

PARENT-CHILD CO-CREATIVE LEARNING: COLLECTIVITY AND INDIVIDUALITY IN CREATIVITY

D. W. Junaidy¹, Y. Nagai²

¹Man and Interior Space Research Group, Institute of Technology Bandung, Indonesia

²School of Knowledge Science, Japan Advanced Institute of Science and Technology, Japan

Abstract: This study focused on parent-child interaction, specifically, formative play and communication in stimulating co-creative play. The findings indicate that indulging in role-taking behavior (i.e., taking over a task for their child) and intense interaction lead to collectivity that is less productive to originality. Thus, in the study, more openness and collectivity created distraction when the children analyzed the task at hand. Stronger collectivity or openness offered the children an apprentice-like experience that allowed them to acquire a formative skill (i.e., craftsmanship), whereas individuality stimulated their exploratory thinking (creativity).

Keywords: *co-creative learning, parent-child interaction, collectivity and individuality, formative skills.*

1. Introduction

Parent-child interaction provides resources for the child's individual development, while at the same time, it may also imply constraints for each other's need fulfillment (Trommsdorff, 2006). Current research on creative behavior suggests that collaboration that adopts collectivistic values can promote productivity and rich ideas, while individualistic values should be avoided because they incite opportunism that seems conventional (Goncalo & Staw, 2006). Collaborative or collective works are believed to lead to divergent thinking that involves the generation of many ideas. Divergent thinking is widely considered to be an important antecedent to creativity because creative solutions derived from divergent thinking are unique or original in nature (Amabile, 1983). In the context of co-creative learning, members within a group potentially bring more ideas that diverge more. However, very few studies have discussed the relation between collaborative/collective works and creative environment in the context of children's co-creative learning, especially in village areas, where parents and children seem to have a unique master-apprentice-like relation. We assume that widespread collectivity or collaborative works have nothing to do with creativity within the traditional environment (traditional craft village).

2. Related works

In Asian culture, individuals are not always required to be independent and autonomous; rather, interdependence is emphasized (Markus & Kitayama, 1991). This unique interdependent relationship

is an indigenous concept that is characterized by motivation to be guided by others (Bornstein, 1993). The behavioral pattern is typically found in mother-child relationships characterized by role-taking behavior: one person is the requester, and the other is the provider (Lebra, 1976). In Indonesian culture, a caregiver always considers three principles of child nurturance: *asih* (showing affection), *asah* (stimulating potentials), and *asuh* (fulfilling needs) (Geertz, 1961; Koentjaraningrat, 1987; Hakim et al., 2012; Thontowi & Kim, 2012). These principles are internalized to children's character and incorporate spoiled behavior—called *kolokan* in Indonesian. Similarly, in Japanese, *amae* refers to inappropriate behavior or requests made with an expectation of acceptance by the person to whom they are directed (Yamaguchi & Ariizumi, 2006). This behavior tends to be reciprocal, depicting interdependence rather than dependence in the roles of the requester and provider (Rothbaum et al., 2007). When it takes the form of role-taking, such behavior mimics the over-protective and over-indulgent interaction and attitudes of parents toward children that might provide resources or imply constraints on the child's development (Junaidy et al., 2013).

One of the major lines of educational research concerns the evaluation of strategies to foster children's creativity in educational contexts. Such research needs to consider ways in which social interaction with adults or peers facilitates creative skills and competencies in children (Vass, 2011). Most of the existing literature on collaborative learning has focused on the conceptualization and facilitation of productive peer work in math and sciences; thus, we know relatively little about the facilitative effects of peer collaboration in creative tasks (Mercer & Littleton, 2007). The main task of research on collaborative creativity is to challenge creative potential. Our study focuses on recognizably intimate behavior, that is, habits of demonstrable affection that contribute to parent-child co-creative play. We explore facets of creative connection building: ways in which partners in creative collaborative contexts influence each other and allow themselves to be mutually influenced in embodied experiences (Vass, 2004, 2011).

