Introduction

When I came from India last fall to join the master’s program in Learning, Design, and Technology in the School of Education, little did I know that some (or most) of our day-to-day functions involve a great deal of cognitive activities, which, of course, we are unaware of, mostly because we get so used to our daily routines that we perform our functions almost automatically.

When I was writing the paper for the first assignment for the ED295 (Learning and Cognition in Activity) class, I realized that a lot of learning and cognition is involved with my cooking. A number of theories, such as the Zone of Proximal Development and Legitimate Peripheral Participant, are applicable to my case, which until then, I thought applied to only children and the activities associated with them.

I was so excited on making this discovery that I did my second assignment for this class too on the topic of cooking by observing, photographing, and interviewing my roommate when he was cooking.
his dinner. I also decided to make it the topic of my research proposal.

**Objectives**

In my research, I will identify 8-10 Indian students who have recently arrived at Stanford from different parts of India and who differ in their cooking abilities from absolute novices to experts.

My study will be primarily based on observation, video recording, and interviews, and existing literature review too. I hope that this study would identify some interesting aspects of practical intelligence and throw light on how people learn while doing their daily activities. The study would also indicate what involves effective learning while performing routine tasks.

**Significance**

The study is significant in the sense that it would help us understand the cognitive processes being carried out in the human mind in informal settings (a kitchen, in this case) as opposed to the learning that happens in formal settings, such as schools and home. A lot of research has been conducted in formal learning settings to understand the cognitive processes both in adult and children, and these studies are still the focus of most of research happening across the globe.
However, not much research has been conducted on the practical aspects of learning and cognition.

**Prior Research**

Some of the research similar to what I’m attempting has been conducted in the past, the most notable being:


   This paper examines if people who exhibit practical thinking show common characteristics and what these characteristics are. The author investigates evidence of practical thinking in a milk-processing plant with persons having varied job roles – product assemblers, wholesale delivery drivers, inventory men, and office clerks. When the activities of these people were analyzed, it was found the activities were focused on the modes of solutions and the intellectual performance of novices varied to a great degree from experts (people with on-the-job experience).

This study comprises the examination of grocery shoppers in American supermarkets when they use arithmetic procedures while shopping. The paper presents the methodology used in conducting the study, which was in-situ observation combined with the participants thinking out aloud. The paper analyzes how people formulate new problems while shopping for groceries and then solve those problems by applying arithmetic procedures, which the authors contend, could be the integral parts of many real-world environments.


This paper distinguishes verbal mnemonic symbols (VMS), which are arbitrary in relation to their referents, from material mnemonic symbols (MMS), which bear direct material relation to their referents. The study with people, who train to become bartenders, analyses the shifts from the use of VMS to MMS to the use of neither as their experience increases.

This study focuses on the complexities of everyday work and the interrelated cognitive, social, emotional, and existential dimensions of the work as seen in the life of a waitress. The author conducted most of his study by interviewing waitresses in family-style restaurants and researching existing literature on psychological, sociological, and historical aspects.


In this interesting study, ten women, who wanted to lose weight, were recruited for a five week period under the Weight Watchers program. The study mainly focuses on the complex problem-solving arithmetic skills involved in the kitchen as the women dieters kept a diary of what they ate, after performing functions such as converting one measurement unit to another or tracking the package size to serving size.


This study investigates the tipping habits of people in a restaurant in a small town with a population of 60,000. The restaurant
customers were interviewed about their tipping behavior and a few hypotheses were tested. The data collected was analyzed and the researchers concluded that tipping depended on bill size and patronage frequency, among others. However, the researchers also argue that the generalizability of this study to other restaurants may not yield positive results.

Limitations

The research papers cited above, though provide a detailed description of the cognitive and psychological processes involved in the everyday activities of common people, do not touch upon some of the most common activities performed at home. The examples of the dairy workers and grocery shoppers involve mental arithmetic calculations while the examples of the bartenders and the waitress demonstrate how the practices change and improve with experience on job.

