page 64 of the manual there is a brief discussion of initiation of activities.

"Sometimes the adult will suggest what to cook, other times the children will recommend foods to prepare. Either way, the children need to be involved in planning for the activity."

There is a possible connection between the frequency of cooking experiences and the practice of using cooking experiences for special occasions (Table 4). It is possible that money is a factor and most of the cooking budget is used for a few elaborate experiences rather than several smaller ones. The frequency and placement of cooking experiences in the curriculum is discussed on page 63 of the manual.

"Approximately once a week each child should have an opportunity to prepare or have an experience tasting and talking about familiar or new foods. Cooking is not just for 'special occasions' like Christmas or Halloween, or a culminating activity to a social studies unit. It is a LEARNING EXPERIENCE in itself when the children are actively involved..."

There is also a discussion of the financial aspects of cooking experiences (pages 120-121) and a listing of sources for cooking materials (pages 117-119) in the manual.

Few teachers encourage children to be involved in the planning aspect of cooking experiences. A few teachers plan with children, but infrequently. This is a major point since it is an area of training that has been given more emphasis in the past year. A discussion of planning for cooking and suggestions for a planning session for adults and children is provided in the manual (pages 70-71).

"It is necessary for both the adults and the children to be involved. Planning enables the adults to feel more comfortable since they will be familiar with the processes and terms involved. The children need to plan in order to be active participants in the total process of cooking. Planning is also an important skill which can be transferred to other areas of learning." (page 70)

Allowing children to cook independently (Table 8) is also a fairly new area of training and many teachers are unaware of the benefits from such an activity or how it can be done. In the manual on pages 102-103 there is a discussion of some ways to provide independent cooking experiences.

"Initially, cooking experiences take place with an adult present to mediate and help read the recipe. Later, as the children gain more experience with handling utensils, reading and following the recipe and cleaning up, they can begin to cook independently in small groups using familiar recipes. No heat foods and packaged mixes can be prepared successfully.

Plan with the children the food to be prepared, the utensils and ingredients that are necessary, and the time that will be needed to cook. Then discuss and write out the recipe with the children. Rhebus recipes can help children easily determine the necessary ingredients and utensils.

Prior to the experience the children can role-play the sequence and processes that will be used. Let the children who will be cooking set up the center and check to see that everything is available. A timer can be set to ring at the clean-up time. The children might also appoint a 'head chef'.

At the end of the experience (or the next day) evaluate it with the children. Discuss whether the jobs were shared, how the food turned out, how they felt about the experience, etc."

Cooking experiences involve various activities before and after the experience (Table 9). One area in which teachers need to involve children more is in evaluation of the experience. A section of the

manual provides many suggestions for sharing and linking a cooking experience with language arts, mathematics, science, social studies and the creative arts (pages 111-115).

Two main areas of the Language Base (Table 10) with which teachers need to become more aware are extending meanings of words and associating an object with its label. In the manual (pages 97-100) suggestions are provided for expanding upon the language of cooking, utensils, processes, recipes and foods.

Among the skills in the Motivational Base (Table 11) teachers need to become more aware of working from the familiar to the novel, reinforcement, and seeing the relationship between school subjects and home related activities. A listing of motivational skills appears on page 77 of the manual. Additional motivational reasons for cooking are presented on pages 61 and 62.

> "WHY COOK IN THE CLASSROOM...
> Because...
> Children bring to school an interest in and some knowledge about food...
> It is also a way for children to use 'school' subjects in a functional way." (page 61)

> "Each child can become involved and experience success by participating in activities which they see adults doing at home." (page 62)

In the area of Societal Arts (Table 12) there are five areas which need more training in order to help teachers become more aware of their presence in cooking experiences. These areas are: telling time, fractions, chemical reactions, origin of ingredients and copying the recipe to share. A listing of the academic skills is presented in the manual (pages 74-75). A discussion of the science activities which can

take place prior to cooking experiences is presented on pages 78 and 79 of the manual.

> "Children should have opportunities to see, taste, touch, smell, listen to, and talk about the ingredients they will be using." (page 78)
>
> "Science and cooking go together very naturally. Let the children grow some vegetables which can later be prepared in different ways.
>
> Encourage the children to wonder why changes are happening. Why are certain ingredients always used together, etc?" (page 79)

Additional ideas for extensions into the area of science are provided on pages 113 and 114 of the manual.

The identification of the Intellectual skills (Table 13) of ordering, classifying, inferring, generalizing, creating, comparing, planning and evaluating present in cooking experiences are still needed areas of training. The Intellectual Skills with examples are presented in the manual (page 76).

Teachers need to provide a variety of cooking experiences by preparing different kinds of foods instead of making cookies or other sweets each time. A discussion of foods to cook appears on page 82 of the manual. There is also a section which provides suggestions for a variety of foods to prepare (pages 83-95).

> "Begin with foods that are familiar to the children. Parents can help children prepare special foods eaten in the local area...
>
> Give the children experiences in preparing a variety of foods...instead of making cookies or cakes every time.
>
> Experiment with a variation on a theme. Cook and taste apples, for example, in a variety of ways - raw, baked, fried, in salads, cakes, or cookies." (page 82)

Teachers need to use a variety of recipe forms during the year. In the manual there is a brief discussion about recipes (page 101).

"Recipes for cooking should appear in different forms throughout the year. This allows for individualization and helps children generalize.

There are many different forms of recipes. Here are a few suggestions:

Charts:
- rhebus (picture) charts
- word charts
- combination of words and pictures

Cookbooks
Recipe cards
Recipes from newspapers, magazines, and food containers
Recipe books made by children (individual or class)
Storybooks with recipes

Discuss with the children what recipes are, how they are written, and some reasons for using them." (page 101)

Teachers need to become more aware of how recipes dictated by the children can be utilized. There is a discussion of the information that can be gained through the use of child dictated recipes in the manual (page 106).

