We are IntechOpen,
the world's leading publisher of
Open Access books
Built by scientists, for scientists

6,900
Open access books available

185,000
International authors and editors

200M
Downloads

154
Countries delivered to

Our authors are among the

TOP 1%
most cited scientists

12.2%
Contributors from top 500 universities

CLARIVATE ANALYTICS
BOOK CITATION INDEX
INDEXED

WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com

Rolefulness and Interpersonal Relationships

Daiki Kato and Mikie Suzuki

Abstract

We developed the new psychological concept of Rolefulness and it is a defined as "the continuous sense of role satisfaction we have in our daily lives." Rolefulness includes 2 sub factors of "social rolefulness" and "internal rolefulness." Social rolefulness is role satisfaction based on social experiences such as interpersonal relationships. Internal rolefulness is a role satisfaction that is formed by internalizing social rolefulness and it includes identity and confidence. First, we introduce the theoretical background and developmental process of rolefulness. Second, the statistical study of relationship between rolefulness and maladjustment is shown. Then, the example of application in the area of education and art therapy is introduced. Finally, the future application of rolefulness for our social lives and social science studies is discussed.

Keywords: rolefulness, maladjustment, interpersonal relationships

1. Introduction

Rolefulness is a psychological concept defined as "the continuous sense of role satisfaction we have in our daily lives" (p. 258) [1]. Our roles in our respective social lives have become an important subject of psychological research. Studies have focused on specific social roles such as parenting, employment positions, and professions such as teaching and nursing. However, rolefulness does not depend on specific roles such as being parents and professionals; rather, it represents a general sense of role satisfaction and includes two subfactors: "social rolefulness" and "internal rolefulness." Social rolefulness refers to one's role satisfaction based on their social experiences such as interpersonal relationships. Meanwhile, internal rolefulness is the role satisfaction that a person forms by internalizing social rolefulness, and it includes identity and confidence. Rolefulness is a new psychological concept, and it is useful for promoting our interpersonal relationships and mental health.

First, we introduce the aspects of rolefulness; the next section discusses the theoretical background and developmental process. Second, we present a statistical study of the relation between rolefulness and maladjustment. We use Japanese adolescents' data to investigate causal relations among rolefulness, social competence, and maladjustment. Then, we provide an example of how rolefulness is applied in education and art therapy. We conducted a group art expression workshop and examined its effect through the lens of rolefulness. Finally, we discuss the future application of rolefulness in our social lives and social science research.

2. The concept of rolefulness and its validity

2.1 Introduction

Rolefulness is a new psychological concept which includes both social and internal aspects. Therefore, it is necessary to develop the scale with validity to measure it. We developed the rolefulness scale and confirmed its validity [1] and this section shows the process of developing a rolefulness scale. Our sense of role affects our psychological state. Reid and Hardy [2] showed the relation between role quality and well-being, and Matud, Hernández, and Marrero [3] found that the most relevant indicator of well-being is one's satisfaction with their work roles. At the same time, role confusion and the lack of role satisfaction can be heavy stressors; Akgunduz [4] showed that role ambiguity and role conflict are negatively associated with job performance.

These research findings demonstrate the importance of one's sense of role satisfaction in their mental health and interpersonal relationships. Some studies have focused on an individual's role satisfaction in specific situations such as the nursing profession [5] or generational contexts [6]. While these findings are clearly important, it would also help to focus on a person's general role satisfaction, which does not depend on particular situations. People assume several roles in their daily lives, such as doing housework, taking care of children, participating in volunteer activities, and sharing interests or hobbies with others, which may increase their general role satisfaction. For children, going to school and playing, collaborating, and discussing with classmates are good opportunities to enhance their role satisfaction. Based on these viewpoints, we developed the concept of "rolefulness," which refers to an individual's continuous sense of role satisfaction in their daily lives. The main purpose of this study is to develop a scale to measure rolefulness and confirm its validity.

