Detecting Value Differences behind Intercultural Meetings

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ABSTRACT
Even when people participate in the same meeting and reach a consensus, their interpretations of its content might be quite different due to different cultural backgrounds, roles, values, and so on. This could be problematic later when people realize that discrepancies exist between their recognized roles and others' expectations; they might have different understandings and/or priorities. It would be quite beneficial if we could notice such differences soon after meetings. In this paper, we propose a method that enables us to detect such discrepancies among attendees.

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Detection method, values, meetings, preferences, expectations

ACM Classification Keywords
H.5.3 [**Group and Organization Interfaces**]: Computer-supported cooperative work.

General Terms
Human Factors, Measurement.

INTRODUCTION
According to Geert Hofstede [1], the core of culture is formed by values, which he defines as "broad tendencies to prefer certain states of affairs over others." However, since values cannot be discussed or directly observed by outsiders [1], research exploring the values of various cultures tends to be conceptual and/or discussed only at the "style" level rather than the "content" level. For example, CSCW/HCI/CMC researchers have explored how value differences between collectivism and individualism are reflected in participant communication patterns and how different media affect those patterns [2].

While such previous research has deepened our understanding of intercultural communication and the effects of various technologies on it, it cannot identify which meeting content is subject to value differences among meeting attendees. Detecting where and how the interpretations of meeting attendees differed would be quite beneficial.

In this paper, we propose a method that detects the different values held by attendees about meeting contents. The method's basic idea is that all attendees take minutes of the same meeting and generate a prioritized ToDo list for themselves as well as expected ToDo lists for all other attendees. Since the prioritized ToDo lists reflect each attendee's values (i.e., how they emphasize each of the things discussed in the meeting), comparing the prioritized ToDo lists among meeting attendees allows us to identify how each attendee interpreted the meeting. The expected lists of the other attendees help us spot the discrepancies between an attendee's self-recognition and the expectations of others.

Note that the purpose of our study is *not* to identify the causes of different interpretations among meeting attendees. They might be caused by a mixture of factors, including differences in cultural and organizational norms, second-language abilities, personalities, and so on. Instead of providing attendees with general ideas for avoiding misunderstandings (e.g., teaching the differences in their collaboration styles based on cultural differences), we provide attendees with feedback about how other attendees actually interpreted the meeting contents and what expectations they placed on other attendees. By providing meeting attendees with such feedback, they will have a chance to discuss and accommodate their recognitions before problems occur.

In the remainder of our paper, we explain the details of our method and report a pilot study that investigated the value differences between two meeting attendees. Our method effectively detected value differences, even when their meeting minutes were very similar to each other, because their ToDo lists sometimes appeared quite different from the ToDo list expected from the other attendee.

In future work, we will implement a system that allows meeting attendees to easily capture the differences between their minutes as well as their ToDo lists. We will further investigate how to resolve such discrepancies between meeting attendees. As we accumulate instances of many meetings and analyze the similarities/differences between people's values, we hope this bottom-up and contents-

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based approach adds a fresh dimension to tackle intercultural collaboration.

PROPOSED METHOD

Many values are basically unconscious to those who hold them. Therefore, "values cannot be discussed, nor can they be directly observed by outsiders. They can only be inferred from the way people act under various circumstances [1]." If so, how can we detect differences in people's values?

Our method attempts to bring them to the surface by having meeting attendees (1) prioritize their tasks and (2) clarify their expectations of other attendees. By looking through each member's prioritized ToDo lists, we can infer what items are valued by each attendee. Furthermore, by comparing each attendee's prioritized ToDo list with those expected by other attendees, we can identify the discrepancies between the attendee's self-recognition and others' expectations.

Note that the different values spotted by our method cannot be detected by analyzing meeting conversations. Our method incorporates two factors that are rarely discussed in meetings: priority among the topics discussed in multiple meetings and attendees' expectations of other attendees.

Priority among Multiple Projects/Tasks

The prioritized ToDo lists contain not only the topics discussed in a single meeting but also those discussed in other meetings: other tasks/projects being handling over the same period. By taking multiple projects into account, a prioritized ToDo list reflects how the list holder values certain items over others (Figure 1).

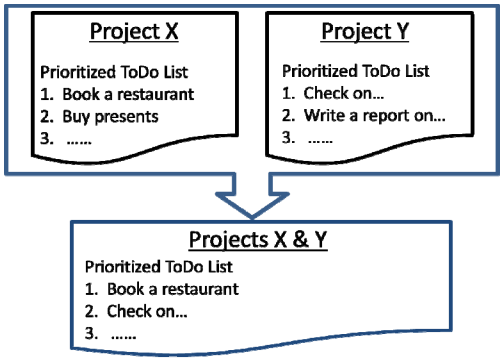

Figure 1. Eliciting values through prioritized ToDo lists of concurrently running projects/tasks

Inclusion of Others' Expectations

Since people rarely discuss their priorities among multiple projects, it is usually difficult to assess the priorities of other attendees. Certain things discussed in a meeting might even be forgotten if they are valued low. However, when people reach a consensus in a meeting, they tend to act as if they also shared their values and expect that other attendees will act according to their estimations.

