

Leveraging LEGO® Serious Play® to Embrace AI and Robots in Tourism

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Research Highlights

- Artificial intelligence (AI) and robotics continue to disrupt the tourism industry
- Adopting AI and robotics may lead to organisational/behavioural change
- LEGO® Serious Play® helps tourism researchers explore change enacted by technological innovation

Keywords: artificial intelligence; robotics; serious gaming; LEGO® Serious Play®;
qualitative methods

Advances in artificial intelligence (AI) and robotics have begun to challenge conventional notions of consumption, production, and management of tourism service offerings. For example, intelligent machines are increasingly being used to handle routine customer enquiries, prepare and serve drinks and food, and monitor and report faults and security breaches (Ivanov, Webster and Berezina, 2017). However, Murphy, Gretzel and Pesonen (2019) observe that many tourism businesses still fail to make the most of the available technology. Faced with a plethora of possibilities, tourism operators may find it difficult to decide which technologies to adopt and which to ignore. Equally challenging might be deciding where, when, and how a new technology should be introduced, as well as understanding what its impacts might be for the individual, organisation, and the industry. The situation calls for research methods suitable for addressing forward-looking research questions with complex practical, ethical, and socio-economic implications, including the impacts of automation on customer experience, management, and regulation.

Following in the footsteps of Wengel, McIntosh, and Cockburn-Wooten (2016), it can be suggested that serious gaming, in particular a method known as LEGO® Serious Play®, will help tourism researchers and practitioners better navigate and harness the dynamic landscape of emerging technology. As discussed by Peabody and Noyes (2017), LEGO® Serious Play® is a brainstorming method that makes use of LEGO® bricks to facilitate communication, expression, and problem-solving. Through a series of building activities and peer discussions, LEGO® bricks are used to create stories about the intangible world. The purpose is to break free from the constraints of habitual thinking – the focus is not

on the actual bricks themselves, but on the stories they tell and the metaphors they convey (Kristiansen and Rasmussen, 2014).

Brainstorming is generally understood as a “method for generating ideas, increasing creative efficacy, or finding solutions to problems” (Wilson, 2013, pp. 2). According to Osborn (1953) brainstorming aims to maximise the number of ideas generated, create a criticism-free space for even the most unorthodox ideas to emerge, and combine and refine ideas iteratively. Researchers have a plethora of brainstorming methods at their disposal, such as mind mapping (Davies, 2011), the nominal group technique (Ritchie, 1985), and the six thinking hats method (De Bono, 1985). Even though all brainstorming exercises aim to evoke divergent ideas, most techniques have a critical flaw: they lack dimensionality. For example, the six thinking hats method sees participants assume one of six perspectives (hats) to address problems creatively: goal-oriented, factual, emotion-based, optimistic, realistic and creative. This tends to work remarkably well for concrete problems, but less so for dynamic, elusive ones.

As AI and robotics technologies keep developing at an accelerating speed, it is unclear how what is possible today might change tomorrow. Accordingly, the LEGO® Serious Play® method is centred around the collaborative construction of unforeseen realities (Wengel, McIntosh and Cockburn-Wooten, 2016). The method’s strength lies both in its tangibility and unpredictability: the various shapes, sizes, and colours of LEGO® bricks allow for near-infinite combinations of three-dimensional constructs. Building something concrete forces participants to lean-in rather than out, as each construct is unique and thus offers a fresh look at the problem (Hadida, 2013). The aim is to evoke and keep participants in flow – a state of deep focus or involvement (Harmat et al., 2016).

In LEGO® Serious Play® this is done in four steps: posing a question (setting an agenda and giving instructions for the session), construction (individual building in silence), sharing

(discussing everyone's models and their metaphorical meanings), and reflection (asking questions and finding similarities between the models) (Kristiansen and Rasmussen, 2014, pp. 51-52). A typical LEGO® Serious Play® workshop lasts from two to eight hours and will see representatives of everyone affected by the problem at hand, be it employees, customers, suppliers, or other stakeholders, take part in the activities.

It is precisely this collaborative, hands-on approach to problem-solving that we argue makes LEGO® Serious Play® useful for exploring the adoption of AI and robotics in tourism. As a catalyst for structured discussion, LEGO® Serious Play® offers a robust framework for imagining what impacts the introduction of a specific technological innovation (e.g., service robots or chatbots) might have for the service process as a whole. Playing out and evaluating multiple scenarios allows researchers to start conceptualising how AI and robotics will transform service production and delivery in tourism. Involving multiple stakeholders in the brainstorming process offers researchers a wider understanding of the potential problems that may arise from the introduction of new technologies and innovations such as AI and robotics. Due to the high-touch, labour intensive nature of tourism, the successful introduction of new technology is largely dependent on the favour of people impacted by it. Research suggests that transparency and early involvement in the planning stages make it more likely for stakeholders to get behind new ideas (Liedtka, 2016). LEGO® Serious Play® allows researchers to understand differing stakeholder values through specific application techniques (e.g., shared model building, landscaping) that aim to align views and reach consensus.

