A competitive game-based method for brainstorming and evaluating early stage design ideas in terms of their likelihood of success in the marketplace

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Abstract

This paper considers a game-based method for the early evaluation of design ideas in terms of the likelihood of success of the designs in the marketplace. The method was developed in the format of a multiplayer competitive team game for up to 120 participants. Known as the Marketplace Casino, it has been applied in both design education and industry. The paper reviews the evolution of the game with international play testing and refinement involving over 400 participants in Europe (UK), Asia-Pacific (Japan, Korea, China, Australia), and Africa (Ghana).

The research innovation discussed in this paper relates to the combination of game play and brainstorming with a real world simulation component for evaluation, aimed at improving both the quality and ranking of outputs. The research draws on game theory, game typologies, and game research and development methods using play testing and iteration that are comprehensively described in "Rules of Play" (Salen, 2004). Effective brainstorming principles are well practised and described (Osborn, 1963) as are case studies in design brainstorming (Kelley, 2001), along with pitfalls (Sutton, 1996).

Bringing a contemporary design to market can be complex and expensive. Techniques that improve the likelihood of success in the marketplace can potentially reduce the associated risk and cost. The aim of the Marketplace Casino is to link creative ideas generation to a marketplace evaluation through a simplified model (the "game") of a complex situation (the "reality"). The format is based on play specifically to enable a non-threatening and exploratory environment for participants.

The development of the game-based Marketplace Casino has focussed on product design and service design outputs. The author also considers its possible application to other disciplines in which creative output has to compete in the marketplace.

Keywords

Design management and strategy; brainstorming; design enterprise; design evaluation; game play; design; marketplace simulation; design methodology

The evaluation of early stage or concept design ideas in terms of likely success in the marketplace can be an elusive and risky process. When designs are at a very preliminary stage, much of the data that could be used when evaluating a more developed design is yet to be generated. For businesses, this uncertainty of information equates to risk: the risk of investing in products or services that may fail in the marketplace. This paper discusses a game-based method, called the Marketplace Casino, that has been developed to assist in the early stage evaluation of products and services in the marketplace context.

Aim

Bringing a contemporary design to market can be complex and expensive. Techniques that improve the likelihood of success in the marketplace can potentially reduce the associated risk and cost. The aim of the Marketplace Casino is to link creative ideas generation to a marketplace evaluation through a simplified model (the "game") of a complex situation (the "reality"). The format is based on play specifically to enable a non-threatening and exploratory environment for participants.

Issues

The research innovation discussed in this paper relates to the combination of game play and brainstorming with a real world evaluation component, aimed at improving both the quality and ranking of outputs. Game theory, game typologies, and game research and development methods using play testing and iteration are comprehensively described in "Rules of Play" (Salen, 2004). This book was influential on the game designers' approach, in particular play testing and iteration.

In developing a game simulator, a key challenge for the research was how to take a complex real world situation and simplify this into a reduced set of "features" with core rules that could still result in a complex and relevant process and outputs.

Effective brainstorming principles are well described (Osborn, 1963) and these were reviewed by the author, and a number tried in advance of the Marketplace Casino development work. Brainstorming case studies in design (Kelley, 2001) were also reviewed, along with pitfalls (Sutton, 1996). Sutton in fact questions the value of brainstorming compared with individuals working on ideas in isolation.

From the review of other brainstorming methods, the development of the Marketplace Casino aimed to address a collective of issues that have previously been difficult to capture in their entirety in brainstorming for early stage design evaluation. The range of issues that the game was intended to reflect and incorporate were:-

- The competitive element between newly launched products and services
- The ranking of ideas in a hierarchy that indicates likelihood of market success
- The random intervention of significant events, known as Force Majeure, that upset market conditions
- The use of a simplified set of assessment criteria for ideas
- Briefing starting points that were inspirational but not constraining
- The use of a consumer panel to influence idea evaluation
- A gaming technique that was both easy to learn and entertaining
- Self-documenting output

The innovation of the Marketplace Casino is in the combination of these elements into a single ideas generation and evaluation method.

Context for play

Donald Winnicott perceived creativity to be a thing in itself that is present in all individuals and expressed through play. "..in play, and perhaps only in playing, the child or adult is free to be creative, and to use the whole personality, and it is only in being creative that the individual discovers the self.." (Winnicott, 1971). Winnicott believed creativity gave a person's life meaning. The use of play with adults, that is

playing with ideas, and imagination add to one's creativity.   He described Transitional Space as the space situated between the inner and outer reality, between subjectivity and objectivity. In the organization, transitional space refers to a situation where past and future are present at the same time; it is a transition, it is not 'real' yet. Fantasy and creativity are central in this space and the aim is to prepare for the future.

