

A Preliminary Study on LEGO®-Based Workplace Stress Reduction with Six Bricks and LEGO® SERIOUS PLAY® in Taiwan

Pay-Ling Harn, Chao-Chi Hsiao

Abstract—This study was aimed at using Six Bricks and LEGO® SERIOUS PLAY® to construct a workplace stress reduction model and investigate its stress-reduction effect. Seven Taiwan workers with different expertise were invited to attend a 150-min LEGO®-based workplace stress reduction workshop. Pretest and posttest were conducted using a workplace stress scale to assess the stress-reducing effect of the LEGO®-based workplace stress reduction. Two additional open-ended questions were incorporated in the posttest questionnaire to investigate the contents of change associated with the proposed model. Finally, LEGO® DUPLO® stress-figure, LEGO® DUPLO® stress-scale, and the content of open-ended questions were used for content analysis to investigate the contents of change. The findings of this study were as follows: (a) Anxiety and fatigue in the workplace stress scale exhibited declining trend, whereas depression presented no change; the anxiety subscale achieved significant immediate effect. (b) Regarding contents of change, the results indicated that a LEGO®-based workplace stress reduction is able to nourish healing power, inspire deeper and more diverse reflections, and energize a workplace.

Index Terms— LEGO®-based, workplace stress reduction, LEGO® SERIOUS PLAY®, Six Bricks.

I. INTRODUCTION

In 2010, Gallup survey report indicated that disengaged employees cost the economy \$350 billion in lost productivity [3], suggesting that the psychological health of employees influences employees and in turn affects company performance and cost. Since the 1960s, U.S. government unit and scholars have placed more weight on the relationship of workplace stress and workplace safety. Psychological stress in the workplace and psychological injury are the key health risk factors in the workplace across the United States [9], [16]. Hence, employees' physical and mental health is a pressing concern in the field of psychology.

Employee assistance program (EAP) in Taiwan typically revolves around stress management practices. Presently, response strategies adopted in psychologically unhealthy workplaces are no longer effective for aiding employees to cope with crises and stress in the workplace. Foreign

practices for managing psychological health in the workplace have shifted from cultivating point-based response ability to long-term accumulation of positive psychological assets [1], [8], [14]. These practices are aimed at promoting exploration, creation, and recreation of individual strength in the workplace to accumulate positive psychological assets. These aims accord with the ultimate goal of positive psychology—to improve quality of life and prevent disease development [13].

In 2000, Professor Johann Roos and Bart Victor developed the LEGO® SERIOUS PLAY® (LSP), which is a facilitated method in which participants build symbolic and metaphorical models of their insights in LEGO® model and then present these to other participants. LSP employs the theory of play, constructionism, hand–mind connection, and imagination as the theory for effective problem-solving in LSP. “Play” plays a creative, constructive, and proactive role in humans' cognitive development. “Serious Play” enables adults to apply the creativity skills, imagination, and encouragement in “Play” to deliberate on life-related issues. The two main factors of LSP are storytelling and metaphors. Storytelling can promote production, reproduction, transformation, and deconstruction of individual values and beliefs, thereby bringing about change. Metaphors are a means of storytelling, which permits people to comprehend ideas using novel approaches [6]. LSP applies flow and positive emotions to construct solutions for workplace issues. This process echoes the key contents of positive psychology. In terms of strength-based counseling, people feel baffled with a situation when they do not have enough strength to respond to the difficulty; they need assistance with identifying, creating, and leveraging their strengths. Strength is not only a buffer for psychological distress, but also a resource for responding to difficulties [15].

LSP applies flow, positive emotions, and other positive psychology to help participants gain insight into the meaning of their life and unknown facts. LEGO® bricks are used for storytelling and metaphors to explore the intrinsic meanings the participants are trying to convey. This approach enables participants to rebuild their self-worth in a relationship with positive emotions and complete engagement. Previously, LSP was frequently used in organizational strategies. In recent years, LSP has been applied to promote psychological health. Harn used strength-based LSP facilitation workshop to explore the effects of such workshop on survivors of domestic violence [14]. Harn's results showed that strength-based LSP workshop deepens the root of intrinsic

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power, evolves relationships, and reconstructs life experience. Peabody applied LSP as a reflective practice pedagogy to 29 occupational therapy graduate-level students and faculty; interview results indicated affirmative outcomes that included promotion of group cohesion, enhanced inclusive learning, a language for emotional content and deeper meaning-making, diversified learning styles, and deeper thinking compared with traditional reflective writing. Peabody also reported that a few participants experienced anxiety with the process provoking unanticipated reflective learning [10]. The founding member of the Association of Master Trainers, Robert Rasmussen, believes that LSP elicits emotional and behavioral changes by deepening and broadening the thinking process [11].