We hypothesized two rolefulness subfactors: "social rolefulness" and "internal rolefulness." Social rolefulness is the role satisfaction that an individual develops through their interpersonal relationships and social activities in their daily lives. Meanwhile, internal rolefulness refers to one's personality, identity, and confidence, and it is formed by internalizing one's social rolefulness.

Our behavior and cognition are affected by both the environment and our beliefs, and the effect of the outer and inner worlds has become another important research topic in psychology. For example, Riesman [7] introduced the concept of "inner-directed" and "other-directed" personalities. Inner-directed personality is guided by one's own conscience and values rather than their external environment while other-directed personality tends to be guided by one's values derived from external influences. The theory of locus of control [8] also provides us useful information; it includes "external" and "internal" groups. The former believes that their behavior and decisions are controlled by environmental factors while the latter believes that they can exercise such control themselves. This shows that rolefulness is also influenced by one's external environment and inner beliefs. These ideas are applied in both social rolefulness and internal rolefulness.

Another core psychological concept regarding rolefulness is the "Ibasho" theory. Ibasho is a Japanese word that means "whereabouts and a place of my own" [9, 10]. In adolescent psychology, an individual's sense of acceptance by others is a key concept for both communication and their ability to foster appropriate relationships [9, 10]. In psychology, besides the original literal meaning of the term, one's "sense of Ibasho" is used to mean their sense of being accepted by others. The sense of Ibasho scale, developed by Norisada [11], includes "the sense of authenticity,"

"the sense of perceived acceptance," "the sense of relief," and "the sense of role" as subfactors. As this evidence shows, one's sense of role is an important component of interpersonal relationships. To develop the rolefulness scale, we examine its items with reference to these studies.

2.2 Method

The participants were 1029 Japanese high school students (484 men and 545 women, 15-18 year olds). After removing erroneous information, a total of 960 data points were analyzed.

The "social rolefulness" and "internal rolefulness" subfactors were hypothesized, and based on previous studies, five items were listed for each [9, 11]. The first version of the scale includes 10 total items and is rated on a five-point scale from 1 (disagree) to 5 (agree). Social rolefulness includes 5 items of "I am useful in society.," "I can apply my strong point for society.," "My role is necessary for other people.," "I have a role in the group I belong to.," and "I carry out a social role." Internal rolefulness also includes 5 items of "I realize my individuality by my role.," "I am satisfied with my role.," "I gain confidence because of my role.," "My role brings out my individuality.," and "I have a role that is only mine."

First, we investigated the rolefulness scale's factor structure using exploratory factor analysis (EFA). Then, we examined the validity of the structure using confirmatory factor analysis (CFA) and evaluated the scale's reliability using Cronbach's alpha.

2.3 Results and discussion

The EFA results showed that the two-factor structure is adequate. Factor loading was between 0.699 and 0.851 for social rolefulness and between 0.432 and 0.885 for internal rolefulness. After removing the items with the lowest and highest loading in each factor, we analyzed seven items in the CFA.

