

The Development of Interpersonal Emotional Connections in Virtual Worlds

Hisae Matsui
Princeton University, U.S.A.
hmatsui@princeton.edu

Rika Hanamitsu
Waseda University, Japan
rika@waseda.jp

Abstract: The purpose of this research is to examine whether sharing or not sharing the virtual environment in an online virtual world has a different influence on the development of interpersonal emotional connections that participants may have in an online virtual world telecollaborative context. To fulfill the purpose, the experiences of four pairs of Japanese and American students were observed as they participated in conversational activities in two different virtual environments; one where they can see the avatars of their partners and the other where they cannot see them, in the frame of single subject research designs. The participants had five twenty-minute conversation sessions in Japanese in Second Life, an online virtual world developed by Linden Lab. All of the participants experienced both environments mentioned above with different partners. The perception of social presence, which was measured on a Likert scale, and verbal interactions during the activities were analyzed together in each session for each participant to examine the development of interpersonal emotional connections in a longitudinal manner. The results indicated that sharing virtual environment may contribute to building interpersonal emotional connections in the initial stage of their relationships, however, the benefit may not be so significant as they know each other more after several sessions.

Keywords: *virtual world, emotional connection, telecollaboration*

INTRODUCTION

The profound forces of globalization have been transforming virtually all aspects of modern life -our jobs, our culture and our relationships with one another. Workplaces are becoming increasingly international/ global as a result of the dramatic increase in cross-border mergers and acquisitions (Karain, 2008) and increased mobility as well as online communication across borders means that intercultural skills are increasingly sought by employers (Lehtonen & Karjalainen, 2008).

Not surprisingly, the waves of globalization and an ever-changing world also gave a great impact on foreign language education. The Modern Language Association's 2007 report on the state of language teaching in the US recognized the importance of developing transcultural competence in a post 9/11 era. The report states "our whole culture must become less ethnocentric, less patronizing, less ignorant of others, less Manichaeian in judging other cultures, and more at home with the rest of the world" (p. 1). The report then recommended that the foreign language curriculum should produce "educated speakers who have deep translingual and transcultural competence".

In that case, what can educators do to help the learners to develop their transcultural competence? As Carlorosi, Helm, Marini-Maio and McMahon (2008) claimed, simply learning about "practices"; such as socially appropriate patterns of interaction and behavior, or "products", which are, the tangible or intangible creations of a particular culture, is insufficient. It is important to understand how "practices" and "products" are rooted in "perspectives"; such as underlying values, attitudes, conceptions, and beliefs of a particular culture, and that these three are all interrelated and intertwined. In other words, the goal for the learners is to be able to view aspects of the target culture through the eyes of the members of that culture (Carlorosi, *et al.*, 2008).

In the past, since foreign language education often provided limited opportunities for learners to learn culture in the sense mentioned above due to its isolation from organic contact with the target language and its speakers outside and even sometime inside of the classroom setting, studying abroad was the primary and one of the few options to experience another culture and to develop an intercultural awareness. However, with advances in new information and communication technology, it is now possible to create that direct contact between members of different cultures through virtual means.

One of the examples of the form of online language education is *telecollaboration*, which involves the use of Internet communication tools such as email and chat in order to support prolonged intercultural exchanges between groups of students in various institutional settings who might otherwise not have the opportunity to interact (Belz, 2005; Belz & Thorne, 2006). The goals of telecollaboration combine aspects of language, intercultural learning, and intracultural learning (Belz 2005). The main aim of such exchanges is not merely to provide a platform for language practice, but to lead participants to develop Intercultural Communicative Competence (ICC) (Byram 1997) through interaction and exchange (Belz & Thorne, 2006). In addition to that, collaborative learning is considered to lead learners to deeper level of learning, critical thinking, shared understanding, and long term retention of the learned material (Garrison, Anderson, & Archer, 2001).

