

THE IMPACT OF THE ROLE PERCEPTION ON INTERDISCIPLINARY COLLABORATION IN DESIGN PROCESS

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Abstract

Interdisciplinary collaboration is essential to companies gathering more than one kind of knowledge and perspective. This study defines communication capability and role understanding as role perception. Furthermore, it investigates the impact of role perception for the people with no interdisciplinary experience, focusing particularly on design process. Whether there is a difference in roles, communication and outcomes after the novices being aware of the importance of role perception in interdisciplinary collaboration. A half-hour expert's sharing and one-hour interdisciplinary collaboration would be administered. Similarities and differences among groups are highlighted in order to fully understand role perception and what promotes or hinders interdisciplinary collaboration. This study expects to take the results as reference for novices how to create a pleasant team atmosphere and increase performance in an interdisciplinary team.

Keywords: *interdisciplinary collaboration, communication capability, role understanding, design process*

1. INTRODUCTION

With the complexity of the product design problems [14], and with the knowledge explosion and specialization, interdisciplinary collaboration is essential to companies gathering more than one kind of knowledge and perspectives [2]. Thus, how to enhance the quality of interdisciplinary collaboration in the design process is a key issue for companies. In many organizations, product development processes (which include the design processes) are breaking down, because they are incapable to handle the problem in the interdisciplinary collaboration [14]. In comparison to the team comprised exclusively of single disciplines, part of difficulties lies in the different nature of academics, training, terminology, and core value for collaborating [3][4]. The known challenges for team members from different disciplines to collaboration in design process are misunderstandings arising from differences in terminology or processes learned through their educational experiences which in turn impact the outcome and team atmosphere [12].

The study expects to assist interdisciplinary team members to overcome the challenges through the expert's sharing. The concepts of the expert's sharing we developed in accordance with previous research. Borrego and Newswander (2008) interviewed some

interdisciplinary collaborators, they found who can consider problems from the viewpoint of collaborators and integrate their ideas have higher quality and satisfaction of results [1]. Suter et al. (2009) interviewed participants comprised 60 health care providers from various disciplines. They found understanding and appreciating professional roles and responsibilities and communicating effectively are related to the positive patient and provider outcomes [13]. It seems that communication and role understanding have an effect on the outcome of interdisciplinary collaboration.

Referencing from those influential factors to the collaboration outcomes, this study defines role perception with two factors: role understanding and communication capability. As one gains experience, one would develop his/her own role perception in order to overcome the difficulties and barriers encountered in interdisciplinary collaboration. This study examine further how role perception would affect communication, interaction and collaboration outcomes when importance of role perception are briefed to team member with no interdisciplinary experience.

This study investigates the impact of the role perception on interdisciplinary collaboration in design process. We collect data from two different groups, one is the well-trained group which is trained by the expert's sharing, the other is the non-train group. The study reported here was centered on the following two research questions:

1. What are the differences of the collaboration patterns between non-trained group and well-trained group?
2. What are the success factors leading to sustained interdisciplinary collaboration?

This study aims to help the team members with no interdisciplinary experience enhance collaborations. The focus of the analysis is therefore on the behaviors and the patterns of communication. We present the findings and discusses for team members wanting to enhance their interdisciplinary collaboration skills. Finally, we offer suggestions for future research.

2. METHOD

The study used a qualitative case study approach to explore the communications and roles of participants involved in collaboration. Two students from different disciplines are paired to have a collaboration, then the team performance and atmosphere questionnaires are distributed. The well-trained group would enter the twenty-minute individual preparation and one-hour interdisciplinary collaboration after the half-hour expert's sharing. During the collaboration, the participants in a team need to collaboratively complete an innovative, problem-solving project, then make an oral presentation.

Our study consisted of three components: (1) participant selection and recruitment; (2) direct data collection using a lab-based experiment; and (3) behavior analysis of collaboration between groups. The methods for each step are described below.