CFA then confirmed the scale's factor structure. In this model, social rolefulness includes four items, and internal rolefulness includes three (**Figure 1**). Fit indexes
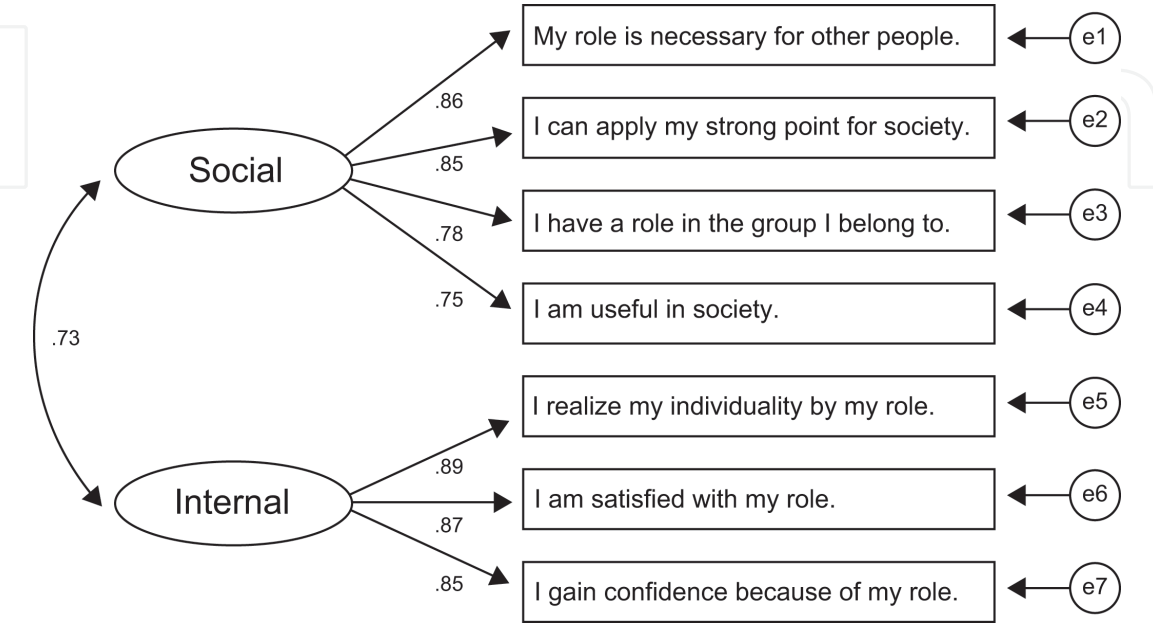

Figure 1.
Factor structure of the rolefulness scale.

of the model were acceptable (CFI = 0.994, RMSEA = 0.045), and all paths for each item were significant (p < 0.01). The Cronbach's alpha values were 0.88 for social rolefulness and 0.90 for internal rolefulness.

Besides confirming the subscales' factor structure, the results also showed that social and internal rolefulness correlate positively with each other.

Social rolefulness includes items such as "My role is necessary for other people" or "I am useful in society" while internal rolefulness includes "I realize my individuality by my role" or "I gain confidence because of my role." These items show that social rolefulness pertains to our interpersonal relationships and our connection with the society we belong to. However, while social rolefulness is based on the social context, internal rolefulness consists of more authentic and personal aspects such as self-identity and confidence.

3. Rolefulness and relevant psychological factors

3.1 Introduction

Although the previous section confirmed the factor validity of the rolefulness scale, it will need to be verified from several viewpoints for future application. The main purpose of this study is to confirm the scale's criterion-related validity, in which the scale's validity is compared with those of other relevant scales, and investigate correlations among rolefulness and relevant psychological factors.

Social rolefulness is theoretically correlated with our social experiences; hence, interpersonal communication is especially important. We need to develop social and communication skills to establish and maintain good relationships with others. Therefore, we hypothesize that people with satisfactory social and communication skills can achieve adequate social rolefulness. In contrast, we form internal rolefulness based on social rolefulness, and it includes confidence and identity. Self-esteem is defined as one's belief and confidence in their own ability and value and is developed as a result of positive relationships with others. For instance, the experience of being accepted or valued by others facilitates self-esteem. According to Erikson's [12, 13] development theory, the establishment of one's identity is the main theme in adolescence. In this period, interpersonal relationships become more complex than those in earlier developmental stages and cause role confusion. In addition, the internal rolefulness scale we developed includes the item "I realize my individuality by my role." Therefore, the developmental process of identity and rolefulness affect each other, and significant correlations are expected among rolefulness, self-esteem, and identity. From the above, we investigate the correlation among rolefulness, social and communication skills, self-esteem, and identity to confirm the validity of the rolefulness scale.