Collaborative learning, however, does not occur naturally. Salmon (2000) developed the five-stage model for enabling and scaffolding remote groups to work and learn together through online networking. Each stage of the model requires learners to master technical skills while it calls for different human intervention skills. Salmon (2011) pointed out that learning involves very much more than a simple shift in cognition or the experience of using a computer as her underlying assumption to the five-stage model. Online learning offers the affordance of online socializing and networking, however, online group working will not in itself create social interaction (Preece, 2000). Sensitive and appropriate learning design and the instructor's intervention enable the socialization for learning to occur (Salmon, 2011). For that reason, Salmon (2000) located "Online socialization" as the second stage, which is after the individual preparation stage. She also mentioned that even though these socialization components can gradually develop throughout the five stages, "success comes with a strong foundation at stage two"(Salmon, 2011. p.37).

The theory of social presence is perhaps the most popular construct used to describe and understand how people socially interact in online learning environments (Lowenthal, 2009). Since Short, Williams and Christie (1976) introduced the concept of social presence, many researchers have been trying to define it, however, definitions of social presence, at least for researchers of social presence and online learning, tend to fall on a continuum (Lowenthal, 2009). According to Lowenthal (2009), conceptualizing social presence as the degree to which a person is perceived as being "real" and being "there" is at one end of the continuum while conceptualizing social presence as whether there is an interpersonal emotional connection between communicators (Lowenthal, 2009). Although it is still under debate, in this research, the definition that Swan and her colleague (Swan *et al.*, 2008) suggested, which is "the degree to which participants in computer-mediated communication feel affectively connected one to another", the definition that Swan

and her colleague (Swan *et al.*, 2008) suggested, will be adapted due to its emphasis on the aspect of interpersonal emotional connection.

Purpose of the Research and Specific Problem Statement

The purpose of this research is to examine if the environmental factor of MUVES, to be exact, sharing of virtual environments with a participant's interlocutor, have an impact on socio-emotional processes between participants in telecollaboration. The socio-emotional processes can be manifested in various ways, however, in this research the development of interpersonal emotional connection between participants online was focused.

To fulfill the purpose, the experiences of four pairs of cross-cultural participants were observed as they participated in conversation activities in two different virtual environments. Specifically, the perception of social presence and verbal interactions during the activities were analyzed to contemplate the possible significance for sharing environments virtually on the development of interpersonal emotional connection between participants in telecollaborative context.

RESEARCH METHODOLOGY

Research Participants

A total of four participants; two non-native speakers of Japanese (NNSs) from an American University and two native speakers of Japanese (NSs) from a Japanese university, participated in this study. Although learning a target language through negotiation with native speakers is one of the most important purposes of telecollaboration, since the development of interpersonal emotional connection between participants was the focal point in this research, participants were recruited from advanced level learners, who were considered to have less language barriers than learners in novice or intermediate levels. The students in those classes had been studying Japanese for two years in average and the expected levels of the proficiency for speaking and listening are between Intermediate-Mid and Intermediate-High in ACTFL(American Council on the Teaching of Foreign Languages) Proficiency Guidelines.

This study looked into the development of interpersonal emotional connection between participants in two different environments, therefore, only four pairs were studied. Each participant was paired up with his/her partner from the other university and belonged to two different groups. Therefore, four pairs including two pairs for the café environment and the other two pairs for the individual room environment were formed.

Research Design

In this study "single subject research designs", more specifically, "alternating treatments design" was adapted to compare the effects of two environments on the development of interpersonal emotional connection in the dyad. Single subject research designs are designs that can be applied when the sample size is one or when a number of individuals are considered as one group. These designs are typically used to study the behavioral change an individual exhibits as a result of some treatment (Gay & Airasian, 2003). While single-subject designs have their roots in clinical psychology and psychiatry, they are useful in many educational settings (Gay & Airasian, 2003).

Instruments

The participants completed two kinds of surveys: the one asking participants' impressions for each section and the other asking their impressions for overall experiences. The survey for each session had both structured and unstructured items that included a checklist in the form of a Likert-type scale ranging from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree, and a free response section for their brief impressions for each session. The structured part of the questionnaire was based on nine questionnaire items to measure social presence, which was developed and validated by Swan and her colleagues (Swan *et al.*, 2008). Because the data for their study was collected from a survey for online courses, the questionnaire items that they used did not fit perfectly in this research. Therefore, the wordings of the questionnaire items were modified to fit the context of this research, however, the main idea of each item was kept as the original. The survey questionnaires that were given after all sessions had been completed had only unstructured items, which asked their overall impressions that participants had in two different environments. Participants answered the questions in a narrative form in their native languages. Besides brief impressions that participants wrote on a questionnaire after each session, overall impressions were examined as well. The surveys were prepared online by using a survey tool provided by Google. A link to the online version of the questionnaire was sent to each participant in Second Life and they were expected to answer the questionnaire after each session. The results from the surveys were anticipated to show the transition of perceived interpersonal emotional connection that participants had from the first session to the last session.