"Children's use of words to talk about a cooking experience provides information about their facility with language and understanding of concepts...

Recipes dictated by children are fun to read, but they also give insight into the child's ability to:

<u>Recall and Explain:</u>

Sequence of events
Ingredients needed
Processes required

<u>Conceptualize:</u>

Time
Temperature
Change
Amounts

<u>Use Vocabulary:</u>

Utensils
Ingredients
Processes
Descriptive words

<u>Express:</u>

Feelings
Thoughts

There is also a need to acquaint the teachers with a variety of resources to help them with cooking experiences (Table 18). A list of references for teachers is provided in the manual (pages 117-119). References include articles written for teachers and various cookbooks designed for children.

Summary and Educational Implications

T.E.E.M. teachers, though providing cooking experiences in the their classrooms, do not consider them to be instructional activities in which a variety of learnings can take place. Cooking experiences are usually reserved for special occasions and as enjoyable activities rather than integral parts of the curriculum.

There is also a tendency on the part of teachers not to attend to the integrated curriculum in regard to cooking experiences. This is evidenced by greater awareness on the part of teachers of the aspects of cooking lending themselves to some areas of mathematics and reading but not to the relationship of cooking to the areas of science, oral language, listening, and the use of literature related to the experience. The area of psychomotor skills and their relation to cooking experiences is a subject for futher training.

There is a need for teachers to increase their knowledge of the intellectual processes. They need to be familiar with them so that the particular processes can be identified when not confined to a subject area. Cooking experiences are excellent activities because they integrate subject areas.

One important aspect of cooking experiences is the opportunity for children to move toward more independence. Cooking experiences provide an opportunity for them to take an increasingly active role in planning, preparation, and evaluation. The many skills and concepts gained and practiced can be transferred to other areas of learning.

Many educators have not considered cooking experiences as instructional activities because of the expense. Cooking experiences need not be elaborate or expensive. If they are well-planned, a simple, inexpensive cooking experience can provide more opportunities for learning than a more complicated and expensive one. When educators are convinced of the importance of cooking experiences in the classroom, cooking equipment and ingredients would then be considered instructional materials and be as important to the school curriculum as textbooks.

Learning is many-faceted and multi-dimensional...Learning is complex. It involves dimensions of feeling, interest, curiosity, courage, readiness. Learning that lasts is somehow life-connected. Learning that has quality is concept connected (Keliher 1963, p. 41). Cooking experiences can help children connect learning with life.

APPENDIX A

COMMUNITIES PARTICIPATING IN THE STUDY

Abbeville, Louisiana

Baltimore, Maryland

Chickasha, Oklahoma

Choctaw, Mississippi

Des Moines, Iowa

Durham, North Carolina

Ft. Worth, Texas

Hoonah, Alaska

Lakewood, New Jersey

Los Angeles, California

Pikeville, Kentucky

Santa Fe, New Mexico

Shawnee, Oklahoma

Vincennes, Indiana

Walker County, Georgia

APPENDIX B

LETTER TO THE DIRECTORS

Dear

I am presently doing research on cooking experiences with children. Since cooking is one of the many exciting and educational aspects of our program, I am sure you have gained much information about your children and their cooking experiences.

Would your teachers please take a few minutes to complete and return the enclosed questionnaires? I would also appreciate any pictures, cookbooks, or other materials which the teachers, and particularly the children, have prepared.

Thank you for your help.

Sincerely yours,

Lynn Kelley
Field Representative

APPENDIX C

QUESTIONNAIRE

Cooking Experiences With Children

1. What are the ages of the children who participate in cooking experiences?

_____ pre-school _____ primary _____ intermediate

2. a. How are the children grouped to cook?

_____ small groups _____ teacher selected groups

_____ total groups _____ child selected groups

b. Are the cooking experiences?

_____ child initiated _____ adult initiated

3. When do cooking experiences take place?

_____ every day _____ special occasions

_____ once a week _____ regular class activity

4. a. What is the role of the adult in cooking experiences?

_____ mediator-facilitator _____ supervisor

_____ dominator

b. What adults participate during cooking experiences?

_____ teacher _____ aide _____ parent

5. a. Do the children plan the cooking activity?

_____ never _____ occasionally _____ most of the time

5. b. Do the children cook by themselves without adult supervision?

_____ never _____ occasionally _____ most of the time

6. What kinds of pre and post activities take place in conjunction with the cooking experiences?

_____ planning with children for experience

_____ evaluation of experience with children

_____ preparation of recipe books, etc. to share

_____ extensions related to goal areas you and the children have done

_____ other

7. What skills have you been aware of during the cooking experience?

Language

_____ New vocabulary

_____ Extending meaning of words

_____ Other

_____ Spontaneous talk

_____ Tying objects together with their label

Motivation

_____ Task persistance

_____ Anticipation

_____ Tasting the finished product

_____ Manipulating the materials

_____ Working from the familiar to novel

_____ Seeing the relationship between "school subjects" (math, reading, etc.) and a "home" activity.

_____ Reinforcement

Societal Arts and Skills

_____ Functional reading (identifying words, reading ingredients)

_____ Measurement

_____ Fractions

_____ Chemical reactions

_____ Working in a group (taking turns, sharing, etc.)

_____ Copying the recipe to take home

_____ Telling time

_____ Changes in state of matter

_____ Origin of ingredients

_____ Other

Intellectual Base

_____ Recalling

_____ Comparing

_____ Classifying

_____ Inferring causes and effects

_____ Sequencing

_____ Generalizing

_____ Ordering

_____ Classifying

_____ Predicting

_____ Planning and organizing

_____ Evaluating

_____ Creating

_____ Other

8. a. What are some of the foods that the children have prepared?

b. Have you made food (i.e. pudding) more than once with minor changes each time? What happened?

9. a. What kinds of recipes have been used?

