Not just for kids: using LEGO for creative problem-solving. Your University: The Magazine for UWL Alumni and Friends

NOT JUST FOR KIDS:

Using LEGO® for creative problem-solving

Apart from being widely loved by children, LEGO® can also be a great tool for adults to creatively solve problems. Dr Yu-Chun Pan has been leading research in this area at the University of West London.

Problem-solving is an important task in our everyday lives. From small problems, such as figuring out how to get to our summer holiday accommodation, to big problems, such as being tasked to improve our team performance, we need to solve problems all the time.

The first step of problem-solving is to understand exactly what problems we are dealing with before we try to develop a solution through expressing our opinions. Therefore, we need to learn about the problem first.

People construct and develop understanding in many ways. When people can play and have the freedom to explore the questions and answers from various perspectives, they have wider access to possibilities that can often lead to creative solutions to logic problems.

In a conventional discussion, people might feel that they should follow 'rules and guidelines' to meet certain requirements and expectations, and they might feel that there is only one 'correct' answer. Avoiding this type of right/wrong situation can help maximise learning opportunities. One way of achieving this is to emphasise the playfulness of understanding problems and exploring potential solutions.

This allows individuals to explore different avenues with fewer constraints. Such playfulness can be encouraged by having choices, so that different personalities can choose what they want to play with and how.

Children learn how to interact with the world and how to express themselves through playing. As we grow older, we can sometimes forget how to play. LEGO® Serious Play® (LSP) is a powerful method to facilitate reflective thinking and creativity for people of all ages through purposeful play. LSP aims to connect minds and hands to create a deeper understanding of the world and its surroundings using LEGO® bricks as metaphors.

These metaphors can demonstrate the human cognitive process and provide a new way of expressing experiences and realities. Instead of using words or diagrams to express themselves, people are encouraged to use metaphors with LEGO® bricks to explore, construct and express.

Individuals identify and build challenges and opportunities as they think, instead of planning everything out before building. The spontaneous approach allows each participant to continuously develop, reflect and enhance their views. LSP has been used intensively to tackle complex problems by many organisations worldwide, including Google and NASA.

Although LEGO® produces specific LSP sets, you can use any of the hundreds of bricks you may find hidden under the sofa or stored in the loft. So how do we use these bricks for creative problem-solving? There are five key steps in running an LSP problem-solving workshop:

1. INTRODUCTION AND WARM-UP ACTIVITIES TO HELP PARTICIPANTS FEEL COMFORTABLE WITH EXPRESSING THEMSELVES METAPHORICALLY

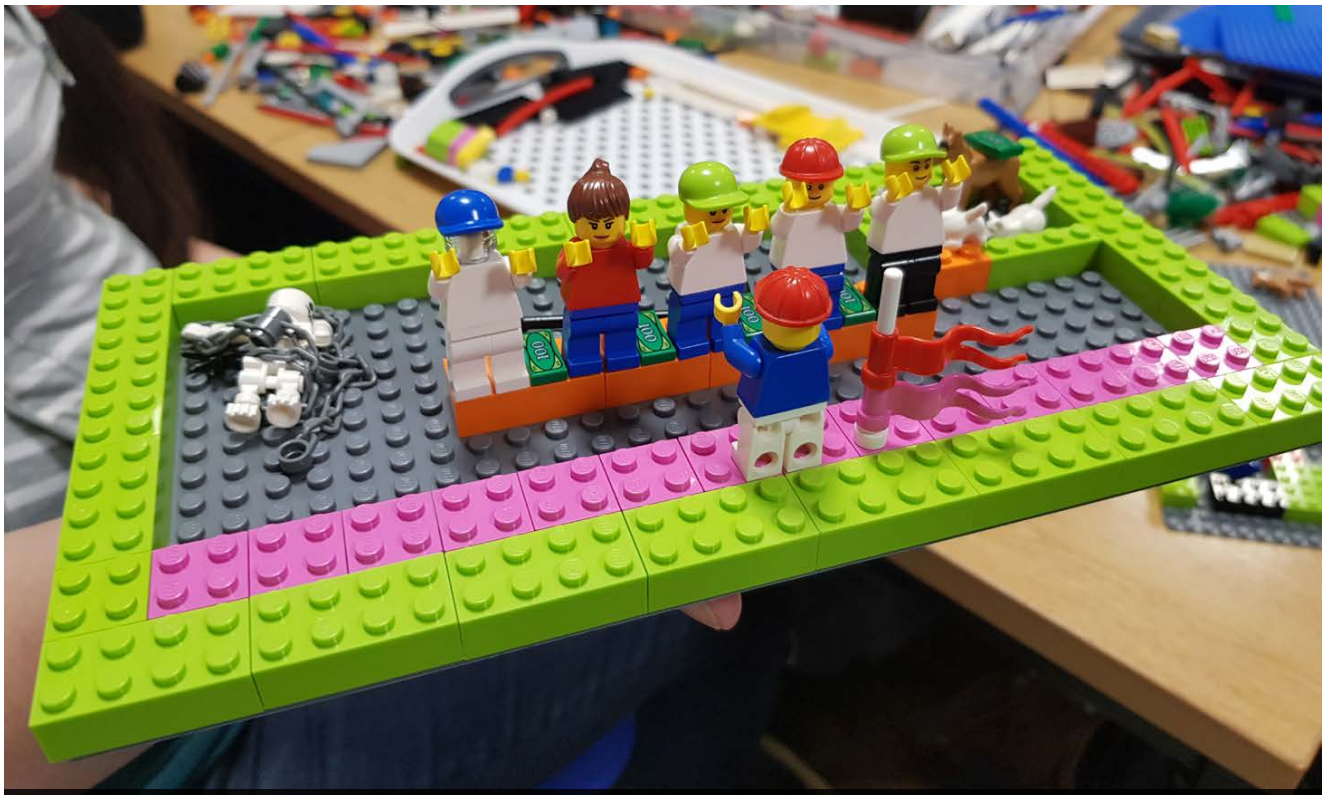
The warm-up activities help participants to get familiar with LEGO® (because some of them probably haven't touched LEGO® for a very long time!). We can start with building something simple, such as a duck, or something more abstract, such as a typical Monday morning.

