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Facilitating co-creation experience in the classroom with Lego Serious Play

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ABSTRACT

Lego Serious Play was founded within the Lego Corporation in the mid-90s as a response to an unusual problem why a company that sold creativity by the kilo was struggling for market share, profit and new thinking. Built from the ground up as a make-or-break proposition, the LSP process is an industry strength business solution designed to create conducive conditions for problem recognition, knowledge creation, and shared understanding. Based on these condition, and the 2010 open source licence of the protocol, this paper outlines the Lego Serious Play process, the history and origin of the method, and the seven principles underpinning its operation. The paper then outlines the adaptation of the LSP method from industry to academy, to showcase how to bring the technique into the classroom. Educators can use the step by step guide to construct a classroom activity that draws on Lego Serious Play to further promote key graduate outcomes of communication, creativity and shared understanding.

CHINESE ABSTRACT

Lego Serious Play 是乐高公司 (Lego Corporation) 于 90 年代中期在内部创设的, 用以应对不寻常问题 - 以千克为单位出售创意的公司为何力争市场份额,利润和新思路. 作为白手起家孤注一掷创立的事业, LSP 流程是具有行业优势的商业解决方案, 旨在为问题识别,知识创造和共享理解创设有益的条件. 基于这些条件以及 2010 年该方案的公开资源许可, 本论文概述了 Lego Serious Play 流程,该方法的历史及起源,以及支撑其运作的七大原理. 而且, 该论文概述了 LSP 方法从行业到学术界的改写适应, 以展示如何将该技艺引入课堂. 教育工作者可使用循序渐进的指南来构建课堂活动, 这些活动凭借 Lego Serious Play 进一步提高交流,创造性和共享理解的关键毕业成果.

1. Introduction

Co-creation is a foundational element of the contemporary marketing domain. You can not so much as cite a cat without needing to cross-reference Vargo and Lusch (2004) and the myriad of co-creation concepts that followed in its wake. For the marketing educator, bringing practical co-creation exercises to the classroom is an opportunity to apply theory to praxis. This paper introduces the use of the Lego Serious Play facilitation technique as a means to teach co-creation through experiential learning and to produce co-created experiences connected to the coursework materials. Lego Serious Play was created in 1996 by the Lego Corporation in response to their financial and creative slump. Based on a combination of management theory, applied use of flow state, and structured play, the LSP platform has been a mainstay of Lego operations, open sourced and shared with the world in 2010, and applied across a range of industry settings. The paper outlines the LSP process, case examples of use scenarios from Canada and Australia, and an indicative session plan to facilitate in-class co-creation experience. The paper explores the delivery of a Lego Serious Play classroom workshop, class case studies, and a few bricks and pieces. It demonstrates how the "Three Permissions" of play, ownership, and use enable co-creation conditions, and it provides

Abbreviations: LSP, Lego® Serious Play™ the formal title of the serious play protocol open sourced by the Lego Corporation in 2010 https://www.lego.com/en-us/seriousplay.

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suggestions for mapping LSP to learning outcomes, graduate attributes, and assessment tasks.

2. Lego Serious Play: creativity and play

2.1. Co-creation

When Vargo and Lusch (2004) badge engineered coproduction out of a pure services context and into the co-creation for services dominant logic, it gave life to the beautiful paradox of co-created meaning in the context of what marketers meant by "Co-creation." Bereft a permanently agreed upon co-creation definition, each marketer finds their preference, and thus for this paper, the Ballantyne and Varey (2008) approach to co-creation as a standalone concept from co-production will be used. This allows for co-production through known resources and capabilities to pair with co-creation of distinct value as the service-dominant logic approach to inform adapting Lego Serious Play into marketing. Co-creation is also central to the application of many aspects of the Serious Play process – not least of which is the requirement of the participant to respond by building a Lego model when faced with a task, challenge or question. Using Lego as a temporary medium quickly generates conditions of co-creation as models are only capable of existing through deliberate human intervention (Said et al., 2001), and require the individual to explain any attached meaning during the LSP process (Hyvönen, 2014). At the conclusion of each exercise, as models are reduced to component pieces, no residual meaning resides within the bricks, with the consequence that value-in-ownership is absent the model, and until used to build and explain, the bricks hold no inherent value (Ballantyne and Varey, 2006). Further, as the process is communal, with the conversations between participants, unexpected for co-creation and SDL, the value can arise in exchange of ideas, and in the use of the model. Even where participants keep the LSP bricks for themselves (ownership), the models that are made (use) provide the canvas for explanation (exchange) with no meaning being held or stored by pieces.

2.2. Lego Serious Play

Lego Serious Play is a process by which participants use small amounts of Lego pieces to create visual 3D models of ideas, concepts, and thoughts, which they explain to fellow participants. Serious play is a protocol where the method of play (fun, enjoyment, risk-taking) is coupled with task-specific activity (learning outcomes, strategy, 'serious' topics. By combining these two approaches, Serious Play enables participants to create an environment in which the benefits of the play state can assist in the surfacing of ideas, thoughts, and knowledge that would otherwise have been inaccessible in conventional conditions (Blair and Rillo, 2016). The process uses time bounded activity, with a balance of challenge and skill set to evoke the flow state, and engage the constructionism hand-mind connectivity through the use of Lego pieces (Kurkovsky, 2015; Csikszentmihalyi, 1996). Constructionism draws on a management theory background where the process of "thinking with the hands" results in different ideas, thoughts and process being drawn out from a participant than occurs in a non-constructionism environment (Middleton, 2015)

Lego Serious Play is a facilitation technique that uses a combination of personal focus through Lego model creation, the creation of meaning through story-telling and structured sequences of active listening, engagement, and story-making. As a commercially orientated business process, it has evolved to apply structured play to enhance creativity, communication, and innovation. By building visual metaphors in Lego, and explaining the meanings of the model, LSP supports deeper insights into problems and unlocks more creative solutions through storytelling, meaning-making, and experimentation (https://www.lego.com/en-us/seriousplay). It was developed within the Lego Corporation as a facilitation toolkit to level the playing field within meetings, and to augment both knowledge discovery from participants, and creativity in solutions flowing from the meetings (Victor et al., 2002). This method was retained in-house from 1996 to 2010, at which point Lego® Serious Play™ was released as an open source methodology, adapted for use in a wide range of business contexts from strategic reviews through to team building, and beyond into business process modeling (Kristiansen and Rasmussen, 2014).