Procedure

The sessions took place in a five-week period. During the period, each participant had a total of five

sessions in each group since the differentiation can often be observed with as few as five observations with each condition (Gast, 2010). Before the sessions start, participants who did not have previous experience with using Second Life were offered one-hour training session. The participants were told to make their accounts and choose their own avatars in Second Life prior to the training session. The training included learning basic in-world operations and how to log in and go to the assigned meeting place in Second Life according to the schedule. Since the random order for the different treatments is important in alternating treatments design to increase the likelihood that the observed effects are the result of the treatment rather than some extraneous influence, the order of the sessions was random as long as the participants' availabilities permit.

The virtual environment in Second Life was used. 4096 sq. m (64 x 64, 938 prims) land, which has been rented from NMC (New Media Consortium), were used for this study. The land had two settings; café setting, which was for the experience of sharing an environment, and an individual room setting, which was for the experiment of not sharing an environment. Each participant received a folder of landmarks for the locations where the sessions took place and he/she could go to the location from anywhere by clicking the landmark. The environment was closed to participants so that no disturbance or grieving from the outside would interrupt the sessions.

During the sessions, participants communicated by using voice chat, which was an interactive communication via voice. In Second Life, one can choose if he/she hears voices of others from the avatar position or camera position. In this research, all of the participants set it so that they would hear the sound from their avatars' positions. In the café setting, participants were told to sit around the table so that they would sit close enough to hear their interlocutors' voice. In the individual room setting, although they cannot see their interlocutors avatars, they can still hear their interlocutors' voice because their rooms were located next to each other. Participants were free to do anything except for taking a look of his/her partner's avatar by controlling camera view.

Because utterances were analyzed to find manifestations of interpersonal emotional connection between participants, and compared longitudinally as well as in a cross-sectoral manner, participants were told to use only one language, Japanese, in this project. All of the participants' interactions, both video and audio, were recorded with Fraps, a real-time video capture program. In both environments, the researcher logged in with the other participants for recording and supporting purposes, however, her avatar was out of sight of the participants by hiding under the water in the café environment and staying on the observation deck, which was located under the individual rooms.

Procedure of analysis

As mentioned above, two perspectives to investigate the development of interpersonal emotional connection between participants; examining the transitions of perceptions of the process and examining written impressions after each session as well as verbal productions that represent the process, were used in this study by adapting mixed methods research design. The approach of data analysis in a mixed methods research combines both quantitative and qualitative forms of inquiry and allows a comprehensive understanding of the research problem through the collection and analysis of multiple sources of data (Creswell, 2009). The analysis followed the following three steps.

1. Quantitative analysis for each participant to compare two environments.

The purpose of the quantitative data analysis was to examine the transition of perceptions of social presence that participants had from the first session to the last session. To quantify the perception that a participant had after each session, ordinal responses from the survey will be scored using the scale (1=Strongly Disagree) to (5=Strongly Agree). The mean score for the six items on the survey for each session was illustrated on a line graph in the order of sessions, from the first to the last. In order to compare the social presence that each participant perceived in two different environments, the results from two environments from each participant were displayed on the same graph. Thereafter, the graph was examined by visual inspection, which is a typical way of data analysis in single-subject research (Gay & Airasian, 2003).

2. Qualitative analysis for considering factors that may affect the interpersonal emotional connection between participants.