2.1. Participant Selection

In this study, twelve participants were recruited. The participants with no interdisciplinary experience are graduate students or undergraduate students who are graduating within one year. The twelve students are aged between 22 and 25 years, with 6 females and 6 males. This study divided the students into 6 groups composed of two students, one from high consensus disciplines, like traditional engineering and the sciences, and the other

from low consensus disciplines, like the humanities and social sciences. Within these groups, 3 groups are comprised of well-trained students. These groups are labeled well-trained. The remaining 3 groups are comprised exclusively of students without the expert's sharing and they are labeled non-trained group. These groups are all assigned the same project to be completed using group collaboration. Specifically, the project task was to create a business proposal with the help of their professional knowledge. While in one-hour interdisciplinary collaboration, the participants could use the computers to search and record, but must collaborated by communicating face-to-face.

2.2. Data Collection

This study adopt scenario-based role playing and the participants are recruited to assume an a priori defined role. The advantages of using role playing include the ability to help actors make meaning of complex tasks [5]. A scenario-based role-playing experiment is well suited for research seeking to understand the participants' judgments and preferences or make the decisions in response to the scripted information [11]. Based upon the scripts designed by the researcher, the participants from high consensus disciplines acting as developer and the participants from low consensus disciplines acting as designer collaborate in interdisciplinary team.

This study divide the whole period of design process into four stages, that is, discover, synthesis, brainstorming, and prototype. This study observe the roles and behaviors of participants in each stage due to the different tasks and goals that would use different knowledge of disciplines. During the 1st stage, discover, team members should share the information they had in hand. During the next stage, synthesis, they are tasked to identify the persona (a design method). During the 3rd stage, brainstorming, they should come up with some of appropriate ideas to satisfy their persona's needs or solve the problems. During the last stage, prototype, they should draft an plan how to implement their ideas. The interdisciplinary teams have to use this design process to complete the project.

Data will be collected through qualitative and quantitative methods. Participants' roles and behaviors will be observed during the collaboration. The outcome would be evaluated by objective evaluation, which depend on their presentation and is given by the researcher, team performance questionnaire and atmosphere questionnaire[8][9][10][15]. In parallel, this study interviewed the participants to know more details about the perspective of the participant's cognitive feelings in the collaboration process. The one-by-one interview protocol was semi-structured to allow for clarification of some observations and assessments in their collaboration, their feelings and thoughts about this collaboration, and their past experiences.

This study collect the observation data of 6 groups, objective evaluation data of 6 groups, questionnaires data of the 12 participants, as well as the interview data of 12 participants involved in the study. First this study compares the observation data between groups from each stage. It then conducts an overall data analysis and illustrate the results along with the interview conversations. At the end of the study, this study analyze the data in detail, specifically focusing on the difference between the well-trained and non-trained groups.

2.3. Data Analysis

In terms of data analysis, this study has selected the four aspects for observation, that is, Roles and Relationships (job roles the member has in the team work), Trust (team members' perceived risk and the assessment of benefit in a collaborative relationship), Information Sharing (how the subject share his/her information and what kind of information and thoughts the subject mentioned), and Conflict Avoiding and Resolving (how the subject persuade and respond the group member from disagree to agree) [6].

When analyzing observation data, firstly, this study defined all the behaviors appeared in the collaboration from the observation. For different design process stages, it tracked the behaviors to find the contributors of expert's sharing. Then, secondly, it clustered the behaviors into the four aspects according to previous literature. Furthermore, behaviors in different stages with different groups (well-trained or non-trained) were compared. Finally, the interview results were documented and ensured clarity and understanding for something that is hard to observe. When analyzing objective evaluation and questionnaire data, we used Kruskal-Wallis Test to examine the impact of the expert's sharing (role perception).