3. Research aim and method

We aim to identify the differences in intimate interaction and acts of devotion in co-creative learning, specifically, the influence of collaborative/collective and individual ways of play on the creativity of children in traditional craft villages. We conducted two experiments in each of three local craft villages in Indonesia and one village in Japan. The two experiments are as follows:

- Experiment A: Making a Japanese ceramic whistle (陶笛) to observe children's formative play skills (craftsmanship).
- Experiment B: Making a musical instrument that produces sound as a result of the player's body action to observe children's exploratory thinking and parent-child communication (creativity and communication)

We aim to gather data on the followings:

- (1) Parent-child communication structures
- (2) Children's formative play skills (creativity)

The data on the object and activity were evaluated by six experts in craft and design. The data on parent-child communication structure were transcribed and analyzed through text and network analyses. Out-Degree Centrality (ODC) scoring was used to describe the role of intimate expressions and acts of devotion in parent-child communication to stimulate co-creative play. The objects made by the children (Experiments A and C) and recorded activities were evaluated as the assessment of the children's formative play skills. The evaluation employed a three-point Likert-scale, and rating was performed by six experts in craft and design. Next, the parent-child communication structures were analyzed using network analysis derived from video transcription that covered the communication between five children and their parents (pair, inter-, and cross-communication) in each town. The number of utterances in communication was counted using Pajek 2.05 and based on 2D layers in the Y direction.

The Indonesian participants comprised 15 children from three different regions. The Japanese participants comprised 4 children from one region. The gender of the participants was random, and the age range was 7 to 12 years. Each child was paired with one of his/her parents (i.e., mother or father).

Thus, the total number of participants included 19 children and 19 parents. All the participants lived near the local craft village in their region, and most did not know each other.

4. Experiments

4.1. Experiments in Indonesia

Craftsmanship

- Experiment A. Making a Japanese ceramic whistle

Our observations in the activity evaluation showed that 87% of the Indonesian parents engaged in strong role-taking behavior by offering direct and close guidance throughout the experiment. These parents took over the task given to their children. During the parents' role-taking behavior, the children acted passively; however, afterward, they followed their parents' example to remake their own whistle independently. On average, the children demonstrated quicker progress when they remade the Japanese whistle. They received positive evaluations on their accomplishment and accuracy, with an average score of 6.16 points on Proportion and an average completion time of 00:21:10 (see Table 1, Figure 1a).

Creativity and Communication

- Experiment B. Making a body-action musical instrument

As mentioned, 87% of the Indonesian parents performed role-taking behavior. These parents guided their children as if they were co-workers completing a task in tandem. The parents gave strict orders to the children to pay attention to their instructions. Both the parents and children tended to make quick decisions without spending too much time discussing the assignment. They appeared curious about the given materials; however, they put aside the main question to focus on completing the assigned task. Their quick decisions could be easily recognized in their work, as they only applied familiar shapes to the aluminum pipe by bending and pulling straight or backward. They did not seem to discuss the objective of the task, which was to produce an instrument that would make sounds as a result of the player's body movement. This corresponded to lower scores in the evaluation of the use of materials, movement, and non-similarity, as compared to the scores of the Japanese children (see Table 2). The parents and children once again showed intense communication, including P-C/C-P communication and P(x)-C(y) communication or vice versa, as indicated by the higher ODC score (≥ 33 and ≤ 56). Figure 1b, Figure 2).

4.2. Experiments in Japan

Craftsmanship

- Experiment A. Making a Japanese ceramic whistle

The Japanese children tended to accomplish the task slower, with an average completion time of 00:26:40. No Japanese parents performed role-taking behavior; all the children made the whistle by themselves. Therefore, the children did not have an apprentice-like learning experience during the experiment. All the children completed the entire process independently. They received lower evaluation scores in the accomplishment and accuracy assessment (see Table 1, Figure 1a).

Creativity and Communication

- Experiment B. Making a body-action musical instrument

The children focused well on completing the assignment. Each child considered how to produce good pitch by exploring various body actions. They did not make quick decisions, and they explored the issue of body action. In addition, the children tested several different models they made. Besides focusing on tones, they paid attention to body movement. The object and activity of Experiment B were given high evaluations on the use of materials, movement, and non-similarity, as shown in Table 2. The parents and children engaged in intense communication, and most of the communication was P-C/C-P communication, and a small amount was P(x)-C(y) communication or vice versa, as indicated by the high ODC score (Figure 1b, Figure 2).



