
An Exploration of Designing for Playfulness in a Business Context

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Abstract

The Playful Experiences (PLEX) framework is a categorization of 22 experiences that has been used to design for and evaluate aspects of playfulness. The design activities performed using PLEX have been conducted mostly within an academic research context. This paper investigates through three studies how to design for and evaluate playful user experiences in business at three stages of the design process: idea generation, conceptualization, and evaluation. Based on the findings, opportunities and challenges of designing for playfulness within business are discussed.

Author Keywords

Play; playful experiences; PLEX Cards; design process

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Playfulness is an important but often neglected design quality for all kinds of products [12]. Features that make games and play engaging can also make other kinds of products more enjoyable, elicit more meaningful experiences from them, and ultimately increase the quality of the overall user experience and, respectively, the market value of a product.

Experience	Description
Captivation	Forgetting one's surroundings
Challenge	Testing abilities in a demanding task
Competition	Contest with oneself or an opponent
Completion	Finishing a major task, closure
Control	Dominating, commanding, regulating
Cruelty	Causing mental or physical pain
Discovery	Finding something new or unknown
Eroticism	A sexually arousing experience
Exploration	Investigating an object or situation
Expression	Manifesting oneself creatively
Fantasy	An imagined experience
Fellowship	Friendship, communality or intimacy
Humor	Fun, joy, amusement, jokes, gags
Nurture	Taking care of oneself or others
Relaxation	Relief from bodily or mental work
Sensation	Excitement by stimulating senses
Simulation	An imitation of everyday life
Submission	Being part of a larger structure
Subversion	Breaking social rules and norms
Suffering	Experience of loss, frustration, anger
Sympathy	Sharing emotional feelings
Thrill	Excitement derived from risk, danger

Table 1. The Playful Experiences (PLEX) framework, consisting of 22 categories.

Playfulness, in other words, can be a positive feature in products that goes beyond pure entertainment.

The Playful Experiences (PLEX) framework [7][12] is a categorization of 22 experiences (see Table 1) that has been used to design for [1] and evaluate [11] aspects of playfulness. In design, PLEX has been used to create ideas with a specific category as a starting point [1][6][8][9][13][14][15][16][18][19][20], or to evaluate existing designs [4][17]. However, these design activities with PLEX have almost exclusively been conducted within an academic research context. This paper explores designing for playfulness in a business context by discussing three studies focusing on different stages of the design process: idea generation, conceptualization, and evaluation.

The studies were conducted in collaboration with Kontrapunkt¹, a Copenhagen-based strategic design and branding agency, whose client roster includes the Danish State Railways (DSB), Danske Bank, and Carlsberg. Three separate studies were conducted in an environment where real-world business challenges exist, including project budgets, technical and time constraints, contractual commitment to client needs, and requirements. Based on the findings from these studies, opportunities and challenges of using PLEX within a business context are discussed.

Related Work

Playfulness

There are many different ways to define playfulness. Fullerton et al. suggest that being playful is a state of mind rather than an action and that a playful approach

can be applied to even the most serious or difficult subjects [5]. Roger Caillois distinguished between playing and gaming by placing them at two opposite poles: *Paidia* (playing) is the primary power of improvisation, expressiveness, spontaneity, and joy that is often present in children's free-form play; *Ludus* (gaming) consists of formal play, bound by rules and arbitrary obstacles that defines winners and losers [3].

PLEX Framework

The Playful Experiences (PLEX) framework is based on previous theoretical work on pleasurable experiences, game experiences, emotions, elements of play, and the reasons why people play [7][12]. PLEX offers a vocabulary for user experience researchers and designers to discuss playful experiences and playfulness, as well as a tool to understand and design for playful aspects of a user experience [1]. Boberg et al. [2] recently developed PLEXQ, a validated questionnaire that measures different facets of playful user experiences. The originality of this current work consists of applying the existing PLEX framework to explore designing for playfulness within a business context.

Study 1: RSD Health Portal

Kontrapunkt was engaged with the Region of Southern Denmark (RSD) to perform an overall redesign of all the region's hospital and health-related online products. The objective of this first study was to apply playfulness in generating ideas for the region's health web portal, which is the main gateway offering links and information on healthcare services for citizens, patients and professionals.

¹ www.kontrapunkt.com



Figure 1. Participants generating ideas using the PLEX Brainstorming Technique.



Figure 2. Participants generating ideas using the PLEX Scenario Technique.