3.2 Method

The data correction for the 1029 Japanese high school students (484 men and 545 women) was the same as that of the previous section; hence, 960 complete data points were analyzed. We compared communication skills, social skills, self-esteem, and identity. We used the lack of both the communication factor (α = .85) and problem-solving skill factor (α = .85) as the criteria for communication skills and social skills, respectively. Social skills include several aspects and problem-solving skill is one of the core factors of it. Therefore we adopted the problem-solving skill factor as an index of social skills. Both factors were included in the school maladaptive process scale [14]. For self-esteem, four items (α = .87) were selected from

	Lack of communication	Lack of problem-solving	Self-esteem	Identity
Social	−0.318**	−0.437**	0.413**	0.399**
Internal	−0.243**	−0.345**	0.398**	0.383**

**p < .01.

Table 1.
Correlation among the rolefulness scale and other scales.

KINDLE [15, 16]. We then used the psychosocial identity factor (α = .83) of the Multidimensional Ego Identity Scale [17] as the identity criterion.

3.3 Results and discussion

We found adequate positive correlations with self-esteem (social: r = 0.413, internal: r = 0.398) and psychosocial identity (social: r = 0.399, internal: r = 0.383). The lack of communication skills (social: r = 0.318, internal: r = 0.243) and problem-solving skills (social: r = 0.437, internal: r = 0.345) was more negatively correlated with social rolefulness than with internal rolefulness. **Table 1** shows the correlations among the rolefulness scale and other scales.

Both social and communication skills are significantly correlated with rolefulness. Also, the connection between these skills and social rolefulness is stronger than that between them and internal rolefulness. People develop social rolefulness through their interpersonal communication and social and communication skills; therefore, those who have these skills are also satisfied with their social rolefulness. Social and communication skills affect our behaviors and social attitudes. In contrast, self-esteem and identity are deeply connected with the deeper part of our mind, such as personality and motivation, and these psychological aspects take a long time to form. Internal rolefulness is also an inner aspect and needs a certain amount of time to develop. These points are common among self-esteem, identity, and internal rolefulness as the significant correlations show. This study's results show interrelationships but not necessarily prove causal relations among these factors. Therefore, future studies may benefit from examining such causal relations.

4. Rolefulness and maladjustment

4.1 Introduction

This section investigates the relation between rolefulness and school maladjustment with reference to Suzuki and Kato [18]. While many studies have been conducted on school maladjustment, they have found it difficult to arrive at a consensus on the concept of adjustment [19].

Harada and Takemoto [20] proposed two aspects of adjustment. One considers adjustment as a static state of harmony between internal motivation and the environment; the other sees internal motivation and the environment as engaged in a dynamic process. Majority of the previous studies are based on the former [21] while a few are based on the latter.

Suzuki and Morita [14] studied the dynamic process of school maladjustment and revealed that the lack of social competence reduced one's sense of being accepted by others and promoted school maladjustment. McAdams [22] argued that

characteristic adaptation is described in the context of time, place, and social role, and it includes motivation, interest, defense mechanism, and coping strategy. These studies may have demonstrated the relation between maladjustment and social roles, but statistical evidence of such an association is yet to be presented.

Rolefulness is significantly associated with social skills [1], and the lack of social skills is positively correlated with maladjustment [14]. Based on these findings, we hypothesize that a significant relation exists between rolefulness and maladjustment; therefore, this study intends to examine the causal relation between the two using longitudinal models.

4.2 Method

The survey participants were 293 Japanese high school students (130 males and 163 females). The survey was administered for a total of three times per participant. The first survey was held in October 2015 (T1), the second was in October 2016 (T2), and the third was in October 2017 (T3). Of the total participants, 282 (127 males and 155 females) took part in all three surveys, and their data were analyzed. We used the school maladaptive process scale for high school students [14] as a set of maladjustment criteria. It has three subscales: "maladjustment," "lack of sense of acceptance," and "lack of social competence." Rolefulness was measured using the rolefulness scale [1], includes two subscales: "social rolefulness" and "internal rolefulness." In addition, the model showed that lack of acceptance and maladjustment may negatively affect rolefulness. Therefore, the causal relation between rolefulness and maladjustment is not one way; rather, the two are interrelated.