2.2.1. Serious play in academia

For the reader, there are certain key elements to consider. Lego Serious Play began as a problem-solving mechanism for the Lego Corporation and was solely dependent on practical outcomes for its survival. From the author's experience, this facet of the process is important to establish in the outset, before any well-meaning question of "Do you see an application of this for business?" attempts to derail the process. This is an industry technique forged from real-world application and one that survived the trial-by-fire process of getting Lego out of a financial crisis and into profit. The evolutionary process Lego undertook with LSP, particularly with regards to "If it does not work, the process is over" attitude outlined by Kristiansen and Rasmussen (2014), turned LSP into an industrial strength facilitated method to be adapted into academic contexts. While it may not translate easily (or at all) to complex structural equations; partial least squared analysis or correlations, enough success has been invoked through the process to warrant legitimacy at the industrial scale.

Similarly, although this process may be new to the reader, and relatively unexplored in the marketing literature, it was initiated in 1996, patented in 2001, and open sourced in 2010. The LSP method has weathered economic downturns, post-9/11 America, the Global Financial Crisis, the rise of the internet, and a host of other conditions that are ill-suited to the survival of a faddish management technique with technicolor toy sets. That marketing is once again late to the party is indicative of a problem in our house, and not reflective of the viability or survivability of the technique. Finally, the decision by Lego in 2010 to go into open source was described by Kristiansen and Rasmussen (2014) as taking the third path between the decision of "Gear up or Give up," where instead the platform chose to "Grow up." A conscious decision by Lego was, and remains, to use the open source approach to expand LSP's value to the community through public development (Nerantzi et al., 2015). Contributions based on the LSP core tenets are expected to adhere to the principles of open source – public availability of shared knowledge, new developments, and to reinvest contributions back to the community to forward the advancement of LSP as an ongoing activity. The necessity of giving back to our community may run contrary to the desires of publication houses for exclusivity, and we need to adhere to the rule of the open source community in the development, delivery, and use of this LSP process (Hyvönen, 2014). As the methods and techniques presented here owe their pedigree to the open source community, and the willingness of Lego to share, so too will any derivation on these themes in the reader's practice.

2.2.2. Serious play and service dominant logic in the classroom

Similarly, the principles of service-dominant logic have survived similar market conditions and trial by peer review across the decade and a half following that Vargo and Lusch (2004) paper. The approach of moving from the value of objects as inherent in possession, to the requirement of participant interaction to create value through use opens the opportunity for temporary applications of reusable objects to create significant meaning and affect

for the customer. SDL has recast the role of objects as embedded services, meaning that possession is no longer nine-tenths of the lore in marketing thinking about value creation. As value becomes time and context-dependent, and reliant on the situational conditions of use, demonstrations of co-creation move from the abstract (you own, you have value) to the applied (how do you use what you have to make value?). Within the classroom environment, although education is largely recognized as a coproduced and co-created experience (Dann, 2008), demonstrating the flexibility of co-creation requires open-ended experiences based on replicable frameworks to be taught six times a week across different tutorial cohorts. To that end, the Lego Serious Play platform is present here as a case-illustration of a protocol that supports replicability through the structure, and co-creation through participation in the classroom.

2.3. Facilitating the learning process

Integrating the LSP process into the classroom requires a level of constructivist alignment to fit the potential of the process to the purpose of the course (Biggs, 1996). Alignment can transpire at the graduate attribute, learning outcome or assessment task level. For example, programs and courses with a Graduate Attribute in teamwork, communication or similar functional skills can use the LSP process for the meaning-making, active listening and distributed cognition skills sets. Course and subject level learning outcomes can be reached through tailoring specific questions within the process to engage key knowledge activity (demonstrate an understanding of marketing), or specific cognitive tasks (apply consumer insight to developing a segmentation strategy). Subject level learning outcomes can provide a roadmap for using the LSP protocol late in the semester for a concept and content review. A specific group assessment LSP activity (assignment alignment) was developed for improved teamwork and collaborative understanding in group assessment tasks with the aim of having team members model and explain their understanding of an assignment task to each other to confirm alignment on core areas before assessment submission. It is also possible to use the LSP process in a post-semester class review project to map learning journeys, and insight – for details see Nerantzi et al. (2015).

There are preconditions to assist the deployment of LSP as a teaching tool. First, the students must be in a position where shared knowledge will create a beneficial outcome (Blair and Rillo, 2016). Given LSP assumes that if you gather the right participants, the answer to a problem can emerge from those involved in the process (Hyvönen, 2014), it is important to have a problem to be addressed. This can be at the beginning of an assignment around project scope and team identity; partially through semester as a reflection of personal experience and content knowledge, or late in the semester to align an assignment outcome, the LSP process functions best when assigned a problem to explore, define and share.

Knowledge discovery emerges from the system through the use of Lego bricks to visualize ideas, and the necessity to explain those ideas through metaphor and story (Kristiansen and Rasmussen, 2014). LSP functions most effectively in the absence of a "perfect solution" as it better suits discovery rather than recall. A question of "build a model of the AMA (2007) definition of marketing" has less freedom to explore than a question of "build a model to explain your understanding of the value of marketing to an organization." As a knowledge discovery platform, it can be used as a two-stage process of establishing agreement as to the understanding of a problem, followed by the discussion of potential solutions. Core to the process of knowledge discovery is the movement from Lego as "representations of the real" and models of actual world objects, and into the use of metaphorical models, abstraction, and user-defined imagery (Fig. 1).

