You Are How You Cook

Embodied Cognition and Inter-generational Transmission of Food Preparation Skills A Case Study

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Abstract
The family may be considered an information ground which can offer useful data to information scientists. By focusing on the information seeking behaviours associated with inter-generational transfer of food preparation skills and using the sensitizing concept of embodied cognition, this study makes a case that the red thread of information runs through the family, which is a unique information entity deserving of distinct consideration within information science. A case study was conducted with three members of the same nuclear family using semi-structured interviews and information horizon map activities to ascertain the various information resources used by two parents and a young adult child in acquiring and transferring food preparation skills. Three main findings are highlighted by this research: (1) the significance of parental enthusiasm; (2) the role of embodied emotion; and (3) the importance of combining language and gesture.

Keywords: information seeking behaviours; information encountering; information ground; embodied cognition; embodied emotion; family

Introduction
Does the red thread of information (Bates, 1991) wind its way through the family? Marcia J. Bates identifies the importance of the “social texture of people’s lives” as a locus for “information transfer” to understand “information creation, seeking and use” (p. 1048). Does the traditional, yet rapidly transforming, institution of the family provide a unique information ground (Fisher, 2005) that needs to be better understood?

The purpose of this limited exploratory study is to provide insight into the broad category of family as a unique social entity that has its own significance in information behavior research. The study
focusses on a specific set of transactions in which any family might typically engage. Food preparation is a universally practiced and taught set of skills; thus, the inter-generational transfer of these skills would provide a representative family activity the study of which could yield generalizable results.

Two parents, here identified as Daniel and Emma, and a third interviewee who is one of their young adult children, identified here as Jordan, were the subjects of semi-structured interviews. The participants were also asked to engage in a contextualizing activity - drawing a map of their unique information horizon (Sonnenwald, 2005) - while discussing the context and significance of the information resources they were depicting.

A narrative approach is used throughout the study to highlight the individual threads of each participant’s perspective, which wind into one family story. Embodied cognition (Barsalou, 2007; Niedenthal, 2007; Singer & Goldin-Meadow, 2005; Angier, 2010) is a sensitizing concept throughout the narrative, which highlights the unique role the non-verbal information transfer can play within the family.

**Literature Review**

The family as an “information ground” has been a guiding concept for this research, as delineated by Karen E. Fisher (2005). Fisher defines an information ground as a “synergistic environment temporarily created when people come together for a singular purpose but from whose behavior emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information” (p. 185). While recognizing that there are a number of ways in which Karen Fisher’s work would not apply to the family, particularly her focus on the temporary and constructed nature of social information grounds (p. 185), it is her insight into the serendipitous aspect of information sharing within a group, via formal and informal sharing of information during social interactions (p. 186 – 187), that can easily be applied to the information seeking behaviours occurring within a family.

Similarly, Sandra Erdelez’s (1999) research on encountering, rather than consciously seeking, information, which she identifies as “bumping into information,” is a useful lens through which to observe family information practices. Erdelez’s concept of “information encountering” is an open ended one that offers a holistic perspective on information behaviour. It “adds additional ‘flavor’ and texture to existing, sometimes very simplistic, models by which we seek to understand information behavior” (p. 28)

The sensitizing concept of embodied cognition is still a new area of research. Nils B. Jostmann of the University of Amsterdam has described it by noting that, “How we process information is related not just to our brains, but to our entire body. We use every system available to us to come to a conclusion and make sense of what’s going on” (as cited in Angier, 2010, para. 6). Specific studies in the literature have examined the nuances of embodied emotion (Niedenthal, 2007), for example. The more encompassing concept of grounded cognition, based in empirical and theoretical methodologies (Barsalou, 2007), examines the relationship between language and gesture, for example, as an aspect
of a wide-ranging scientific inquiry into the concept.

This case study extrapolates the broader concepts articulated by both Niedenthal and Barsalou. Regarding information transfer via embodied emotion, Niedenthal states that “Congruence between the recipient’s bodily expression of emotion and the sender’s emotional tone of language ... facilitates comprehension of the communication” (p. 1002) and that “When emotional imitation goes smoothly, there is a strong foundation for empathy,” which leads to physical imitation’s “probable role in observational learning” (p. 1004). Barsalou’s clinical study stakes a more qualified position than Niedenthal. She writes that “Bodily states are not necessary for cognitive activity, although they can be closely related to it” (p. 620). Barsalou offers important support, at a granular level, for the significance of physical gesture combined with language in learning. He observed that gestures, when combined with “Embodied states of the face triggered emotional states, which in turn interacted with sentence comprehension” (p. 629).