4.3 Results and discussion

We used the cross-lagged effects model to analyze the causal relations among the T1, T2, and T3 data. **Figure 2** showed the causal relations between rolefulness and maladjustment, and the total fit indexes were acceptable (CFI = 0.98,
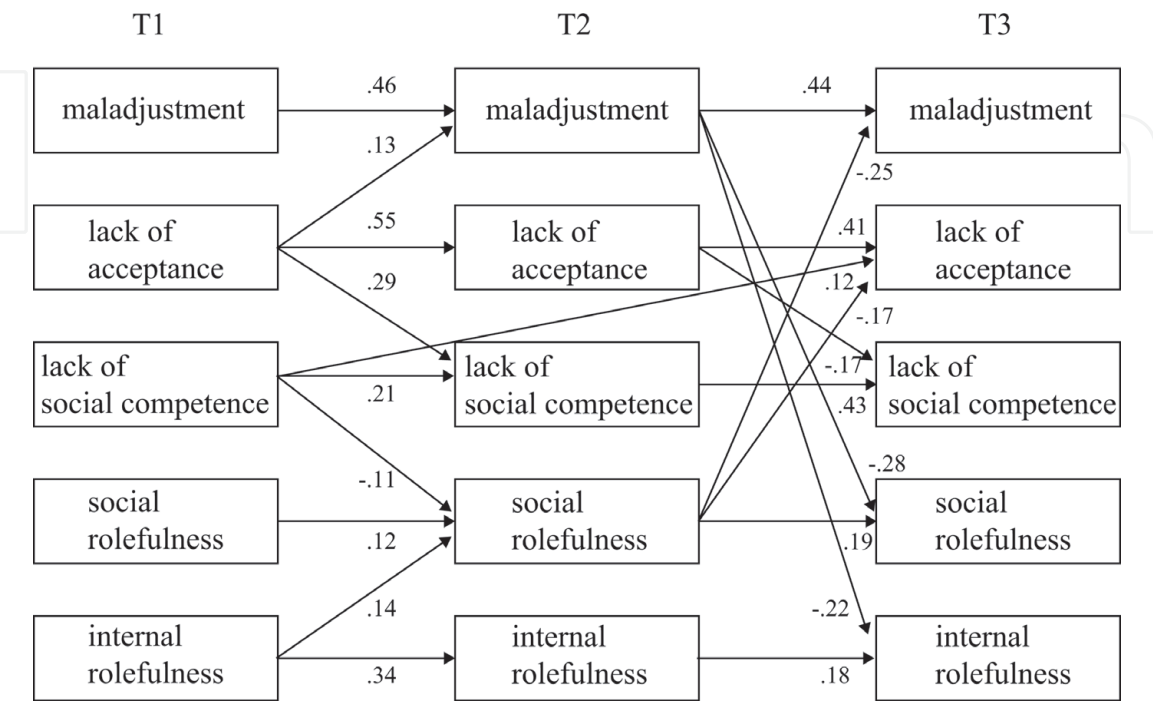
Figure 2.
Causal relations between rolefulness and maladjustment.

RMSEA = 0.05). The covariances among exogenous variables and error variables were omitted from the figure.

The path model shows that lack of social competence in T1 affected social rolefulness in T2 and then influenced maladjustment and lack of acceptance in T3. It also indicates that lack of acceptance in T1 affected maladjustment in T2 and then influenced social and internal rolefulness in T3. Suzuki and Morita [14] stated that a lack of social competence reduces one's sense of acceptance and then affects maladjustment. This study's results revealed that social rolefulness also mediated these maladjustment formation processes, which supports McAdams's [22] assertion that characteristic adaptation should be described in the context of social roles. McAdams [22] also pointed out the importance of other factors such as motivation, defense mechanism, and coping strategy and the need to investigate the relation between rolefulness and maladjustment from these viewpoints.

5. Collaborative group session and rolefulness

5.1 Introduction

Rolefulness is also important in psychological support, such as psychotherapy and counseling. An individual who feels accepted by their counselor and who realizes their role in their daily life experiences positive effects in their mental health. In group art therapy, some expressive activities are conducted to facilitate interpersonal communication and role development. Here, we introduce the group session and examine its effect from the viewpoint of rolefulness based on Kato and Suzuki's study [23].