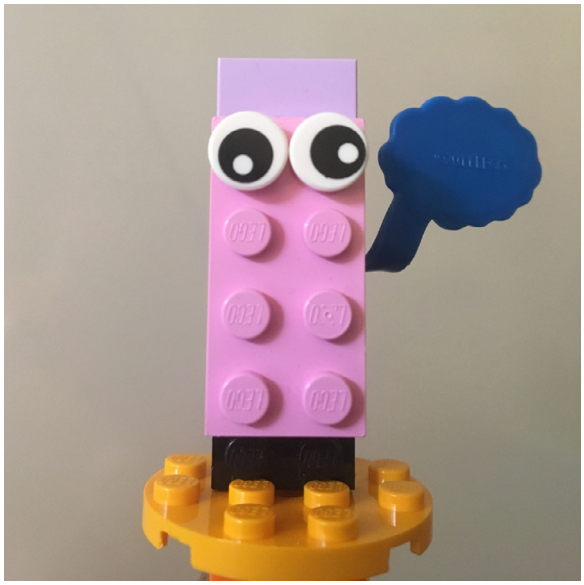

Fig. 1. Lego for meaning making.
Caption: It looks like you are trying to integrate Lego into your andragogy, would you like some help?.

3. Adapting Lego Serious Play to the classroom: a case history

As Lego Serious Play originated in the boardroom rather than the classroom, adaptation, and adoption of a commercial technique to a pedagogical environment has required the use of a social marketing mindset of "adapt, adopt and export" to creative fit commercial process into teaching spaces. Given social marketing's track record with borrowing commercial marketing interventions, it provides a conceptual lens to focus the recasting of a commercial tool into other contexts (Andreasen, 2001; Dann, 2010). To that end, following the adaptive path requires field testing, modification, and filing the serial numbers off theories and claiming them as new developments.

The recast of LSP was conducted across three studies A quantitative experimental design conducted in Canada in 2017, a retest of LSP protocol in 2017, and an expanded cross-disciplinary replication of the core framework presented in Section 5. As an exploratory examination of the impact of Lego Serious Play, and the suitability of the LSP process for the classroom environment, qualitative observational methodologies have been the primary data gathering technique minus the preliminary quantitative analysis of LSP interventions on creativity. Each study period is presented as a case study of key insight and learning from the period.

3.1. Case study 1: 2017 pilot paradoxical experience

A pilot study classroom intervention and 15 experimental sessions were used at the University of Lethbridge in 2017, with the Dhillon Business School in management and marketing. A pilot exercise in a management entrepreneurship course piloted two approaches – a short, six brick exercise known as "Operation Platypus: The Duck Build Exercise" and a case-specific use of the Lego Serious Play Landscape and Connections kits for exploring paradoxical tensions (Fig. 2).

Data collected via observational technique, student self-assessment within learning journals, and qualitative feedback. From the classroom pilot, the research workshops were developed

Fig. 2. The pilot test.

to test the value of LSP as a paradoxical tension-resolution system. Within this larger study, the efficacy of the warm-up and training exercise techniques were examined. Workshops consisted of two small teams (3–6 person per team), who were engaged in creating two 'warmup' exercise – the Tower, and the Metaphor exercise (detailed below). A sample of $n = 102$ students, industry and general public participants engaged in the process. Data were collected from surveys including qualitative creativity measures, and quantitative measures of self-reported items of creativity and confidence. Additional qualitative debriefing and observation data were used to support the study. For this paper, the key finding of the data collection was the necessity of three construction tasks to maximize the effect of the LSP process. By observation, model complexity was consistent between individual rounds. However, story complexity increased dramatically following the third construction.

3.2. Case study 2: 2017 education interventions

Based on the experience of the workshops, and the resultant need for a minimum of three constructions, the three-stage process showed significant similarity to the co-creation literature around difference stages of value – value in use, the value in exchange, and value in ownership. Within the process, the initial steps of learning to use the Lego in the warmup exercise demonstrated a coproduction orientation – participants used the Lego to make a model, and both Lego and model needed to be present for the response to be generated. Similarly, the initial step of the second exercise asked participants to create from a pre-set list of models using pre-specified pieces. Coproduction resulted in assembled pieces with value arising at a predetermined interval (Ballantyne and Varey, 2008). Notably, the second half of the coproduction step resulted in the re-use an existing model as part of a process of meaning making – a method that was recognizably similar to the co-creation of value-in-use.

Data was collected by observational analysis, photo record, and extracts of qualitative course reflective tasks and end of semester evaluations. The study consists of 8 Australian and 4 Canadian teaching events. Analysis of anonymized post-class 'reflective tasks,' both immediately following the LSP session, and where LSP was raised later in the semester in a feedback item. Care was taken to separate the reflective task collection to teaching events where the author had no power dynamic through assessment or evaluation.

Each workshop was structured on a five construction round – Tower, Metaphor A and B, Restricted Inventory and Open Build. As with the Canada pilot study, the Tower and Metaphor A focused on coproduction through the use of existing resources for a pre-set outcome. Metaphor B and Restricted Inventory, and Open Build emphasized the use of co-creation techniques. The Restricted Inventory mode reduces the participant's available inventory to 15 bricks, five compulsory and ten self-selected, with all bricks selected before the participant knows what they will be building. Results of the qualitative feedback indicated both an initial, and ongoing, the impact of the open-ended constructions and restricted condition builds. Notably, students expressed in debrief sessions that the 15 brick model, combined with the need to articulate a story around both model and their knowledge gave them an opportunity to create something unexpected through their interactions.

> *Nice challenge to express theories in a very unconventional way*
> *– Male, Undergraduate, Session 6*

> *It makes me think more creatively and think of something for the assessment that I have not thought before.*
> *– Female, undergraduate, Session 4*

> *We can build the model by ourselves and show them with my team members and also we should say a story or meaning of it. It is freedom.*
> *– Female, undergraduate, Session 12*

This resonates with the Ballantyne and Varey (2006) vew of co-creation conditions including spontaneity and dialogical interaction. By removing the infrastructure of plans and pre-set requirements, the students were able to engage deeply in the co-creation process by using models, pieces and meaning-making in unexpected (to them) manners. Having identified the co-creation opportunity within the model though 2017's workshops series, attention was turned to maximizing the method of creating value from the Restricted Inventory build. Several participants noted raised levels of cognitive dissonance, frustration and opportunity cost from selecting pieces before the question being raised.

