

Leveraging LEGO® SERIOUS PLAY® for Rapid Prototyping in Design Thinking: A Customer-Centric Approach

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Abstract

INTRODUCTION: In the dynamic and customer-centric business landscape of the 21st century, organizations are increasingly turning to innovative methodologies to drive meaningful and effective solutions to complex problems. This paper explores the integration of LEGO® SERIOUS PLAY® into design thinking sessions as a method for rapid prototyping with a focus on customer-centricity. By combining the principles of design thinking, rapid prototyping, and LEGO® SERIOUS PLAY® methodology, this study aims to investigate how the construction of these scenes, coupled with storytelling and pitch development, can facilitate the exploration of customer pain points and gains to inform solution ideation and iteration. A detailed case study is presented to illustrate the application of this approach, highlighting the process from problem identification to prototype creation and feedback gathering. Through analysis and reflection, this paper identifies key insights into the effectiveness of using LEGO® SERIOUS PLAY® for rapid prototyping within design thinking sessions, as well as challenges and opportunities for future research and practice. Ultimately, this study underscores the potential of prototyping as a valuable tool for fostering creativity, collaboration, and customer-centric innovation in organizations seeking to drive positive change and deliver impactful solutions. We are exploring how using this approach can help organizations unlock the full potential of their teams, drive breakthrough innovation and create lasting impact in an ever-changing world.

OBJECTIVES: Exploration of LEGO® SERIOUS PLAY® within the design thinking process for rapid prototyping in the context of envisioning the future of cities. Specifically, the paper aims to demonstrate how these methodologies can foster creativity, collaboration, and customer-centric innovation, particularly in uncertain and complex environments as categorized by the Stacey Matrix.

METHODS: This study employs a series of 20 design thinking sessions using LEGO® Serious Play to engage diverse stakeholders in imagining the city of 2030. The methods include defining the initial problem statement, conducting empathy exercises to understand user needs and utilizing LEGO® SERIOUS PLAY® for constructing scenes that highlight customer pain points and gains. Developing and presenting pitches and stories based on these LEGO® models and reframing and recreating prototypes based on cross-pollination of ideas.

RESULTS: Participants quickly generated rapid prototypes that visually and tangibly represented their ideas. Several specific problems were identified, each accompanied by customer-centric solutions. The use of LEGO® SERIOUS PLAY® facilitated deeper engagement, creativity, and collaboration among participants. Storytelling and pitching helped effectively communicate the envisioned future scenarios and solutions. Feedback from stakeholders provided valuable insights that guided iterative refinement of the prototypes.

CONCLUSION: Design thinking, when combined with LEGO® SERIOUS PLAY®, proves to be an effective methodology for rapid prototyping and innovation in complex and uncertain environments. The approach encourages a customer-centric mindset, ensuring that solutions are relevant and impactful. The iterative process of prototyping and feedback leads to continuous improvement and refinement of ideas. LEGO® SERIOUS PLAY® enhances creativity and collaboration, making it a valuable tool in the design thinking toolkit. This integrated methodology can help organizations navigate and transform ambiguity into actionable opportunities for innovation, particularly in the context of future urban planning and development.

Keywords: Design Thinking, LEGO Serious Play, Customer-Centricity, Rapid Prototyping

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1. Design Thinking Process and Its Role in Managing Uncertainty

Traditional problem-solving methods often fall short in rapidly evolving situations. Organizations frequently encounter scenarios characterized by high levels of uncertainty, complexity, and ambiguity, necessitating more adaptive and innovative approaches. According to the Stacey Matrix, which categorizes decision-making environments based on the level of certainty and agreement, design thinking emerges as an essential methodology for navigating uncertain, imprecise, and even chaotic situations. [1]

The Stacey Matrix distinguishes between simple, complicated, complex, and chaotic scenarios, each requiring different management strategies. While simple and complicated problems can be addressed with established procedures and expertise, complex and chaotic situations demand more flexible, creative, and user-centric approaches. This is where design thinking excels. By fostering empathy, encouraging creativity, and promoting iterative development, design thinking provides a robust framework for tackling the unpredictable and fluid nature of complex and chaotic challenges.