Figure 1a. Making a Japanese ceramic whistle



Figure 1b. Experiment B. Making a musical instrument that produces sound as a result of the player's body action

5. Analysis

We collected and implemented a method to count the number of utterances representing C-C, P-C/C-P, and P(x)-C(y) (or vice versa) communication. The utterances for P-C/C-P communication were transcribed and translated into English and plotted on network graphs using Pajek 2.05, based on 2D layers in the Y direction. The nodes on the left Y-axis represent the children, and the nodes on the right Y-axis, their parents. Each communication network represents the location where the research was conducted. The type of communication structure and its degree of gregariousness were easily identified. For example, Figure 2 (for Experiment B) shows that the Indonesian parent-child communication networks performed 100% strong cross-communication (OtherParent-OtherChildren), which included inter-group communication. In contrast, the Japanese parents engaged in little cross-communication that occurred only within the group, and only one such interaction was recorded between a child and a parent from a different group. Figure 2 shows that 80% of the Indonesian parents and children, respectively, engaged in cross-communication. Meanwhile, only 50% of the Japanese parents and children engaged in cross-communication, and these interactions took place only within the same group.

Object and Activity Evaluation in Experiments A and B

Video analysis of the activity evaluation again showed that the Indonesian parents engaged in strong role-taking behavior by offering direct and close guidance throughout Experiments A and B. The Indonesian parents took over the task given to their children. During their parents' role-taking behavior, the children tended to act passively, as young learners similar to apprentices receiving guidance. However, after the parents had shown the whole process, the children tried to mimic it by copying their example. By the end, the children had remade their own whistle independently. The parents guided their children as if they were co-workers completing a task in tandem.

The activity evaluation demonstrated that 87% of the Indonesian parent participants engaged in strong role-taking behavior, as if they were co-workers making the craft in tandem. The object evaluation demonstrated that the Indonesian children had, on average, positive evaluation on Proportion with 6.16 points, a quicker average completion time of 00:21:10, and a slight lower evaluation on Process with 7.13 points. The strengths of their performance in accomplishment and accuracy were Proportion and completion time (see Table 1, the red square box).

Video analysis in the activity evaluation of the Japanese parents and children showed that no Japanese parents performed role-taking behavior; all the children made the whistle by themselves. The

object evaluation demonstrated that the Japanese children had, on average, lower evaluation on Proportion with 5.42 points and a slower completion time of 00:26:40. A positive evaluation was given for the number of whistles made (although the craftsmanship was less precise), and a slightly higher evaluation was given for Process with 7.18 points (which is not significantly higher compared to the Indonesian children’s score). The strengths in the performance of the Indonesian children were their accomplishment and accuracy in Proportion and completion time (see Table 1, the red square). In contrast, the strength in the performance of the Japanese children was their idea exploration in Experiment C, mainly in the number of materials, movement, and non-similarity (see Table 2, the red dotted square).

Table 1. Experiment A. Making a Japanese ceramic whistle

| Location | Accomplishment and Accuracy | | | | |
|--------------|-----------------------------|----------------------|-------------------|----------------|----------------|
| | Amount | Completion (Average) | Proportion (1-10) | Process (1-10) | Function (0/1) |
| Giriloyo, ID | 2 | 0:22:19 | 5.56 | 7.33 | 0 |
| Kasongan, ID | 2.2 | 0:17:10 | 6.59 | 6.81 | 0 |
| Mas, ID | 1.6 | 0:26:20 | 6.33 | 7.26 | 0 |
| Nomi, JP | 2.8 | 0:26:40 | 5.42 | 7.18 | 0 |

Table 2: Experiment C. Making a body-action musical instrument

| Location | Idea Exploration | | | |
|--------------|---------------------|-----------------|------------------|-----------------------|
| | Material (n) (1-10) | Movement (1-10) | Sound (n) (1-10) | Non-Similarity (1-10) |
| Giriloyo, ID | 8.7 | 2 | 6.4 | 6 |
| Kasongan, ID | 10 | 4 | 10 | 4 |
| Mas, ID | 7.5 | 0 | 8.2 | 2 |
| Nomi, JP | 9.4 | 7.5 | 8 | 7.5 |