> *"Having to select the pieces before the upcoming unknown event round really forced my hand. I kept thinking "If only" about the pieces I wanted to use to answer the question, but didn't know to select*
> *– Female Respondent, Debrief, Session 12 2017*

Based on respondent feedback, and elevated levels of cognitive dissonance, an additional variation on the Restricted Build model was piloted on an academic cohort in late 2017, whereby the 15 piece model was paired with a second exercise that allowed participants to create a model in response to their original build. The "Call and Response" model has been the focal point of the co-creation experience for the 2018 education events.

3.3. Case study 3: 2018 interventions

Having established a sequence of movement from coproduction to co-creation through decreasing the level of intervention in the brick sets, the final step has been to integrate a fully self-determined build structure into the process. With the "Call and Response" exercise, the participant starts from the compulsory selection of five (5) pieces and ten additional for the "Call" part of the exercise. The call challenge uses questions that will establish a potential response – for example, a question that asks participants to "build a model of their customer's needs" creates an opportunity to respond with a model as for how those needs are met by the product, project or proposed value offer. Similarly, models of future opportunity create the potential for response questions that

Fig. 3. The asset.
Caption: Contents of a Lego window exploration bag in an Adafruit window tin.

focus on how opportunity can be pursued, what steps can be taken or similar planning orientated questions.

Data from the 2018 education interventions were captured using qualitative self-report instruments, observation data, collaborative field observations, and a Polaroid camera. Qualitative reflective feedback was captured by cohort data for two postgraduate Masters classes ($n = 150$), and three undergraduate management classes ($n = 180$). Students completed an in-class activity sheet and a reflective task, which they submitted to their respective class teacher. During the marking process, the teachers, tutors and marking team collated feedback that was provided to the author, maintaining a double-blind level of anonymity for the students. It also meant the author did not have to try reading 500 or so handwritten feedback sheets in under a fortnight. Results from the 2018 education events have informed the development of the Step-wise guide.

4. The step-wise guide to using Lego Serious Play in the classroom

Three aspects of the process are noted at the outset. The author is a trained Lego Serious Play facilitator and endorses the use of the training processes both in Australia and overseas. While Serious Play suffers the marketer's curse in that anyone can claim expertise without qualification, as academic marketers, we should recognize the importance of formal training. What is presented here is a trial opportunity based on 90 education workshops by a qualified practitioner, and a starting point for other marketers. Second, the process documented here is designed to fit a 2–3-h window and requires the expenditure of capital for Lego hardware, and time for the activity to be valuable. For classroom teaching, the author recommends the Lego Window Exploration Bag (https://shop.lego.com/en-AU/LEGO-SERIOUS-PLAY-Window-Exploration-Bag-2000409) repacked into an AdaFruit window tin (https://www.adafruit.com/product/1471) as illustrated in Fig. 3.

For the paper, the three other pre-made kits – Starter Kit (https://shop.lego.com/en-AU/LEGO-SERIOUS-PLAY-Starter-Kit-2000414), Connections Kit (https://shop.lego.com/en-AU/LEGO-SERIOUS-PLAY-Connections-Kit-2000431) and Identity & Landscape (https://shop.lego.com/en-AU/LEGO-SERIOUS-PLAY-Identity-and-Landscape-Kit-2000430) will not be addressed.

Third, the following outline describes Ballantyne and Varey (2008) 'known resources and requisite capabilities' approach to co-creation. To maximize the effective delivery of the LSP process, frameworks and structures are pre-established to guide participants into the co-creation opportunities. This is not an open-end "Here is a puddle of Lego, good luck' mechanism, as that is a separate process that uses different hardware (Fig. 4).

That is a puddle of Lego, and it has a separate purpose not covered in this paper.

Fig. 4. A large puddle of Lego bricks for unrestricted co-creation.

4.1. A sample Lego Serious Play classroom activity

The following section outlines a sequence of task-specific exercises to guide participants in learning to apply metaphors to brickwork and develop story making skills that integrate meaning into their models (Kurkovsky, 2015). This is one pathway to attaining the required skill set, comfort levels and personal engagement of the students, and alternative approaches can and do, exist, and the reader is encouraged to explore different exercises to suit their own class needs and facilitation style. The Lego Serious Play workshop is built upon practicing the Three Permissions, deploy a Target Exercise for maximum gain, and a debrief session.

4.2. Three permissions

The first phase of any Lego Serious Play workshop is the creation of a safe environment conducive to sharing, exploration and social risk-taking. The workshop proceeds through a sequence of "permissions" whereby the task activity introduces the participant to a core concept of serious play and gives them experience which is built on in subsequent steps. The process follows a sequential learning pattern of introducing the process of model making, then meaning-making, then combining both under a changed condition. The creation of a safe environment comes through the use of the following internalized permissions - Play, Ownership, and Use.

4.2.1. Permission to play: the tower

The first activity in the workshop is aimed to both introduce participants to the Lego set, and to either acquaint or reacquaint the individual with the creation of a model from Lego pieces. Students are asked to construct a tower with the criteria of "as elegant, as stable and as tall as they feel comfortable building." Construction time is one minute, with a reminder at halfway and ten seconds remaining. This first activity engages the first experience of constructionism where the individual places pieces together in pursuit of a model that is tall, elegant, and stable (Fig. 5).

Participants are invited at the end of the build time to move in sequence around their group (Player 1, Player 2, etc.) to introduce themselves, and "Share the story of their tower, what makes it their tower, and what is special about it?" Although tasked with a structural sequence of cues, reframing the explanation to personalization "What makes it your tower?" activates a story-sharing mode, and introduces the participant to several techniques that are built on in subsequent rounds, including the ability to share information in a short time window (30 s). This activity is a classic co-production environment where pre-set pieces off a menu are used to construct a user-generated experience, within the boundaries of the available time, task, and assets.

4.2.2. Permission to own: Metaphor A and B

Permission to own is conducted in two steps – Metaphor A and B. Metaphor A continues the co-production approach by asking participants to build a model as per specification from a pre-set sequence of bricks and a predesigned model (Fig. 6).

