Synthetic Review Exploring the Activity of Baking and Eating Bread in Early Childhood Education

based on two articles:
“Using cultural tools to develop scientific literacy of young Mexican American preschoolers” and
“Breaking bread: spirituality, food and early childhood education”

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This review will look at two widely different approaches to studying the impacts of preparing and eating food in early childhood education environments. In particular it will focus on the educational value of the activity of baking bread with young children. The two articles reviewed explore both the scientific and the everyday spiritual aspects of the activity of preparing and eating bread and emphasise how important it can be in creating a feeling for and a valuing of one’s own cultural context in education. Baking traditional breads, tortillas, as is described by Riojas-Cortez et al., not only teaches many basic scientific concepts, but it unites parent and child in an activity that gives value to the roots of their Mexican American culture. Children learn to appreciate their traditions, the importance of meaningful work and the joy of sharing the fruits of their labours with others. It is meaningful and delicious work that prepares children for their next steps in education.

“Baking bread with children can be a wonderful and lively experience, even more than a lesson in cooking. It has the potential to weave together many of the important aspects of life, strengthen their skills and abilities and to harness their abundant energy. The whole culture of bread-baking, its recipes, stories, songs and poems educates children and supports their healthy development.” (Cohen, 2008, p. 1)

I have been teaching the art of baking bread for the past 25 years to both children and adults. I have also taught a number of other subjects, including geography, history, science and mathematics through the activity of baking bread. I am an avid bread baker and proponent for revival of traditional craft as a pathway to learning science, art as well as for cultural and spiritual renewal. These two articles explore a variety of questions related to using culturally relevant activities in early childhood education. They speak about valuing tradition, the importance of being sensitive to a child’s language and culture. While they employ different research methodologies with different aims, many of their conclusions point to similar values in the education. Together they reveal a multiplicity of applications for culturally connected craft, and especially for baking bread. I will argue in an interpretive manner that these two articles offer enriching examples that represent a far broader spectrum of the educational possibilities for employing the time honoured tradition of baking bread with children.
I began my search for articles looking for research into baking bread, cookery, nutrition and their educational value for any age group. While there is much popular literature on these themes, academic studies are sparse, especially those connected with the educational value of the activity of baking bread. I was impressed with the contrasting approaches and conclusions offered in these two articles, which approach the issues of preparing and eating food from a scientific and a spiritual angle. They are both set in early childhood environments and are focused on the activity of the children and its potential for positive educational value. Following from Eisenhart’s article; “On the subject of interpretive reviews” I realized that I could review these two very different articles “not to build up stone walls… but to offer surprising and enriching perspectives…(that) break down barriers and cause things (or thinking) to expand” (Eisenhart, 1998 p. 394). I will argue that these studies are complimentary. One focuses on the development of scientific vocabulary and concepts in early childhood education and the other on everyday spirituality. Nevertheless, when looked at together, these articles reveal a far broader potential for the educational value of preparing and eating food (in particular bread) with children than either article could on its own.

**Review**

**Summary and evaluation of first article**

Riojas-Cortez et. al. research how to employ cultural practices commonly found in the home to help Mexican American preschoolers develop scientific literacy needed to achieve school readiness goals. Their article describes the “success” of the Family Institute for Early Literacy Development in helping parents to work with their children to learn scientific concepts and vocabulary. Parents and children were led to participate in traditional Mexican American cultural practices such as gardening, cooking and making home remedies. Emphasis was placed on discussing and journaling about what they were doing in their primary language. This is significant for Mexican American children who are often at an academic disadvantage due to different languages being spoken at home and at school. They cite Perez, “In order to enhance concept development in you second-language learners, the use of the first language for classroom instruction is highly recommended.” (Riojas-Cortez, 2008, p. 528) Their aim was to help the children learn scientific vocabulary through the language and activities which were most familiar and culturally relevant to the children. This Funds of Knowledge theoretical framework is based on the research of Vygotsky, who found that “the acquisition of knowledge is mediated by cultural tools. (p. 528) Through using culturally relevant tools they helped the children form a connection with what might otherwise have been abstract scientific concepts.

Their research is based on sociocultural theories that “support the notion that children learn by engaging in tasks and with others.” The joint process of parent interacting with child, learning together is central to their work. In support of their work, they cite brain research by Catherwood that affirms that this kind of manual and social activity enhances neuron growth.
Each repeated experience promotes synaptic development between neurons and neural growth. (p. 527) Furthermore, they claim that “when a child’s learning experience is heightened through the senses, the child’s memory is likely to be enhanced.” (p. 528)

While this physiological process is the same for all children, Mexican American children, (equally so other minorities) can be at a disadvantage because “teachers often fail to recognize the funds of knowledge; that is the knowledge socially constructed in households that minority children bring with them to the educational setting.” (p. 528)

The Family Institute for Early Literacy Development was created by the authors to help three and four year olds in South Central Texas become better prepared to meet Texas Pre-kindergarten Guidelines for school enrolment. The Institute aimed to provide the children (and their parents) with multi-sensory opportunities to engage in scientific inquiry in three main areas of exploration: caring for plants, making tortillas and making home remedies. Each area integrated both a sociocognitive and sociocultural approach in which the children handled familiar, everyday materials and were assisted in using scientific concepts to talk about these in conversations with their parents. Key observations were then captured in a journal using both words and pictures further reinforcing the connections between concept, vocabulary and experience.