An activity as simple as cooking in a home environment has not been researched thoroughly. It would be interesting to investigate the complex cognitive processes involved with cooking, which might throw more light on the intellectual performance of individuals as they graduate from being novices to experts.
New problem
The proposed study builds on the prior research in the sense that it would investigate a group of people with varying degrees of expertise in an everyday activity; that is, cooking. The cognitive and psychological processes involved, when recorded and analyzed, would reflect the change people undergo as their intellectual performance improves from novice to expert level.

Methodology
Setting: The setting for this study will be the kitchens of the graduate students who live in various apartments in Escondido Village. The kitchens in one-, two-, or three-bedroom apartments are usually located just after the main entrance and are small (8 x 8 feet), while the floor area for a person to stand and cook comfortably is still smaller (3 x 8 feet), because of the presence of the cooking range, sink, cabinets, and a large slab. However, in studio apartments, the kitchen is a part of the room, with a lot of space available to move around. The kitchens have a four-burner cooking range with a griller. There is a big refrigerator, a small sink for washing utensils, and a number of shelves and cabinets to store things. There is an electric chimney too above the cooking range, and there are light bulbs that focus only on the cooking range and the sink in addition to a light bulb
for the entire kitchen. There is a phone in the kitchen, which is shared by the occupants of the apartment. The students usually purchase a microwave oven and toaster too.

The students usually store all the raw vegetables, spices, and oils in the cabinets, while most of the utensils are kept outside for drying after they are washed. The notable feature of these kitchens, which is also a cultural practice in most homes, is that similar things are always kept together; for example, all spices and salt, tea leaves/tea bags and sugar, and bread, butter, and jam.

**Data Collection and Analysis**

Data will be collected primarily by means of observation, video recording, and interviews. The subjects will be observed and video recorded in their kitchens when they cook their dinner for a period of two weeks, 2-3 times for each of the participants. They will also be interviewed thrice, one each at the beginning, during, and toward the end of study. This will help in analyzing and understanding how their skill developed during the period of study.

The subjects will be interviewed on how their thinking changed and what they perceive as the difference in their cooking as seen from the
lens of a cognitive activity. The data thus collected will then be analyzed not only by the researchers but also by the subjects themselves to identify those aspects that were not so obvious to them during the activity, but have a significant effect on the study. After showing the video to the subjects, they will be asked to identify the activities during their cooking that surprised them or they had never thought about it earlier.

Their interview is expected to reveal their interpretation of the actions involved in their cooking activity and how those actions evolved or changed during the course of the study. They might need to be prompted to identify and elaborate on the activities that involve remembering and other mental calculations because people usually do not associate learning and cognition with their daily functions. However, when properly directed and guided, they are likely to come up with detailed explanations on what they do and how they do it.

**Potential Impact**

Though similar studies have been conducted in the past, none of the studies have included the cooking in the kitchen of graduate students. American students are likely to be familiar, if not an expert, with cooking American dishes, most of the Indian students do not know
cooking at all before arriving in a university in the US. This is because of the Indian culture that does not promote cooking by children, especially boys, who are expected to study and be the bread earners of the family. On the other hand, girls, even if they go for higher studies, are expected to learn cooking and continue to cook for their families throughout their lives.

The impact of this study will not only be on the learning and cognition in the process of cooking of graduate students, but will also help in revealing some of the aspects of the Indian culture. The researchers would also be able to learn about the socio-cultural facets related to economic development because the difference in the cooking practices among the boys and girls is also dependent on the socio-economic status of the community to which the family belongs.

**Significance**

The study of the cooking practices of the Indian students is significant in the sense that it would help in identifying and associating theories, such as the zone of proximal development and communities of practice, with the activities of cooking.

Though research have been conducted in similar fields and a lot of
knowledge have been gained in the process about the learning and cognition involved with the activities in those fields, none of the studies have focused on cooking of Indian graduate students when they arrive in the US.

**Conclusion**

The study conducted with a group of Indian students with varying degrees of skills in cooking after they come to the US for graduate studies is intended to throw light on the cognitive processes involved with the activity of cooking. Data collected by means of observations, video recording, and interviews would be analyzed with the purpose of identifying and associating several actions involved in cooking to the cognitive theories such as the zone of proximal development, communities of practice, and legitimate peripheral participation.