Following the construction of the model, participants are invited to modify, change, rearrange, or build in support of the model to be able to use the model to answer a question such as "What brings happiness to your day?" or "What is your goal for the semester?" (Fig. 7).

The purpose of the exercise is to encourage the students to take ownership of the meaning of their models through storytelling, meaning making and visual metaphor. This exercise is valuable for marketing students, particularly those with limited marketing communications training, to be able to explore the use of visual metaphors as part of their repertoire of marketing techniques. For those embedding SDL or services theory into the performance, this

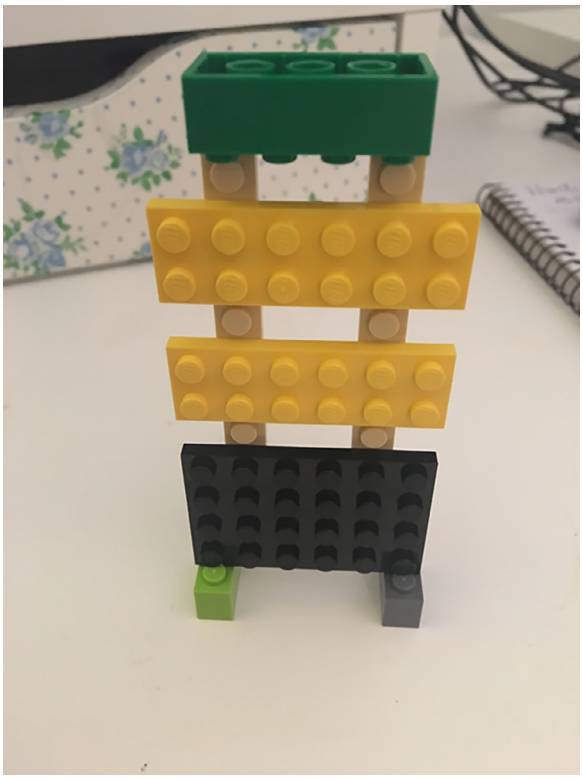

Fig. 5. The tower.
Caption: The Black Lego 4×6 base plate is recommended as a compulsory part of the build.

is an opportunity to explore the creation of meaning, and the customization process as part of a service-dominant Lego environment where the pieces hold no meaning without the contribution of the creator. Consequently, issues of inseparability arise as no other person can place meaning on a model, so the creator must participate for the Lego to have a value-in-use capacity.

The Permission to Own phase also introduces the use of the Lego Serious Play questioning technique. The LSP approach requires that questions are asked of the model in a manner that does not place meaning onto the other person's build. For example, a question that asks "Why that piece?" or "What does that brick represent?" can be used to extract more of the story from the model maker. Unlike traditional academic questions, participants may not make statements with "Right?" or "The model means X, yes?" Nor may they repeat back the storyteller's previous statements to seek confirmation. Questions are asked to give the builder the opportunity to tell more of their story, including the opportunity to change and modify previously stated meaning.

This phase also introduces two significant safety caveats – first, as the builder owns the meaning of the model, they have the choice as to how much, or how little, of the meaning, they chose to disclose. This aspect of the co-creation process also evokes the concept of emotional labor and cognitive labor that is an additional psychic cost for the consumer to bear during a co-production or co-creation process. The hand-mind connection through constructionism can surface unexpected thoughts, feelings, and emotions, particularly when elements of the model are questioned as to meaning or representation. To that end, the second safety mechanism of "it's always okay for a piece to be 'just a brick'" is introduced. For some participants, the surfaced idea or emotion can be defused by stepping behind the model and stating "it's just a brick," and other times, connecting Brick A to Brick C requires Brick B, and the brick has no metaphorical value beyond being just a brick. As the author has reduced several participants to tears dur-

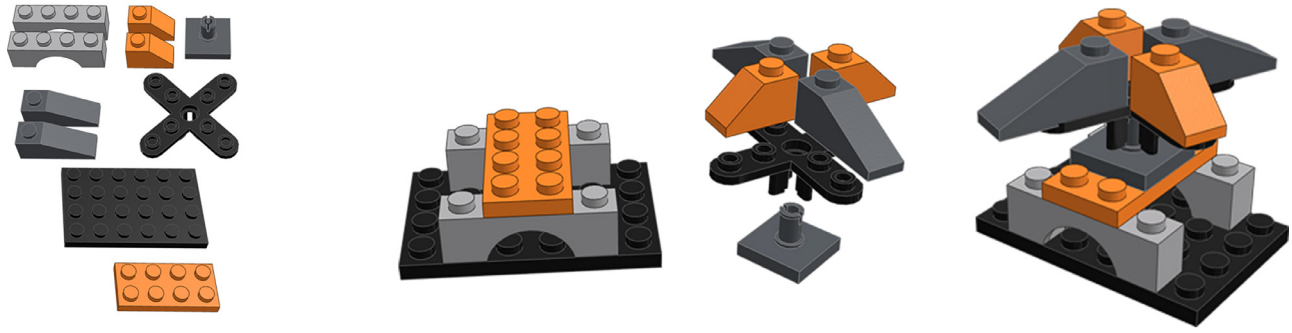

Fig. 6. Instructions for the base metaphor model.
Caption: As meaning cannot be ascribed to another person's build, the pre-set model does not have a working title.

