"I know where that is": Cultural Differences in Perception of New Places

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Abstract
This study focuses on modeling people's perception of places and how those perceptions are affected by cultural differences. Cultural background influences the way people feel and think about many objects. How people recall and remember information also varies when their cultural backgrounds differ. However, it is unclear how cultural background influences individual's perceptions and information behaviors regarding a geographic area, such as a town or neighborhood. One way that individual's cultural background may vary is with regard to its degree how the culture they are most associated deals with routine communication. Hall's high/low-context model (1976) that cultures differ significantly with respect to how the messages involved in everyday communication are structured and interpreted, so this will be used to represent cultural background. Also, the ways people perceive urban area are categorized into landmarks and physical addresses. For this study, we will conduct an online survey and have subjects play a short online quiz game.
Keywords: high and low context, urban perception, cultural background, new places, landmarks, community
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1 Introduction

Newcomers to an area often face difficulties arising from social, cultural, and economical differences. These general issues are further complicated because they are unfamiliar with their new environment. Not only must they adjust to a new culture and society, but they must do so while learning about a new place. Various information tactics have been suggested to support immigrants' information behaviors (Lingel, 2011). The way people perceive a new area can be a key in helping them seek, use, and share information so that they can successfully adapt to society. Facilitating the process of becoming familiar with an area would be helpful for newcomers adapting to a society, but for these efforts to be success the information tactics must take into account how people understand unfamiliar places.

In this work, we focus on modeling people's perception of places and how those perceptions are affected by cultural differences. Cultural background influences the way people feel and think about many objects. How people recall and remember information also varies when their cultural backgrounds differ (Kim, 2013). However, it is unclear how cultural background influences individuals' perceptions and information behaviors regarding a geographic area, such as a town or neighborhood. When immigrants or visitors from China and Germany come to Washington D.C., they normally investigate the area in different ways for a period of time to get familiar with the city. During this period, do they perceive the area differently because of their different cultural backgrounds? If so, how does cultural background affect whether people can benefit from information that they encounter during this time of adaptation? Answering these questions would inform our understanding of how individuals adapt to new urban areas, allowing city planners, software developers, and researchers to better design information resources and systems for newcomers.

In order to conceptualize and measure individuals' cultural background, Hall's high- and low-context model (1976) is adopted. Also, the ways people perceive urban area are categorized into landmarks

and physical addresses. In the following sections, we first present the concepts of high- and low-context model and landmarks. Subsequently, we show the design of the experiment, limitations of our study, and our work to be done by the conference.

2 Concepts

In the computer-supported cooperative work (CSCW) literature, the term "space" means Euclidean structure comprised of shapes or colors. The concept of "place" includes not only three-dimensional structure, i.e., "space," but also recognizable and persistent traits that provide cultural and social meanings (Dourish, 2006). When we use the terms "space" and "place", they follows the CSCW concepts.

One way that individual's cultural background may vary depends on the degree of routine communication that is dealt with in the culture he or she is mostly associated with. Hall's high/low-context model (1976) that cultures differ significantly with respect to how the messages involved in everyday communication are structured and interpreted. High-context individuals usually assume that the social and physical context contains most of the relevant information, leading to very little of information to be included in the coded part of the message. Low-context individuals, on the other hand, tend to make fewer assumptions about the general availability of information, leading to messages in which more of the relevant information is explicitly present (Hall, 1976). Of course, there are many other cultural models such as Trompenaars' seven dimensional model (1993) and Murdock's universal cultural traits (1965). One especially noteworthy of mentioning is the Hofstede's cultural model (Hofstede and Minkov, 2010). It defines five factors to explain cross-national databases based on surveys for IBM employees from 70 countries (Hofstede and Minkov, 2010). This model provides measurable metrics such as individualism/collectivism or power distance to rate people's cultural features, but has limitations at the same time in the data where they can be biased due to the one-sided respondents, i.e. IBM employees. Hall's classifications, in contrast, does not provide specific measures such as national scores or points but at the same time, it defines "general all-compassing" terms about individuals' cultural characteristics without having biased criteria (Straub. et. al., 2002). This means, if we have reasonable measures or protocols that can determine each individual's cultural features, Hall's model can have more advantages in the sense of having less-biased data.

An important aspect of how some individuals perceive an area is landmarks. Landmarks are representative objects that are perceived to be in an area (Sorrow, 1999). When people think of 'urban places', they may recall cognitive, structural, or visual aspect of the space. These features are organized as 'landmarks' (Sorrow, 1999), so it would be meaningful to see how people perceive places between the landmark features and another form such as physical addresses. If respondents recognize the area as a 'place' or a 'space', they would perceive as one of the landmarks. In the case that they do not recognize it as space or place, they might remember it with addresses or text-oriented entities. Landmarks can be reasonable measures since they contain not only the concept of visual memory, but also the urban characteristics.