_____ Rhebus

_____ Chart (recipe copied from cookbook)

_____ Cookbook

_____ Mother's recipes

_____ Other

b. Have you used recipes that the children have dictated? (Then, did you discuss why the recipe worked or not and repeated experience with the revisions?)

10. What resources have you found helpful?

Thank you for taking the time to complete this questionnaire. I would appreciate any additional comments you wish to add.

APPENDIX D

TEACHER'S MANUAL

The following is a reproduction of the manual written for T.E.E.M. teachers to help them utilize cooking experiences in the classroom.

COOKING IS KIDSTUFF

THIS MANUAL IS DESIGNED TO HELP YOU UTILIZE COOKING AS A CLASSROOM LEARNING EXPERIENCE. IT IS BASED UPON THE BROAD DEFINITION OF COOKING; "TO PREPARE FOOD FOR EATING." SO ... EVEN IF YOU DO NOT HAVE A STOVE AVAILABLE, OR YOU ARE NOT A "JULIA CHILD," YOU AND YOUR CHILDREN CAN EXPERIENCE AND LEARN MANY THINGS FROM COOKING IN THE CLASSROOM.

TABLE OF CONTENTS

INTRODUCTION

WHY COOK IN THE CLASSROOM

Because .....

Children bring to school an interest in and some knowledge about food.

Cooking is a natural way to find out many things about the children's:

- interests and experiences.
- ability to use skills such as reading, counting, measuring, and working with others.
- understanding concepts of time, temperature, and change.
- interpersonal relationships with adults and other children.

It is also a way for children to use "school" subjects in a functional way.

Cooking also offers an opportunity for children to learn more about the

sights

sounds

smells

tastes

feelings

language

of <u>their</u> world.

Most of all ..... cooking is FUN!

Each child can become involved and experience success by participating in activities which they see adults doing at home.

WHEN AND HOW TO COOK IN THE CLASSROOM

Approximately once a week each child should have an opportunity to prepare or have an experience tasting and talking about familiar or new foods. Cooking is not just for "special occasions" like Christmas or Halloween, or a culminating activity to a social studies unit. It is a LEARNING EXPERIENCE in itself when the children are actively involved in:

planning

choosing and reading the recipe

measuring

pouring

mixing and cutting

turning on the appliances and oven

expressing ideas, feelings and knowledge

evaluating

Sometimes the adult will suggest what to cook, other times the children will recommend foods to prepare. Either way, the children need to be involved in planning for the activity.

The cooking experience can vary from a simple activity like peeling and cutting carrots to making a salad or a stew. No matter what is prepared there should be a time for the children and the adult to taste and talk about what they are eating. They might discuss:

How the food was prepared.

How it tastes.

Have the children tasted it before?

Where?

Compare and contrast it with other similar foods.

Who helped with each job?

Children, working in small groups (during Committee Time), can rotate to the cooking center during the week. They soon discover that even though they do not cook today, sometime during the week they will all have a turn.

The adult and children should share in the selection of children for each group so that all of those who will be cooking can have an active part in all aspects of the cooking experience. They may want to elect a group leader or "head chef" who would be responsible for making sure that all ingredients and utensils are available, checking the recipe for the proper sequence and amounts, and making sure that the group cleans up after the experience.

Cooking in small, rather than total groups, allows each child more opportunity to talk, manipulate, and observe the changes taking place. Since each child can be involved, there will be fewer inappropiate behaviors. The adult (teacher, aide, or parent) can interact with and observe each child, thus allowing for more individualization.

If more than one adult is present in the classroom on a regular basis, take turns cooking with the children. All of the adults in the classroom that day should be involved in the planning and evaluation of the activity so that it will be a learning experience.

A COOKING CENTER IS:

A place for .....

Tasting and discussing familiar foods served in a variety of ways.

Discovering more about the ingredients used in cooking- how do they look, smell, taste, feel, and sound?

Preparing and discussing the changes which can be made in foods.

Experimenting by tasting foods with slight changes; preparing and tasting foods prepared from recipes dictated by the children; discussing the results and changes needed.

A COOKING CENTER* CONTAINS:

A variety of

UTENSILS

RESOURCE BOOKS (cookbooks, books and stories about food)

MATERIALS FOR SHARING recipes, ideas and food.

CHARTS with defintions of cooking terms or utensils.

*The Cooking Center can be anywhere in the room, but the Playhouse would be a natural place. Instead of buying "child sized" utensils, use real ones which can be used in both real and role-playing situations. The Cooking Center can be an extension of the Math, Science, or Reading center. Many schools have kitchens. Maybe you can arrange to cook there occasionally.

COOKING WITH CHILDREN INVOLVES:

Planning:

- Your role
- The children's role

Doing and growing in:

- Language
- Motivation
- Thinking skills
- Academic and social skills

Evaluating:

- By children
- By you

PLANNING FOR COOKING

It is necessary for both the adults and the children to be involved. Planning enables the adults to feel more comfortable since they will be familiar with the processes and terms involved. The children need to plan in order to be active participants in the total process of cooking. Planning is also an important skill which can be transferred to other areas of learning.

	YOUR ROLE	WITH CHILDREN	MATERIALS NEEDED
PLANNING FOR THE EXPERIENCE	How will you mediate the experience? What kinds of questions can you ask? Have you planned for growth in: language thinking skills motivation academic and social skills What form will the recipe take? What records will be kept? By whom? What precautions are needed? Are you familiar with all terms?	What would they like to prepare? What ingredients are needed? How much of each is needed? What utensils will be used? How much time will be needed? (allow time for cleanup) Who will provide the materials? How much will the ingredients cost? Where will the cooking take place?	Recipe: rhebus chart cookbook other Utensils: Ingredients: Record Keeping Device: What kind: Who will keep it? What information are you seeking? __use of skills __interests __concepts understood? __interpersonal relationships

It is also a good idea to prepare the food yourself ahead of time. This will familiarize you with the procedures and help you anticipate the words and questions that might come out of the experience so that mediation* with the children will be effective.