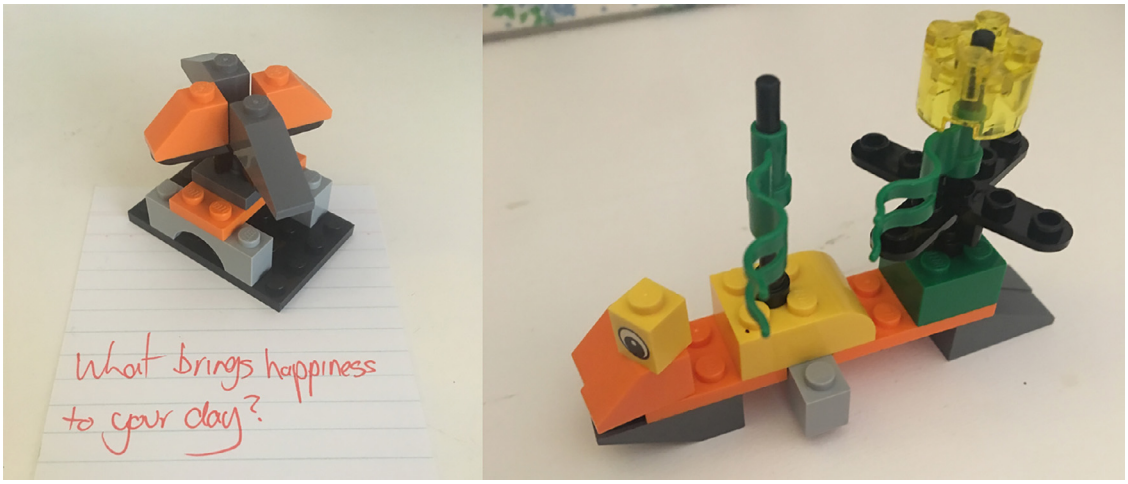

Fig. 7. From model to metaphorical.
Caption: Taking ownership of the Model by making another person's design into your meaning.

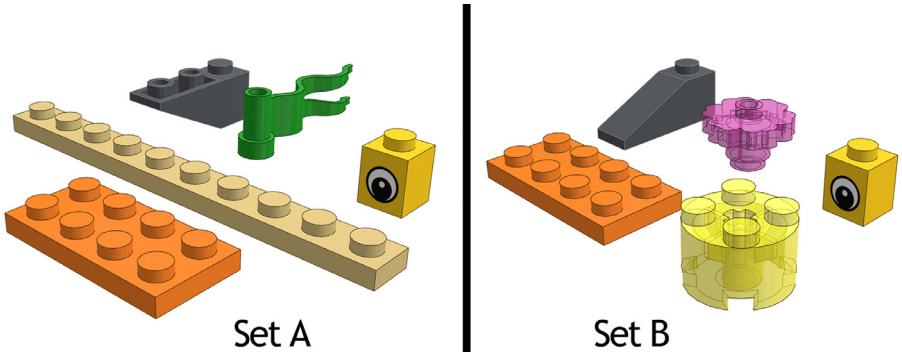

Fig. 8. Compulsory bricks.
Caption: Surprisingly few people elect A and B plus 6. Models made in mecabricks.com.

ing this phase, it is important to always ensure the psychic safety of the participants by giving them the control over the meaning, and the option to step back behind the model.

4.2.3. Permission to use: call and response

The third phase of the training and warm-up activity builds on the prior techniques by adding a restrictive requirement to force creativity through scarcity. For this exercise, a Lego Efficiency Dividend is applied to reduce the Lego inventory to 15 pieces – five (4) compulsory pieces from a choice of two sets, and ten pieces additional pieces to chosen by the participant (Fig. 8).

Participants are required to select the pieces before being informed as to the purpose of the build, or the question to be addressed. This creates a necessary condition of uncertainty requiring the individual to decide under limited information, and dovetails with the recommended processes of "trusting your hands." As noted above, the unknown, uncertain task condition can be used for a range of different question types when partnered with a response model. As this phase reduces the emphasis on the bricks, and raises the coproduction/co-creation of meaning as central to the success of the round, it moves individuals towards focusing on their storytelling (Fig. 9).

This is the first point of significant co-creation of value through the Lego medium. Time permitting, and content connected, it is worth engaging the students in reflection on any perceived difference between the Metaphor A/B round, and the restricted inventory. As with the previous phase, questions are used to encour-

Fig. 9. A restricted brick build.
Caption: Compressed construction creativity due limited brick budget encourages expansive engagement.

age further development of the builder's story. The initial aspect of uncertainty, combined with cognitive dissonance (why did I select these pieces), and the level of complexity of the build task (a definition of a core subject matter concept) can invoke pushback from the audience. In the event of resistance, indicated by the non-verbal reaction, verbal feedback, and body language (arms crossed, leaning away from the Lego), it is important to reiterate the principles of the LSP process – builder owns the meaning of the model, trust your hands, and trust yourself. This activity also requires a level of risk-acceptance from the participant as they have to set their resources without full knowledge, back their previous decision through their build, and place greater weight on the story they tell than the complexity of their build. In essence, this round creates a microcosm of the customer side experience of having to co-create their value in complex product offers. After the creation of the Call model, the facilitator may continue with either a discussion phase (30 s to talk, 30 s questions), a written reflective task (1 min), or combination of both before asking for the creation of the response model.

The response model processes invite the participants to use the remaining Lego pieces set aside from the first build (approximately 34 parts) to construct a model as a "reply" to their first build. In doing so, the participants experience a full co-created environment in that the meaning, function, and purpose of the second model is dependent on their previous round of construction, and the questions are seeking to address elements such as "How will you act on the decision made in the first model?". After the build time, participants are invited to share the story of both models, with an extended speaking time (1 min), and question time. This

> *I really love this activity, how it uses Lego to really tap into one's mind and thinking.*
>
> *– Female, undergraduate, Session 5, 2018*

4.3. Targeted exercises: accessing the knowledge inside the student

The fourth phase and any subsequent phases of LSP exercises can be based on the core outcomes of the task. While the questions in Phases 2 and 3 can be structured to produce insights valuable to the students; they remain training activities. At the fourth construction, participants are conversant with method and technique and have used a range of build styles (minimalism, maximalism, and modification). The fourth phase build is left as an open-ended task for the facilitator to design a purpose and role for the question to be asked, and the process of discovery to be undertaken. For example, role setting builds can be used to create models to outline a participant's desired role within a team for a forthcoming project. Alternatively, projective exercises using "What do I?" and "How do I?" questions allow for the LSP process to be used for goal setting, task orientation, and goal alignment.