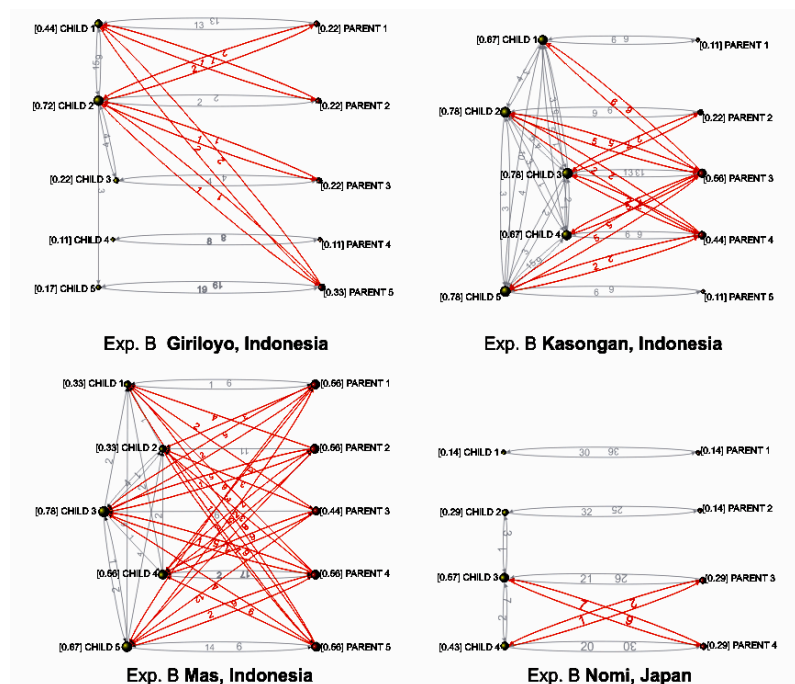


Figure 2. Parent-child communication networks in Experiment B (Red arc represents cross-communication of OtherParent-OtherChild (P(x)-C(y)) or vice versa)

Table 3. ODC scores representing gregarious behavior

| Participant | Giriloyo, Indonesia | | Kasongan, Indonesia | | Mas, Indonesia | | Nomi, Japan | |
|-------------|------------------------|--------|------------------------|--------|-------------------|--------|----------------|--------|
| | Exp. B | Exp. C | Exp. B | Exp. C | Exp. B | Exp. C | Exp. B | Exp. C |
| C1 | 0.56 | 0.44 | 1.00 | 0.67 | 0.33 | 0.33 | 0.43 | 0.14 |
| C2 | 1.00 | 0.78 | 0.67 | 0.78 | 0.44 | 0.33 | 0.43 | 0.28 |
| C3 | 0.22 | 0.22 | 0.89 | 0.78 | 0.67 | 0.78 | 0.71 | 0.57 |
| C4 | 0.11 | 0.11 | 1.00 | 0.67 | 0.56 | 0.56 | 0.43 | 0.43 |
| C5 | 0.11 | 0.11 | 1.00 | 0.78 | 0.56 | 0.67 | - | - |
| P1 | 0.22 | 0.33* | 0.56* | 0.11 | 0.56* | 0.56* | 0.28** | 0.14** |
| P2 | 0.33* | 0.22 | 0.56* | 0.22 | 0.44* | 0.56* | 0.28** | 0.14** |
| P3 | 0.33* | 0.22 | 0.56* | 0.56* | 0.56* | 0.44* | 0.28** | 0.28** |
| P4 | 0.33* | 0.11 | 0.56* | 0.44* | 0.56* | 0.56* | 0.28** | 0.28** |
| P5 | 0.22 | 0.33* | 0.33* | 0.11 | 0.44* | 0.56* | - | - |

6. Discussion

In the two experiments, both the Japanese and Indonesian participants' verbal communication consisted of intense communication during the creative play. Almost all the Indonesian parents performed strong role-taking behaviors in two experiments, whereas the Japanese parents engaged in much less role-taking behavior. Role-taking behavior, acts of devotion, and habits of demonstrable affection occurred mainly when the parents were acting as providers, even without their children performing the role of requesters. Role-taking behavior such as *amae* or *kolokan* showed that Indonesian children completely positioned themselves as passive requestors, and their parents became very active providers. This demonstrates that the parents were authoritarian in providing support in a top-down, apprentice-like situation that involved the child's own beliefs, attitudes, and values. This act constituted the basic component of the children's early experience of training on structuring competency of a basic set of skills, known as apprenticeship. The active role-taking behavior was supported by strong orders and commands that likely stimulated the children's formative skills. During the role-taking behavior, parents confirmed their role as proxies controlling the situation. At the same time, the children were recipients whose dependency was confirmed, as they received close guidance. Such episodes appeared to create value to establish co-creative play between parents and their children. By over-indulging in role-taking behavior (i.e., taking over the task), the parents felt content in acting out their role as loving parents. At the same time, their role-taking behavior satisfied the child's desire for dependency. This means that the parents (providers) and children (recipients) co-created value during the creative play activity. Stronger role-taking behavior by the parents led to an apprentice-like experience in which the children acquired a formative skill (craftsmanship), whereas weaker role-taking behavior by the parents stimulated the children's independence. We found that some of the utterances stimulating potentials contained commands and orders rather than discussion. Utterances showing affection were a form of spoiling behavior that was performed even from different proxies to different recipients.