In terms of the psychology of play and environment a game essentially creates a small world for the players – a safe world in which the rules are known but the outcomes uncertain. The ontological framework that sets up the rules within the game enables the complex systems of ideas to interact and provides the dynamic and didactic impetus for the players. The players learn to decode the frameworks and forms that underpin the games as they play them, essential to understand in our quest to "win", which is what makes them so useful as Learning Tools.

Conceptual framework

The game methodology and mechanics described by the paper evolved from investigating ways to facilitate the forms that groups of creative people employ to achieve outcomes. The particular processes, resources, cycles and sequences of events used by a group to achieve an objective, carry the *imprimatur* of that group's success. What may appear as chaotic to an outsider, may contain extremely complex codes of behaviours, and a culture which mark the success of one group against another. Consider the unique *modus operandi* that distinguish one leading design studio from another, or what the Italians term *sopra la bottega*, the "all hands on deck" atmosphere of creativity that pervades the small family factory above the store.

The research context relates to these forms (processes, resources cycles, sequences, cultures) and in particular those that govern the successful development of creative ideas. The research interest is in mapping these forms and synthesising them sufficiently to create games that seek to teach, simulate and generate the complexity of successful early stage design.

Kokotovich (2008) points out that the problem with treating design as a game per se is that there are few rules in design. The author's approach is to propose the framing of a game as just one element *within* the design process. Hence, a simplified and restricted rule-based component is possible that aims to enhance the overall freedom of the design process. Additionally, the game milieu, taken as a group exercise, aims to benefit the personal pattern of experience of the individual designers (Harfield, 2007), in both a professional context and an educational environment – reflecting the value of group working in design (Barlex & Rutland, 2008).

Value in the marketplace is qualitative and quantitative, so a system was required that considered both of these. For the distillation of value into simplified but highly focused elements, the game designer Jameson drew on a method developed through his marketing consultancy, known as the Jameson Criteria.

Research Method

The early evaluation of design ideas was developed in the format of a multiplayer competitive team game for up to 120 participants. Known as the Marketplace Casino, it has been applied in both design education and industry.

The game development was initiated with a games brainstorming activity between the two creative practitioners: their backgrounds were a designer and educator (the author of this paper), and a marketing expert. Through a series of workshops, the game designers roughed out a gaming process that reflected their combined

experience of designing and marketing commercial products and services. The rough games were mocked up with physical components and then a further series of workshops was undertaken with a number of play testers, typically 4-6 in a session. The gaming rules were refined as a result and the game was given its first full play with 64 people drawn from a range of disciplines in the design and creative industries, including: product design, retail, marketing, innovation investors, management. Following this large scale test of the Marketplace Casino, which lasted around 3 hours, the rules were adjusted to improve playability.

The game design team was expanded in 2007 when a creative industries expert joined the developers, and with this contribution Version Two became the definitive version for subsequent extensive use.

From 2005-2009, the game received international play testing 400 participants in Europe (UK), Asia-Pacific (Japan, Korea, China, Australia), and Africa (Ghana). The aim was to expose the system to many cultures and players, while documenting the outputs and evaluating these with the help of a multidisciplinary group of experts.

Participant feedback was also collected in various ways, for example: through interviews, discussions and feedback forms.

The game rules

Introduction

The Marketplace Casino is all about creating great ideas that can succeed in the marketplace. But unlike conventional brainstorming, the Marketplace Casino also selects the best ideas. The game is competitive and it is about survival of the fittest ideas. The Jameson Criteria are used as the basis for judging success. These are: better, more, cheaper and wow!

To generate ideas, the game has over 60 briefs that are dealt out to teams. These are deliberately vague but also interesting and often humorous puns. A selection of the briefs is: the 7 year niche; buy 1 pay for 2; the divine right of ultimate selfishness; supersize me; million dollar baby food; a funeral service to die for; senior moments; an inconvenient truth; times squared; the pleasure principle; eclectacity; patients is a virtue; truth or dare; property is theft.

The game is for 8-120 players - the system becomes unwieldy beyond that. These rules give a "knockout" format for 24 players, which can be adjusted.

Key gaming elements

- JAMESON CRITERIA TOKENS (round poker chips are used): Blue = Better; Red = More; Green = Cheaper; White = Wow!

- CONSUMER PANELS (4 people at a table): Will make your idea live or die

- FORCE MAJEURE (cards): Can upset even the most winning ideas

Rounds

- Practice Round: the game begins with 4 gaming tables. 3 teams (each team has 2 people) sit at each table. Each team is numbered (team 1 to team 12). The practice round is for everybody to get to know the rules.