3. RESULTS

The design process defined by this study includes four stages, that is, discover, synthesis, brainstorming, and prototype. The knowledge and skills required for each stage are different due to the different goals and task in each stage. The results are structured by the four stages in design process. Differences between groups are highlighted in order to fully understand role perception and what promotes or hinders interdisciplinary collaboration.

3.1. Stage 1 & Stage 2: Discover & Synthesis – Information Sharing & Persona Identification

This is the first step in the design process. The problems encountered in this stage are different goals, processes and core value. The participants needs beneficial communication to achieve team goals.

The task in stage 2 is "persona identification". Persona is a fictional character created to represent a specific user type and useful in considering the goals, desires, and limitations of users in order to help to guide decisions about service, product, or interaction space. This stage required the member from low consensus disciplines to guide the team completing the task. Because one of the requirements for participants from low consensus disciplines are familiar with the term persona and all have experience in identifying it. The participants from high consensus disciplines, by contrast, don't know much about that.

The results show that most of the behaviors appeared in this two stages. Also, we found that there is a relationship among behaviors. The results are summarized under the two themes, collaboration efficiency and information sharing.

3.1.1 Collaboration Efficiency

The results show that the well-trained group led by the member from low consensus disciplines collaborate more effectively than the non-trained group. We found that the proactivity and details of the persona provide by the low consensus disciplines member are related to the high consensus disciplines member's acceptance of the task. Furthermore, it influences whether the team could achieve consensus. The problems arise from the communication may reduce the collaboration efficiency. Also, in comparison to the "guiding" behaviors, the "leading" behaviors would induce the non-active behaviors and silence, then reduce the collaboration efficiency.

We found the member from low consensus disciplines in the well-trained group spent their time on detailed explanation of the goals and tasks in different stages. So that the member from high consensus disciplines are more easier to accept the concept of design process and play the role of supporter. The low consensus disciplines member would also guild and take care about what the member from high consensus disciplines is doing. If there are something wrong or lose the way, member from low consensus disciplines would try to help correct the problems. Both of the members could devote themselves in completing tasks.

However, instead of explaining what and how to do the tasks, the member from low consensus disciplines in the non-trained group tried to lead the group directly completing the tasks. But the member from high consensus disciplines do not have any sense about that, so they did not know what they can do until the other member told them. Explain only when the high consensus disciplines member ask questions or make mistakes in operations due to misunderstandings. The member from high consensus disciplines are confused and seems hard to accept the concept of design process. As a result, the tasks are often interrupted and explained during the process, so most of the time is spent on completing the tasks. The member from low consensus disciplines needs to explain the goals and leads the member from high consensus disciplines what to focus on and how to do the tasks. It is necessary for the members from low consensus disciplines to work around their team member in order to get things done the way they would like to be done. The results are consistent with the previous research adjusting communication with different terminology could overcome differences in viewpoints arising from different professional cultures or other influences [13].

3.1.2 Information Sharing

The results show that whether the team reach a consensus on goals is related to the content sharing by team members. The well-trained group which reach a consensus was mainly sharing the interview data (materials provided by researcher) during the stage 2. However, the non-trained group which do not reach a consensus was sharing the information related to their professional knowledge.

We found the members in well-trained group would discuss the materials and identify the persona together. Nevertheless, the members from high consensus disciplines in non-trained group would focus on function generation and technology. According to the interview data, the non-trained group members from high consensus disciplines indicated that they do not clarify the goals in these stages, so they tend to use their experience and familiar processes to do the tasks.

3.2. Stage 3 & Stage 4: Brainstorming & Prototype – Idea Generation & Implementation

The task in stage 3 is “idea generation”. Each team was required to provide ideas in accordance with the identified persona and problems. Then, during the next stage, they should plan how to implement their ideas and ensure the plan was indeed feasible mainly due to their capabilities. These two stages required the member from high consensus disciplines to provide their professional knowledge to implement their ideas. Since the high consensus disciplines members would provide a lot of components and technical terms which are terminology for low consensus disciplines members. The problems in these two stages are communication due to time constraint.