Figure 3. Participants presenting and discussing the outcome of the workshop.

Procedure

A two-hour idea generation workshop was conducted with four participants aged 25–40 years. P1-P3 were designers at Kontrapunkt, while P4 (the first author) acted as facilitator. To introduce PLEX to the participants, the PLEX Cards² were used [10]. They consist of a card deck that physically represents the 22 playfulness categories and provides inspiration for designers while designing for playfulness. The participants worked in pairs and applied two idea generation techniques: PLEX Brainstorming (Figure 1) and PLEX Scenario (Figure 2). P1, a senior member of the design team, selected six specific topics for the workshop from a more comprehensive list of required portal functionality provided by the client to Kontrapunkt in the original brief.

Findings

Using the PLEX framework enabled the participants to apply elements of playfulness in an ideation session as part of designing a digital product. The outcome from the workshop met the expectations of the participants, which were to generate playfulness-inspired ideas to design a low-fidelity prototype of the health portal. There was a general positive sentiment at the end of the workshop, and the participants seemed pleased and satisfied with the activity itself and the outcomes (Figure 3). P1 found the workshop “*helpful because we generated a lot of ideas in such a short time*”. P2 added, “*just imagine how much time it would have taken us to go through all these ideas in another way*”. P3 thought that the PLEX Brainstorming and PLEX Scenario “*combination works nicely*” and found that the whole workshop to be “*very much like a brainstorm but*

this is more structured and ordered”. These findings are inline with previous studies by Lucero and Arrasvuori [10]. The workshop resulted in 3 playfulness-inspired workable ideas in the following health portal categories: *patient complaints, financial support, and navigation*.

Playfulness as an Unexpected Source of Inspiration

The project was defined based on the client’s requirements, which restricted the scope of what to ideate for in the idea generation phase, as well as the extent to which novel ideas and new features could be introduced. The number of designers and stakeholders available to participate in the workshop and the ability to conduct additional workshops was limited to avoid budget overheads. Any financial increase was difficult to justify to the client at that particular stage of the project. The project had technical considerations where for example the pages had to be designed in a component-based, modular way, so that the same component could be used in multiple pages and to support containing different types of content. Thus the participants shared the opinion that the workshop might have been more effective and have had larger impact if it had been carried out at the early stages of the project, rather than after the project had already started, and the client had already established specific functionality as requirements.

In a context where time is money, PLEX offered an inexpensive and quick way to incorporate elements of playfulness in a project where playfulness is not *a priori* expected. Using PLEX acted as an additional design method, which can be used in combination with other common methods currently applied by designers for inspiration and ideation. Playfulness thus became an unexpected source of inspiration.

² PLEX Cards. <http://www.funkydesignspaces.com/plex/>

Product Features	PLEX Categories
Fun	<i>Humor</i>
Social Activity	<i>Fellowship, Competition</i>
Fast to Play	<i>Thrill, Challenge</i>
Perks	<i>Competition, Thrill, Completion, Discovery, Exploration</i>
Collect	<i>Challenge, Competition, Discovery</i>

Table 2. Mapping out business requirements (or product features) to relevant PLEX categories.



Figure 4. Ticket Delivery prototype showing the subversive experience of running over the bike girl.

Study 2: Billelugen Ticketing App

For this second study, Kontrapunkt wanted to pitch a new digital mobile product for the online ticketing website Billelugen³. The app would contain a playful feature to collect information about people (e.g., age, gender, city), and their music listening habits and preferences (e.g., favorite albums, artists, songs, concerts) in a non-obtrusive, subtle manner. The app would further allow browsing and discovering events, as well as buying and managing purchased tickets. Billelugen would use this info for marketing purposes to provide a more personalized offering and to increase ticketing sales and revenue.

Procedure

Three people were involved in this study (P4-P6, P4 was also facilitator). Participants discussed the brief. An idea generation session guided by the PLEX Cards [10] was conducted to map the business requirements (or product features) to eight playfulness categories (Table 2): *Humor, Fellowship, Competition, Thrill, Challenge, Completion, Discovery, and Exploration*. Using these selected PLEX categories to inform design decisions, initial concepts were sketched. Four themes, *Ticket Delivery, Artist Trivia, Music Age Trivia, and Friends Challenge* were conceptualized, internally validated and transformed into prototypes.