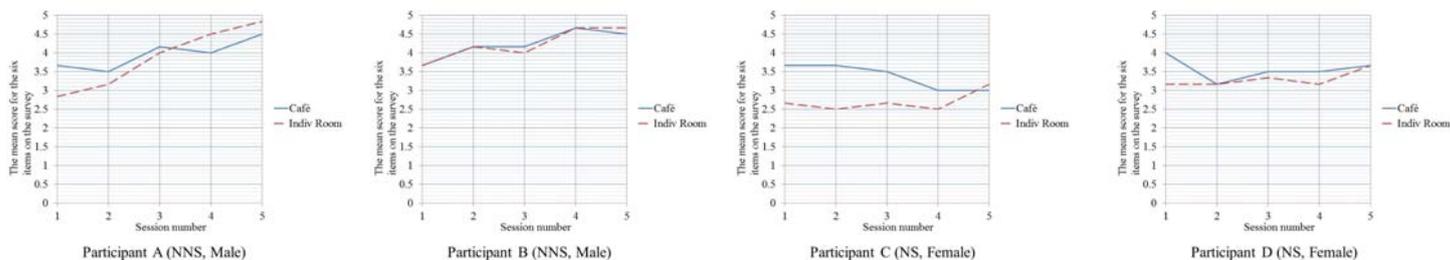
In order to take account of other factors that may affect the interpersonal emotional connection between participants, comments in the narrative part of the survey as well as contents of the verbal interactions between participants were closely examined.

3. Integrative analysis for each participant

After quantitative and qualitative analysis, the results were combined to discuss the possible influence that the environments may give to each participant.

RESEARCH RESULTS

The following graphs show the results from step 1: Quantitative analysis for each participant to compare two environments.



Participant A and Participant B (NNSs)

Participant A and Participant B are male students from an American university. They studied the first year level of Japanese at the university and learned the second year level in an intensive language program in Japan. They both were in the third year level when they participated in this project.

Participant A

The graph shows that he felt a more emotional connection in the café environment in the first session. He compared the first experiences in both environments and stated that *“being in a cafe vs. a room was noticeable in that seeing just an avatar allowed me to attribute what was being said to a face, albeit not a real one.”* As the graph shows, there was a slight drop in the second session in the café environment. In the café environment, he started the conversation with 「何について話しましょう？」 (What shall we talk about?) after brief greetings. He also admitted that he had difficulty at first because *“the stock topics one has when they first meet someone were already exhausted (major, hometown, etc.) and so [he] was in an unusual situation where [he] had to find new topics without really being able to call upon what happened in the first conversation.”* However, in the third sessions, in both environments, he mentioned that the conversation became *“very enjoyable”*, even though he felt *“being in rooms where [they] cannot see even each other’s avatar still has an effect on the sense of ‘togetherness’ and when the conversation was freely-flowing it felt more natural because [he] was sat in a cafe sitting facing the person [he] was talking to and it felt a lot more like [he] was actually talking with someone in such a setting.”* In the fourth session in the café, the main topics were politics and elections since the session took place during an election campaign. The partner of participant A mentioned during the session that Japanese people in general don’t have interest in politics. This does not mean that she is also not interested in politics, however, the amount of her responses was much less than other sessions and some silences were observed. Participant A reflected the session as *“when there was an awkward silence, it felt more pained because [he] could “see” her character while there was a silence.”* In both environments, he seemed to enjoy the most among all sessions. He mentioned that he was *“less nervous (in the individual room ‘IR’)”* and *“it was the most relaxed of the sessions (café).”* Although in the final session in the café, he still felt that being able to see the interlocutor’s avatar made the sense of a discussion more present, the results from social presence score show that he felt more social presence in the individual room.

Participant B

After the first session in the café, he mentioned that the first session was *“challenging”* due to lack of *“basic information that we use to communicate.”* However, after his first session in the individual room, he mentioned that *“the isolation of the room made it easier for me to focus purely on what we were saying, whereas the avatar might have distracted me a tiny bit in the previous session.”* In the second sessions, in both environments, he *“felt more natural”* and *“felt closer to the other speaker than [he] had felt last time.”* He also mentioned that he *“felt that [they] were collaborating more actively.”* There were two weeks between the second and the third sessions. This made him feel that *“[he] was a little bit rusty with Japanese conversation.”* Even though this may be the reason why there was a slight drop in the social presence score in the individual room, he still felt that *“the sense of cooperation has increased from two weeks ago (IR)”* and *“felt more comfortable with talking to [his partner] than before.”* By the fourth sessions, he became *“significantly (IR) more comfortable”* during these sessions. He also noticed that *“there was some established information (i.e. what [they] have talked about in the past) that [they] can continue to talk about (IR)”* as well as *“[he] was resuming a conversation rather than starting a new one.”* These may be a part of

the reasons why the social presence scores in both environments rose. In the final sessions, he felt very comfortable in both environments. In the café environment, he couldn't say some words in Japanese, however, he felt that his partner "was willing to help [him] out and that the conversation was an earnest collaboration." In the individual room, he mentioned that despite of the fact of not being able to see his partner's avatar, "[he] still felt like [he] was able to get to know her." Towards the end of the session in the individual room, there was a time when they expressed and shared their worries about their lives after college.