The total class or the committee at the Cooking Center may do the planning. Each committee does not have to cook the same day nor prepare the same food. It is fun to share and compare.

*Mediation in this context refers to talking about the processes taking place; "Look at the way the sugar is dissolving when we add the milk." or providing the necessary labels; "We will blend these ingredients together using the electric mixer".

A SUGGESTED CHECKLIST OF AREAS OF LEARNING TO PLAN FOR IN A COOKING EXPERIENCE

Many of these skills take place automatically, but adults need to plan for new or extended learnings.

LANGUAGE

_____ Spontaneous talking about what is happening (likes, dislikes, projections, etc.)

_____ New vocabulary development:

- _____ utensils
- _____ ingredients
- _____ processes (verbs)
- _____ descriptive words (color, size, shape, texture, sound, smell, taste)
- _____ extending meanings of known words (different definitions for words like "batter" or "whip")
- _____ associating label with object (naming utensils and foods)
- _____ associating label with action (naming processes)
- _____ discussion skills (question asking, listening, taking turns, explaining)

ACADEMIC AND SOCIAL SKILLS

_____ Functional reading (identifying words, reading recipes, following directions, comprehension, etc.)

_____ Measuring (full, level, rounded, half, whole, etc.)

_____ Social skills (taking turns, patience, sharing, leadership)

_____ Research skills (origins of ingredients, price, variations of recipe, origin of recipe, etc.)

_____ Time concepts (how long food will cook, starting time, when food will be done, etc.)

_____ Writing recipe or thoughts about product or experience, (spelling)

_____ Science experiences:

- _____ cause and effect (adding liquid to dry; adding too much or too little.)
- _____ chemical reactions (baking powder or yeast added)
- _____ changes in state of matter (butter - solid or melted)
- _____ difference in time required using electric vs. hand beater
- _____ difference in exactness using a blender or grinder vs. human cutting, chopping or mixing
- _____ concept of temperature

_____ substitution of ingredients (for baking powder or chocolate, etc.)

_____ Other math skills:

_____ addition

_____ division (dividing recipe)

_____ multiplication (doubling recipe)

_____ Motor skills (grinding, pouring, beating, squeezing, kneading, pounding, stirring, cutting, etc.)

_____ Following directions

THINKING SKILLS

_____ Recalling where ingredients were used before.

_____ Sequencing - what procedure is to be followed. (following directions)

_____ Comparing food before and after chopping or cooking; comparing procedures.

_____ Classifying which ingredients are liquid or solid; which utensils are similar.

_____ Predicting what would happen if an ingredient was omitted or too much was added.

_____ Planning and organizing roles and materials needed.

_____ Evaluating the end product and group work.

_____ Generalizing - knowing that adding sugar will make something sweeter.

_____ Creating - decorating or putting new foods together.

_____ Discriminating which utensil would be appropriate.

MOTIVATION

_____ Extension of home activities into school learning.

_____ Satisfaction of handling tools and ingredients both familiar and new.

_____ Anticipation of tasting the end product.

_____ Satisfaction of staying with a task and seeing an end product.

_____ Reinforcement from peers and adults.

_____ Ability to help choose recipe and role.

_____ Reinforcement from materials.

_____ Sharing and tasting the end product.

_____ Evaluation of role and end product.

BEFORE COOKING

Children should have opportunities to see, taste, touch, smell, listen to, and talk about the ingredients they will be using.

> How does sugar or flour look through a magnifying glass?
>
> How do they taste and smell?
>
> Do they make a sound?
>
> How can you tell the difference between sugar and salt using only your eyes?
>
> What do the different terms like "beat well", "stir" or "tablespoonfull" mean?
>
> Why are certain processes used on particular foods?
>
> What are the names for the different utensils?

Make up a collection of spoons or assorted utensils. Have the children examine them and talk about comparisons (likenesses and differences), uses, and ways to categorize them, etc.

SCIENCE AND COOKING

Science and cooking go together very naturally. Let the children grow some vegetables which can later be prepared in different ways.

Encourage the children to wonder why changes are happening. Why are certain ingredients always used together, etc.? What happens when things are heated, cooled, or frozen?

Have a Smelling Table. Provide a variety of containers with different substances in each. Have the children describe the smell and guess what is in each container.

Make a Tasting Table. Put different substances in a variety of containers. Let the children describe the textures, smells, and tastes of each, then guess what is in each container.

IMPLEMENTING COOKING IN THE CLASSROOM

Get involved and participate with the children. Listen to their questions and observations. Give information only when it is needed. Encourage the children to observe and ask questions about what is happening to the ingredients as they cook.

Most important, RELAX and enjoy the experience. Teach the children how to use the utensils safely, then let them do the mixing, cutting and pouring etc. In order for the children to gain as much from the experience as possible, they need to be actively involved and not just observers.

	BEFORE COOKING	WHILE COOKING	AFTER COOKING
IMPLEMENTING THE EXPERIENCE	Discuss with the children: How will we cooperate to prepare and clean-up? Are all the ingredients and utensils there? Are all hands clean? What safety procedures are needed? What steps are to be followed?	Discuss with children: How do the ingredients smell, taste, feel, look, sound! Which utensil is best for each job? What are the labels for each utensil? What changes take place when each ingredient is added? What processes are used? What would happen if too much or not enough of an ingredient is added or left out? Record information planned.	How will the experience be shared? What extensions will be made (language, math, science, music, etc.)? How can some of the same ingredients be used again in another experience?

WHAT TO COOK

Begin with foods that are familiar to the children. Parents can help children prepare special foods eaten in the local area.

Once the children are familiar with local foods, it is fun to find out how these foods are prepared in other regions of the U.S. and the world. But ... begin at HOME.