Findings

In the *Ticket Delivery* concept (Figure 4), people assume the role of a ticket delivery person to finalize the purchasing process via Billelugen. Now a mostly electronic process, mail delivery of printed tickets still exists. Before playing, the person is asked a couple of

³ www.billelugen.dk

questions that relate to the experience (e.g., their favorite artist) and the answer offers a personalized experience (e.g., music by that artist would be on during play), and at the same time provides Billelugen with the person’s information and preferences.

Mapping Playfulness to Business Requirements

PLEX offered a method to articulate and assist in translating written business product requirements into clearly defined target playful experiences and initial design themes (e.g., fun was mapped to *Humor* in PLEX) (Table 2). PLEX then facilitated the stakeholder discussion and offered a research-grounded reasoning for the design decisions and the resulting themes. PLEX then guided and informed how the selected target experiences and ideas were conceptualized and converted into prototypes. PLEX facilitated designing for additional target experiences such as *Subversion* (Figure 4) as a possible outcome of driving. PLEX also gave confidence to the stakeholders on the rationale behind the concepts beyond the designers’ skills or assumptions. Mapping the business brief to the PLEX categories, and not the other way round, offered a potentially more acceptable approach to apply a research concept within a business context. This is because it fits into the existing project flow, which contains at the start a project brief that is later used to conceptualize the product ideas. Producing the proposal in a business context resulted in creating the playful aspect as an add-on feature of an app that is based on the client’s existing website and business model of discovering and purchasing event tickets (for which the client had already invested in revamping). This is opposed to proposing a playfulness-based proposal to completely re-design the existing website, which would entail a potential larger budget and longer time frame.

Experience	Picked by
Captivation	64%
Challenge	55%
Competition	64%
Completion	45%
Control	36%
Discovery	0%
Exploration	18%
Fantasy	27%
Fellowship	0%
Humor	91%
Simulation	27%
Subversion	45%
Thrill	36%

Table 3. Ticket Delivery prototype results.



Figure 5. A participant evaluating the prototype and selecting the relevant PLEX Cards.

Study 3: Ticketing App Evaluation

The main purpose of this third study was to evaluate the playful experiences elicited by the app.

Procedure

A total of 11 design professionals working at Kontrapunkt (including 4 participants from the previous studies), aged 23-40, 7 male and 4 female, participated in this evaluation. Each evaluation session lasted approximately 15 minutes. An iPhone was used for all the evaluations. PLEX Cards [10] were laid on the table in front of each participant (Figure 5), and about a minute or two were allowed for the participants to read and familiarize themselves with the categories. The participants were invited to think aloud while using the prototype, in order to explain the choices they made. After each session, the participants' confidence in their card choices was measured using a five-point Likert scale (where 1 is not at all confident, 5 is very confident, and 3 is neutral). Each session ended with a semi-structured interview where participants reflected on conducting evaluations with the PLEX Cards.

Findings

The participants seemed to have a general positive feeling upon conducting an evaluation using the PLEX Cards, and were often smiling or giggling while trying out the prototypes. P2 simply noted, "I like them", while P10 said "it is helpful" and P3 thought, "it is a pretty good test". P7 mentioned, "I am not sure I could articulate without the cards". P5 said "I like the cards and most of them make a lot of sense to me". These findings are also inline with previous studies by Lucero and Arrasvuori [10]. Participants had no problems understanding the cards, since 82% of the participants found it easy to map the cards with the elicited

experience. Additionally, 81% of the participants were confident or very confident about their choices when mapping the elicited experience to the PLEX card.

Playfulness to Inform Design

The PLEX cards acted as a tangible tool to support the generation of empirical evidence to validate the design decisions made during the conceptualization stage and to evaluate the elicited experiences. Participants' PLEX card selections for the Ticket Delivery prototype are shown in Table 3. The data-driven results could be the basis for deciding how to proceed with the product design. For example, the worst performing prototypes could be discarded, or the highest-rated experience categories could be combined into a new prototype.

Discussion

The overall objective of this work was to explore the creation of playful user experiences within a real-life business context. Through these three studies, business-related challenges and limitations, as well as design opportunities have been identified.

In the first study, using PLEX in a co-design ideation workshop inspired participants to think with elements of playfulness in mind. The outcome suggests that the framework helped participants think about the problem in a different way and generate ideas accordingly. Participants found PLEX more helpful in assisting generating novel ideas through a new approach rather than resulting in just playful product ideas. However, the context of the product did not seem to suitably accommodate the elements of playfulness in the experience. Arrasvuori et al. have suggested that the categories with strong connotations (e.g., *Eroticism*) could result in surprising elements in the design

process [1]. However, participants failed to draw ideas from the category *Eroticism* in their discussions. An interesting follow-up study could explore if some *difficult* playfulness categories require additional input from the facilitator in order to work.