While the implications of cultural differences for spatial cognition are unclear, prior work which has found systematic variation in information behaviors and processing implies that culture may affect how people perceive and work with information about new places. Schmitt et. al. (1994) studied different ways of memorizing across different language groups and found that Chinese-speakers tend to use visual memory more than English-speakers when they recall information. This suggests that they are likely to also be systematic varying among individuals from different cultures with respect to how they use (or don't use) landmarks, addresses, and other forms of information for learning about, understanding, and describing new places.

3 Our Approach

We use two approaches to examine the relationship between the cultural background and perceptions of a place: an online survey to assess individuals' cultural context and a quantifiable web-based game to determine how they perceive places. These web-based methods have advantages with respect to sample size, sample heterogeneity, and cost-effectiveness compared to lab-oriented approaches (Reips, 2000).

The survey allows us to distinguish high and low-context individuals. As suggested by Straub et. al. (2002), each individual has complex cultural features that cannot be strictly determined by simple demographic indicators such as nationality or gender. This leads us to develop protocols that can identify a subject's cultural characteristics, specifically the degree to which they have tendencies consistent with high and low-context cultures. Existing multi-item measures for high- and low-context orientation (Herselman et. al., 2011) have been modified for this study. Pilot tests are being conducted to evaluate external and internal validity of the adapted measures, and the final version will be used in an online survey.

Respondents who complete the online survey are then directed to the next step: a web-based game. In the game, participants are shown a series of photos from a target area's streets and are asked to indicate where each one is located. In each case individuals will be given three types of options for answer the quiz: a list of street names such as North East 11th, a list of landmarks such as a building name, and 'Don't know'. The photos are drawn from Google Streetview. The basic mechanism of the game is based on 'UrbanOpticon' which was developed for and proved to be quantifiable in prior work that examined the recognizability of London's streets (Quercia, 2013). Main concerns in designing the game include quantifiability, measurement of respondents' familiarity with the targeted area, and randomization of quizzes to minimize learning effects. This online research will be conducted for recruited people from different cultures living in and around District of Columbia. The specific location in the city to target will be determined after examining patterns of landmarks and streets so that both of the elements can co-exist in the area with making a good balance, i.e. places where one feature is dominant will be avoided such as the White house area in which famous landmarks rules.

Likert-scale items used to assess high- and low- context orientation in the questionnaires so that will be used to construct a single measure instead of categorizing people into two distinct groups. For each survey, average score would be calculated and this score shows an individual's cultural tendency between high- and low-context cultures. Each individual's score from the survey would be plotted against the game results. Both accuracy and type of game answers will be considered. The proportion of answers given in terms of street names vs. landmarks will be used as an indicator of how individuals perceive and think about the area. Accuracy will be used to assess the subjects' awareness of the area. These data will be analyzed with ANOVA to determine if there is a statistically significant relationship between cultural background and spatial cognition.

4 Limitations

As with any empirical study, this work has limitations which must be addressed. Landmarks, in general, and answer types, in specific, are only indicators of individuals' perception of a place. Interviews with pilot participants will help validate that this operationalization is reasonable and appropriate. The public nature of the survey and games may result in frivolous respondents and a high dropout rate. In order to deal with this, subjects will be notified how long it takes, inserting a warm-up phase, and an explanation of the research will be provided (Reips, 2000). Targeted recruiting methods will also be considered so that the risk of spurious and insincere participation can be minimized. Since road conditions, traffic policies, and addresses vary among countries, results may be dependent on people's home countries. This can be a critical disturbing factor in the study. Developing a measure to assess distinguishes high and low-context individuals

will help minimize the effect of this confound by allowing us to examine each individual's tendency and nationality as separate factors.

5 Conclusion

This work answers a basic question on how people adapt to new urban areas. Since newcomers have to deal with not only different culture and society, but also learning new places, well-designed information tactics would be crucial to guide and help them. In order for the success of information tactics, it is one of critical knowledge bases to understand individuals' perceptions and information behaviors regarding a geographical urban area. By clarifying how cultural background influences people's perception regarding an urban area, this research will be able to provide a basis to consider to researchers, city planners, developers, and governors so that they can design better information tactics for newcomers. Even though it is not easy to measure cultural characteristics and human perceptions, the verification processes are designed in ways to quantify representative models and concepts while minimizing biased elements in those models. For the credibility of empirical study, it is planned to expand experiments gradually. First, we are planning to conduct a test and analyze data both for the survey and the web-based game by February 2014. In this test, we will target a small group of people, approximately 20, to check the validity of the experiments as well as to show the intermediate results. Based on the results, research protocols or interfaces would be refined to minimize errors and disturbing factors. Then, we will recruit more people to collect a reasonable amount of data for further experiments.

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