The results are summarized under the four themes, trust, information sharing, terminology, and division of labour.

3.2.1 *Trust*

During all the four stages, members in the well-trained group had a good sharing relationship freely sharing ideas, feelings, hopes and difficulties. In this study, we defined it as the trust. However, we found that as time progresses, the sharing relationship of the non-trained group increased and more stable.

According to the interview data, almost all the members tend to trust and rely on team member's professionals and capabilities since they are not familiar with design process or technical knowledge.

3.2.2 *Information Sharing*

The results show that the thoughts and information shared by the member from high consensus disciplines are more compatible with the stage's task if the team reach a consensus during the stage 1 and stage 2.

We found the members in well-trained group sharing the information about technology and functions is mainly focused on the stage 3 & 4; However, The non-trained group members sharing this kind of information is the stage 2.

3.2.3 *Terminology*

The results show that the high consensus disciplines members in the well-trained group would explain the terminology and share the information what they know by themselves. However, members in the non-trained group tend to use terminology but don't explain or explain briefly.

According to the interview data, some of the members in the non-trained group doubt if the other group member really understand what (s)he meant. But they don't confirm the doubt with the other group member.

We also found that the members in the non-trained group tend to search the terminology and information they do not know instead of asking the team member.

3.2.4 Division of labour

The results show that the team reach a consensus, namely the well-trained group, tend to reach a consensus on result before they divide the labour.

We found only in the well-trained group members would reach a consensus on result firstly, then divide the labour. However, the members in the non-trained group directly divide their labour without discussion. This kind of behavior may be related to the full understanding of the goals and roles. According to the interview data, some of the high consensus disciplines members in non-trained group indicated they are only involved in the stage 4, so they would tend to divide the work. The results are consistent with the previous research that engineers are more likely to rely on the expertise of others than seek to understand specific aspects of a project themselves [1].

3.3. Objective Evaluation, Performance and Team Atmosphere

Kruskal-Wallis Test results show that difference between groups was not significant. The results mean both well-trained group and non-trained group have the similar scores in objective evaluation, performance and team atmosphere. That is, they all have great performance and pleasant team atmosphere in the collaboration.

4. CONCLUSION

This study integrated the issues of role perception, roles and relationships, trust, information sharing, conflict avoiding and resolving, and team collaboration. It draws two primary conclusions.

- (1) First, this study found that members in the well-trained groups would prepare themselves through the expert's sharing. In comparison to the non-trained group, the members from high consensus disciplines are more likely to accept the concept of design process; the members from low consensus disciplines tend to be the leader to guide the group member to complete the task. Both of the them would be aware of the communication and roles in the collaboration.
The members in the well-trained group would explain the stages' goals and tasks firstly, then collaborated. So they could face less problems then the groups without full explanation when doing the tasks. That is why it found that the teams without training spent most of the time on confirming.
- (2) Second, this study found that the members from low consensus disciplines in the well-trained group tend to be the leader during all of the four stages. The members from low consensus disciplines guide the other member work through the design process and strike a balance between synthesis stage and prototype stage.
The members from low consensus disciplines could conduct the design process to gain an empathic understanding of the problem. Also, they could guide the members from high consensus disciplines to apply their professionals and abilities. Compared to the well-trained groups, the groups without training easily lost their balance between synthesis stage and prototype stage. Two of the group leader is the member from low consensus disciplines spent most of the time on synthesis stage and ignored the time need to be spent on the prototype stage.

Based on the observation, interview, objective evaluation and questionnaire data, this study found that role perception have a good effect on the interdisciplinary collaboration. Through the expert's sharing, the participants could be aware of the importance of role perception in interdisciplinary collaboration. This study confirm that the expert's sharing of role perception, communication capability and role understanding, could help participants to prepare themselves before collaboration and act more flexible. For the practitioner it will be important to consider both the communication and role understanding in the interdisciplinary collaboration. Opportunities for future work are plentiful, such as increasing the collaboration time to observe the dynamic in trust and affinity and collecting more data to validate the result. This study expects to take the results as reference for novices how to increase collaborative practice skills in an interdisciplinary team.