In the second study, PLEX inspired and guided designing for playfulness in a rapid-prototyping process to translate the client brief and business requirements into four theory-informed prototypes. PLEX seems to have offered more inspiration in the Billetlugen study compared to the Health Portal because there were no formal client requirements, which expanded the scope for ideation without functional limitations. The framework provided an evidence-based approach to negotiate and obtain manager approval for the design concepts internally and created confidence in the design decisions.

In the third study, conducting product evaluations with PLEX offered a theory-grounded and data-driven approach to validate the designer's decisions, and to inform the subsequent business and stakeholder decisions regarding the next product iterations. It enabled the participants to better articulate and verbalize the elicited experiences. The images on the PLEX Cards seemed to influence people's understanding and eventual selection of the card. Some participants found the images to be misleading, or not related to the context or their interpretation of the wording. In the evaluation, most participants relied on the textual category name and short description. Some participants associated the visual elements of the cards with the context, as one participant mentioned, "*I scan the photos, and this picture has nothing to do with the prototype.*"

Limitations and Future Work

In these three studies of designing for playfulness in a business context, feedback comes solely from designers at Kontrapunkt. Further studies should collect impressions from other design and branding agencies, including designers, product owners, and management regarding their current practices and outcomes. Finally, obtaining feedback from end users of the resulting designs for the Health Portal and Billetlugen projects could have shed some light on the results.

Conclusion

In this paper, an exploration of designing for playfulness in a real-world business context was conducted at three stages of the design process: idea generation, conceptualization, and evaluation. First, our findings suggest that, in a context where time is money, playfulness can be included in a quick and inexpensive way, and provide an unexpected source of inspiration in the design process. Second, playfulness can help translate business requirements into target playful experiences, offering a research-grounded way to make design decisions, and thus facilitating negotiations among stakeholders, including client and engineering teams, which is a common tension in product development. Finally, playfulness can inform design by providing empirical evidence to validate existing designs, and be the basis to decide how to proceed with the design of a product. The real-world nature of the findings from this paper aims to encourage other businesses to explore the potential benefits of designing for playfulness by applying the PLEX framework and other similar research-based approaches when creating new products.