Bridge to the Design Thinking Process

The Design Thinking process is particularly well-suited for addressing the challenges identified by the Stacey Matrix in uncertain and chaotic environments. It begins with a deep dive into understanding user needs through empathy, which helps to frame the problem accurately from the user's perspective. This is followed by ideation, where diverse ideas are generated and explored collaboratively. Prototyping and testing then allow for rapid experimentation and feedback, enabling continuous refinement and adaptation of solutions. [2]

By applying design thinking in such scenarios, organizations can not only navigate ambiguity but also transform it into opportunities for innovation. The iterative nature of design thinking ensures that solutions are continually tested and improved, making it a dynamic and resilient approach to problem-solving in the face of uncertainty.

1.1. Design Thinking

Design thinking is a human-centered approach to innovation and problem-solving that emphasizes empathy, creativity, and iterative prototyping. It involves understanding the needs and behaviors of end-users, reframing problems in human-centric terms, generating and testing multiple ideas, and refining solutions through rapid iteration.

Design thinking encompasses various stages, including empathizing, defining the problem, ideating, prototyping, and testing. [Fig. 1] It is not limited to any specific industry or discipline and can be applied to a wide range of challenges, from product design to organizational change.



Figure 1. Straight process of 5 Design thinking stages

1.2. Rapid Prototyping

Rapid prototyping is a method for quickly creating tangible representations of ideas or concepts to test their feasibility, functionality, and desirability. It allows designers and innovators to explore multiple solutions, gather feedback early in the design process, and make iterative improvements efficiently.

Rapid prototyping techniques can vary widely depending on the context and resources available, including low-fidelity sketches, paper prototypes, digital mockups, and physical models. The focus is on speed and iteration rather than creating fully functional prototypes. [3]

1.3. LEGO® SERIOUS PLAY®

LEGO® SERIOUS PLAY® is a facilitation technique that uses LEGO® bricks as a medium for creative expression, communication, and problem-solving. It is based on the premise that hands-on, experiential learning fosters deeper engagement, collaboration, and innovation.

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LEGO® SERIOUS PLAY® methodology typically involves structured activities where participants build three-dimensional LEGO® models in response to prompts or questions. It emphasizes storytelling and metaphorical thinking to explore complex topics, uncover insights, and generate new ideas. [4] While originally developed for business strategy and organizational development, it has been adapted for various purposes, including innovation and design thinking.

2. Significance of Combining These Approaches for Customer-Centric Innovation

Integrating design thinking, rapid prototyping, and LEGO® SERIOUS PLAY® methodology offers a holistic approach to customer-centric innovation. Design thinking provides the overarching framework for understanding user needs and generating creative solutions. Rapid prototyping enables quick validation and refinement of ideas through iterative testing with end-users. LEGO® SERIOUS PLAY® enhances creativity, collaboration, and communication, allowing participants to express and explore customer perspectives in a tangible and engaging way. By combining these approaches, organizations can foster a culture of innovation, empathy, and customer-centricity, ultimately leading to more impactful and meaningful solutions. [5]

This integrated approach empowers teams to tackle complex challenges by harnessing the collective intelligence and creativity of participants, while keeping the end-user at the center of the design process. [6]

2.1. Problem Identification

Define the Challenge

Begin by clearly defining the problem or challenge that the design thinking session aims to address. Ensure that the problem statement is focused and specific, with a clear understanding of the target audience or end-users. [Fig. 2]

Empathize with Users

Use empathy-building techniques, such as user interviews or observation, to gain a deeper understanding of the needs, motivations, and pain points of the target audience. This step is crucial for ensuring that solutions are truly customer-centric.

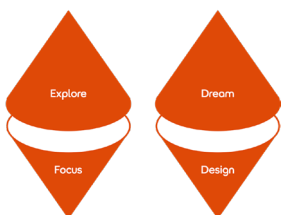


Figure 2. Empathy-building techniques

2.2. Ideation

Introduction to LEGO® SERIOUS PLAY®

Provide an overview of the LEGO® SERIOUS PLAY® methodology and its role in the design thinking process. Explain how building with LEGO® bricks can facilitate creative expression, collaboration, and problem-solving.

Prompt Setting

Present a specific prompt or question related to the problem statement, such as "What are the key pain points experienced by our target customers?" or "What are the potential solutions to address these challenges?"

Building and Storytelling

Encourage participants to build three-dimensional LEGO® models that represent their ideas, insights, or solutions in response to the prompt. As they build, ask participants to share the stories behind their creations, highlighting the reasoning and thought process behind their designs.

Group Discussion

Facilitate a group discussion where participants share their LEGO® models and stories with the rest of the group. Encourage active listening and constructive feedback to spark further ideation and exploration.

2.3. Prototyping

Selection of Ideas

Based on the insights and discussions generated during the LEGO® SERIOUS PLAY® activity, identify key themes or ideas that have the potential to address the problem statement effectively.

