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Taking the Playing Lean Experience Online

The Case of Using a Board Game to Teach Lean Startup Remotely

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Abstract. Using games and simulations to teach various lean methods and approaches enables the teacher to increase student's participation and identify each individual's challenges. Given the SARS-CoV-2 pandemic, most of the businesses and institution went into lockdown from early 2020, forcing the educators to deliver remote workshops. Playing Lean is a team-based board game in which players have to develop their business through iterative development and lean experimentation. The team that reaches early majority first—by crossing the proverbial chasm—wins. In this paper, the author explores how the game was adapted for teaching the lean startup method remotely.

Keywords: Lean Startup · Innovation · Entrepreneurship · Gamification · Educational Games · Game-Based Learning

1 Introduction

Lean educators are no strangers to using games and simulations for introducing various lean concepts. Although online and remote versions of such activities have existed ever since the days of modern internet, in 2020 they were the only safe option due to the SARS-CoV-2 pandemic. Taking existing games online isn't always as simple as developing an exact digital replica, especially when they rely on continuous player-to-player and player-to-facilitator interactions.

This paper presents key issues encountered when adapting Playing Lean, a board game for teaching Lean Startup, to an online experience. Described issues are: managing attention, storytelling, facilitator improvisation, communication, social learning, and technological aptitude. Succeeding them is a discussion of select counter-measures for each issue and their results.

Above case and discussion is preceded by brief introduction of relevant theory: the Lean Startup methodology, concept of gamification, and Playing Lean educational board game.

2 Theoretical background

2.1 Lean Startup

Lean Startup seeks to eliminate wasteful practices and increase value-creating practices during the product development phase by focusing on what customers truly want. It is a methodology for developing businesses and products, aiming to shorten product development cycles by adopting a combination of hypothesis-driven experimentation, iterative product releases, and validated learning. [2, 13]

Lean thinking, business model design, customer development, and agile engineering are the core components of Lean Startup body of knowledge. Eric Ries [13] outlined following five underlying principles:

Entrepreneurs are everywhere This principle is about democratization of entrepreneurial activity, both in our communities as well as our organisations. Education or economic background should not dictate if someone is or isn't allowed to engage in entrepreneurship.

Entrepreneurship is management Just like Juran drew our attention to accounting practices, and how we can apply them to manage quality [6, 10, 15], so has Ries demonstrated how to apply a diverse set of practices from lean thinking to entrepreneurial ventures. As we once moved away from "hoping" for quality and taking rework as granted, now we are moving towards seeing entrepreneurship as something we can get better at, increase our odds of success, and reduce how much time, money, and human potential is wasted.

Validated learning Following on the previous point, Lean Startup, just like its predecessor, emphasizes decision making informed by data. Entrepreneurs and innovators ought to continuously test their assumptions, collect data, and adjust as they go. To borrow lean jargon, their *gemba* is where the customer is, since they are the ones who will be the ultimate judges what value is.

Build–Measure–Learn Taking a hint from the Plan–Do–Check–Act cycle, Lean Startup offers a Build–Measure–Learn loop. It acts as a framework for generating validated learning. Although executed as written, it is planned backwards. We begin by outlining what is the learning goal, then figure out what kind of data we need to collect, and then work out what is the smallest thing we have to build in order to learn what we wish to learn.

Innovation accounting New ventures can take more than three years to show returns. Since existing accounting practices focus on recording expenses and revenue, we are missing a set of practices that would allow us to measure the monetary value of learning and making better decisions when adopting a Lean Startup approach. Innovation accounting is still a nascent field, with an ample opportunity for further development.

2.2 Gamification

Gamification is a *"process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation."* [4, 19] By intro-

ducing game elements in a non-game environment, it makes the learning more enjoyable [5, 7]. In [11], authors emphasize how using games as teaching tools benefits the teaching-learning process, especially when it comes to:

- introducing difficult concepts;
- developing problem-solving and decision-making skills;
- promoting an active participation of the student;
- increased interest among students;
- developing each student's talents, which welcomes students at different learning levels; and
- helping the teacher identify each student's difficulties.

Although gamification has positive effects on the learning [3, 7, 8], games and simulations are most effective when run by a facilitator who is knowledgeable and experienced about the topic being taught, and possesses good communication and storytelling skills. [1]

2.3 Playing Lean

Playing Lean is a board game for teaching Lean Startup methodology, deploying a number of gamification practices: storytelling, social learning, motivation and reward structures, competition, and use of facilitator (game master).[3] Intended learning outcome of the game is improved understanding of the following 11 Lean Startup concepts:

- the Lean Startup methodology as a whole,
- the Build-Measure-Learn cycle;
- pivoting,
- "get out of the building,"
- fast iteration,
- minimum viable product,
- innovation accounting,
- technical debt,
- problem-solution fit,
- product-market fit, and
- scalability and timing.

