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Original Paper

The Effects of Collaborative Block Creation on the Sense of Rolefulness

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Abstract

This study investigated the effects of collaborative LEGO® block creation on the sense of rolefulness; that is, the continuous sense of role satisfaction in an individual's daily life. For this purpose, 59 Japanese female university students were divided into groups of three or four members and asked to collaboratively express themselves by using LEGO® blocks, figures, and base plates. Then, their scores on the rolefulness scale were compared before and after the collaborative block activity. The results showed that both social and internal rolefulness significantly increased through the activity. The implication of the findings is that collaborative block creation can facilitate the role-taking of participants and improve their sense of rolefulness.

Keywords

LEGO® block creation, group creativity, rolefulness

1. Introduction

LEGO® building blocks are not only toys for children but are also a popular medium of expression in the fields of art, education, and psychology. Kato (2006) examined the effects of block creation on individual moods and found that negative feelings, such as anxiety, fatigue, and confusion, significantly decreased after the task. Collaborative block creation is also used as social skills training in the area of clinical psychology. For instance, LeGoff (2004) used blocks as a communication tool for a group of children with Autism Spectrum Disorder (ASD) and found that this method helped develop their social skills. Additionally, Levy and Dunsmuir (2020) found that school-based LEGO® therapy groups for adolescents with ASD had a significant positive impact on the duration of social engagements as well as the frequency of social initiations, responses, and positive social behaviors.

From the aspect of verbal communication, Cojocnean (2019) used LEGO® blocks as a learning tool in a foreign language classroom with young students and found that this method not only helped strengthen their speaking, listening, role-playing, and storytelling skills, but it also increased their confidence and imagination. A related study examined the use of peer-mediated LEGO® intervention on the social skills of children with ASD and found that it increased their social initiations and responses (Hu, Zheng, & Lee, 2018). Moreover, MacCormack, Matheson, and Hutchinson (2015) used LEGO® blocks to conduct a social skills program for youths with ASD and found this method increased their socialization, while Kato, Hattori, Iwai, and Morita (2012) designed collaborative block activities for groups of four or five high school students and found that such activities promoted their social skills and trust for others. Subsequently, Kato, Asai, and Yoshie (2013) re-examined the effects of collaborative block activities on interpersonal relationships and found that the sense of rolefulness significantly increased. Based on the aforementioned research, the purpose of the present study is to investigate the effects of collaborative LEGO® block creation on the sense of rolefulness.

As for the term “rolefulness”, it has been defined as the continuous sense of role satisfaction in an individual’s daily life (Kato & Suzuki, 2018). This concept encompasses two aspects: social rolefulness and internal rolefulness. Social rolefulness is the sense of role satisfaction based on social experiences and relationships with others. In the present study, it includes the items “My role is necessary for other people” and “I have a role in the group that I belong to”. Conversely, internal rolefulness is a more internalized feeling of role satisfaction based on individuality and confidence. In this study, it includes the items “I realize my individuality by my role” and “I gain confidence because of my role”. Overall, it is hypothesized that the sense of rolefulness increases through collaborative block creation.

2. Method

2.1 Participants

The participants comprised 59 Japanese female university students (Mean age = 20.7) who were randomly divided into groups of three or four members.

2.1 Materials and Procedure

Green LEGO® base plates (50 centimeters square) and several types of LEGO® blocks and figures were provided, after which the participants were asked to collaboratively express themselves. They were also asked to rate their sense of rolefulness (including social and internal rolefulness) on a seven-item rolefulness scale before and after the activity. The activity, which was held in a psychology class at the selected university, lasted for approximately 60 minutes.

3. Result

Based on the findings, the mean score of social rolefulness was 3.11 (SD = 0.80) before the activity and 3.76 (SD = 0.69) after the activity, while the mean score of internal rolefulness was 3.59 (SD = 0.87)

before the activity and 3.97 (SD = 0.85) after the activity. Moreover, the results of the paired t-test revealed that both social (t (58) = 7.33, $p < .01$, $d = 0.87$) and internal (t (58) = 3.39, $p < .01$, $d = 0.44$) rolefulness significantly increased through the activity. Table 1 presents the rolefulness scores before and after the collaborative block activity.