The data collected from the three experiments can be explained as follows.

- (1) The intense communication performed by and between the children and parents shows the tendency of collaborative/collective work among the Indonesian participants but individual work among the Japanese participants. Further, the intense communication displays more numerous and dynamic social ties. However, the lively, dynamic interaction also created distraction and lack of focus and seemed to lead the participants to jump into immediate decisions, as the

children copied and replicated ideas. The copying and unfocused manner completely detached them from analytic thinking, as they seemed to skip directly to the synthesis stage without spending time on the analysis stage. The Japanese participants' more individual way of working seemed to provide more room to focus on analyzing the issue. Although they communicated with each other less, they still built confidence, and the activity became a positive competition to yield a unique object.

- (2) The craftsmanship skills of the Indonesian children were evaluated higher than those of the Japanese children. This is likely because of the parent-child learning method, which is quite similar to a novice-apprentice method. The centrality of embodied experience has been long believed to build craftsmanship and creativity. The evaluation of the ceramic whistle made by the Indonesian participants showed that they used proper skills in their work. The Japanese participants were more individual and engaged in less interaction, which meant they had less practice of technical skill.
- (3) In Experiment B, the evaluation of creativity showed that the Indonesian participants did not seem to discuss the objective of the task, which was to produce an instrument that would make sounds as a result of the player's body movement. The intensity of the collective work, sharing, and openness apparently distracted the participants from generating unique ideas. They tended to copy from each other, and therefore, they made similar objects and used less creative body movement. This was different from the Japanese participants, who had less interaction and were therefore more focused and engaged in the task. Their way of working individually created a flow and engagement in the task. Therefore, the Japanese children's non-similar, more creative solutions to the task (body movement) were assessed highly by the evaluators.

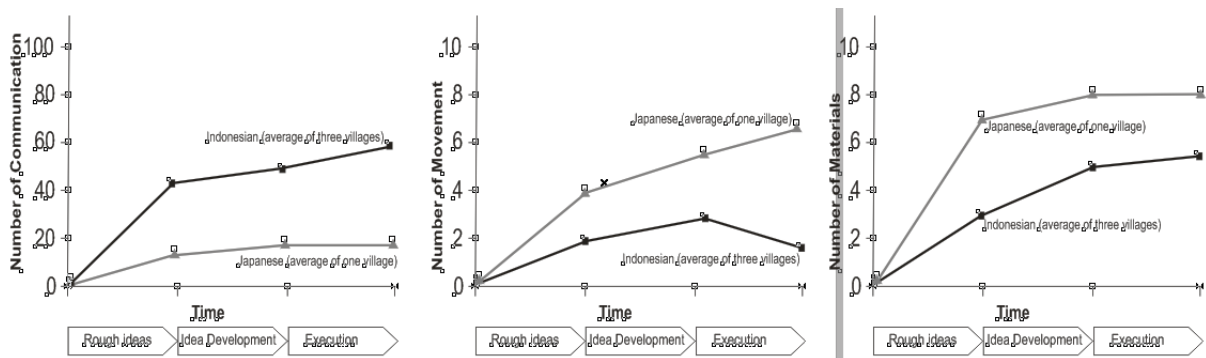


Figure 3. The correlation of collaborative/collective or individual plays with creativity through variable of number of communication, movement, and materials materials of the experiment B.

The graphs in Figure 3 show the evaluation of creative acts by considering the correlations of communication, number of movements, and number of materials used in Experiment B. The Japanese participants, who had less communication, had more opportunity to analyze the task, as evidenced by their higher evaluation scores on the number of movements and number of materials used; this means individualistic values can encourage uniqueness. Meanwhile, the Indonesian participants' greater amount of communication during the activity led them to be more collective and collaborative; however, it also led to a low number of movements and materials used.