Give the children experiences in preparing a variety of foods (soups, sandwiches, meats, beverages, salads, sweets, etc.) instead of making cookies or cakes every time.

Experiment with a variation on a theme. Cook and taste apples, for example, in a variety of ways - raw, baked, fried, in salads, cakes, or cookies.

It is not necessary to cook a large amount of any food. Prepare just enough to taste and talk about.

The following are suggestions for cooking activities in your classroom. They are classified as "Cold Plate Treats" which require no heat, "Hot Plate Specials", requiring a hot-plate or electric fry-pan, and "Somethin' from the Oven". As you and the children cook, you will come up with many more ideas.

COLD PLATE TREATS

Beverages

Juice: Squeeze oranges or grapefruit. Taste with and without sugar. Try different kinds of oranges and grapefruit.

Mix up chocolate milk using syrup or powder. Compare the taste time and cost involved in making them.

Stir up some Kool-aide. Try different flavors. See if two different flavors can be mixed. Combine another with it. What else can you add to the mixture to change the flavor or color?

Try making some eggnog from scratch. Or taste some already prepared. Compare with regular milk. Change the color.

Make some milkshakes. Try new and different flavors. Experiment with syrups and ice creams for different effects.

Mix up some Tang. Use dry Tang to prepare Spice or Russian tea.

Make limeade or lemonade using package mix, canned or fresh juice. Add cranberry juice or cherries.

Combine different juices to make punch. Make icecubes with fruits frozen in them. Add 7-up or gingerale to the juice.

Breads and Spreads

Sandwiches: Make the old standbys (peanut butter and jelly or bananas). Try a variety of jellies or cucumber, or make sandwiches in shapes using cookie cutters. Experiment with different fillings and spices. Make a rainbow sandwich using different colored fillings and breads. If you use three pieces of bread for the sandwich, it will stand up.

Make your own butter. Beat heavy cream in a bowl or shake in a jar. Drain excess cream. Taste and compare with and without salt.

Whip some mayonnaise. Compare with the store-bought variety. Use it on your sandwiches. See if it can be colored.

Make your own peanut butter. Then use it for sandwiches or in cookies.

Cookies

Make No-Bake cookies. Use a basic recipe or make new creations.

Frost cookies or crackers. Decorate with candies, coconut, colorful dry cereal or raisins. Experiment with different colors for frosting and different crackers. Put animal crackers on top of another shape or flavored cracker.

Whip up some confectioner's icing. See how many ways it can be changed and used.

Puddings

Mix up instant pudding. Try a variety of flavors. Add different things like nuts, fruits, marshmallows, flavorings, and toppings. Put in ice cream cones and decorate. 1-2-3 Jello and Whip and Chill are also fun to make and change.

Prepare jello, plain or with fruit or vegetables added. Try a variety of flavors and toppings. Make a salad.

Salads

Make a tossed salad or coleslaw. Try new combinations and dressings.

Prepare a fruit salad using different combinations and dressings. Combine fruits and vegetables. Make ambrosia or a jello mold.

Make a face salad. Use apples, pears, peaches, etc. for the head. Decorate using lettuce, lifesavers, cottage cheese, olives, raisins, etc.

Make tuna or chicken salad. Use manyonnaise or dressings. Add different spices and vegetables.

Snacks

Spread crackers with different kinds of cheeses. Add flavorings, coloring or other foods (olives, nuts, etc.)

Dip bananas in powdered Jello or anything else that will stick. Taste and compare.

Stuff celery with peanut butter (chunky or smooth), cream cheese, cottage cheese (mashed with a fork). Compare.

Dip carrots and celery sticks, raw zuchini, green pepper, cucumber, etc. in sour cream or yogurt. Add different flavorings and ingredients to the dip.

Cut up and taste a variety of fruits. Compare. Think of some interesting ways to change and serve them.

Freeze popsicles. Try a variety of flavors and containers. Compare the length of time needed for freezing each container.

Churn up some homemade ice cream. Use an electric freezer if you must, but the children will enjoy the actual churning. Try different flavors, adding frozen or fresh fruit. Make some floats, sodas, or malts.

HOT PLATE SPECIALS

Beverages

Prepare cocoa using a mix and from scratch. Compare the taste, cost and preparation time.

Breads and Spreads

Grill sandwiches. Experiment with cheese, meat, or peanut butter. Try different breads.

Make pancakes. Experiment by adding different ingredients or syrups. Try making different shapes. Compare taste, shape, texture, and preparation of waffles.

Fix French toast. Top with powdered sugar or syrup. Cut toast into different shapes using a knife or cookie cutters.

Make donuts from refrigerator biscuits. Coat with powdered sugar, chocolate, nuts, cinnamon or coconut.

Candy

Rice Krispie bars are easy to make. Find ways to change the recipe like adding chocolate or food coloring.

Make up some peanut brittle. Vary the recipe by making it with different nuts. Try adding coconut or other ingredients.

Try making some lollipops in different flavors and colors.

Fruits

Fry apples or bananas. Experiment with different ways to serve. Make candied apples or frozen bananas.

Make applesauce from scratch. Compare the taste with the canned variety. Try adding cinnamon or sugar. What happens when you add food color?

Meats, Poultry etc.

Scramble, boil, fry or devil eggs. Compare appearance, taste, and method of preparation. Experiment by adding cheese, meat, vegetables, herbs, or spices.

Have you made "Green Eggs and Ham?".

Prepare hamburgers, sloppy joes, spaghetti or stew.

Fry, boil, broil, or fill hotdogs. Try different toppings and rolls.

Pastries

Use prepared tart shells. Fill with cooked pudding. After the pudding sets, decorate with whipped topping or candies.

Pudding

Cooked pudding can be made several times and changed by adding fruits, nuts, redhots, flavorings, or different toppings.