Group art therapy requires several materials that will be used as mediums of communication. An example here is Lego blocks, which are useful in individual art therapy and collaborative creation. Negative moods such as anxiety, fatigue, and confusion have been found to significantly decrease through block creation [24]. LeGoff [25] showed that collaborative block making increased the social skills of children with autism spectrum disorder (ASD).

Collaborative Lego play also has positive effects on children and adolescents with ASD and promotes their socialization [26], especially social engagement, frequency of social initiations, responses, and positive social behaviors [27, 28]. Using Lego blocks helps learners strengthen their role-playing and storytelling skills as well as build their confidence and imagination [28].

Kato, Hattori, Iwai, and Morita [29] designed a collaborative block creation task and examined its effect. They divided their participants into small groups of four or five, and the participants were asked to collaboratively express anything they desired using a variety of blocks and figures on a 50 cm green square base plate. The results showed that such a collaborative experience promoted their social skills and trust in others. Meanwhile, Kato, Asai, and Yoshie [30] reexamined the effects of collaborative work especially on interpersonal relationships and showed that one's sense of role significantly increased through the work. However, their study did not examine role satisfaction aspects in detail. Therefore, the main purpose of this study is to thoroughly investigate how collaborative block work affects rolefulness.

5.2 Method

Fifty-nine female Japanese university students (Mage = 20.7) participated in the survey, and they were randomly divided into small groups of three or four.

	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.*

Table 2.
Rolefulness scores before and after the collaborative block task.

The participants collaborated with their group members to express anything they wanted using Lego blocks and figures on the green plastic square plates (50 cm). They finished their creations in 60 minutes. They were also asked to answer the rolefulness scale before and after the collaborative work.

5.3 Results and discussion

The mean social rolefulness score was 3.11 (SD = 0.80) before the activity and 3.76 (SD = 0.69) after the activity. The mean internal rolefulness score was 3.59 (SD = 0.87) before the task and 3.97 (SD = 0.85) after the task. Both social (t(58) = 7.33, p < .01, d = 0.87) and internal rolefulness (t(58) = 3.39, p < .01, d = 0.44) increased significantly throughout the collaborative work. **Table 2** shows the rolefulness scores before and after the activity.

Kato et al. [30] showed that a small-group collaborative block creation task facilitated individuals' sense of role, and this study's results provided further evidence of this. LeGoff [25] introduced a systematic approach to using blocks for ASD children. The participants were assigned specific roles of "builder," "supplier," and "engineer" beforehand and then participated in a collaborative block creation task. In the present study, however, specific roles were not designated and instead were divided naturally throughout the creation task. Oztop, Katsikopoulos, and Gummerum [31] suggested that the closeness of group members and their perspective taking are important in group creativity. Cojocnean [28] also showed the importance of individual differences in fostering the creativity of a group. Role taking and perspective taking are also significant facilitators of creativity in group settings. This study's collaborative work facilitated verbal and nonverbal communication among group members and helped them notice one another's way of thinking and feeling. This is why such an activity promotes perspective taking, role taking, and rolefulness.

The effect size of the analysis showed a remarkable increase in social rolefulness. Social rolefulness is considered to undergo short-term changes more than internal rolefulness because it is associated with communication skills [1]. Participating in collaborative block work with others improved friendship building, social interactions, and social competence [32]. As these findings show, the main goal of social rolefulness improvement through collaborative work is to enrich social skills, social competence, and confidence.

6. Conclusion and future application

This chapter proposed the new psychological concept of rolefulness and confirmed its validity. The results of the studies here showed that social rolefulness is developed from realistic social experiences, which then form internal rolefulness. Rolefulness is deeply associated with mental health and decreases social

maladjustment. We also adopted the collaborative brock creation activity and examined its effect. The result of the study showed that working together with others increased rolefulness. This section reviews the findings above and discusses how they can be applied in social relationships and future studies.