As the emphasis of this synthetic review is on the role of baking and eating bread in early childhood education, this summary will focus in particular on the aspect of the above research concerned with making tortillas. While the other two areas, caring for plants and making home remedies are interesting and do in general support my argument for active, hands-on learning, they will be included here only as a footnote. It is important to note that in this research each of the three themes were explored in a similar manner that began with focused large group discussion with parents, listening to a relevant children’s story with parents and children, then together engaging in a hands-on activity with active discussion that led to noting down findings in a journal.

While many Mexican American parents no longer make tortillas at home, they are considered a staple part of their diet. Many children may have seen grandmothers or relatives make them and they are ever present at most meals. The parents began this part of the Institute by discussing the science of making tortillas. Their discussion focused on concepts of “change, constancy, measurement, form and function”. The parents discovered that many words in Spanish and English have similar origin and meaning “volumen/volume, area/area/ combiner/combine…” While the focus of the lesson was on acquiring basic science vocabulary and concepts, the importance of literacy was also paramount as recipes and oral instructions needed to be read and followed. The parents then talked about the vocabulary used to make tortillas: flour, water, salt, and lard, including scientific terms such as volume, mass, changes, elasticity, and measure. (p. 533)

The facilitators read the book Magda’s Tortillas by Chavarria-Chairez to parents and children to illustrate the process of making tortillas. They were then encouraged to talk together as they worked mixing the masa/dough, to discus both what they were doing and what they
were observing. They divided the \textit{masa} into \textit{testales}, small dome shaped balls that were then rolled thin. The Spanish word \textit{testale} was noted as having no English equivalent. It describes both size and form. These tortillas were then cooked on a traditional \textit{comal}/griddle.

Unexpected outcomes from this activity came about as parents described their own techniques for making tortillas. One mother described the process in the tortilla factory in which she worked. Another interesting idea came about to explore the physics of how a rolling pin works. The authors found that this “activity demonstrated that a culturally rich family practice is a valuable experience that promotes children’s scientific thinking and knowledge. “ Furthermore they concluded from the whole of their research that, “When parents’ experiences and home learning are valued, teachers will discover that children from cultural and linguistically diverse backgrounds bring a science knowledge base that can enrich the science curriculum and help them make connections to the science content standards. The understanding of the science concepts and the development of the scientific vocabulary is enhanced by the cultural relevancy of activities.” (p. 535)

This research explores the efficacy and benefits of one educational programme designed and run by the authors to help Mexican American children in Texas meet the state educational goals for school entry. It is critical research with a clear sociocultural and sociocognitive approach to improving the futures of these young children both educationally and by helping them to understand and appreciate their cultural heritage. It surveys three main activities developed in the Institute, but does not develop any one strand to its full potential. Making tortillas is shown to have value in teaching about scientific vocabulary, literacy and cultural knowledge. The activity is also a meaningful way for parents and children to actively embrace their culture together. Certainly there could be a host of other educational benefits from engaging in this activity including early numeracy, tactile and motor development, reverence for food and nutrition.

This research does not point to any further questions that need to be explored or any potential limitations in its methodology. It does not acknowledge there are many areas for potential bias in creating, facilitating and evaluating this kind of research. Nor does it point to any difficulties or counter-examples in their findings. Nevertheless its findings serve as an example of the ways in which hands-on, culturally sensitive work can be of tremendous value in early childhood education.

\textbf{Summary and evaluation of second article}

Jane Bone is also interested in the practices that surround food preparation and eating in early childhood educational settings. Observing how food is shared, the metaphor of “breaking bread” together is her starting point. She focuses on how the related activities of preparing, eating and sharing food shape the spiritual experiences of young children. She proposes that a concept of “everyday spirituality” informs the practice of teachers in each educational context that implies a consideration of issues including “equity, culture and well-being”. (Bone 2005, p. 307)
Bone gives a narrative account about three case studies she conducted in three different school settings in Aotearoa, New Zealand: a Rudolf Steiner kindergarten, a Montessori school and an early childhood preschool. Her studies include the voices of children, parents and teachers. She also points out that her methodology involves self questioning and reflexive practices as she engaged with the evolving narratives of the participants. She, like Riojas-Cortez et al., is careful to consider the influences of differing student and school cultures. She acknowledges the national early childhood educational curriculum, called *Te Whariki*, “woven mat”. This curriculum informs the practices in each of the three schools studied and recognises diversity of language, culture and has a spiritual dimension embedded within. It has an expressed goal that every child be “healthy in mind, body and spirit.” (p.308)