Snacks

Pop some popcorn. Taste it with and without salt and butter. Look at it under a magnifying glass before and after adding salt and butter. Make popcorn balls or candy corn. Add other ingredients and colorings or flavorings.

Soup

Heat soup using dehydrated or canned variety and compare. Then make soup from scratch.

Vegetables

Mash potatoes using packaged and fresh. Compare. Try them with and without salt and pepper or use different spices. Watch what happens when butter and milk are added. Experiment with topping potatoes with different cheese, parsley or paprika.

Cook up a variety of vegetables, canned, frozen and fresh. Experiment with different herbs (grown in classroom). Top with different cheeses, sour cream or butter.

Miscellaneous

Make your own jellies or jams from berries or canned juices.

SOMETHIN' FROM THE OVEN

Breads

Prepare toast in a toaster or in a broiler. Shake on cinnamon and sugar or spread some peanut butter.

Bake quick breads or muffins using a mix or from scratch.

Make English muffin pizzas. Experiment with different sauces and toppings.

Homemade bread (different varieties) is more difficult but a very worthwhile experience. Taste it with your homemade butter, peanut butter or jelly.

Cakes

Prepare and decorate cupcakes. Try different flavorings, nuts, cream cheese, fruits etc.

Make "Surprise cupcakes". Cut deep circle in cooled cupcakes. Pour in prepared pudding. Replace top and sprinkle on powdered sugar. You might want to drop in some candies, raisins, etc. in the pudding.

Make "fortune cakes". Use flat bottomed ice cream cones. Fill 1/2 full with cake batter (use 1 box cake mix). Put cones in cake pan. Cut slips of white paper (1/2" x 2"). Write a fortune on each. Put 1 in each cone and poke into batter. Bake cupcakes 1 hour at 350 degrees. Ice and decorate.

Cookies and Candies

Make s'mores, (graham crackers, chocolate bar, marshmallow) in a warm oven.

Bake drop cookies from a mix or from scratch. Try adding different flavorings or ingredients. Then make rolled cookies using cutters and decorate. Compare.

Make gingerbread people and decorate.

Make sugar cookies. Paint with egg yolk; paint before baking. (1 egg yolk, 1/4 tsp. water. Divide into 2-3 cups and add different colors. Paint with small burshes and bake).

Fruit

Bake apples and experiment with different fillings - jellies, spices, pudding, etc.

Meat

Make pigs in the blanket. Wrap hotdogs in dough and bake. Sprinkle dough with cheese or spices before baking.

Snacks

Roast sunflower and pumpkin seeds. Taste with and without salt.

Vegetables

Bake potatoes. Top with butter, sour cream, chives (grown in classroom), bacon or cheese, etc.

Make a vegetarian casserole.

The preparation of one food can involve many psychomotor (physical), cognitive (intellectual) and affective (social and self concept) skills.

Here is an example of the skills involved in preparing sandwiches:

Psychomotor:

- eye-hand coordination
- fine motor skills (cutting)
- spatial relations

Cognitive:

- sequence
- following directions
- fractions

Affective:

- sharing
- self concept

THE LANGUAGE OF COOKING

Utensils: Always use the correct label for the utensil being used. Explore different names for the same object.

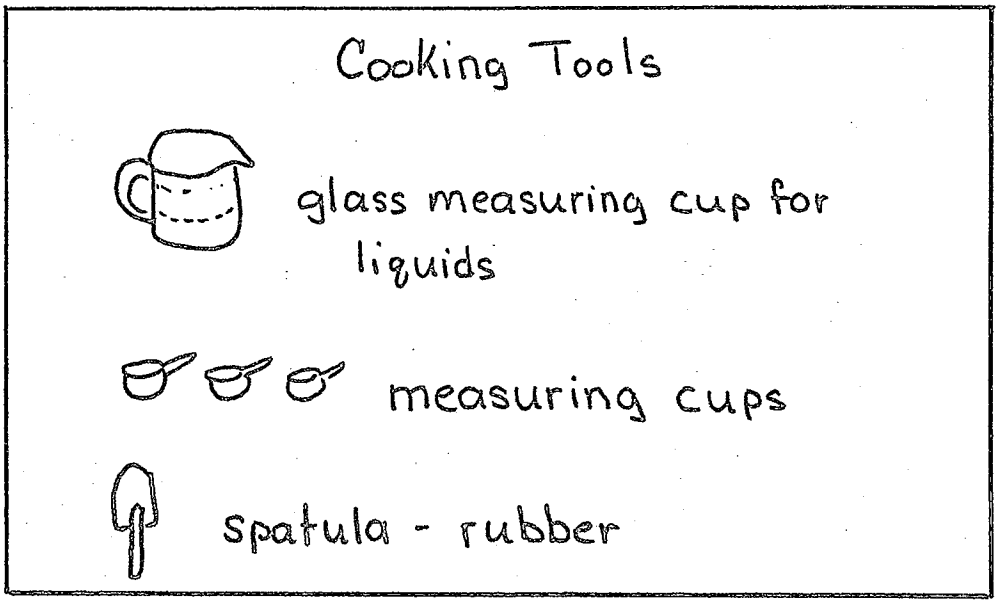
Add different utensils each time if possible.

Provide more utensils than needed (even some that would not be appropriate) so that the children will need to choose the one that would work the best.

A list, with picutres, of the utensils used during cooking experiences is a useful resouce which the children can add to after each experience.

Categorize utensils - those you use to stir, beat, etc. This provides an opportunity to compare and contrast. This will also help children know about a variety of ways to do one process.

This chart is an example of one you and the children can make. You will probably add many more utensils as you use them:



Processes: Use the correct label for what is being done. It might be helpful for you and the children to prepare a chart or book of cooking terms and what they mean. Explore the different uses of words. For instance, what are the different meanings of the words "beat" or "whip"?