Prototyping Sessions

Divide participants into smaller groups and assign each group a specific idea or concept to prototype. Provide them with materials such as paper, markers, or additional LEGO® bricks to create tangible prototypes of their ideas.

Iterative Development

Encourage rapid iteration and refinement of prototypes based on feedback from both facilitators and peers. Emphasize the importance of testing early and often to uncover potential flaws or opportunities for improvement.

2.4. Feedback Gathering

Testing with End-Users

Arrange for user testing sessions where prototypes are presented to target customers or end-users for feedback and evaluation. Observe how users interact with the prototypes, noting their reactions, preferences, and pain points. [7]

Feedback Reflection

Facilitate a reflective discussion with participants to gather insights from the testing sessions. Encourage them to identify patterns, observations, and learnings that can inform further iterations of the prototypes.

Iterative Refinement

Based on the feedback gathered, encourage participants to refine their prototypes iteratively, making adjustments and improvements to better address user needs and preferences. [8]

Throughout the design thinking session, maintain a focus on collaboration, creativity, and customer-centricity, leveraging the unique strengths of LEGO® SERIOUS PLAY® to foster engagement and innovation.

2.5. Reframe and Recreate with the Ideas of the Other

Collaborative Reframing

After gathering feedback and insights from user testing sessions, reconvene the participants to collectively reflect on the findings. Encourage them to identify common themes, unexpected insights, and areas of convergence across the different prototypes.

Cross-Pollination of Ideas

Facilitate a collaborative brainstorming session where participants share elements of their prototypes that resonated with them and explore how these ideas can be integrated or combined to create new solutions. Emphasize the importance of cross-pollination and creative synthesis in generating innovative concepts.

Recreation and Iteration

Based on the collaborative reframing and synthesis of ideas, encourage participants to recreate and iterate on their prototypes, incorporating elements from other concepts that align with the overarching goals and user needs. [9] This process allows for the exploration of new possibilities and the refinement of solutions through collective creativity and collaboration.

By integrating this step into the design thinking process, participants are challenged to move beyond their individual perspectives and embrace a collective mindset, fostering synergy and innovation through the recombination and synthesis of diverse ideas and insights.

3. Case Study: Exploring the Future of Cities through LEGO® SERIOUS PLAY®

In this case study, we will explore the application of LEGO® SERIOUS PLAY® in a series of 20 design thinking sessions focused on imagining the city of the future in 2030. These sessions aimed to engage stakeholders from diverse backgrounds, including urban planners, architects, community leaders, and residents, in a collaborative process of envisioning and co-creating future urban environments.

3.1. Initial Problem Statement

The design thinking sessions began with a broad yet provocative prompt: "Imagine your city in 2030." Participants were challenged to envision the future of their city, considering factors such as population growth, technological advancements, environmental sustainability, and social equity. The initial problem statement was framed as follows: "How might we design cities in 2030 that are sustainable, inclusive, and resilient?"

3.2. Construction of LEGO® Scenes

Using LEGO® SERIOUS PLAY® methodology, participants were invited to build three-dimensional LEGO® models that represented their visions, ideas, and aspirations for the future city. Each session included structured activities to explore different aspects of urban life, such as transportation, housing, public spaces, and economic development. Participants were encouraged to focus on customer pain points and gains by considering the needs, preferences, and challenges faced by residents and stakeholders.

3.3. Development of Pitches and Stories

After constructing their LEGO® scenes, participants engaged in storytelling and pitch development exercises to communicate their visions more effectively. They were asked to narrate the stories behind their creations, highlighting the features, benefits, and innovations depicted in their models. Pitches emphasized the customer-centric nature of the proposed solutions, addressing specific pain points and offering tangible benefits to diverse groups within the community.

3.4. Feedback from Stakeholders

Throughout the design thinking sessions, stakeholders were invited to provide feedback on the prototypes and pitches presented by participants. Feedback sessions were structured to encourage constructive dialogue and reflection, with stakeholders sharing their perspectives, insights, and suggestions for improvement. Stakeholder feedback played a crucial role in validating ideas, identifying blind spots, and refining solutions to better meet the needs and aspirations of the community.

4. Key Insights and Outcomes

The LEGO® SERIOUS PLAY® sessions fostered creativity, collaboration, and empathy among participants, enabling them to explore complex urban challenges from multiple perspectives.