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COMMUNICATION STRATEGIES USED IN A DYADIC COMMUNICATION BETWEEN OLDER ADULTS AND YOUNG ADULTS

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Abstract

Communication predicament of aging model depicts that aging traits and age stereotypes would mediate the inappropriate communication accommodative behaviors. The unpleasant communication barriers have been extensively identified; nevertheless, few centered on exploring how people process intergenerational communication at the presence of stereotypes. An older adult and a young adult are paired to have a communication. Constant comparison method is used to develop the communication strategies from the transcribed data. Five strategies were identified, Rationalize, Empathize, Interrogatives, Contextualize, and Self-disclosure. The study expects to take the results as reference for the deeper understanding of how the intergenerational communication progresses.

Keywords: *communication, intergenerational communication, communication strategies*

1. INTRODUCTION

The increasing proportion of older adults all around the globe has propelled diverse research aiming at the aging society. The phenomenon also leaves us more opportunities to communicate with the older adults both in daily life and workplace. Communication provides us not only the basic function of making decisions, but also the connection with others and the society by building up the relationship between individuals and the groups. However, communication seems not that easy as it might be. Lots of research has proposed that intergenerational communication is problematical [1][2]. Specifically, age stereotypes are identified as the root cause for the unpleasant communicative experience between different generations [3][4][5][6]. Previous research has revealed that the incongruent perceptions toward each other due to the age stereotypes could result in dissatisfying communication outcome [7], or even produce intergenerational conflict [8].

In previous study, communication accommodation theory (CAT) has been adopted to a large proportion of intergenerational research as the main analytical approach [9][10][11]. CAT attempts to explain the cognitive and affective processes by which individuals adjust their communication to each other [12]. It claims that individuals would make their communication behaviors fit in the way they believe their partner would be comfortable with. However, these beliefs are often mediated by age stereotypes [13]. Ryan et al. further developed the Communication Predicament of Aging Model (CPA) based on CAT [14]. This model outlines that specific aging traits (e.g., chronological age or physical cues) would activate younger adults with negative stereotypes of older people's being incompetent in communication [5]. Based on these stereotypes, younger adults attune their communication in an attempt to help older adults process the talk. Some examples of the adjustments include slow speech, loud speech, patronizing speech [5][6]. In turn, according to CPA model, this inappropriate communication leaves both parties with dissatisfying interactions. That is, older adults might experience the emotional decline or the dissatisfied social interaction, while younger adults would feel bewildering about the consequence and even do not want to get involved in other intergenerational contacts [6]. On the other hand, culture as the variable also has significant influence on intergenerational communication. In Zhang and Hummert's research [6], younger adults were asked to describe how older adults talk to younger adults, and vice versa. They concluded their responses into congruent themes and incongruent themes, where harmonies derive from congruence while the tensions stem from incongruence. One of the category in congruent themes is endorsement of filial piety. Younger adults acknowledged that filial piety was the ethical norm; therefore, they expressed willingness to adjust their communication style to accommodate older adults. On the other hand, older adults believe that intergenerational relation should be hierarchical, while younger adults desired more equality [4][8].

To sum up, as myriad research has pointed out, the dysfunction of the intergenerational communication is closely related to the age stereotypes toward each other. However, few centered on the communicative behaviors themselves. Therefore, apart from disclosing or trying to avoid those negative stereotypes [16], attentions should also be stressed at examining how conversation was developed in intergenerational communication [17].

Moreover, as some researchers pointed out that the examination of communication strategies could help gain deeper understanding about the intergenerational communication [12][18][19][20]. This study aims at exploring the specific strategies in the intergenerational communication. Specifically, two research questions are: 1) how were the message sent to the interlocutor during the intergenerational communication; 2) what specific strategies were used by older adults and young adults in intergenerational communication.