Here is an example of a chart. You and the children will add many more terms as you cook:

Cooking Terms

To mix

Stir → 

To mix ingredients by moving a spoon around in a bowl.

boil 

To heat food in a pan or on top of a stove until bubbles come to the top of the pan.

Foods: Explore different labels for foods prepared.

Talk about the different parts of fruits, vegetables, or nuts used in the food prepared.

Use a variety of descriptive words to talk about the size, shape, color, texture, smell and sound of foods before and after preparation.

Categorize the foods (fruits, or vegetables, etc., taste, texture, color, smell, shape, foods liked or disliked, favorite foods, foods for holidays or particular meals, etc.)

Recipes: Recipes for cooking should appear in different forms throughout the year. This allows for individualization and helps children generalize.

There are many different forms of recipes. Here are a few suggestions:

Charts:
- rhebus (picture) charts
- word charts
- combination of words and pictures

Cookbooks
Recipe cards
Recipes from newspapers, magazines, and food containers
Recipe books made by children (individual or class)
Storybooks with recipes

Discuss with the children what recipes are, how they are written, and some reasons for using them.

INDEPENDENT COOKING

Initially, cooking experiences take place with an adult present to mediate and help read the recipe. Later, as the children gain more experience with handling utensils, reading and following the recipe and cleaning up, they can begin to cook independently in small groups using familiar recipes. No heat foods and packaged mixes can be prepared successfully.

Plan with the children the food to be prepard, the utensils and ingredients that are necessary, and the time that will be needed to cook. Then discuss and write out the recipe with the children. Rhebus recipes can help children easily determine the necessary ingredients and utensils.

Prior to the experience the children can role-play the sequence and processes that will be used. Let the children who will be cooking set up the center and check to see that everything is available. A timer can be set to ring at the clean-up time. The children might also appoint a "head chef".

At the end of the experience (or the next day) evaluate it with the children. Discuss whether the jobs were shared, how the food turned out, how they felt about the experience, etc.

CREATIVE COOKING

Once the children have had many experiences disucssing, preparing and tasting foods, set out a wide variety of left-overs and some new additions (food color, spices, candies, and other decorating materials, etc.) Invite the children to experiment with making edible and attractive creations. Encourage them to name and share what they have made, even the "secret" ingredients. (example -- Vampire Blood Punch).

The children might wish to dictate or write down the recipes or present a sales campaign (advertisement or commerical) to "sell" what they created.

Evaluation of the cooking experience is one of the most important, though often neglected area of the planning cycle. It is important to talk about the total experience and discuss ways to improve the recipe or the group cooperation.

Remember, there is never a "failure" in cooking. Talk about why the food did not look or taste the way it should. What changes or precautions are needed next time? Use every experience as a learning experience.

It is very important to ALWAYS taste what the children have prepared. They need to have the feeling that you value what they have done.

	BY CHILDREN	BY YOU	PLANS
EVALUATING THE EXPERIENCE	What did the children <u>say</u> that they have learned? How did the children <u>feel</u> about the experience? What would they <u>change</u> or add?	What did you learn about the children's: __interests __experiences __skills: language thinking motivation academic social __concepts How could this experience be modified: change of recipe addition or subtraction of ingredients change of utensils. (use electric appliances)	How will records of the experience be used? How will the experience be extended into other areas of the curriculum? How will the experience be shared with others?

LOOKING AT CHILDREN'S LANGUAGE ABOUT COOKING

Children's use of words to talk about a cooking experience provides information about their facility with language and understanding of concepts. One child, after tasting waffles, said, "I liked it when the syrup crawled down the waffle."

Recipes dictated by children are fun to read, but they also give insight into the child's ability to:

Recall and Explain:

- Sequence of events
- Ingredients needed
- Processes required

Conceptualize:

- Time
- Temperature
- Change
- Amounts

Use Vocabulary:

- Utensils
- Ingredients
- Processes
- Descriptive words

Express:

- Feelings
- Thoughts

Examples of child-authored recipes

The following recipes were written by some second level children. They reveal much about their ability to use language and conceptualize the cooking process.

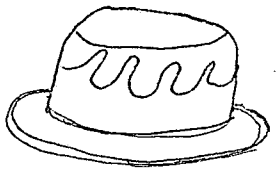
TURKEY

By Larry Lewis

Ingredients:

One, 50lb. turkey

Cut it open, and take the insides out. Put that stuff that goes inside the turkey (potatoes, turkey meat, crust) ---inside the turkey. Bake about 30 minutes in 452 degree oven.



CHOCOLATE CAKE

by Shelia Henley

Ingredients: 2 eggs, 1 whole box of cake mix.

Get a bowl. Pour cake mix in and stir it up until the bumps and clogs go out. Put it in a pan, and bake for about 30 minutes at 100 degrees.

Icing: 1 tsp. sugar, 1 C. water, 1 tsp. chocolate

Stir it up! Wait until cake gets warm (after you take it out of the oven) and put it on the cake.

COCOA

by Barbara Holder

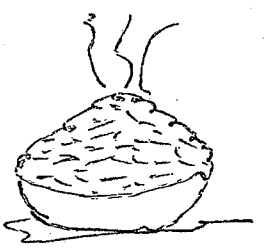
Get a big kettle. Get 32 C. water in it. Turn on the stove, and let it get hot. After it's hot, real hot, put one tsp. cocoa in the kettle. Add 6 C. sugar. Get the cups out. Pour it out, and drink it.

CHERRY PIE

by

Rowdy Norton

Put 2 spoons of grease in a pie pan so it's slippery. Make tortilla dough, and put it around the edge of the pan. Add about 5 C. cherries and 4 C. of pits. Put 9 fork holes in the top of the pie. Then, wait 'till it bakes. Bake at 3 degrees for 12 minutes. Then bring it out. Then the top will be like a balloon. Then cut "pie thingies" in it. Your pie lines make it good to eat!