There are two types of LEGO® facilitation models: Association of Master Trainer in LSP Methods and the LEGO Foundation Six Bricks. The Six Bricks draws on the concept of LEGO® to inspire creative thinking by using sets of DUPLO® bricks in six colors: red, orange, yellow, green, dark blue, and light blue[5],[12]. Six Bricks improves language skills, problem solving, collaboration, and emotional mediation. In its nascent phase, the Six Bricks are largely used in the educational context. Today, Six Bricks are used to promote positive communication, relationships, and interpersonal cohesion among organizational teams. Played similarly to LSP, Six Bricks involve assign tasks, construct and execute, share and provide feedback. The difference between Six Bricks and LSP is that Six Bricks involves a single mission or consecutive missions, whereas LSP generally entails a series of missions.

This study applied LSP and Six Bricks to construct a workplace stress reduction model and explore the application of this model in promoting psychological health in the workplace. Subsequently, the effect of content of change associated with the workplace stress reduction model was investigated. Based on the aforementioned discussions, the objectives of this study were (a) to elucidate the effects of the LEGO®-based workplace stress reduction (LBWSR) on the stress level of participants in the workplace, and (b) to elucidate the content of change in participants associated with the LBWSR.

II. METHOD

A. Study Design

The LBWSR workshop spans 150 minutes. For this study, we revised the “Good Friends” and “Bridge” in Six Bricks (LEGO Foundation, 2015) and developed a LEGO® DUPLO® stress figure (LD stress-figure, Figure 1) and LEGO® DUPLO® stress scale (LD stress-scale, Figure 2), which were then used in the workshop to assess participants’ stress status and level. After the workshop, the LD stress-figure was readjusted and repositioned on the LD stress-scale to assess the effects and content of change. The function of the LD stress-scale was to create memorable experiences and promote group cohesion. In addition, we used the Back to Back activity in Six Bricks to assist with participants’ awareness of message communication. LBWSR workshop involves using LSP to construct three topics: peak

experience in the workplace (Figure 3), workplace strength identification, and workplace savior.



Figure 1. Stress-figure Figure 2. Stress-scale Figure 3. Peak experience

B. Participants

Seven employed individuals, aged 35–55 years, were recruited as research participants for this study: University educator, corporate lecturer, social worker, personnel manager, human resource personnel, junior high teacher, and consultant.

C. Research Instruments

(a) Workplace stress scale. In this study, the workplace stress scale was adapted from the scale used in Chen to measure participants’ stress level [2]. This study used only the three subscales of anxiety, fatigue, and depression. The workplace stress scale was a 5-point scale. The anxiety subscale measures work-related anxiety and unease. The fatigue subscale measures the subjective perception of fatigue after working continuously for some time. The depression subscale measures the level of depression caused by work. The split-half reliability of the original subscale was .89, .85, and .42, respectively. The researcher added an extra item “I am easily distracted when working” in the anxiety subscale, after which the split-half reliability of the revised subscale was .89, .91, and .66, respectively. The higher the scale score, the greater is the stress level. Table 1 lists the scale items.

Table 1. Workplace stress scale

Subscale	Item
Anxiety	My work makes me feel unease or nervous.
	I find it difficult to sleep at night because of problems at work.
	I often feel tense at work.
	I often experience acid reflux problems.
Fatigue	I am easily distracted when working.
	I feel exhausted every day after work.
	I find it difficult to wake up early.
	Changing a job might be good for my health.
Depression	I feel feeble and listless at work.
	I think I am useless and extremely unimportant in the company.
	I feel my temper is unusually bad at work.
	I feel down and unhappy at work.
	I am disappointed with the future.

(b) LD stress-figure and LD stress-scale. Before the workshop, participants used the Six Bricks and three to four LEGO® DUPLO® bricks to build a stress-figure, which represents their stress status before the start of the workshop. When the workshop concluded, they modified the stress-figure to manifest the changes in their stress state after the workshop. Before the workshop, participating members collectively applied the Six Bricks to build a bridge that extends across two tables. This process purported to boost

group cohesion. The cold colors and warm colors of the Six Bricks were used to represent stress level, where cold colors at one end of the LD stress-scale denotes low stress level and warm colors at the other end of the scale denotes high stress level. Participants placed their stress-figure at the appropriate position of the scale according to the level of stress they were feeling.

(c) Feedback questionnaire. The researcher incorporated two open-ended questions in the posttest questionnaire: Which part of the workshop was the most memorable? What was your greatest learning experience after attending the workshop? These questions were to probe the contents of change in the participants.

III. RESULT

A. Effects of LBWSR on the workplace stress scale

Before and after the workshop, participants completed the workplace stress scale. Dependent-sample analysis of variance was used for differential comparison to investigate the effects of the LEGO®-based stress reduction workshop on participants' stress levels. Table 2 shows that after the workshop, the participants had lower mean scores on the anxiety and fatigue subscales. Their mean scores on the depression subscale remained unchanged. Regarding the dimension of anxiety, significant immediate effect was observed, and fatigue and depression exhibited significant difference.