- Round 1: as per the practice round, the game begins with 4 gaming tables. 3 teams (each team has 2 people) sit at each table. Team numbers can very a little and do not have to match between teams, eg: 1-3 people is fine in a team]

- Round 2: the winning teams from each table then join one of two new gaming tables. For this round, there are just two teams per table.
- Round 3: the two winning teams from each table then join a single gaming table for the final round.

Order of play in each round

Each team starts with six white tokens in front of their marketplace casino placemat.

A briefing card is dealt to each table face down. This card has the brief from which the ideas have to be generated.

The card is turned over and the teams have 5 minutes to come up with their idea. The idea must be a product or a service that responds to the brief. Each team must write their idea on a blank card as a sentence or a couple of sentences. The teams also write their team number on the card.

Each team the nominates a member who takes the idea to a consumer panel to make the pitch. The pitch lasts for 1 minute. During the pitch, the panel are not allowed to ask any questions. The consumer panel will form a view about how good the idea is. The panel marks the idea on the basis of the Jameson Criteria to compare the idea with competition in the marketplace:-

- Better: it is simply a better product
- More: the consumer gets more functionality or more of it
- Cheaper: it costs less
- Wow! It is unique, instantly desired and creates an impulse to buy and own

The consumer panel will award up to 5 tokens of each colour at the end of the pitch. The team member returns to their team with these tokens and now goes head to head in the marketplace with their gamble.

Tokens are placed by each team without the other teams seeing where they go or how many there are. The coloured tokens have to be placed on their respective positions on the team placemat. The white tokens can go on any position.

When the tokens have been placed, one person from each table goes to visit the Force Majeure facilitator to have a go on the computer fruit machine. If a strawberry, cherry, or pear shows up on any of the fruit reels then a Force Majeure card is given out for each fruit type (if a particular fruit shows up more than once then only one card for that fruit is given out). Fruit types are as follows: Strawberry = Better; Cherry = more; Pear = Cheaper.

Any Force Majeure cards are taken back to the gaming table and turned over. They will affect the tokens of every team at the table (they may be increased or decreased, or moved around).

The tokens of each team are then revealed. If a team has a bigger pile of tokens in a particular placemat position than the other teams, then the other teams have their tokens in that placemat position removed.

The winning team at a given table has the most tokens remaining on their placemat. The winning team then returns their tokens and goes through to the next round.

If there is a tie with the number of tokens then more than one team can go through to the next round. If it is the final round, the teams become joint winners.

Results

In addition to the individual documented ideas resulting from the game, the outputs from the game play were sorted via the knock-out selection process into a hierarchy of ideas. In each game these outputs were reviewed by expert facilitators to see if the selection hierarchy was credible. Additionally, in cases where there was a known standard of the designers that produced the ideas, the quality of each designer was reviewed against how well they did in the games.

The facilitators included a mixture of disciplines typically with 10-20 years of experience in their respective fields. The disciplines were drawn from industrial design, marketing, design management and innovation design.

The outputs were also reviewed by pseudo clients in the situations where these were involved. Pseudo clients were leaders from collaborating businesses or institutions - government or academic.

The outputs from the game play were split reasonably equally between ideas for artefacts and ideas for services. Some ideas (around 25%) incorporated a combination of both artefacts and services.

The ideas were often lateral and insightful. A characteristic of many design proposals was an element of humour, both in the way the teams presented and in the ideas themselves.

The collection of ideas from the game play over several years has been extensive. Some examples include: a new movie format called Hollywood 2.0 in which audience individuals can participate as actors on screen; a funeral service that you can enjoy well in advance of your own death; an honest promotion system for affordable products rated as worse, worser, worst; an instant $100 home; new no-effort dieting products; a boy band pop competition for the homeless; fashion that comes in tin cans; a loan system for artworks at home; tradable religious components to bring together faiths.

Participant feedback was almost wholly positive and varied to an extent between stakeholders – players, reviewers and clients. Positive comments reported as feedback by stakeholders were: good to have the link between brainstorming and marketplace factors; encouraged lateral thinking; good collaborative and competitive mix; entertaining and enjoyable; good for networking with participants; best ideas tended to go forward each round; caused the participants to think more about the market when designing. Negative comments were that the practice rounds were generally very chaotic as people struggled to assimilate the rules in advance of playing the game; apart from a few people joining the consumer panel, those who were knocked out early only had a subsequent role as an audience to the game.

The principle game plays carried out were: 2005 in the UK at the ICA with professional design practitioners (64 players); 2006 in Thailand with TCDC and professional young designers (30 players); 2006 in the UK with student designers from Royal College of Art (30 players); 2007 in Korea, with student designers from IDAS (120 players); 2007 in China, with student designers from Tsinghua (60 players); 2008 in Japan, with student designers from Tsukuba (60 players); 2008 in Australia, with professional design practitioners (30 players); 2009 in Africa, with student designers from KNUST (60 players).