Our method detects such discrepancies between meeting attendees (e.g., attendees A and B) by comparing A's prioritized list with B's expectation of A's prioritized list (Figure 2).

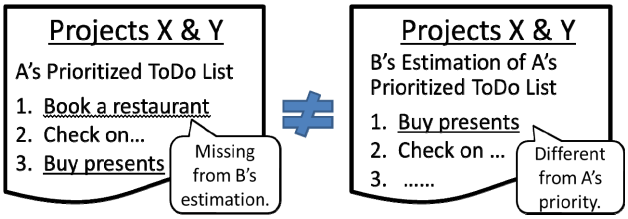

Figure 2. Detecting discrepancies between values by comparing their prioritized ToDo lists

Novelty of our Method

Most intercultural/cross-cultural studies have generally taken one of three approaches: ethnographic, psychological (i.e., controlled experiments [2] or scenario-based studies [3]), or data mining [4] (i.e., comparing communication patterns between populations). The biggest difference among these approaches and our method is that ours allows meeting attendees to realize the differences/problems themselves, but the previous approaches involved an outsider as an analyst. Furthermore, our method does not form a hypothesis like in the psychological studies. Nor does it require attendees to participate in regular communication tasks (e.g., map navigation tasks) like in the data mining approach.

PILOT STUDY

In our pilot study, we explored the potential of our proposed method to see if prioritized ToDo lists serve as an index to detect value differences between meeting attendees. As an initial trial, we studied meetings between two people.

Participants

Four pairs (three Malaysia-Japan pairs and one Cambodia-Japan pair) of students of the University of Tsukuba were recruited and paid for their participation. Since the Malaysian and Cambodian participants had been living in Japan for more than four years and were daily exposed to Japanese, they could clearly understand everyday conversations and reading/writing tasks in Japanese.

Study Overview

The pilot study consisted of three phases:

In the first phase, participants answered demographic questionnaires including their cultural backgrounds (e.g., countries they were raised and places they've lived) and language use (e.g., their native languages and second-language fluency).

In the second phase, pairs sat across the table and discussed the role sharing of two fictional projects:

Project 1 [Report Assignment]: Pairs must hand in a report in ten days. In the report, pairs must present the findings of the elder-care situations in their home countries and evaluate the similarities/differences.

Project 2 [Party Planning]: Pairs must plan a Christmas party in ten days to promote exchange between Japanese and international students. The male-female ratio and Japanese-foreigner ratio were both fifty-fifty.

Participants were given 30 minutes to discuss the specific tasks for each project and to decide on the division of roles. During the discussion, they were allowed to take notes but were told to not share them with their partners.

In the final phase after the discussion, participants answered post-task questionnaires about their priorities in their ToDo lists and their expectations of their partners.

Prioritized ToDo Lists

In the post-task questionnaires, participants (i) itemized the main points discussed in the meeting (i.e., summarized their minutes) based on their notes, (ii) listed their responsibilities within ten days in preferential order (i.e., their own prioritized ToDo lists including both projects), and (iii) listed the things they think that their partners have to do within ten days by order of importance (i.e., an estimated prioritized ToDo list of their partners including both projects). Last, participants were asked about their confidence in their estimations and guessed how well their partners would estimate their prioritized ToDo lists.

RESULTS

To determine whether our method detected the value differences between pairs, we took the following steps: First, we compared their minutes to see if there were any comprehension problems; if the minutes differed substantially, perhaps misunderstandings or language issues existed in grasping the main points of the discussion. Second, we compared each participant's prioritized ToDo list with the prioritized ToDo list estimated by his/her partner.

Concordance Rate of Minutes within Pairs

To evaluate the similarities/discrepancies between the minutes of the pairs, we calculated the concordance rates in each pair (participants A and B) and categorized each item in the minutes as "matched" or "unmatched" to reflect whether it was contained in their partner's minutes. Then we calculated the concordance rate based on the following formula:

$$Concordance\ Rate\ between\ A\ and\ B = \frac{(\#\ of\ matched\ items\ in\ A's\ list) + (\#\ of\ matched\ items\ in\ B's\ list)}{(\#\ of\ items\ in\ A's\ list) + (\#\ of\ items\ in\ B's\ list)}$$

Note that the numbers of matched items in A's list and in B's list are not exactly the same when the granularity is different; for example, an item in A's list might correspond to two items in B's list.

Table 1 shows the concordance rate of the minutes in each pair. The first and second rows show the concordance rate of the minutes for report assignment and party planning. The third row shows the concordance rate for all the meeting minutes for each pair.