Participant C and participant D (NSs)

Participant C and D participated in this project from a Japanese university. They both are senior students and their majors are Intercultural Communication. Their responses below were originally in Japanese but translated into English by the researcher.

Participant C

It seems that she enjoyed the conversation itself in both environments during the first sessions, however, in the individual room, she mentioned that she had a hard time to visualize her partner and did not feel like she was having a conversation while in the café environment, she felt someone was there simply because she could see her partner's avatar. In the second sessions, she expressed an uneasy feeling in the individual room because she felt like nobody was there, even though she knew somebody was there. She also noticed that the conversation topics in the individual rooms were more general (such as school related matters and problems in society) in comparison with the one in the café environment and she thought that was because she was unable to see her partner's face. On the other hand in the café environment, she felt like she was actually having a conversation with her partner. In the third sessions, she felt that she started to build a relationship with her partner slowly in the individual room. One of the main reasons for that, she thought, was the fact that her partner remembered what she said in the previous session. In the café environment, she felt it was difficult to convey a natural conversation flow because she could not see the actual face of her partner. This may be the reason why the social presence scores slightly dropped. In the fourth sessions, she mentioned that she finally became used to having a conversation in the individual room, even though her partner's image was still a "blur". In the café environment, she noticed that many personal opinions about her partner's father, politics, and presidential election came up. As mentioned under Participant A section, the amount of her responses to her partner's was low in comparison to other sessions. The conversation was dominated by her partner and even when her partner asked her questions, her responses tended to be short. This may be the reason why the social presence score dropped in the fourth session. In the final sessions, in both environments, she felt the conversation flow fairly naturally and felt closer to her partner. The social presence score supports the impression for the session in the individual environment, but not much for the session in the café environment. The reason why the social presence score did not go up in the café environment is unknown since the conversational balance went back to the one prior to the fourth session, and there was no obvious problem in understanding each other. One possible reason is comparing to the other sessions. Since she established a stronger emotional connection with the other partner, she may feel less close to her partner in the café environment.

Participant D

In the first sessions, she mentioned that she enjoyed the conversation in both environments. She and her partners were talking about various things without any misunderstandings or silences in both environments, however, the social presence score in the café is much higher than that in the individual room. One possible reason would be the visual effect of sharing the environment with her partner. In contrast, in the second session in the café environment, she found herself confused sometimes due to lack of "aizuchi", Japanese backchannel signals, from her partner, even though it was still easier to acknowledge her partner's existence in the café environment. This may cause a drop in the social presence score. Even so, she felt less nervous in the individual room, and she started feeling that she wanted to meet her partner in person or get to know her partner better on Facebook. In the third sessions, she reported that she felt more comfortable in both environments and the session had a good flow in the café environment. The individual room was set up so that participants cannot see their partners, however, in this session, she was able to see her partner's avatar probably by controlling the camera view. She mentioned this "accident" in her reflection and said she found it was easier to have a conversation during the "accident". In the fourth sessions, she felt like she did not have to be very polite to her partner anymore in the café environment because she felt she and her partner started becoming close. In the individual room, she again received the impression that it was easier to have a well-timed conversation. In both environments, she felt that the conversation flowed naturally. One of the main topics in the individual room was politics. She thought that was a sensitive issue to talk about but they were able to discuss that because they had become closer. Comparing the contents of what participant C said and what participant D said about politics, it seemed like participant D have more interests in

politics. This may be why political topics contributed to the emotional connection in this pair while affected negatively in the other pair.