> *I liked this session because I realized that if I just start talking, the story tells itself. My ideas are worth sharing,*
>
> *- Male. Undergraduate, Session 5, 2018*

Finally, where used late in the semester, the open build can be focused on an assignment alignment task whereby students to construct a model in response to the question "what do I understand my group assessment to be about?" Students work in assessment groups during the workshop, and at this round, are encouraged to take notes as to the similarity and difference in views within the group for post-session evaluation and discussion. The open build rounds rely strongly on the co-creation of experience through the making of models and sharing of meaning within the discussion groups and may prove a rich area for in-class discussion

> *New interesting way to get ideas out when you don't even know if have them in your head already*
>
> *-Postgraduate, Female, Session 8, 2018*

4.4. Debrief

If you do not have time to debrief, you do not have time to run a session. As the process is structured to use a warm-up period, this is the cooldown and post-exercise stretching part of the event. Given the way Lego Serious Play gets under people's skin, uses different thinking patterns through hand-mind constructionism, and surfaces knowledge, it is important to give participants a chance to express their experience in the debrief process. A standard debrief script talks through the process of Serious Play, how constructionism uses different ways of thinking, and that may be a new experience with the repercussion of surfaced thoughts or a slight case of brain itching post-session, and how the classroom process is considerably accelerated and compacted compared to industry experience. Facilitators should set at least five to ten minutes aside to allow for time for people to also explore the event in context with their peers – a brief discussion of "How was the experience?" can help normalize sensations of surprise as to the effect and impact of playing with Lego in a structured process. As with warmup activity, removing this section does not save time, it simply wastes the whole of the session length

5. Caveats to the process

Lego Serious Play is a modular, flexible and highly adaptive imperfect tool for the classroom. The strength of the methodology lies in the capacity for discovery, tapping into both known experience, and unlocking previously unknown knowledge within the student. To this end, it suits scenarios where discussion, differing viewpoints, and subjectivity are valuable – it would not suit perfect recall environments, lower order thinking associated with memorization and conditions that have single correct responses.

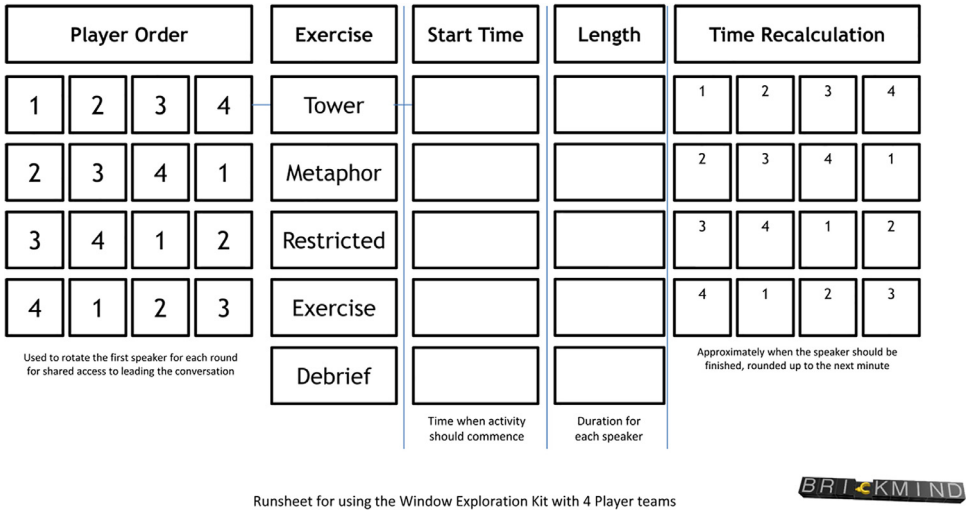

Fig. 10. The Runsheet calculator.
Caption: The recalculation sheet also incorporates speaker rotation so all participants in a four-person, four exercise event have the pleasure of going first.

5.1. Time

Lego Serious Play is time expensive within the context of the modern university. The author has reduced the workshop run-time from an initial 4-h process to a 90-min event. However, on testing, when reduced to a 60-min operation, the workshop fails to reach the fourth phase build and becomes all warm up with no delivery. Attempts to circumvent the three-phase warmup were tested in the Canadian conditions in Case Study 1, and findings from the experiment demonstrated a need for three builds before metaphor, meaning-making and story complexity emerged. The time "saved" in reducing the warmup results in whole-session effectiveness losses, rendering the few minutes shaved off the front end immaterial and deeply counterproductive.

In workshop planning, time is allocated for building, speaking, and questioning in advance – the second round metaphor exercise, participants are allocated two rounds of 2 min to construct their model. Following the construction, each speaker receives 30 s to speak, and their tablemates have 60 s to ask questions. Consequently, a four-person group requires a minimum of 6 min of speaking time, and a six-person group requires 9 min of speaking. Facilitators need to trade off the value of group size against available time to run the exercises.

Fig. 10 shows a sample recalculation chart for performing the necessary bistromath to arrive at the predetermined deadline when added time has been needed to address a group, share an outcome or reiterate the explanation of the LSP questioning process. Bistromaths is the recognition that the performance of maths is contextually specific (Adams, D, 1989), and as such, numbers, equations and similar processes are determined by their likelihood of succeeding in awkward locations without a convenient notepad, or when attempting to calculate the splitting of a bill at a pre-conference dinner (Dent, 2007). The field of bistromath is relatively underutilized in teaching, where time, relativity, and the propensity of numbers to be wiggly under pressure are used to readjust temporal allocations to ensure that everything is wrapped up before the lecture ends.

5.2. Ownership of meaning

Ownership of the meaning of the model, and the inability to project interpretations onto others constructions may be frustrating to facilitators wishing to apply post-facto analysis, content analysis or any observational data collection processes. No data resides within the brick, either through n-count of pieces or use of colors, shapes, and sizes. Observational measurement of similarity and difference in physical models is similarly ineffective as brick choice is secondary to applied meaning – only the words said by the participant can be captured and contrasted. Any other efforts to use the bricks for data is an exercise in metaphoraging, the post-facto assignment of meaning to collages for the purpose of publishing from visual datasets is to be discouraged as such treatments would impart meanings other than those expressed stated by the builder.