Table 1. The Rolefulness Scores before and after the Collaborative Block Activity

	before		after			
	Mean	SD	Mean	SD	*t*	*d*
social rolefulness	3.11	0.80	3.76	0.69	7.33**	0.87
internal rolefulness	3.59	0.87	3.97	0.85	3.39**	0.44
						**$p < .01$

4. Discussion

Both social and internal rolefulness significantly increased in the present study, which is in line with the findings of previous research (Kato et al., 2013). In a related study, LeGoff (2004) applied a systematic approach to use blocks for children with ASD and found that it improved their social skills. More specifically, the participants were assigned specific roles, such as “builder”, “supplier”, and “engineer”, after which they collaborated on a block-creation task. In contrast, specific roles in the present study were divided naturally among the group members. In this regard, previous studies have suggested that the closeness of group members, perspective-taking, and individual differences are important factors in group creativity (Oztop, Katsikopoulos, & Gummerum, 2018; Coursey, Williams, & Kenworthy, 2018). Based on these findings, role-taking and perspective-taking are deeply related with creativity in group settings. Moreover, verbal and non-verbal communications are facilitated through collaborative creation, since the group members become more aware of the thinking of their peers. These processes may also foster role-taking and perspective-taking and ultimately affect the sense of rolefulness.

Another important finding was that the effect size in social rolefulness was greater than that in internal rolefulness. Previous research has shown that social rolefulness is correlated with social skills, especially communication skills, whereas internal rolefulness is related with self-esteem and identity (Kato & Suzuki, 2018). Thus, social rolefulness is considered to change (at least in the short term) more than internal rolefulness. In a similar study, Lindsay, Hounsell, and Cassiani (2017) conducted a review of the LEGO® therapy effect on social skills and found that friendship-building, social interactions, and social competence improved through collaborative block activities.

In sum, based on the findings of previous research and those of the present study, collaborative block activities can improve an individual’s social competence, confidence, and sense of rolefulness. Furthermore, such activities can increase both social and internal rolefulness. However, future longitudinal studies of long-term group activities are required to generalize the results.

References

Cojocnean, D. (2019). Developing young learners' oral skills through storytelling with LEGO®. *Revista de Pedagogie*, *67*(1), 105-121. https://doi.org/10.1007/s10803-018-3502-4

Hu, X., Zheng, Q., & Lee, G. T. (2018). Using peer-mediated LEGO® play intervention to improve social interactions for Chinese children with autism in an inclusive setting. *Journal of Autism and Developmental Disorders*, *48*(7), 2444-2457. https://doi.org/10.1007/s10803-018-3502-4

Coursey, L. E., Paulus, P. B., Williams, B. C., & Kenworthy, J. B. (2018). The role of individual differences in group and team creativity. In R. Reiter-Palmon, V. L. Kennel, & J. C. Kaufman (Eds.), *Individual creativity in the workplace* (pp. 311-338). Elsevier Academic Press. https://doi.org/10.1016/B978-0-12-813238-8.00014-0

Kato, D., Hattori, K., Iwai, S., & Morita, M. (2012). Effects of collaborative expression using LEGO® blocks, on social skills and trust. *Social Behavior and Personality: an International Journal*, *40*, 1195-1199. https://doi.org/10.2224/sbp.2012.40.7.1195

Kato, D., & Suzuki, M. (2018). Rolefulness: Social and internal sense of role satisfaction. *Education*, *138*(3), 257-263.

LeGoff, D. B. (2004). Use of LEGO® as a therapeutic medium for improving social competence. *Journal of Autism and Developmental Disorders*, *34*, 557-571. https://doi.org/10.1007/s10803-004-2550-0

Levy, J., & Dunsmuir, S. (2020). Lego Therapy: Building social skills for adolescents with an autism spectrum disorder. *Educational and Child Psychology*, *37*(1), 58-83.

Lindsay, S., Hounsell, K. G., & Cassiani, C. (2017). A scoping review of the role of LEGO® therapy for improving inclusion and social skills among children and youth with autism. *Disability and Health Journal*, *10*(2), 173-182. https://doi.org/10.1016/j.dhjo.2016.10.010

MacCormack, J. W. H., Matheson, I. A., & Hutchinson, N. L. (2015). An exploration of a community-based LEGO® social-skills program for youth with autism spectrum disorder. *Exceptionality Education International*, *25*(3), 13-32.

Oztop, P., Katsikopoulos, K., & Gummerum, M. (2018). Creativity through connectedness: The role of closeness and perspective taking in group creativity. *Creativity Research Journal*, *30*(3), 266-275. https://doi.org/10.1080/10400419.2018.1488347