**Research Methods**

The method utilized in this study is a version of the information horizon interview articulated by Diane Sonnenwald (2005). This technique is performed as “an interview during which participants are asked to provide a graphical and verbal articulation of their information horizon in a particular context” (p. 191). Interviews were semi-structured and were conducted separately with three members of the same family who live together. The sample size was small for this exploratory study as its purpose was to stake out ground for possible further investigation.

Prior to the interview, a Consent Statement was read to the interviewee in which the background and nature of the interview were explained; the voluntary nature of the exercise stressed; and their anonymity was assured in the event of publication. The interview guide (see Appendix) outlined an initial broad question requesting each participant to recall their earliest experiences with food preparation, whether through physical gestures, visual images and/or verbal instruction. A narrower question designed to investigate a specific typical routine of food preparation followed, distinguishing between the mundane (a family dinner) or a special occasion (a holiday, birthday). At this point, the information horizon map activity was introduced asking the participant to depict their food preparation horizon, including pertinent human, paper and digital information resources they used. Further discussion ensued as they completed their information horizon maps.

One aspect of the interview horizon method worth noting is that, combined with emotive subject matter, the conversation could veer in directions that might be sensitive for the interviewee. Emotions regarding a deceased parent surfaced at one point, and the participant was overcome, but did not feel a need to stop the interview when asked. We were able to continue, but it was clear that it is a powerful tool.

The mother, Emma, is an experienced home cook, with a particular enthusiasm for baking. Emma provided a strong example of inter-generational embodied cognition via her recollections of learning
baking skills from her mother, and then transferring them to her own children via observation and gesture. The father, Daniel, is a hobbyist gourmet cook, who has pursued culinary information and expertise since adolescence, primarily as an individual passion which he enjoys sharing with others. Daniel generally initiates and completes cooking projects on his own but will also share cooking episodes with his family (Hartel, 2010). One of their children, Jordan, was also interviewed. Her food preparation experiences are significant as they intersect with Niedenthal’s insight regarding observational learning and empathy (p. 1003).

Findings

Theme 1 – Parental Enthusiasm Expressed Through Affective Language

A foundational aspect of all the participants’ food experiences was a vivid parental enthusiasm communicated by one parent in particular, with whom the participant bonded over this subject. The use of affective language was key to the participants’ understanding of their parents’ attitude toward food and cooking, and certain words – fun, play, and adventurous – recurred across all the interviews. Daniel recalled a beloved cooking program from his childhood, The Galloping Gourmet featuring Graham Kerr and stated that he remembered “taking a great interest and again it was the energy and how accessible and how much fun that Graham Kerr made cooking.” Emma recalled her experiences baking with her mother, “it’s like you’re playing. It was never not fun.” Jordan spoke of “friendly” cooking competitions at the cottage, assisting Daniel in cook-offs with her grandmother and aunt, “I remember it was really fun.” Later in the interview process, she stressed the importance of the relational aspect more specifically, “I don’t think I would find it fun without another person, or enjoyable without somebody else.” As well, Jordan related to her father’s “adventurous” tastes, a word

![Figure 1. Daniel’s Interview Horizon map. It shows his 12-year-old self smiling next to the Galloping Gourmet. Other figures include “Dad,” “Adult Me,” “Frugal Gourmet,” and “Mario Batali.”](image-url)
that Daniel had used separately to describe his own father’s enthusiasm for food. He mentioned that “Dad was the one that loved creative food and different food and spice and breadth and all kinds of different things, adventurous eating.”

Affective language appeared to lay a necessary groundwork for the participants to be able to describe why they related so strongly to grasping one parent’s instructions regarding food.