The results showed that social rolefulness buffered the association between lack of social competence and sense of acceptance. One's emotional connection with others and their sense of acceptance are important to improve their mental health. The recent rapid changes in nature and society have had an immense psychological impact on us. Disasters such as floods and earthquakes change our lives in a moment, and the social impact of COVID-19 is serious and long-lasting. Our social roles are also affected in these situations. All people may equally become victims of emergencies. Human service professionals such as medical workers help people with difficulties in peacetime, but they are not exempted from becoming victims of crises. In such situations, people may lose their social roles and experience role confusion, and the risk of the latter exists not only for medial professions but also for every worker. For example, office workers cannot visit their offices and communicate with colleagues as usual. Schools are also closed, and face-to-face education involving teachers and students is limited.

We are now facing serious difficulties in fulfilling our social roles. In rolefulness theory, having social roles is clearly an important factor in developing rolefulness. However, another important insight is that rolefulness is defined as our continuous sense of role satisfaction in our daily lives; it is a general role satisfaction that does not depend on any particular profession or job position. We argue that all people can increase their rolefulness throughout their daily lives. Establishing good relationships with family and community is a core factor of psychological empowerment [33]. These fundamental relationships are also essential causal factors for increasing rolefulness. We live in our own communities and have relationships with family members, relatives, and friends, which provide many chances to increase rolefulness in our daily lives. This does not refer to special activities; rather, ordinary ones such as greetings, conversations, and expressing gratitude to familiar people are important in developing rolefulness. However the findings of the present chapter comes from limited generations and specific activity such as collaborative block creation, investigating the effect of fundamental relationships with others on rolefulness is necessary in future studies.

Author details

Daiki Kato[1*] and Mikie Suzuki[2]

1 Kinjo Gakuin University, Nagoya, Japan

2 University of Human Environments, Okazaki, Japan

*Address all correspondence to: daiki-k@kinjo-u.ac.jp

IntechOpen

References

[1] Kato D, Rolefulness SM. Social and internal sense of role satisfaction. Education. 2018;**138**(3):257-263

[2] Reid J, Hardy M. Multiple roles and well-being among midlife women: Testing role strain and role enhancement theories. The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences. 1999;**54**(6):S329-S338. DOI: 10.1093/geronb/54B.6.S329

[3] Matud MP, Hernández JA, Marrero RJ. Work role and health in a sample of Spanish women. Feminism & Psychology. 2002;**12**(3):363-378. DOI: 10.1177/0959353502012003008

[4] Akgunduz Y. The influence of self-esteem and role stress on job performance in hotel businesses. International Journal of Contemporary Hospitality Management. 2015;**27**(6):1082-1099. DOI: 10.1108/IJCHM-09-2013-0421

[5] Brennan KM. Meaning, discrepancy, and satisfaction in the nurse role. Sociological Spectrum. 2009;**29**(5):551-571. DOI: 10.1080/02732170903051359

[6] Moen P, Erickson MA, Dempster-McClain D. Social role identities among older adults in a continuing care retirement community. Research on Aging. 2000;**22**(5):559-579. DOI: 10.1177/0164027500225005

[7] Riesman D. The Lonely Crowd: A Study of the Changing American Character. New Haven: Yale University Press; 1961

[8] Rotter JB. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied. 1966;**80**:1-28. DOI: 10.1037/h0092976

[9] Asai M. Sense of Ibasho in Japanese female university students. Annual report of Graduate School of Human Ecology Kinjo Gakuin University. 2013;**13**:29-32

[10] Ishimoto Y. The influence of a sense of Ibasho on psychological and school adjustment in adolescence and emerging adulthood. The Japanese Journal of Developmental Psychology. 2010;**21**(3):278-286

[11] Norisada Y. Developmental changes of "Ibasyo" (one's psychological place) to significant others during adolescence. The Japanese journal of counseling. Science. 2008;**41**(1):64-72

[12] Erikson EH. Identity and the life cycle. New York: International Universities Press. 1959