As the tourism industry becomes increasingly digital (Navío-Marco, Ruiz-Gómez and Sevilla-Sevilla, 2018), it is imperative that organisations are agile in adopting innovation while also making sure that transitions are seamless and customer expectations are exceeded. With dramatic advancement in tools and applications based on AI and robotics, it is expected

that more tourism companies will adopt these to perform tasks critical for organisational decision-making and operations. For organisations with resource constraints, there is often no room for error. In order to demonstrate how LEGO® Serious Play® could help tourism researchers and practitioners find the right solutions to adopt new technologies effectively, a series of workshops was facilitated in early 2019 to explore what the future might hold for the industry. A total of 24 professionals and academics from a diverse set of backgrounds (AI, robotics, design, tourism, hospitality; 13 male, 11 female) were invited to take part.

Participants were posed with two questions. First, participants were asked to capture the qualities they love the most about hospitality in individual LEGO® models. This led to a rich debate on what it really means to work in the industry (e.g., working with and supporting others, solving problems, pursuing knowledge) and how AI and robotics might be used to integrate more of these qualities into day-to-day service operations. Second, participants were asked to use LEGO® to imagine a restaurant in 2039 (20 years from the date). Again, this led to a meaningful discussion on qualities customers, employees, and providers consider imperative for restaurants now and in the future (e.g., human connection), as well as qualities they find irritating and would rather see delegated to intelligent machines (e.g., unnecessary wait).

The workshops demonstrate the value LEGO® Serious Play® can bring to research that explores the applications and implications of emerging technology in tourism. Having a medium that is both tangible and easy to follow (and often already familiar to participants), yet surprisingly complex and multidimensional, helps stakeholders better imagine, envision, and articulate where and how a novel innovation should best be applied, as well as what impacts it might have on the service system as a whole. From a theoretical perspective, the discussions that occur within these workshops give valuable insight into the reconceptualisation of service production and delivery in tourism. For example, by

envisioning the future relationship between the consumption of food, travel, and social interactions, various complex issues around AI-powered service concepts, including whether or not restaurants should have a physical location to induce travel, were confronted and debated. This further elucidates how LEGO® Serious Play® can effectively bring stakeholders together and facilitate forward-looking debate that is critical for pushing both tourism theory and practice forward.



Fig. 1. Using LEGO® Serious Play® to imagine robotised restaurants.

However, it should be noted that as with all research methods, LEGO® Serious Play® has its limitations. In order for the method to reach its full potential, the workshops require a trained facilitator. Even though the majority of LEGO® Serious Play® training material has been made open source by LEGO®, some of the key facilitation techniques still require external certification from the Association of Master Trainers (2018), the method's quasi-official governing body. Second, the "official" LEGO® Serious Play® method requires a set of special LEGO® bricks, as well as time, space, and access to willing participants, all of which might limit the method's ad-hoc usage. Lastly, the method's suitability might vary between and across cultural contexts. Participants accustomed to an individualist way of speaking their mind may find it easier to come up with divergent ideas, whereas participants

used to a more hierarchical, collectivist way of thinking may find going against the status quo counter-intuitive (Livermore, 2016). Despite these limitations, LEGO® Serious Play® offers tourism researchers a powerful tool for addressing future-oriented research questions, especially ones that involve the adoption of technological innovation. In particular, LEGO® Serious Play® can be leveraged to facilitate various stakeholders together to imagine and articulate a future of automated tourism experiences, including the benefits and risks for different stakeholders.

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Statement of Contribution

- **What is the contribution to knowledge, theory, policy or practice offered by the paper?**

The paper highlights the usefulness of LEGO® Serious Play® research method in exploring and leveraging technological innovation in tourism research and practice. In particular, the paper demonstrates how LEGO® Serious Play® will help tourism researchers address research questions centred around the applications and implications of artificial intelligence (AI) and robotics in tourism contexts. As the tourism industry becomes increasingly digital, understanding change brought about by technological innovation becomes imperative. LEGO® Serious Play® offers qualitative tourism researchers an effective tool for bringing together multiple stakeholders to articulate, co-design, and evaluate a future of automated tourism offerings.

- **How does the paper offer a social science perspective / approach?**

The LEGO® Serious Play® method is rooted in the principles of social constructionism as put forward by Seymour Papert in the 1980s. In his seminal work Papert advocated "learning by making" – the idea that social knowledge is something that is constructed, rather than transmitted. He further emphasised the importance of using tangible artifacts to facilitate learning and to spark critical debate. Accordingly, LEGO® Serious Play® seeks to understand and explain human behaviour through hands-on engagement. The method involves the collaborative construction of social realities and offers future-focused social scientists effective means for exploring complex social phenomena through the construction and evaluation of metaphors. By positioning LSP as a means for leveraging technological innovation, especially AI and robotics, in the context tourism, the paper makes a unique contribution to the growing body of human-robot interaction in tourism research and practice.