**Theme 2 – Embodied Emotion Reinforces Verbal Instruction**

The nexus of emotion, physical response and learning is encapsulated as “embodied emotion” by P.M. Niedenthal. One of her conclusions is that learning is often achieved through observation of another’s, sometimes painful, experience. She writes in “Embodying Emotion” (2007) that “observational learning is supported by a re-enactment of the emotional experience of the model in the observer” (p. 1004), often resulting in feelings of empathy. This finding is supported by the experience of transferring the skill of vegetable chopping as related by both Daniel and Jordan. Daniel recalled the lesson as a straightforward verbal instruction to his children, “the most important thing is to have an extremely sharp knife from a safety standpoint.” This lesson was transmuted by Jordan into a verbal, visual and emotional memory. When asked about the transfer of chopping skills she recalled “my dad telling me to bend my fingers… a little bit so that if you cut something you’re cutting [at] the top of your fingers, instead of chopping your whole finger off! I learned that from him because he’s cut himself a lot.” The verbal instruction was present, but supported by an empathetic memory, “it’s in my head, every time I cut something up.”

![Jordan’s Interview Horizon map. It shows the primary importance of emotive family relationships in her information horizon. She allows only a quarter of the allotted space to her digital information resources.](image-url)
Theme 3 – Language and Gesture Combine in the Transfer of Basic Mixing Skills

The relationship between language and gesture further reinforces the inter-generational transfer of skills. Barsalou writes in “Grounded Cognition” (2007) that “the gesture that accompanies speech” is “an important form of embodiment in language” and that “Producing gestures helps speakers retrieve words whose meanings are related to the gestures” (p. 629). In this case study, the clear lines presented by Barsalou are rarely so neat. Emma recalled teaching her children how to mix ingredients during baking sessions, “and I’ll just say, ‘Can you get me a cup and half of flour? … Okay, mix that up’. And then they’ll roll it out.” Emma described how children need “to get their hands dirty” in the process of learning skills, but gesture and language were clearly tied together in this process.

Emma also pointed out that the language accompanying instructive gestures may sometimes be opaque but understood and remembered within the context of the food preparation activity. Thus, when recollecting a food preparation exercise with her mother, Emma said, “from my Mom, … there’s so much … just like how to hold a knife when you’re peeling a certain … depends if it’s a potato, or whatever … like, ‘Do it this way, don’t do it that way.’” These statements would not necessarily be useful as stand-alone instructions, but, when combined with the relevant gestures, Emma could mime the knife holding posture during the interview process.

![Figure 3. Emma’s Interview Horizon map. It illustrates the kitchen/family room as her primary information ground. Her concept of information transfer is bound to this physical space, with the exception of occasional courses at the Community Centre.](image-url)
Discussion

In the course of these interviews it became clear how fluid daily family life is. Family members move in and out of a kitchen searching for food, personal communication, and information of all kinds. Thus, one theory that seemed to best illuminate this open concept of information seeking and transfer was Sandra Erdelez’s (1999) concept of information encountering or “bumping into information.” Erdelez’s research focused on consciously constructed environments (book stores, libraries) where people go to engage with information, but often with very different strategies in mind. Nonetheless, her open concept of information gathering (rather than consciously seeking) is very appropriate to the fluidity of the family kitchen. Erdelez writes that “Information encountering is a memorable experience of an unexpected discovery of useful or interesting information” (p. 25).

Karen Fisher’s concept of the “information ground” (2005) is perhaps even more appropriate for the purposes of this study. Although her work is, like Erdelez’s, aimed at consciously constructed information environments, Fisher examines those of a more temporary nature, a foot clinic set up in the common room of a seniors’ building, for example (p. 185). Clearly, the family is an ongoing arrangement consisting of organic relationships rather than brief social contacts over shared needs. However, Fisher raises two points that apply to the family kitchen as a physical ground for information discovery and transfer. The first is the notion of both formal and informal information sharing (p. 187). Formal sources are shared within the kitchen, as cookbooks, cooking magazines, YouTube channels and Food Network shows are all accessed by various family members, often together. The formal sources are always secondary, however. The interviews make clear that other family members are primary sources of food preparation information, and often the encounters are informal in nature. The second insight from Fisher that is relevant for this study is that of the “spontaneous and serendipitous sharing of information” (p.185).

Fisher and Erdelez have opened up a valuable area of information behavior research that is amenable to being adjusted to the more permanent, organic and intimate setting of the family kitchen, but intellectual and procedural protocols would have to be further developed to accommodate this new area of study.

The sensitizing concept of embodied cognition illuminates areas that otherwise would be lost using solely a more traditional narrative approach.