Table 1. Concordance rate of minutes in each pair (M: Malaysian, C: Cambodian, J: Japanese)

	M-J 1	M-J 2	M-J 3	C-J
Report Assignment	0.98	0.92	0.9	0.79
Party Planning	0.77	1	0.87	0.86
Overall	**0.85**	**0.96**	**0.88**	**0.83**

The results in Table 1 show that, in most cases, the items recognized as key points by meeting attendees were also considered key points by their partners. However, we can also see some small discrepancies in the presence/absence of items about deadlines, the need to reach others, and alternative ways to achieve their goals.

Concordance Rate between Self-aware ToDo List and Partner-estimated ToDo List within Pairs

Attendee A's self-aware ToDo list must meet the expectations of his/her partner B's estimated ToDo list. Without the order of priorities, a problem could occur if an item expected by B doesn't appear on A's ToDo list.

To find out the chances for such instances, we calculated the concordance rate of self-aware ToDo lists and partner-estimated ToDo lists within pairs. Similar to the calculations of the concordance rate between minutes, we categorized each item on a participant's ToDo list into either "matched" or "unmatched" depending on whether it was contained in his/her partner's estimated ToDo list. Then we calculated the concordance rate based on the previously noted formula.

Table 2 shows the concordance rate between self-aware and partner-estimated ToDo lists within pairs. The first row shows the concordance rate between a Malaysian/Cambodian participant's estimated ToDo list and his/her Japanese partner's ToDo list for report assignment. The second row corresponds to the concordance rate between a Japanese participant's ToDo list and his/her Malaysian/Cambodian partner's estimated ToDo list for report assignment). The third and fourth rows show the concordance rates of the ToDo lists for party planning.

Table 2. Concordance rate between self-aware and partner-estimated ToDo lists in each pair ([R.A.]: Report Assignment, [P.P.]: Party Planning)

	M-J 1	M-J 2	M-J 3	C-J
M or C's estimated list vs. J's list [R.A.]	0.71	0.75	0.5	0.39
J's estimated list vs. M or C's list [R.A.]	0.71	0.75	0.5	0.39
M or C's estimated list vs. J's list [P.P.]	0.38	0.71	0.35	0.4
J's estimated list vs. M or C's list [P.P.]	0.38	0.67	0.35	0.5
Average	**0.55**	**0.72**	**0.43**	**0.42**

By comparing the concordance rates between the minutes (Table 1) and ToDo lists (Table 2), we conclude that the concordance rates between the self-aware and partner-estimated ToDo lists were much lower than the concordance rate between the minutes. Even though pairs reached a consensus in their meetings and had relatively good understanding of the discussions (i.e., the concordance rates of the minutes were relatively high), the future actions of the participants reflected in their ToDo lists were quite different from those expected by their partners.

When focusing on different items between self-aware and partner-estimated ToDo lists, we realized that two types of items caused discrepancies: (a) self-aware ToDo items that were not recognized by partners, and (b) partner-estimated ToDo items that were not recognized by themselves. The latter case is more problematic than the former because failing to meet the expectations of others could breed distrust. Exceeding the expectations of others is less problematic, although it could also be frustrating in some cases.

To investigate how much participants failed to meet the expectations of others, we classified each item into the (a) or (b) classes discussed above and calculated the ratio between them.

Table 3. Discrepancy caused by items on partner-estimated ToDo list but not on self-aware ToDo list.

	M-J 1	M-J 2	M-J 3	C-J
On M or C's expected list but not on J's list	0.2	0.5	0.54	0.6
On J's expected list but not on M or C's list	0.5	0.5	0.42	0.25

Table 3 shows that roughly half of the ToDo items that constituted the discrepancies between self-aware and partner-estimated ToDo lists were those expected by partners but not recognized by themselves. Such items were mainly concerned with contacting others (e.g., interviewing elderly people, booking a restaurant, notifying party attendees about what to wear at a party, etc.) and things to do on the deadlines (e.g., emceeing the Christmas party and writing a report on the deadline date).

Priority differences

Last, we compared each participant's prioritized ToDo list with his/her partner's estimated prioritized ToDo list. No one accurately estimated his/her partner's prioritized ToDo list. In fact, they were very different from one another, regardless of their confidence in their estimations indicated by the post-task questionnaires.

Below, we provide a case example where a considerable difference was found within a pair (M-J 1). After their discussion, the Malaysian participant considered it particularly important to contact the party attendees to ask about their food preferences because she was conscious that some Malaysians don't eat pork. This ToDo item was valued as the second most important item on her whole ToDo list. But this item was not even on her partner's list. The Japanese partner expected her partner (i.e., the Malaysian) to contact the party attendees and tell them about the party's formal dress code. This item was rated as the most important thing to do, although it was not found on the Malaysian's list.

CONCLUSION

We proposed a method that detects value differences among meeting attendees regarding meeting contents. We showed how different meeting contents can be when reflected into future actions as a ToDo list; although pairs reached a consensus in their meetings and listed similar issues as the main points of the discussion, the concordance between self-aware and partner-estimated ToDo lists turned out to be quite different. By applying our method to many real meetings and accumulating data on the similarities/differences between attendee's values, we might be able to discover a new feature that sheds light on value differences between cultures.

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