7. Conclusion

The strong role-taking behavior of the Indonesian parents appeared to reinforce intimacy in an apprentice-like or co-creative play experience to help the children gain formative skills. We concluded that the stronger the spoiling behavior (i.e., strong role-taking behavior) is, the greater the parent's contentment is in acting as a loving parent and satisfying the child's expectation for dependency. Role-taking behavior facilitates children's development of formative skills (e.g., craftsmanship) by

providing an apprentice-like experience, while independence leads to more exploratory thinking (i.e., creativity). Active learning and close attachment within co-creative learning foster children's skills and creative thinking. Collectivistic values may promote feelings of harmony and cooperation; however, collectivism might have considerable poor consequences, such as copying and interdependence. Our results raise concerns that collectivistic/collaborative cultures are best suited for promoting technical skills or formative skills, while individualism may promote creativity. This is somewhat ironic, since many studies often cite the reason for adopting collectivistic practices as their ability to bring a greater creative experience.

References

- Amabile, T. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45(2), 357–376
- Bornstein, R. F. (1993) *The dependent personality*. Guilford Press.
- Geertz, H. (1961). *The Javanese family: A study of kinship and socialization* (Vol. 2). New York: Free Press of Glencoe.
- Goncalo, J. A., & Staw, B. M. (2006). *Individualism–collectivism and group creativity*. *Organizational behavior and human decision processes*, 100(1), 96-109.
- Hakim, M. A., Supriyadi., Yuniarti, K.W. (2012). The Contents of Indonesian Child–Parent Attachment: Indigenous and Cultural Analysis., ISSBD Buletin No. 2, 62 Supplement to *International Journal of Behavioral Development*, 36(6), 11-15.
- Koentjaraningrat. (1987). Anthropology in Indonesia. *Journal of Southeast Asian Studies*, 217-234.
- Lebra, T. S. (1976). *Japanese patterns of behavior*. Honolulu: University of Hawaii Press.
- Iizuka, H., Ando, H., Maeda, T., & Marocco, D. (2012). Co-creativity of communication system on behavioral interaction. In *RO-MAN, 2012 IEEE*, pp. 298-303.
- MacKinnon, N. (1994). *Symbolic interactionism as affect control*. Albany: State University of New York Press.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological review*, 98(2), 224.
- Rothbaum, F., Kakinuma, M., Nagaoka, R., & Azuma, H. (2007). Attachment and Amae Parent—Child Closeness in the United States and Japan. *Journal of Cross-Cultural Psychology*, 38(4), 465-486.
- Thontowi, H. B., & Kim, U. (2012). The basis of children's trust towards their parents in Java, ngemong: Indigenous psychological analysis. *International Journal of Research Studies in Psychology*, 1(2).
- Junaidy, D. W., Nagai, Y., Mori, S., Taniguchi, S., Yoshida, T. (2014, 2014). Parent-child communication in stimulating co-creative play: Indonesia and Japan. The 4th Forum on Knowledge Co-Creation (FoKCs-4).
- Mercer, N. and Littleton, K. (2007) *Dialogue and the Development of Children's Thinking: a socio cultural approach*, London: Routledge.
- Vass, E. (2004) Understanding collaborative creativity. An observational study of young children's classroom-based joint creative writing, in D. Miell, and K. Littleton (eds) *Collaborative Creativity*, London: Free Association Press.
- Vass, E. (2011). *Metamorphosis: Creativity, connectedness, embodiment and affect*. cultural Diplomacy, University of Bath, United Kingdom. Online: www.culturaldiplomacy.org/.../Creativity,_connectedness,_embodiment_and_affect.pdf
- Trommsdorff, G. (2006). Parent-child relations over the life-span. A cross-cultural perspective. Parenting beliefs, behaviors, and parent-child relations. *A cross-cultural perspective*, 143-183.
- Wooldridge, M. B., & Shapka, J. (2012). Playing with technology: Mother–toddler interaction scores lower during play with electronic toys. *Journal of Applied Developmental Psychology*.
- Yamaguchi, S., & Ariizumi, Y. (2006). Close interpersonal relationships among Japanese. In *Indigenous and Cultural Psychology*, pp. 163-174. Springer US.