Playing Lean is a turn based game where students are divided into competing teams, each representing a fictional startup. They are all competing in the same industry, and the first team to reach 100 000 customers, wins. Each team starts with three employees, which can be assigned to three different activities. The game is divided into two phases:

[3] Detailed coverage of how Playing Lean gamifies teaching Lean Startup is presented in [12].

Planning Teams discuss what tasks will they assign to each employee: develop a product, conduct an experiment, attempt a sale, or attend a training. Conversations during this phase are quite lively, with students discussing questions such as *"How do we proceed? What strategy do we want to pursue? Do we want to satisfy all the customers or look for the quickest path to "victory"? How do we handle competition? Do we want to make the best product or do we want to invest time to find out what the customers want?"* Planning phase is usually time-boxed to 120 seconds, in order to keep the brisk pace and facilitate relevant discussions.

Execution Facilitator informs the teams of the outcomes of their activities. Product development is the only guaranteed activity—i.e., an employee will always succeed developing a single feature—whilst the other three are not. If teams are making an uninformed sales decision, they are risking disappointing the customer who won't give them another chance. Experimentation includes an element of randomness, meaning that the amount of collected customer insight varies.

The only way for teams to advance in the game is by selling their product successfully. Following the four stages of Lean Startup [9], all teams begin at the *Business Modelling* stage, working their way through *Problem/Solution fit* and *Product/Market fit* stages, before finally reaching *Scaling* stage. There is only one winner—the team that reaches the last stage first. Each experiment introduces one of the Lean Startup principles, tools or methods. It has a title, a short description and a "result" (how much has the team learned about a specific customer). To maximize learning, the facilitator should tell a story related to the card, sharing their experience and explaining real-life examples of how the tool or method can be applied.

Once the game is over, it's beneficial to hold a retrospective session in order to reinforce the learning. Recommended format is to mix-up the students into dyads, and ask them to discuss following questions:

- Why did your team win/lose?
- What was your overall strategy?
- Did your company need to pivot?
- Were you affected by technical debt?

By providing above frame for retrospection, the facilitator helps students contextualize and enrich their experience by including different—and sometimes opposing—viewpoints. Dyadic discussions are especially helpful for avoiding the "halo" effect [14], where the team that won believes all their actions must have been right because they won.

3 Case: Issues with taking Playing Lean online

Playing Lean has been designed for use in an intense workshop setting with everybody sitting at the table, and facilitator standing on one of the sides. It

was never intended to be an online experience, but the SARS-CoV-2 pandemic changed that. Following subsections outline some of the issues encountered when re-creating the Playing Lean experience in a remote setup.

3.1 Facilitation issues

Attention Facilitator acts as both the game master and teacher, i.e., they have to balance playing with learning. Commanding attention is critical for facilitator's ability to shift focus from one to the other. In a physical workshop, facilitator can use their voice, body posture, and instruments to quickly get attention. Further, since students are all physically close, it's unlikely that any one of them will use their phone or laptop to perform other activities. In online workshops students are a click away from distraction.

Storytelling Although each Playing Lean experiment card provides a story, it is the facilitator who delivers it. Aforementioned delivery isn't limited just to speech, but can also include using presentation slides, flip-charts, print-outs, and other audio-visual aids. All students have a unified experience of the story told by the facilitator, while that isn't always true for the online workshops. In the latter case, the facilitator is rarely in control of what the student sees and hears.

Improvisation Tabletop board games with game masters embrace "rulings over rules" ethos, meaning that the facilitator can adjust rules on-the-fly, in order to create a better learning experience for the students. This improvisation is critical for the facilitator's ability to adjust the game to guide the students (and themselves) in achieving desired learning outcomes. Quickly adjusting the board game elements, team composition, or how planning and execution phases are conducted is nearly effortless in a physical workshop. When conducting online workshops, the scope of improvisation is heavily impacted by two factors: facilitator's skill with technology used, as well as the limitations of that same technology.

3.2 Collaboration issues

Communication As outlined earlier, students' conversations are important for both moving the game forwards, as well as the learning that comes from discussing different options and decisions. During a standard in-person workshop, the students would be sitting close to each other, and wouldn't be far from other teams as well. Everybody can hear everybody, and facilitator can jump-in as needed. It's possible to understand individuals, even if multiple people are speaking. In online workshops that is nearly impossible. Standard solution of putting people in separate "breakout" rooms only partially addresses the problem, whilst reducing the effect of social learning.

Social learning During the workshop, social learning is manifested by players interacting in multiple ways: helping each other understand the rules or reward mechanisms, arguing for different strategies, explaining to each other various business topics and Lean Startup concepts, and having game-related banter. Taking the workshop online dampens the effects of social learning because it becomes limited to team discussions, which happen in separate virtual rooms. That way the bigger group (i.e., all students) misses out on insights of other teams.