[13] Erikson EH. Identity, Youth and Crisis. New York: Norton; 1968

[14] Suzuki M, Morita T. Development of a school maladaptive process scale for high school students. Journal of Japanese Clinical Psychology. 2015;**32**(6):711-715

[15] Ravens-Sieberer U, Bullinger M. Assessing health related quality of life in chronically ill children with the German KINDL: First psychometric and content-analytical results. Quality of Life Research. 1998;**4**(7):399-407

[16] Ravens-Sieberer U, Bullinger M. News from the KINDL-questionnaire - a new version for adolescents. Quality of Life Research. 1998;**7**:653

[17] Tani F. Structure of the sense of identity in adolescents : Development of the multidimensional Ego identity scale(MEIS). The Japanese journal of educational psychology. 2001;**49**(3):265-273

[18] Suzuki M, Kato D. School maladjustment and Rolefulness during high school: A longitudinal cross-lagged panel analysis. The Japanese Journal of Personality. 2019;**28**(2):171-174

[19] Ladd GW. Shifting ecologies during the 5 to 7 year period: Predicting children's adjustment during the transition to grade school. In: Sameroff AJ, Haith MM, editors. The Five to Seven Year Shift: The Age of Reason and Responsibility. Chicago, IL: University of Chicago Press; 1996. pp. 363-386

[20] Harada K, Takemoto S. The development of school adjustment scale. Bulletin of the School of Teacher Education, College of Human and Social Sciences, Kanazawa University. 2013;**5**:73-83

[21] Okubo T. Factors contributing to subjective adjustment to school in adolescents. The Japanese Journal of Educational Psychology. 2005;**53**(3):307-319

[22] McAdams DP. The problem of meaning in personality psychology from the standpoints of dispositional traits, characteristic adaptations, and life stories. The Japanese Journal of Personality. 2010;**18**:173-186

[23] Kato D, Suzuki M. The effects of collaborative block creation on the sense of rolefulness. Journal of Psychology & Behavior Research. 2020;**2**(1):39-42. DOI: 10.22158/jpbr.v2n1p39

[24] Kato D. A study of psychotherapy using blocks: Analysis of effects of the therapy by using POMS (profile of mood states) and the relationship between the features of block works and mood states. Japanese Bulletin of Arts Therapy. 2006;**35**:52-62

[25] LeGoff DB. Use of LEGO® as a therapeutic medium for improving

social competence. Journal of Autism and Developmental Disorders. 2004;**34**:557-571. DOI: 10.1007/s10803-004-2550-0

[26] Levy J, Lego Therapy DS. Building social skills for adolescents with an autism spectrum disorder. Educational and Child Psychology. 2020;**37**(1):58-83

[27] MacCormack JWH, Matheson IA, Hutchinson NL. An exploration of a community-based LEGO® social-skills program for youth with autism spectrum disorder. Exceptionality Education International. 2015;**25**(3):13-32

[28] Cojocnean D. Developing young learners' Oral skills through storytelling with LEGO®. Revista de Pedagogie. 2019;**67**(1):105-121. DOI: 10.26755/RevPed/2019.1/105

[29] Kato D, Hattori K, Iwai S, Morita M. Effects of collaborative expression using LEGO® blocks, on social skills and trust. Social Behavior and Personality: An international journal. 2012;**40**:1195-1199. DOI: 10.2224/sbp.2012.40.7.1195

[30] Kato D, Asai M, Yoshie M. Effect of collaborative LEGO® block construction on Japanese young Women's sense of acceptance. Social Behavior and Personality. 2013;**41**(8):1333-1338. DOI: 10.2224/sbp.2013.41.8.1333

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

[32] Lindsay S, Hounsell KG, Cassiani C. 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. 2017;**10**(2):173-182. DOI: 10.1016/j.dhjo.2016.10.010

[33] Sato M, Arakida M, Kaneko M, Miwa M. Development of the family empowerment scale for parents with toddlers. Japanese Journal of Public Health. 2020;**67**(2):121-133