5.3. Roles in the process

5.3.1. Facilitator

The teaching academic will take the role of facilitator who sets the terms and conditions for the activities, monitors the duration and notifies participants of key intervals (start, stop, halfway). As a moderator, the academic does not use the Lego during the sessions – they should familiarise themselves with the assets before the workshops to be able to guide and assist students with unfamiliar combinations of pieces. Facilitators model the ideal behavior, inclusive of not commenting on models, passing judgment or engaging in meaning-making for someone else's model. This role shift can pose a challenge where the facilitator is either used to repeating questions as reinterpretations or has previously used their role to correct student interpretations of concepts, ideas or frameworks. From the author's experience in LSP facilitation, not imparting meaning by questioning is the hardest aspect of the facilitation process.

> *No judgments and no expectations which made the whole experience more collaborative*
>
> *- Male, Postgraduate, Session 4, 2018*

5.3.2. Participant

The role of the student participants is to engage in the activities with an open mind by "thinking with their hands, listening with their eyes, and responding by building." Thinking with the hands is an active invitation to engage in the constructionism processes (Roos and Victor, 1999) through modeling abstract ideas in Lego to generate a hand-mind connection. "Listening with the eyes" is the means by which participants are invited to look at the model rather than the speaker during the explanation processes.

From awkward to not awkward, this practice makes everyone engage in. I think everyone is enjoying this, flash back to the childhood time, and the practice does help people share the thoughts
– Male, Undergraduate, Session 2, 2017

For some students, the encounter with Lego raises psychic resistance, either due to the unfamiliarity of the exercise, the perceived childishness of the Lego, or, in cases of students from collectivist cultures of Europe and Asia, a reluctance to commit to an unknown outcome without shared prior agreement. Although the nature of play is conducive to risk-taking in the controlled circumstances of the play environment, so students may be sufficiently risk-adverse to want to disengage at the first process (Middleton, 2015; Nerantzi et al., 2015). Facilitators actively remind participants to "trust their hands, put pieces together and see what happens next" to engage resistant participants and to lower the perceived risk of performance in contrast to the perceived risk of non-participation.

The LSP procedure flattens hierarchical structures through the structured reflection, engagement and shared storytelling to create an equalized discussion. This may support or hinder team development, specific goals, and structures, and should be approached accordingly. The democratized voice also presents a challenge to established social orders, rank and hierarchy, and in industry applications of the process, this can often be confronting for managers, and senior staff to have to drop rank and title in the process. Again, this may be a positive for an MBA classroom with an aggressive alpha structure, or it may be too confronting to the established cultural order of the group to be engaged safely. While the process is designed to reduce the first mover advantage, and curtail the loudest voice, this needs to be considered as a facet of potential conflict, perceived loss or psychic challenge for the participant (Kristiansen and Rasmussen, 2014).

Finally, although the process presented in this paper is structured around individual builds, and single structure models, all participants in the LSP experience are engaged in the distributed social cognition processes of uncovering an answer within the system by shared dialogue. Caution should be taken around asking questions which require personal disclosure without establishing both the safety nets of "A brick is just a brick" and "builder owns the meaning of the model." As constructionism builds in the mind and the hand, students may unlock unexpected meanings and connections during reflective tasks and should be reminded that they always have control over the disclosure as they own the meaning of the model (Dixon, 2016; Blair and Rillo, 2016). This is a particular risk for the MBA cohorts with ambitious, aggressive or alpha types who may not take the safety message seriously, and push themselves harder than required in session resulting in tears, unexpected emotional turbulence, and extended debriefing tasks.

5.4. Process impact

The process needs to be respected by facilitator and participant. Facilitation training is widely available through commercial providers, and highly endorsed as the Lego Serious Play process has a strong pedigree in management theory, psychology, and a host of other approaches. Similarly, as the hand-mind connection can reduce psychic barriers, noted in the LSP language as "carving through the onion layers." Consequently, it needs to be used with caution – the combination of nostalgia from childhood toys, flow state for out-of-presence focus on the task, and constructionism for differing thought patterns can surface unexpected thoughts, feelings, and experiences. Facilitators are reminded that we are marketers and educators, and unless trained as psychologists, should not delve deeply into the minds of students without adequate backup and support.

You bastard. You broke me. Scratchy skull might take a day or two to recover.
Stupid magic bricks.
- Academic Participant, Lego Serious Play Review Session, 2017

6. Implications for industry, praxis, and practice

Given Lego Serious Play is an industry evolved practice, and has been applied in boardrooms, meetings and consultation sessions worldwide, the adoption of the process into marketing classrooms would have the significant implication of bringing our andragogy up to speed with contemporary practice. One of the point of hubris for the marketing academy is the propensity to look upon any reported event and ask "So what are the implications for industry?" in conditions when Industry itself is well far in advance of our academy. Lego Serious Play was created, adopted, open sourced and adapted to different conditions by industry long before the academy took notice of the commercial knowledge gathering technique that took Lego from bankruptcy to top of the charts. Perhaps then the most important lesson would be to listen to industry, seek out a new technique, and explore the adaption, adoption, and import of commercial practice to the classroom environment. As students seek more and more real-world applications, the Serious Play method from the Lego Corporation fits exactly into a framework of andragogic validity, practical application, and commercial pedigree. Adopting this to teaching praxis will support marketing's drive for relevance, creativity, and constructive engagement with co-creation through a myriad of technicolor Lego pieces.

7. Conclusion

Lego Serious Play in the classroom is an experiential process that provides a structured framework to introduce marketing students to a range of metacognitive reflective tasks, different thinking styles, listening approaches and questioning patterns. It pushes the individual participant to do things differently by making with the hand and the mind simultaneously, by reserving judgment of others works, and by stepping back from hierarchical power structures of conversations based on the speed of reaction or volume of voice. This alone maps into the many nebulous learning outcome statements of communication, group work and verbal skills. The process also connects to the graduate attribute traits around leadership, critical thinking, and reflective practice. A well designed Lego Serious Play intervention can, in the space of a two or three hour experience, introduce marketing students to new ways of describing the world, listening to understand rather than respond, and ultimately, improve many of the processes we seeking from marketers in the commercial wilds – creativity, customer centricity and communication.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ausmj.2018.05.013.

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