EXTENDING THE COOKING EXPERIENCE

Cooking experiences provide many opportunities for learning in themselves, but they also can be extended into other curriculum areas. Here are a few ideas for linking cooking experiences with Language, Arts, Math, Science, Social Studies, and the Creative Arts. You and the children will think of many more as you cook.

LANGUAGE ARTS

Write a story about favorite foods.

Prepare class or individual books about the experience.

Make a talking mural (with language taken during or after the experience) displayed with pictures or drawings).

Write a story like "If I were a carrot in our stew.....".

Write or dictate recipes prepared for a class or individual recipe book to share with others.

Dictate or write own version of a recipe for a favorite food.

Use a tape recorder to tell about favorite foods, experience or necessary ingredients.

Make crossword puzzles based on the cooking terms or ingredients.

Use food containers as reading material. Make up questions like: Who makes the cereal? What special offers are made? etc.

Prepare a "cooking bingo" game using terms for measurements, processes, ingredients and utensils.

Provide stories with blank spaces to fill with cooking words.

Categorize words for utensils, processes, ingredients and descriptors.

Read books with a food theme.

Read and compose original poems about cooking experiences, favorite foods etc.

Make a word wall:

While I was cooking, I felt (did, said, etc.)

After I finished, it looked.....

It tasted.....

Write completion sentences:

The butter is.....

The butter and marshmallows are.....

The butter, marshmallows, and Rice Krispies are.....

Prepare invitations to a tasting party for friends and relatives.

MATHEMATICS AND SCIENCE

Practice measuring, using rice, sand, etc.

Estimate the cost of the ingredients. How much to charge if selling the food. What the profit will be, etc.

Estimate how many chips are in the chocolate chip cookies you made.

Use the metric system for amounts of ingredients.

Graph favorite foods or categories of foods prepared during the year.

Using a magnifying glass and microscope, look at the basic ingredients and compare.

Observe changes caused by: heat, cold, washing, dissolving, using sieves, decay, separating, yeast, and dehydration.

Make a smell or taste kit.

Study the effect of different tools.

Study ingredients (sugar) existing in different forms.

Use food containers for math and science. Ask questions like: How much do the contents weigh? How is it recorded? How many calories are in two cups of the cereal? How much does the cereal cost? What combinations of coins could you use to pay for it?

Plan menus using the newspaper to estimate cost of the meals you might prepare. Are the meals nutritionally sound as well as inexpensive?

Discuss parts of plants and nuts, etc. What part of plants do different foods come from?

Discuss parts of animals. From which part does hamburger come?

Find out why different ingredients are put together.

Find out what additives are put in the processed foods. Why are they used?

SOCIAL STUDIES

Find out how others prepare the same dish prepared at school.

Study a country or region making a particular dish. Why are certain foods prepared or eaten in certain places?

Find out all the people and processes involved in providing foods.

Plan a work schedule for the next cooking experience. Decide how the jobs will be divided.

Set up a restaurant. What are the many jobs involved?

Set up a store. What will be sold? Determine prices, sales, jobs, etc.

CREATIVE ARTS

Draw pictures of favorite foods.

Draw pictures showing the sequence of the activity.

Make a collage of magazine pictures and original pictures of favorite foods.

Dramatize being a pancake, a pickle, or a spoon, etc.

Make food prints using raw vegetables and paint.

Dramatize a favorite food story using people or puppets.

Make a shape book to use with words from the experience or from language taken.

Compose a song about food and cooking, or set a recipe to music.

Sing food songs.

Use fingerplays about food or cooking.

Experiment with creative ways to serve foods.

Design menus to be used in a playhouse restaurant and plan a sales campaign.

REMEMBER, COOKING IS ANY WAY OF PREPARING FOOD. YOU DO NOT HAVE TO BE A "MASTER CHEF" NOR DOES THE ACTIVITY HAVE TO BE ELABORATE. IT IS NOT WHAT IS PREPARED, BUT THE AMOUNT OF INVOLVEMENT AND INTERACTION WITH PEOPLE, WORDS, AND MATERIALS THAT IS IMPORTANT. THE NECESSARY INGREDIENT IS AN ADULT INTERESTED IN CHILDREN AND THE DESIRE TO EXPERIMENT AND FIND OUT MORE ABOUT THE WORLD.

REFERENCES ON COOKING

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A BAKERS DOZEN: A LIST OF SOURCES OF INGREDIENTS FOR COOKING EXPERIENCES

1. Children can bring them from home. Each child could volunteer to bring a specified amount of a needed ingredient.

2. Foods, like berries or dandelion greens, could be gathered by the children on a walk. Maybe a parent or friend has an orchard and would be willing to let the children pick some fruit.

3. Bean sprouts, radishes, and alfalfa seeds can be grown easily in the classroom.

4. If you live near the water, take the children fishing or clam digging. Then cook what you get.

5. Sometimes supermarkets or fruit stands have surplus foods they will contribute.

6. Teachers in your school (or friends) can pool leftover ingredients. This is a good way to clean out cupboards and refrigerators at school and home. Let the children experiment with creative combinations.

7. Instead of having parents contribute finished cupcakes for parties, invite them to bring the ingredients and let the children prepare the treat.

8. The school cafeteria workers might contribute the necessary basic ingredients.

9. A bake sale at school to sell foods the children have made is a good way to pay for ingredients. It is also another opportunity to practice math skills (money, profit, loss, etc.)

10. Parents might like to provide the ingredients for local dishes and help the children prepare them.

11. Local Civic groups can be invited to help children prepare foods and supply some of the ingredients.

12. Ask the children to invite their parents (grandparents, aunts, etc.) to the classroom to help prepare their child's favorite dish.

13. Maybe there is some money tucked away that could be used for the educational experience of cooking.

COOKING EXPERIENCE RECORD

Date	Adult or Independent	Food prepared or tasted	New utensils introduced	New terms	Changes made in recipe	Extensions of Activity

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