Table2. Paired sample analysis of variance of workplace stress scale

Variable	Pre-test		Pro-test		t df=6	p
	M	SD	M	SD		
Anxiety	2.49	.92	2.29	.97	2.65*	.038
Fatigue	2.64	1.07	2.53	1.05	.81	.448
Depression	2.00	.60	2.00	.76	.00	1.00

Note: * $p < .05$

B. Content of Change Associated With LBWSR

In this study, content analysis was performed on the LD stress-figure, LD stress-scale, and the completed feedback questionnaire to explore the contents of change.

(a). Nourishing the healing power. At the beginning of the workshop, the participating members had felt stressed from work. By building a model of their peak experience in the workplace, the participants concretized their strengths. By swapping places with their partners, they could identify more of their strengths, creating a positive link and internalized source of nourishment.

"I feel I have been healed after attending the workshop" (A-04-01)

"Everyone had built a model of their peak experience, sharing their stories from work. Their experiences echoed with mine, making me feel invigorated again" (B-04-03)

(b). Deepening diversified reflection. The participants reported in the feedback that they were able to reexamine themselves and broaden their thinking perspectives. After the workshop, the participants adjusted their LEGO® DUPLO® stress-figure to reflect the content of change brought about by the workshop, such as worrying less about work, opening up

their eyes and freeing their mind, changing the sequence of work, and taking more actions. These changes show that the participants started to respond to and cope with workloads more constructively. One female participant experienced obstacles during the communication process in the Back to Back activity, and this experience prompted her reflect on whether they had encountered similar predicaments when communicating with others in the workplace.

"In the Back to Back activity, I wondered whether the things I said at work was also incomprehensible" (B-04-01)

"This workshop opened up my horizon, enabling me to think more differently at work" (C-05-01)

"I feel I can inspect myself all over again, explore my inner feelings, and organize my line of thoughts" (A-05-01, A-05-03)

(c). Energizing the workplace. After the workshop, the participants repositioned their LD stress-figure on the LD stress-scale. Five of the participants moved their mini figure to the low-stress end of the scale. Only one participant kept it at the same position because there were still many works to be completed; however, this participant reconstructed his/her mini figure, feeling that he/she is more capable of responding to situations at work. In the Back to Back activity, another participant became aware of the blind spots in workplace communications and, therefore, the participant relocated her stress-figure to high-stress end of the scale. Based on the aforementioned discussions, the LBWSR workshop helped most of the participants to release their negative energies.

In the beginning, the participants walked into the workshop feeling unease with somber expression on their face. As the workshop progressed, they grew more pleasant and satisfying, establishing more amusing associations and social cooperation. According to participants' feedback, most of them expressed in the affirmative the stress-relieving effect of the workshop and its ability to energize the workplace and empower self-worth.

"It can alleviate emotions and stress from work" (D-05-01)

"It is stress relieving and stimulates thinking" (E-05-01)

"It helps me regain my confidence and vitality to return to work" (A-05-05)

IV. CONCLUSION

The results of this study showed that the LEGO®-based workplace stress reduction model has a significant effect on reducing work-related anxiety, but it did not immediately relieve fatigue and mitigate depression. This study was the first to use the LEGO® facilitated method to construct a workplace psychological health promotion scheme, making this research both practical and innovative. According to the results, the LEGO®-based workplace stress reduction workshop exhibited partial stress-relieving effect, which suggests that this model has great potential for the promotion of psychological health in the workplace. The limitations of this study were limited time (150 minutes) and a small sample size (seven participants). Future studies could incorporate more LEGO® building topics to enhance the completeness and diversity of the LEGO®-based workplace stress reduction model, thereby further boosting its effectiveness on

psychological health.

Regarding content of change, our findings echoed with the results of Harn [4] and Peabody[10]. A LEGO® facilitated model nourishes interpersonal ties, eliminates negative emotions, and promotes deeper reflective thinking. As Peabody[10] indicated, the LEGO® facilitation method is less time-consuming compared with traditional strategies. For example, a typical group guidance session generally requires at least one to two hours of warm ups to boost group cohesion, and at least five to six hours to achieve therapeutic efficacy. The 150-min LEGO®-based stress reduction model yields a healing effect quickly. The participants reported in their feedback that the LEGO®-based stress reduction model not only stimulates deeper thinking but also changes their emotion and behavior[11]. The development theory of LSP posits that LSP enhances positive emotions [5]. Similar to the findings of Peabody [10], our results indicated that the deeper thinking outcome of LSP generates an unexpected self-cognition that might have caused some of our participants to feel anxious. This finding can serve as reference for subsequent development of LEGO®-based facilitation practice and research.

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