Poster: Who Do You Want to Provide the Information? A Preliminary Exploration of Expected Experiences from Location-Based Mobile Crowdsourcing Contributors

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ABSTRACT

Mobile crowdsourcing enables its users to learn about location-related information from people with diverse experiences and opinions. However, there is little knowledge of what experiences users expect the contributors to possess to be able to answer specific types of location-related questions. We report an initial investigation (N=19) on how users make sense of contributors' opinions and extract properties of location-based information that are critical to users' expected experiences of the contributors. We identified three properties- periodicity, subjectivity, and stability- that are associated with aspects of the experience that users expected the contributors to possess - recency, regularity, quantity, variety, and specificity. These results suggest the need to consider the correspondence between requested information and expected experience when assigning tasks on mobile crowdsourcing platforms.

ACM Reference Format:
Fang-Yu Lin, Chia-Yi Lee, Yi-Ting Ho, Yung-Ju Chang, and Yu-Chun Yen. . Poster: Who Do You Want to Provide the Information? A Preliminary Exploration of Expected Experiences from Location-Based Mobile Crowdsourcing Contributors. In . ACM, New York, NY, USA, 2 pages.

1 INTRODUCTION

Mobile crowdsourcing has been commonly leveraged to collect location-based information for various applications, from scientific purpose [6], commercial purposes [2], to supporting local community [1, 5]. Crowdsourcing location-based information enables people to learn from collective information and opinions about specific places from diverse experiences and points of view. However, diversity also inevitably introduce discrepancies among them. While presenting disagreeing opinions may make users find the platform less biased [3], not knowing upon what basis (i.e. the experiences and the knowledge) the provided opinions and/or information is formulated and what relevant experiences the opinion providers possess to formulate those opinions may not help information seekers know which opinions and information is more applicable to them.

Inspired by existing research on matching task workers and crowdsourcing tasks based on the workers' activeness, preference, expertise, and cognitive abilities, [4, 7], and given that information seekers may have preferences on the experience that the contributor should have, in this study, we seek to answer: on location-based crowdsourcing platforms, such as Google Local Guides[1], what kinds of experience or background do information seekers expect or desire the contributors to possess to provide specific kinds of location-based information.

We have conducted a semi-structured interviews with 19 participants and obtained preliminary insights. Specifically, we found that three properties of the requested information, periodicity, subjectivity, and stability, were important factors that influenced the characteristics of the location-based experience our participants expected and desired the contributors to possess, including recency, regularity, quantity, variety, and specificity. These results suggest that specific correspondence exists between requested location-based information and expected experiences. As a result, we suggest mobile crowdsourcing platforms take such correspondence into account when assigning tasks to contributors.

2 METHODOLOGY

We designed a semi-structured interview to explore users' expected and desired experiences and backgrounds of contributors. We divided an interview into two parts. In part one, we asked participants to answer from the perspective of an information-seeker, describing when seeking information or opinions, what kind of experience and backgrounds they expected or desired the contributor to possess. In the second part, we sought to obtain the same high-level question, but instead from the perspective of a contributor. We asked them how they would describe their background or experience when attempting to convince people that the information they provided is truthful, useful, and applicable to them. In both parts, we attempted to find similarities and contrasts in expected experiences between different kinds of location-based information, so that we could extract the key dimensions of the requested information that influences the information seekers' expected experiences. To facilitate such comparisons, we provided cards (as seen in Figure. 1) that

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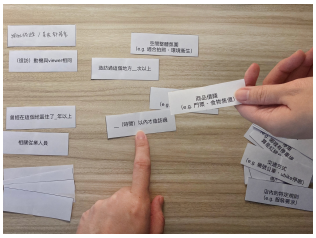
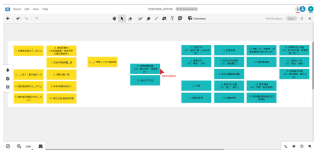
[1] Local Guides was launched by Google to garner user contributions to Google Maps, and provides its contributors with various perks and benefits for this work.



(a) Face to face interview



(b) Online interview: yellow for experience types, blue for location-based information

Figure 1: Cards of experience types and location-based information

offered examples of experiences and location-based information and asked participants to match them during the interviews. The cards were used as cues to help the participants recall their experiences and compare the differences in expected experiences and the requested information. The development of cards was iterative– new cards were added to the collection whenever the researchers learned new types of experiences or requested information that mattered. A total of 18 types of requested information and 10 types of experiences cards have been developed as the interview material.

We have recruited 19 participants (8 males, 11 females; 20-29 years old) who had experience in seeking location-based information or providing location-based information online.

3 PRELIMINARY FINDINGS

Our findings show that the properties of the requested information were influential on the expected experience of the contributors. In particular, we found that three properties: periodicity, subjectivity, and stability, were reportedly influential on the characteristics of the expected experience the participants expected from the contributors, including recency, regularity, quantity, variety, and specificity.