Bone explains that food and culture strongly influence one another. She quotes Bruner. “We are virtually from the start expressions of the culture that nurtures us.” (p.309) Children are “apprentices in learning.” They soon realize that there are rules around food. There are values attached to particular foods. Some foods are inherently good and/or healthy others are bad and/or unhealthy. There are also ways in which food may or may not be eaten. There are particular foods that are eaten only at some times of the year or in connection with cultural events. She cites Bell and Valentine who say, “Food has long ceased to be merely about sustenance and nutrition. It is packed with social, cultural and symbolic meanings.” (p. 308) In looking at breaking bread together, Bone is interested in how everyday spirituality can emerge from everyday patterns and social routines of preparing, sharing and eating food. Rather than reducing the mystery and wonder inherent in spiritual experience, she seeks to reveal an expression of spirituality in daily rituals.

Baking and sharing bread was a daily event in the Rudolf Steiner kindergarten. One of the first things she observed there was the smell of fresh baked bread and how food was used as a central part of the rhythms of the day. The activities in the kindergarten are oriented towards practical tasks like preparing food, weaving and gardening. These according to one teacher should help the children to reach an awareness of “nature, themselves and others.” (p.310) There was an emphasis on a living quality of the grains as an essential part of a holistic, life filled world. Here “bread symbolises the spark of life that becomes tangible in food.” (p. 310) Furthermore she observed that it is not just the quality of ingredients that is important in baking bread, but the way that it is made and eaten together that is central to the whole experience of the young child. Thus from start to finish, from seed to compost, bread and breaking bread together was a key feature in the pedagogy.

Consuming food was a communally shared event. Food was blessed and offered to each child with no coercion to eat or not to eat. Any leftover food was given back to “Mother Earth” and put into the compost. Thus the children were introduced to the idea of the cycle of life and death without any need for the idea of waste. One teacher noted, “When you create reverence around food, you build up an ideology free religion…which we hope manifests in respect and reverence for life and other human beings.” (p. 311) Attitudes surrounding food sharing and consumption are central to developing a healthy sense of self as well as a connection to and responsibility for all life.
At the Montessori school, Bone observed that the serving of food was sometimes taught like any other lesson (i.e. constructing a tower). She describes the lesson of two children passing out water to a circle of classmates. It was a ritualised lesson on courtesy, patience and generosity. They were learning about manners and hospitality in the acts of giving and receiving, an important life lesson.

There was also always a small table set up with a cloth, water, biscuits, fruit and cheese. A child could at any time have a snack or could practice the skills learned above by sharing out food. This according to the staff encouraged self knowledge and independence in fitting in with the rhythms of the centre.

The third kindergarten had a philosophy of “free play” common in Aotearoa. Here food was used to mark transitions and to celebrate change. All food was brought from home. The teachers helped the children unpack and share their lunches, making sure that no child went hungry. There was an emphasis on “cleanliness, obedience and moderation”. (p.313)

In concluding Bone noted that “Food eaten and shared on a daily basis forms significant memories.” (p. 314) This challenged her to look beyond her original biases. She noted that the regular social practices connected with food in each educational setting revealed different ways of celebrating the spirit in each child. Her aim was not to show that one way was preferable to another but to reveal the central role of “breaking bread” in the daily life of a child that was “encouraging harmony, affirming life, celebrating change… and a means for honouring the spirit of the child.” (p. 316)

Bone never fully reveals her biases, but one may assume that she most likely held the pedagogy of the Rudolf Steiner kindergarten as her ideal and that she then over the course of the research discovered aspects of the other educational environments that she also came to value. Her article strives to value what she observed in each context without criticism or ranking one environment over another. In this she was successful.

Conclusion

Here are two complimentary approaches to research into the effects of preparing and eating food in early childhood education. The first gives an example of a successful programme in which parents and children make tortillas together. Through this process they learn new skills that place value upon their cultural and language heritage. They learn vocabulary and scientific concepts that they will need to enter school. The culturally relevant activity of making tortillas can be an important tool in fostering science and literacy education. This shared experience fostered appreciation for the passing down of traditional knowledge for both parent and child.

In the second article, Bone offers three examples of how preparing and eating food are central to the moral and cultural teaching in early childhood education environments. She shows how in each setting preparing and eating food together can teach not only basic social skills, but can inform each child’s sense of well being and connection with other living beings. Through the culture that surrounds breaking bread, children can learn cultural values including,
respect, good manners and a sense of reverence for all living things. She observed how food can feed both body and soul. The every day, the routine, can also be an opportunity for honouring the spirit.

Such diverse observations on the educational potential for baking and eating bread together are in accord with my personal research. It can inform both scientific and spiritual learning as is shown in these two articles. The activity of baking, sharing and eating bread has tremendous educational potential. It can be used as a practical, hands-on, culturally relevant and fun activity in subjects as far ranging as mathematics, geography, English and earth sciences as well. There is ample room for more research.

References