2. METHOD

2.1. Participants

Eight older adults, who aged between 65~85, (average age=75.5) and eight younger adults, who aged between 20 to 30 (average age=22.25) were recruited from the senior citizens learning centers in Hsinchu city, Taiwan and National Tsing Hua University,

Hsinchu City, Taiwan, respectively. Participants gender is not subject to any research requirements. They are all able to speak Chinese fluently.

2.2. Procedure

This experiment included two stages to complete. Participants attended the first stage on an individual basis, filling out the opinion survey. The survey included two parts of questions: (1) opinions towards the chosen issues, and (2) their preference for discussion with others. A sample question is given below: “*All things considered, move in together before marriage is acceptable.*” and “*Please select four issues that you would be interested in discussing with others.*” Based on the survey response, the experimenter then paired the dyad, composed of an older adult and a younger adult. The paired dyad had the opposite opinions toward the certain topic, and at the same time had interests in discussing with each other. This pairing intervention helped the communication process proceed for a certain period of time, which would be enough for developing strategies.

At the second stage of the experiment, the dyad was instructed to communicate on certain topics for at least twenty minutes in a classroom of the senior citizens learning center. The experimenter served as an observer during their communication, not engaging the communication. Lastly, researcher then conducted a one-on-one semi-structured interview to understand their perceptions and feelings about the conversation.

2.3. Coding

During the experiment, the dyad’s conversation was recorded under their permission. Transcripts were then made by the experimenter and recorded in the unit of *turn*, which is identified as the basic structure in a conversation [21]. It is expected that participants would issue their utterances in allocated *turns*, which often take place in two-party conversations where sentence complete, or pause. On the other hand, to further analyze how the two participants structured the whole communication, the transcripts were divided into *episodes*, where a perspective or a story ends and a new perspective is started [9]. After dividing the transcripts into turns and episodes, constant comparison method was then used to develop the strategies [22]. Since strategy includes more comprehensive intention, we identified categories first. Some categories in Jones et al.’s research [9] were used as reference, while others were developed inductively from the data itself. A random transcript was first read several times to obtain the initial categories. New categories were created when the new data could not be categorized into the previously generalized categories. When new categories were made, the former transcript should be re-read again to check if that transcripts could fit into the newly established categories. The process is over when all the turns in each episode could be categorized. Finally, the experimenter generated the strategies by combining the categories with the similar intention.

3. RESULTS AND DISCUSSION

3.1. Episode-based Analysis - Topic Introduction

The transcripts were coded episode by episode to examine how participants introduced a new topic during the conversation, referenced from the previous coding system [9].

Results show that there are three introduction patterns, (1) made a new statement, (2) made a question about a new topic, and (3) deflect. Deflect pattern appeared when the speaker's partner suddenly changed the topic where there was significant unfinished discussion.

Older adults introduced the new episode by using "made a new statement" the most, taking up 64% of all the episodes introduced by the older adults. While younger adults initiated the episodes by using "questions" to open a new topic the most, taking up 72% of all the episodes introduced by the younger adults. Specifically, there is a unique phenomenon that older adults would "deflect" the topic. For instance, the dyad was discussing about the advantages and disadvantages of the listed company and the startup, younger adult stated his opinions, then the older adult responded with a vocal response and suddenly changed the topic, saying "*Japanese college students only worked for a short period of time for their first job.*" In this situation, the younger adult had stated lots of thoughts, while older adults initiated a new topic, instead of responding something relevant.

Combining with the result of the one-on-one interview, the phenomenon that younger adults used questions to open a new topic might be related to the dilemma they had. For one thing, they enjoyed having a conversation with older adults, learning experiences and opinions from them. However, younger adults felt that older adults had experienced much more life events than themselves. Therefore, in order to participate in the conversation, whenever younger adults perceived the possible completion points [21], they grabbed the turns, using questions to initiate a new episode.