Technological aptitude Educators use Playing Lean to teach Lean Startup. They should spend as little time as possible to explain the game rules. During a physical workshop, students only need to use the board game, pen, and paper. In the online workshop each student must setup their microphone, camera, headphones, screen, video-conferencing tool, white-board tool, chat tool, and whatever other tool the facilitator might have selected. Given how many combinations of devices and operating systems there are, troubleshooting might take too much time.

4 Discussion of select counter-measures for each issue and their results

Counter-measures for each issue are outlined in Table 1.[4] Guiding principles for designing them were to: (1) have as little interference between the students and the facilitator as possible, (2) attempt to transform issues into learning lessons themselves, and (3) keep them as simple as possible.

Some counter-measures had more effect than the others. Having specific roles for each student has worked particularly well. Each team had to name their *Head of Product*, *Head of Experimentation*, and *Head of Sales*. Each role corresponds to one of the core game activities, namely product development, experimentation, and sales. Each team also had to nominate their CEO, who would have to make all quick decisions the facilitator asks for. By doing this, each student had agency to speak up, and wasn't surprised when called out for a specific decision.

Using breakout rooms and additional guiding questions during reflection worked well to reduce the negative impact of the online format on social learning, although it was far from flawless. For example, since the facilitator does not join the breakout discussions, teams cannot ask quick rules-related questions (e.g. are they allowed to assign employees to specific action, can they attempt a sale to a particular customer, and so on). They have to make an educated guess and then bear the consequences. The author has addressed such cases through improvised storytelling, framing them as situations where the start-up is unsure about how the regulators will react, and they still have to decide if they will act

[4] Dr. Paige Wilcoxson and Priya Dasgupta-Yeung [16–18] offer several accessible texts on how to adapt workshop curriculum to the virtual classroom, grounded in their expertise with instructional design.

Table 1. Issues and their respective counter-measures

Issue	Counter-measures
Attention	Set the expectations in advance: no mobile phones, close all browser and windows tabs unrelated to the workshop, respect the time schedule. Introduce specific roles with clear accountabilities for each team member.
Storytelling	Limit the storytelling to speech, use more vivid and less abstract examples, speak slower and more eligible, make sure to have attention of everyone before sharing.
Improvisation	Gather student profiles and desired learning outcomes in advance and adjust the workshop design as necessary. Disseminate all student materials in advance, and have all relevant URLs listed in one document.
Communication	Use video-conferencing solution (e.g. Zoom) for voice and white-board solution (e.g. Miro or Mural) as virtual classroom. Be explicit where communication is supposed to happen. Prepare a dashboard for each team. Ask how did students communicate with each other.
Social learning	Use breakout rooms to facilitate social learning within teams, modify the reflection session to include discussion on each other's strategies and actions. Ask how did teams learn from each other.
Technological aptitude	Select the least amount of technologies needed to deliver the workshop and achieve desired learning outcomes. Prioritise technologies with wide adoption and perceived ease of use. Include use of these technologies in the workshop agenda.

and hope for the best, or if they will spend additional time to find out what is or isn't allowed. Whenever such improvisations are introduced, it's important to be consistent and apply them equally to each team, otherwise students might feel they are being judged unfairly.

Another thing that worked quite well was integrating instructions on how to use the selected technologies into the workshop itself. In this case, the author opted to use Zoom for video and chat, and Mural for the gameplay board. During the workshop, students had to perform various simple exercises that had double purpose: to move the workshop forward, while simultaneously improving their proficiency with the selected digital tool. For example, students were put into breakout rooms of three, and had to discuss their background, proficiency with the Lean Startup method, and what do they expect from the workshop. By doing so, they both bonded and got to experience the "breakout room" process. Another example was writing their name and a game role on a digital sticky note and moving it to their team corner. Again, in doing so they got slightly better at using Mural, as well as understanding the game rules.

Defining communication channels upfront produced desired results. Following the KISS dictum, we limited ourselves to voice during group and team discussions, and chat for 1-to-1 quick exchanges. Although Zoom's rudimentary chat features leave a lot to be desired, the author hasn't noticed any significant retardation to the information flow. That's most likely due to the fact that the bulk of strategic discussions happen during the breakout sessions, whilst chat is

only used for quick agreements when one of the players is called out to make a decision (e.g. "how many employees will you send to this training?"). There weren't that many challenges with selected technologies, which can probably be attributed to the fact that all participants have been using them (and other, similar tools) throughout 2020.

5 Conclusion

This paper briefly introduced: (1) Lean Startup, a methodology for developing businesses and product by adopting a combination of hypothesis-driven experimentation, iterative product releases, and validated learning, (2) gamification, a *"process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation"* [4, 19], and (3) Playing Lean, a board game for teaching Lean Startup. That was followed by a discussion of six key issues when using Playing Lean in an online and remote context, as well as results of attempted counter-measures. Although author's initial experience indicates that conducting remote Playing Lean workshops yields similar learning outcomes as the original, in-person variant, more research needs to be done in order to capture and verify exact effects.

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