In many cases, the game play was part of a collaboration between participants from institutions in different countries. For example, Figure 1 shows the game being played by graduate students in 2009, in a collaboration between two academic institutions: Royal College of Art in the UK and KNUST in Ghana.

Figure 1. Marketplace Casino being played in Ghana, Africa, 2009. Top row: participants at the gaming tables, engaged in a knock out tournament. Bottom row: consumer panels deliberate on how many tokens to award pitching designers, based on the Jameson Criteria assessment.

Discussion

The absolute quantitative measurement of the success of the Marketplace Casino in selecting the best design ideas for development was not possible without subsequently developing the ideas and launching them into the marketplace. Even if this had taken place, the establishment of similar conditions for each idea would be very challenging – and the random "Force Majeure" aspect would demand a very large product sample. Hence, the value of the game as a tool could only be ascertained from the responses of stakeholders: players, expert reviewers and clients. These stakeholders were very positive about the game value and relevance.

The slightly humorous, puzzling and provocative nature of the briefing cards was an important benefit, particularly in encouraging participants to relax and be creative.

Generally, in situations where the game was played by design students, more talented students did in fact achieve better results in the game, getting closer to the final round. Of course, game mechanics such as Force Majeure and the quality of opponents on a given gaming table made it impossible for the best designers to win consistently. This is just as in the real world.

There was interesting feedback for the game in Ghana, Africa. This was a collaboration between local design students at the KNUST University and UK graduate design students. The Ghanaian students had no prior teaching exposure relating to design markets. The feedback from many of the Ghanaians was that the game had provided them with a lot of valuable insights that would influence their design thinking in this context for the future.

The consumer panel was an important key to real world simulation. The consumer panel was a "focus group" but with the important distinction of being comprised of both general consumers formed from several of the early drop-outs from the game, and experts drawn from the game's facilitators. Additionally, the award of tokens for the value argued during the 1 minute pitch was a collective decision made by the focus group. This helped to smooth extreme responses from individuals.

It was clear that on infrequent occasions the Force Majeure element of the game eliminated strong ideas which would otherwise have come first in a given round.

This became a salutary lesson in the uncontrolled events that occur within a marketplace and the outcomes were taken in good humour by the participants.

Although development of the game-based Marketplace Casino has focussed on product design and service design outputs, the game mechanics have potential application to other disciplines in which creative output has to compete in the marketplace. The Marketplace Casino is currently not a generic brainstorming method tool like the IDEO Method Cards (IDEO, 2003). By being specific in it's play mechanics context, the Marketplace Casino offers the advantages of a being a real world simulation. To use the game in a different discipline, the briefing cards would need to be customised. This approach was tested successfully to some extent when the game was used in Korea with briefing cards that were localised to Korean culture. Adapting the cards to other disciplines could be of interest.

Conclusions

The Marketplace Casino introduced participants to market factors when generating and prioritising design ideas. The competitive element and the resulting single "winner takes all" game play mechanism proved extremely motivating to the participants and it also had the advantage of sorting ideas out into a hierarchy of likely success in the market. The Force Majeure element provided a sobering element to the mix: that events beyond the control of design, marketing or business will always maintain risk and uncertainty in the face of planning.

The game format encouraged playfulness and this was reflected in the humour of many of the design ideas, even though they were still often very practical.

In undertaking further development of the Marketplace Casino, there are several options that the system would benefit from:-

- Incorporating more real world elements into the game play and additional detail into the existing elements

- Running the tool over an extended period of time within a product or services development department of a commercial business for the creation of a range of products, and benchmarking the success of those products against those generated by other means.

- Establishing an annual league competition between participating academic institutions as part of their design teaching programs (this could possibly be run online).

For real world use, the author concludes that it would be appropriate for the Marketplace Casino to be used as one of several techniques in a commercial context. The game offers complementary outputs to other brainstorming and selection methods. The tool also has some value for use in design education, as well as introducing businesses to design and its benefits.

Facilitators and participants felt that the game produced more diverse, richer, and better concepts when compared with the approach of individuals working alone on creating ideas (Sutton, 1996), although this was a qualitative assessment that was not tested through experiment.

The Marketplace Casino game was able to take a complex real world situation and simplify this into a reduced set of features with core rules. The game resulted in a useful competitive creative process and generator of design outputs, ranked with consideration for market factors. The game can be a useful addition to the range of brainstorming techniques currently available, addressing a suite of criteria that are not dealt with collectively other methods.

Acknowledgements

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