3.2 Turn-based Analysis - Identified Communication Strategies

Rationalize

This strategy includes using logical facts and warnings to let their partner know his/her own opinions. In using logical facts, speaker might utilize any kind of knowledge, receiving from others to transmit his/her own opinions. They often composed a reasoning or facts to illustrate the opinions. In using warnings, speaker specifically pointed out the negative outcome to their partner, in an attempt to instruct the partner to follow the speaker's suggestion.

Empathize

This strategy emphasizes on the intention to consider the listener's situation, including finding common ground and responding by following speaker's opinion. Finding common ground means the speaker would choose topic that they thought would be familiar to the listener. For instance, older adult mentioned "*One of my college studied the same university as you, he...*". Besides, we found that listener would follow speaker's opinion to give a response. For example, the older adult in favor of buy a house stated "*Those who bought a house at that time lead a good life now.*", the younger adult in favor of renting responded "*Yes, they could enjoy their life now.*" At this moment, the younger adult did not embrace the idea that buying a house could lead a good life; yet, she still responded with a "Yes".

Interrogatives

This strategy includes using checking questions and using suspended questions. Checking questions are used for listener to check if his/her understanding is right. Suspended

questions are used, either to express doubt or asking for more information following partner's discourse.

Contextualize

This strategy includes using stories, acting, and using metaphor. Using stories means mentioning certain experiences regarding to the topic they conversed as reinforcement of the logical facts or the warning statements they proposed. As for the acting, we found older adults would mimic what and how the character in their stories said. Specifically, they changed their tones to hint listener that they were acting. Still another category is using metaphor, this is also a unique phenomenon emerging in older adults' communication. When mentioning something abstract, they would use metaphor to better transmit their opinions. Overall, this strategy is used to propose a concrete idea to the listener, with an attempt to let the listener gain the same experience that the speaker had experienced. In this way, listener might be able to understand more about how the speaker thought.

Self-disclosure

This strategy implies that the speaker discloses themselves to the listener in terms of their identity, their personal information, their job, and so on. Unlike using the stories, self-disclosure is identified especially when speaker disclose themselves in the situation that the disclosed information is an addition to the conversation, that is, not requested from the listener.

3.3 Turn-based Analysis - difference between two generations

After identifying the above mentioned strategies, we did a deeper investigation into the difference between the strategy used by older adults and younger adults in two perspectives. First of all, we examined the frequency of strategies used by the older adults and younger adults. Secondly, we delved into the underlying reasons for those frequent uses by examining the alteration of the strategies between the two participants. It is worth noting that to fully convey the message, it might take the speaker several turns, thus, a strategy might include several turns. Combining these findings and the result of interview, we derived some discussion.

Older adults

We found that for the older adults, *Rationalize* is the most used strategies, taking up for 52% of the turn. *Contextualize* is the second most used strategies, taking up for 25% (Figure 1).

When older adults used the *Rationalize* strategy, either using logical facts or warning, the background information related to the main idea were often involved. The way they convey message is like constructing a building, from foundations to the roof, step by step. Similarly, when using *Contextualize* strategy, older adults provided lots of additional information as well. This is the reason that that *Rationalize* and *Contextualize* strategy took up so much proportion in the conversation. In particular, when older adults used the *Rationalize* strategy, younger adults mostly responded back with *Empathize* strategies, *Rationalize* strategies, and *Interrogatives* strategies. When they perceived the older adults were sending the signal of completion points, they had to say something. For one situation, when they did not fully agree with their partners or they had no ideas for the