References

- [1] Juha Arrasvuori, Marion Boberg, Jussi Holopainen, Hannu Korhonen, Andrés Lucero, and Markus Montola. 2011. Applying the PLEX framework in designing for playfulness. In *Proceedings of the 2011 Conference on Designing Pleasurable Products and Interfaces (DPPI '11)*, Article 24, 8 pages.
<http://dx.doi.org/10.1145/2347504.2347531>
- [2] Marion Boberg, Evangelos Karapanos, Jussi Holopainen, and Andrés Lucero. 2015. PLEXQ: Towards a Playful Experiences Questionnaire. In *Proceedings of the 2015 Annual Symposium on Computer-Human Interaction in Play (CHI PLAY '15)*, 381-391.
<http://dx.doi.org/10.1145/2793107.2793124>
- [3] Roger Caillois. 1961. *Man, play, and games*. University of Illinois Press.
- [4] Marierose M.M. van Dooren, Renske Spijkerman, Richard H.M. Goossens, Vincent M. Hendriks, and Valentijn T. Visch. 2014. PLEX as input and evaluation tool in persuasive game design: pilot study. In *Proceedings of the first ACM SIGCHI annual symposium on Computer-human interaction in play (CHI PLAY '14)*, 449-450.
<http://dx.doi.org/10.1145/2658537.2661314>
- [5] Tracy Fullerton, Chris Swain, and Steven Hoffman. 2004. *Game Design Workshop: Designing, Prototyping, and Playtesting Games*. CRC Press.
- [6] Holopainen, J. and Ollila, E. Collecting Faces - Augmented Reality Playful Application for Mobile Phones. *Video Submission Presented at Pervasive 2010*.
- [7] Hannu Korhonen, Markus Montola, and Juha Arrasvuori. Understanding Playful Experiences Through Digital Games. In *Proceedings of the 2009 Conference on Designing Pleasurable Products and Interfaces (DPPI '09)*, 274-285.
- [8] Kai Kuikkaniemi, Andrés Lucero, Valeria Orso, Giulio Jacucci, and Marko Turpeinen. 2014. Lost lab of professor millennium: creating a pervasive adventure with augmented reality-based guidance. In *Proceedings of the 11th Conference on Advances in Computer Entertainment Technology (ACE '14)*, Article 1, 10 pages.
<http://dx.doi.org/10.1145/2663806.2663844>
- [9] Andrés Lucero and Tuuli Mattelmäki. 2011. Good to see you again: engaging users in design. In *Proceedings of the 2011 Conference on Designing Pleasurable Products and Interfaces (DPPI '11)*, Article 11, 8 pages.
<http://dx.doi.org/10.1145/2347504.2347517>
- [10] Andrés Lucero, and Juha Arrasvuori. 2013. The PLEX Cards and its techniques as sources of inspiration when designing for playfulness. *IJART* 6, 1, 22-43.
<http://dx.doi.org/10.1504/IJART.2013.050688>
- [11] Andrés Lucero, Jussi Holopainen, Elina Ollila, Riku Suomela, and Evangelos Karapanos. 2013. The playful experiences (PLEX) framework as a guide for expert evaluation. In *Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces (DPPI '13)*, 221-230.
<http://dx.doi.org/10.1145/2513506.2513530>
- [12] Andrés Lucero, Evangelos Karapanos, Juha Arrasvuori, and Hannu Korhonen. 2014. Playful or Gameful?: creating delightful user experiences. *interactions* 21, 3 (May 2014), 34-39.
<http://dx.doi.org/10.1145/2590973>
- [13] Andrés Lucero and Akos Vetek. 2014. NotifEye: using interactive glasses to deal with notifications while walking in public. In *Proceedings of the 11th Conference on Advances in Computer Entertainment Technology (ACE '14)*, Article 17, 10 pages.
<http://dx.doi.org/10.1145/2663806.2663824>

- [14] Sara Said Mosleh, Nele Schmidt, Tudor Teisanu, and Andrés Lucero. 2015. EgoFlecto: stimulating being calm and in control through self-reflection in the context of driving. In *Proceedings of the 19th International Academic Mindtrek Conference (AcademicMindTrek '15)*, 92-97. <http://dx.doi.org/10.1145/2818187.2818276>
- [15] Jarno Ojala, Hannu Korhonen, Jari Laaksonen, Ville Mäkelä, Toni Pakkanen, Antti Järvi, Kaisa Väänänen, and Roope Raisamo. 2015. Developing Novel Services for the Railway Station Area through Experience-Driven Design. *IxD&A* 25, 73-84.
- [16] Thomas Olsson, Kaisa Väänänen-Vainio-Mattila, Timo Saari, Andrés Lucero, and Juha Arrasvuori. 2013. Reflections on experience-driven design: a case study on designing for playful experiences. In *Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces (DPPI '13)*, 165-174. <http://dx.doi.org/10.1145/2513506.2513524>
- [17] Janne Paavilainen, Elina Koskinen, Hannu Korhonen, and Kati Alha. 2015. Exploring Playful Experiences in Social Network Games. In *Proceedings of the 2015 Digital Games Research Association International Conference (DiGRA '15)*.
- [18] Minna Pakanen, Anna Maria Polli, Stella Lee, Joseph Lindley, and Jorge Goncalves. 2013. Tending a virtual garden: exploring connectivity between cities. In *Proceedings of the 2013 ACM conference on Pervasive and ubiquitous computing adjunct publication (UbiComp '13 Adjunct)*, 761-764. <http://dx.doi.org/10.1145/2494091.2496004>
- [19] Erika Reponen and Jaakko Keränen. 2010. Mobile interaction with real-time geospatial data by pointing through transparent Earth. In *Proceedings of the 6th Nordic Conference on Human-Computer Interaction: Extending Boundaries (NordiCHI '10)*, 403-412. <http://doi.acm.org/10.1145/1868914.1868961>
- [20] Leena Ventä-Olkkonen, Marianne Kinnula, Graham Dean, Tobias Stockinger, and Claudia Zúñiga. 2013. Who's there?: experience-driven design of urban interaction using a tangible user interface. In *Proceedings of the 12th International Conference on Mobile and Ubiquitous Multimedia (MUM '13)*, Article 49, 2 pages. <http://dx.doi.org/10.1145/2541831.2541878>