The customer-centric approach helped participants identify and address specific pain points and gains experienced by residents and stakeholders, leading to more relevant and impactful solutions.

The iterative nature of the design thinking process allowed for continuous refinement and improvement of ideas, ensuring that the final proposals were informed by feedback and real-world insights.

Stakeholder engagement was instrumental in building buy-in and support for the proposed solutions, paving the way for future collaboration and implementation efforts.

5. Conclusion

Through the application of LEGO® SERIOUS PLAY® in a series of design thinking sessions, participants were able to envision and co-create compelling visions of the future city in 2030. By focusing on customer pain points and gains, developing pitches and stories, and gathering feedback from stakeholders, the sessions generated innovative ideas and actionable insights for building sustainable, inclusive, and resilient urban environments.

6. Outcomes of the Case Study

6.1. Insights Gained

Through the design thinking sessions, participants gained deep insights into the complex challenges and opportunities associated with envisioning the future city in 2030.

By using LEGO® SERIOUS PLAY® for rapid prototyping, participants were able to quickly generate tangible representations of their ideas and solutions, facilitating hands-on exploration and communication.

The focus on customer-centricity enabled participants to identify and prioritize key pain points and gains experienced by residents and stakeholders, leading to more empathetic and relevant solutions.

Challenges Encountered

One challenge encountered during the case study was ensuring that participants remained focused on the future-oriented nature of the exercise and avoided getting bogged down by present-day constraints or limitations.

Another challenge was managing the complexity of the urban environment and the diverse range of factors that influence the design and development of cities, including social, economic, environmental, and technological considerations.

Successes Achieved

The use of LEGO® SERIOUS PLAY® facilitated creativity, collaboration, and engagement among participants, resulting in a rich array of ideas and prototypes for the future city.

The storytelling component of the exercise helped bring the prototypes to life and communicate the vision of the future city in a compelling and accessible manner.

Stakeholder feedback played a critical role in validating and refining the proposed solutions, ensuring that they were grounded in real-world insights and responsive to the needs of the community.

Evaluation of Effectiveness

The effectiveness of using LEGO® SERIOUS PLAY® for rapid prototyping in a design thinking context was demonstrated by the ability of participants to quickly generate and iterate on ideas, leading to innovative and customer-centric solutions. The hands-on, experiential nature of LEGO® SERIOUS PLAY® helped break down barriers to creativity and communication, enabling participants to express themselves more freely and explore ideas more deeply. By combining rapid prototyping with storytelling and customer-centricity, participants were able to create compelling narratives and prototypes that resonated with stakeholders and generated enthusiasm for future action.

Overall, the case study highlights the effectiveness of using LEGO® SERIOUS PLAY® as a tool for rapid prototyping within the design thinking process, enabling participants to collaboratively envision and co-create solutions for complex challenges such as urban design and planning.

6.2. Key Findings of the Paper

Customer-Centricity Drives Innovation

The paper highlights the importance of placing the customer at the center of the innovation process. By focusing on customer pain points and gains, participants were able to develop solutions that were more relevant, impactful, and aligned with the needs of the community.

Creativity and Collaboration

The use of LEGO® SERIOUS PLAY® methodology facilitated creativity, collaboration, and engagement among participants. By providing a hands-on, experiential platform for expression and exploration, LEGO® SERIOUS PLAY® helped break down barriers to communication and fostered a culture of open-mindedness and experimentation.

Rapid Prototyping Accelerates Iteration and Learning: Rapid prototyping allowed participants to quickly generate and test ideas, leading to faster iteration and learning cycles. By creating tangible prototypes and

gathering feedback early and often, participants were able to refine their solutions iteratively and make informed decisions based on real-world insights.

Reiterating the Importance of Customer-Centricity in Innovation

Customer-centricity is essential for driving meaningful and sustainable innovation. By understanding the needs, preferences, and pain points of customers, organizations can develop solutions that address genuine problems and deliver tangible benefits. Customer-centric innovation not only enhances customer satisfaction and loyalty but also drives competitive advantage and business growth.

Emphasizing the Value of LEGO® SERIOUS PLAY® in Design Thinking

LEGO® SERIOUS PLAY® offers a unique and effective approach to fostering creativity, collaboration, and rapid prototyping within the design thinking process. Its hands-on, experiential nature encourages participants to think and communicate in new ways, leading to deeper insights and more innovative solutions. By leveraging LEGO® SERIOUS PLAY®, organizations can unlock the full potential of their teams, drive breakthrough innovation, and create lasting impact in an ever-changing world.

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