2. THE FACILITATOR POSES THE QUESTION WE WANT TO DISCUSS WITH PARTICIPANTS AS A BUILDING CHALLENGE

We can then move on to the building challenge for each group. Instead of asking a big complex question, we can break down the questions into smaller sequential questions, so individuals can form a shared understanding of what is to be explored while having the freedom to explore in their own ways.

3. PARTICIPANTS BUILD A MODEL

Next, we ask the participants to use LEGO® bricks to construct their answers within a set time limit. During the building process, participants assign meanings to the bricks by metaphors. For example, a ladder could mean career progression, and a big circle could refer to an unfulfilled dream. Through building (and often amending), they go through a reflective process that is likely to deepen their thinking. By using their hands, participants also tend to register their thinking deeper into their minds. ›



Students using LEGO® Serious Play® in the classroom

4. PARTICIPANTS SHARE THEIR STORIES

We then ask the participants to share the stories and meanings assigned to their LEGO® creations. It is essential that every participant's story is heard. By sharing and hearing others' stories, participants can further reflect their own thoughts and understand different perspectives and viewpoints.

5. REFLECTIONS

The reflection stage requires the participants and instructors to discuss and clarify the insights gained in the last step. We then summarise and find a suitable way (such as notes or diagrams) to record this discussion.

Steps 2 to 5 can be an iterative cycle. We can use the first cycle to define the problem and the second cycle to develop a solution. Throughout each cycle, LSP facilitates communication and group problem-solving processes through exploring a subject by building 3D models. The collaborative nature of LSP supports social learning theory, which views learning as a cognitive process that takes place through observation or interaction in a social environment.

At the University of West London, I have been using LSP to help students develop tangible solutions. For example, I used LSP with students who seemed to struggle to meet deadlines. We wanted to explore what interventions could help them meet their deadlines. I asked the students in the workshop to use LEGO® bricks to create and present how they approach assignments (the scenario) and why deadlines are sometimes missed (the root issues). Once students finished their demonstrations, they were then asked to make changes to their builds to do something about the root issues.

The students presented the changes to their builds and explained why the changes they made transformed the scenario. They looked at what was affecting their work such as issues with deadlines, other commitments or lack of interest. Through the storytelling, multiple perspectives were explained and exchanged among the students.

The second stage of the building then allowed the students to develop solutions. It was key that it was the students themselves who collectively came up with the solutions. As the proud owners of the solutions, they were more willing to try them, because most of us do not like to be told what to do. As the result of implementing their own interventions developed through LSP, the group of students significantly improved their assignment submission rate in the following semester.

Playfulness enables us to explore different perspectives. I have witnessed it release creativity and consequently help people solve problems with solutions that they did not realise they had. In my opinion, people are more creative and capable than they give themselves credit for and playfulness can help us get there. ■

Dr Yu-Chun Pan has many years of experience in technology-enabled change and project portfolio management. He also focuses on how sustainability can be imbedded in project management practice. His innovative teaching approach has been recognised and he was awarded University of West London Teaching Fellowship in 2018.

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