CONCLUSION

The results indicate several points about using virtual environment in telecollaboration. First, sharing virtual environment with one's partner may be beneficial for participants to build an emotional connection especially in the initial stage of the interactions. Even with an avatar, representation of one's partner, it seemed like the participants felt the existence of their partners and this helped them to build emotional connections with their partners. At the same time, as one of the participants claimed, fewer channels (i.e. audio only instead of audio and video) could make participants focus on the given channel. This could be beneficial for language learners who need to concentrate more to process and produce second/foreign languages. Secondly, participants tend to feel more comfortable with communicating with their partners after a couple of sessions even in the not-sharing environment. The emotional connection in this environment could surpass the one they would build in the shared environment. Thirdly, instructional guides such as providing topics for the conversation sessions would be valuable to prevent "the drop in the second session", which may happen after all general information exchange has been done in the first session. In this project, the researcher intentionally avoided providing conversation topics in order to observe a natural process of interpersonal emotional connection in telecollaboration context, however, if this is actually used as a foundation of the telecollaboration, giving topics that are generally easy to talk about, such as food and hobbies, would facilitate active conversations even among almost strangers.

Lastly, there is one thing that needs to be pointed out. That is generalizability. This research followed "single subject research designs", therefore, it inevitably suffers from low external validity, that is, results cannot be generalized to a population of interest. Thus, the points listed above remain to be suppositions but not facts. For single-subject designs, the key to generalizability is replication. If the same treatment using the same single-subject design is applied individually to a number of participants and gets essentially the same results in every case or even in most cases, confidence in the generalizability of the findings is increased. Therefore, to raise the generalizability, replications of this project are necessary.

REFERENCES

- Belz, J. A. (2005). Intercultural questioning, discovery and tension in Internet-mediated language learning partnerships. *Language and Intercultural Communication*, 5(1), 3-39.
- Belz, J. A. & Thorne, S. L. (2006). Introduction: Internet-Mediated Intercultural Foreign Language Education and the Intercultural Speaker. In J. A. Belz & S. L. Thorne (eds.), *Internet-Mediated Intercultural Foreign Language Education* (pp. iix-xxv). Annual Volume of the American Association of University Supervisors and Coordinators. Boston, MA: Heinle & Heinle.
- Byram, M. (1997). *Teaching and Assessing Intercultural Communicative Competence*. Clevedon: Multilingual Matters.
- Carlorosi, S., Helm, F., Marini-Maio, N., & McMahon, K. (2008). Confronting New Technologies: a Cross-Cultural Telecollaborative Project across the Ocean. In E. Occhipinti (Ed.), *New Approaches to Teaching Italian Language and Culture: Case Studies from an International Perspective*, 173. Cambridge Scholars Publishing
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles: Sage.
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, 15(1), 7-23.
- Gast, D. L. (Ed.). (2010). *Single subject research methodology in behavioral sciences*. New York: Routledge.
- Gay, L. R. & Airasian, P. (2003). *Educational research: Competencies for analysis and applications*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Karain, J. (2008, March 3) Trompenaars Hampden-Turner Consulting's Fons Trompenaars. CFO Europe Magazine. Retrieved May 8, 2011 from http://www.cfo.com/article.cfm/10768057/c_10792674?f=magazine_featured.
- Lehtonen, T., & Karjalainen, S. (2008). University graduates' workplace language needs as perceived by employers. *System*, 36, 492-503. MLA Ad Hoc Committee on Foreign Languages. (2007). "Foreign Languages and Higher Education: New Structures for a Changed World."
- Lowenthal, P. R. (2010). The evolution and influence of social presence theory on online learning. In T. T. Kidd (Ed.), *Online Education and Adult Learning: New Frontiers for Teaching Practices* (pp. 124-134). Hershey, PA: IGI Global.
- Preece, J. (2000). *Online Communities: Designing Usability, Supporting Sociability*. Chichester, UK: John Wiley & Sons
- Salmon, G. (2000, 2011). *E-moderating: The key to teaching and learning online*. New York: Routledge.
- Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London: John Wiley & Sons.
- Swan, K., Richardson, J.C., Ice, P., Garrison, D.R., Cleveland-Innes, M. & Arbaugh, J.B. (2008). Validating a Measurement Tool of Presence in Online Communities of Inquiry. *E-mentor*, 2(24)