topic, the strategy they chose is *Empathize* strategies. Especially, it is the “filial piety” that regulates younger participants not to refute that argument and respond by following partner’s opinions. Confucianism promoted that “filial piety” to be the core value when interacting with parents and older adults. Specifically, filial piety regulates individuals’ behaviors including obeying and respecting family elders, providing material and emotional support, and performing ceremonies of ancestral worship [4][23]. It is this filial piety norm that governs the intergenerational communication in Chinese culture. However, this replying pattern in most of the time stopped the development of the interaction, either breaking down the discussion or making the older adults feel it was beneficial for their partners and thus kept talking. For another situation, *Rationalize*, and *Interrogatives* were used when younger adults had interest to discuss further. Moreover, younger adults were all glad to have an opportunity to discuss such topic with older adults despite of their opposite opinions. They aspire to know more about older adults, either their life story or the opinions. It is also proved that older adults also benefit through transmission of wisdom under the smooth intergenerational communication [24]. From this perspective, this kind of contact is beneficial for both.

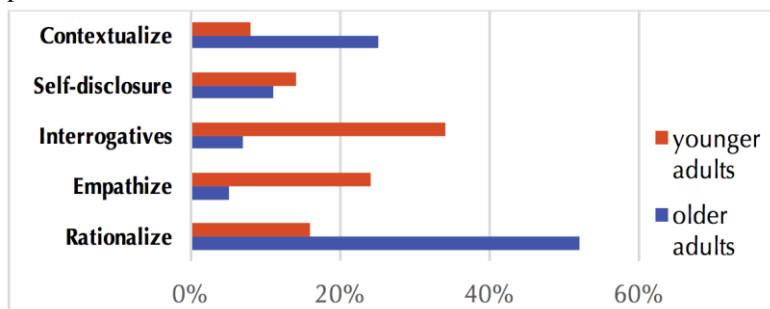


Figure 1: Percentages of Different Strategies Used by Old and Young Participants

Younger adults

The most and the second most used strategies by younger adults are *Interrogatives* (33% of the turns), and *Empathize* (23% of the turns), respectively. As mentioned earlier, younger adults tended to initiate the new episode by using questions, this situation remained true when developing the episode. Younger adults used either clarification questions or suspended questions to take part in the conversation. They asked older adults from diverse perspectives of the issue. For instance, a younger adult who likes the individual tour asked the older adult who likes the package tour, “As for the safety concern, what do you think for the individual tour and package tour?” As for the checking questions, they often arose after older adults stating facts or stories, with an attempt to gain more information. To sum up, using *Interrogatives strategies* by younger adults played two roles, engagement of interaction and requiring for information. When younger adults used the *Interrogatives strategies*, older adults mostly responded back with *Rationalize*, *Contextualize*, and *self-disclosure* strategies. All these three responding patterns had developed the discussion deeper. In particular, through *self-disclosure*, younger adults know more about the older adults, research has also promoted that self-disclosure could extend the length of the dialogue [25]. Moreover, self-

disclosure helps communication proceed to a deeper level [26]. However, this strategy is rarely seen by younger adults, which once again shows the “filial piety” norm made younger adults feel they are the one to listen.

On the other hand, the high frequency of the *Empathize* is related to the phenomenon mentioned above. That is, while older adults used *Contextualize*, younger adults responded back with *Empathize*. And since *Contextualize* appeared frequently by older adults, *Empathize* by the younger adults is predictable.

4. CONCLUSION

This study aims to discover the diverse strategy used by older adults and younger adults. Results show that *Rationalize* and *Contextualize* strategy are the two frequently used strategies, while *Interrogatives* and *Empathize* strategy are used most by younger adults. From the results, the impact of filial piety still plays a huge role in intergenerational communication. Hopefully, our research results could provide the intergenerational communication with deeper understanding of the sophisticated intergenerational communicative process under Chinese context. Besides, with the intergenerational contact happens at more and more situations, such results could be further applied to the development of the intergenerational education programs either in interpersonal context or in workplace. Future study could further examine interlocutors' perception toward each communication strategy. Moreover, examination into nonverbal behavior could be conducted to explore other communication strategies.

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