Due to the emotive nature of the topic, memory played an important aspect in these maps. The diagrams often meshed family members’ early childhood memories with online information resources, collapsing a sense of time within them. The semi-structured interview, combined with interview horizon mapping by the participants, allowed an in-depth approach to the, sometimes emotional, subject of food and the family. Family members were able to speak at length about their memories of parents and food preparation, which was particularly useful for illuminating possible episodes of embodied cognition while cooking.

Memory had a functional, as well as emotive, role in the interview process, which the interview
horizon maps helped encourage. All three family members initially found it challenging to recall specific episodes of food preparation information exchanges as our interviews began. Daniel told me, “we find it a real challenge to get all five of us at a table for a meal … we’ll all be in that room together, but the traditional sitting down and preparing a meal for all five of us to sit down and eat doesn’t happen very often. We have to make a real effort to get it to happen. Largely speaking the preparation is not a shared exercise.” The interview horizon maps proved particularly useful in allowing interviewees to reflect on their information exchanges and experiences with family food preparation across time, and generations, in a way that the verbal interview technique did not completely encompass.

The subtleties of the relationships between gesture, language, emotion, and visual memory to cognitive abilities requires a more multifaceted methodology which this sensitizing concept can provide. The sensory-based activity of food preparation is well served by this research but needs a good deal more testing and research via future studies to provide reliable results.

**Conclusion**

This research provided an exploratory case study conducted within one family. Each family member provided a richly textured interview, combining emotional, cognitive and physical insights into their learned experiences with food preparation. The methodological tool of the semi-structured interview combined with the drawing activity of the information horizon map provided for a narrative report of some depth, detailing highlights provided by the participants’ shared perspectives. These often intersected with the social scientific concept of embodied cognition.

Employing the sensitizing concept of embodied cognition provided a useful perspective which allowed for a better understanding of non-verbal information transfer within the family.

The main findings encompassed the relationship between emotion and cognition. The use of affective language while describing early food experiences signified the child’s relating to parental enthusiasm which created a bond and laid the foundation for a groundwork to further instruction in food preparation skills. Embodied emotion reinforced verbal instruction in the transfer of skills via a child’s empathetic response to a parent’s pain. Language and gesture also reinforced the transfer of basic mixing skills.

While inevitably limited in scope, this study does provide a basis for future research in information behavior activities within the family. The family is a viable information ground, filled with serendipitous discoveries via formal and informal information sharing. The modern family often provides a fluid atmosphere for the transfer of information among various members. This complex and unique entity defies easy categorization or quick study, yet a red thread of information runs through it, which ought to be picked up and followed.
References


Appendix

Interview Guide:

1. Grand Tour Questions:
   a. Talk about your earliest experiences with food and your family.
   b. What are your memories of learning how to cook from either parent? Or did you learn from other sources?
   c. How important was having another person with you in the kitchen in terms of picking up skills in food preparation?
4. **Mini-Tour Questions:**
   a. Take me through a typical meal time preparation in your own home with your children/parents.
   b. Are there specific times when they join you in the kitchen more than others? For holidays, birthdays, or other special times?
   c. Or is it a daily thing?

4. **Red Thread Questions:**
   a. What kinds of resources do you rely upon for cooking information?
      • Printed cookbooks
      • TV shows (Food Network)
      • Digital/Internet (YouTube, Pinterest)
      • Personal transfer, i.e. from spouse, in-laws, friends, neighbours, etc.
   b. Do your children use these resources as well? Do you encourage them to use them?
   c. What is the role of person to person contact/ information sharing in the kitchen while cooking with your children and teaching them a skill?

4. **Information Horizon Interview map questions:**
   a. One other thing that we’re trying in this study is that we’re asking people if they could draw what we’re referring to as their information horizon or information horizon map: to put yourself on this piece of paper, and then draw in the people and other resources that you typically access when you’re seeking information for food preparation. And if you could indicate which ones you might go to first, or you could go to several simultaneously, or which ones you prefer – and talk about it as you’re drawing it.
   b. Follow up:
      • Do you use any other resources?
      • When or why would you go to this particular resource after/before going to the other one?
      • Do any of these resources proactively provide you with information? Or suggest other information resources to you?
      • Previously, mentioned xyz resource. Would you include them/it on your information horizon? Where? Or, why not?