Specifically, participants regarded that certain information, such as traffic congestion, street parking, weather, etc. changes periodically and tends to follow particular temporal patterns. For such information, participants preferred information provided by contributors who had extensive experience, since they have more opportunities of observing the patterns of the area. Contributors who belong to this category included those who have lived in the area for a long time, or those who visit the places frequently and regularly.

Some information was considered not following any temporal pattern. For such information that is also considered to be unstable, i.e. fluctuating over time, participants regarded that it could be best answered by the contributors who had recent visit experiences.

Beyond periodicity and stability, participants considered that subjectivity of the information also mattered. Some information was of low subjectivity and can be verifiable, such as phone numbers, menus, business hours. On the other hand, it was also considered to be a kind of detail that recent visitors may not pay attention to. Participants deemed that contributors who visited the place frequently was more likely to acquire that information, since that higher quantity also means higher likelihood.

In contrast, for subjective opinions, such as quality of food, atmosphere of the space, etc, participants consistently agreed that the contributors must have enough number of visits such that their experience would not be simply based on one-time experience, which could be possibly an outlier one. Being willing to revisit the same place a number of times also, to a certain extent, also implies its quality. Furthermore, they favored opinions from the contributors who had experience in similar services or products at a variety of places, such that their judgement would be based on comparison.

Finally, other aspects of experience were also mentioned, such as specificity of the experience. Some participants thought the information provided by the contributor who had similar needs to the participants' was more suitable to them. Other participants mentioned that they did not desire extensive experience, but to be specific enough that suits the participants' needs.

4 CONCLUSION AND FUTURE WORK

Our preliminary results indicate that the type of requested information influenced the information seekers' expectation on the contributors' experience. We deem that our qualitative data have not reached saturation, and expect to extract more dimensions of location-based information and experiences when interviewing more participants. Future research should also examine the correspondence between these dimensions quantitatively.

REFERENCES

[1] Yung-Ju Chang, Chu-Yuan Yang, Ying-Hsuan Kuo, Wen-Hao Cheng, Chun-Liang Yang, Fang-Yu Lin, I-Hui Yeh, Chih-Kuan Hsieh, Ching-Yu Hsieh, and Yu-Shuen Wang. 2019. Tourgether: Exploring Tourists' Real-time Sharing of Experiences as a Means of Encouraging Point-of-Interest Exploration. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 3, 4 (Dec. 2019), 128:1–128:25. https://doi.org/10.1145/3369832

[2] Chia-En Chiang, Yu-Chun Chen, Fang-Yu Lin, Felicia Feng, Hao-An Wu, Hao-Ping Lee, Chang-Hsuan Yang, and Yung-Ju Chang. 2021. "I Got Some Free Time": Investigating Task-execution and Task-effort Metrics in Mobile Crowdsourcing Tasks. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. 1–14. https://doi.org/10.1145/3411764.3445477

[3] Sun-Jae Doh and Jang-Sun Hwang. 2009. How Consumers Evaluate eWOM (Electronic Word-of-Mouth) Messages. *CyberPsychology & Behavior* 12, 2 (April 2009), 193–197. https://doi.org/10.1089/cpb.2008.0109 Publisher: Mary Ann Liebert, Inc., publishers.

[4] Danula Hettiachchi, Niels van Berkel, Vassilis Kostakos, and Jorge Goncalves. 2020. CrowdCog: A Cognitive Skill based System for Heterogeneous Task Assignment and Recommendation in Crowdsourcing. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW2 (Oct. 2020), 110:1–110:22. https://doi.org/10.1145/3415181

[5] Thivya Kandappu, Nikita Jaiman, Randy Tandriansyah, Archan Misra, Shih-Fen Cheng, Cen Chen, Hoong Chuin Lau, Deepthi Chander, and Koustuv Dasgupta. 2016. TASKer: behavioral insights via campus-based experimental mobile crowdsourcing. In *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp '16)*. Association for Computing Machinery, New York, NY, USA, 392–402. https://doi.org/10.1145/2971648.2971690

[6] Rajib Kumar Rana, Chun Tung Chou, Salil S. Kanhere, Nirupama Bulusu, and Wen Hu. 2010. Ear-phone: an end-to-end participatory urban noise mapping system. In *Proceedings of the 9th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN '10)*. Association for Computing Machinery, New York, NY, USA, 105–116. https://doi.org/10.1145/1791212.1791226

[7] Junjie Wang, Ye Yang, Song Wang, Chunyang Chen, Dandan Wang, and Qing Wang. 2021. Context-aware Personalized Crowdtesting Task Recommendation. *IEEE Transactions on Software Engineering* (2021), 1–1. https://doi.org/10.1109/TSE.2021.3081171