Introducing Magical Experiences in UX

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ABSTRACT

Lately there has been an increased interest in the area of magic and its applicability in various fields. In HCI, it has been argued that the practice of magic is filled with knowledge that is applicable to user experience design.

Based on conjuring theory, a conceptual framework comprised of a distinction between internal and external magical experiences is suggested as a potential design parameter in user experience design. The framework is evaluated through an exploratory study identifying what constitutes the experiences. We find that the magical experiences have different qualities in the following constituents: control, communication, interaction, timeframe, timing and decryption interest. The purpose of the framework is to inspire user experience designers in developing designs that focus on hedonic qualities rather than pragmatic functions.

Keywords
Magical experience, user experience design, UX, Conceptual framework

1. INTRODUCTION

In the past few years, the interest in what constitutes a user experience has been growing. Recent discussions within user experience (UX) and design aesthetics suggest that in addition to the pragmatic qualities of a system, the user experience encompasses the subjective experience of the system, which creates emotions like joy, pride, and excitement [13, 3, 4].

Marc Hassenzahl [4], introduces the concept of do-goals and be-goals in his discussion on how people perceive interactive designs. Do-goals refer to the pragmatic quality aspects of a product, such as the usability and utility that enables the user to do a task, and be-goals refer to the fulfillment of basic human needs, such as "being competent", "stimulated", "special" etc. This turns the focus of user experiences to the Self, and what is considered meaningful for the individual [4]. The central idea is that humans wish to achieve be-goals, and that this wish, is what drives experiences with products.

Consequently, products can have a perceived ability to support the achievement of be-goals. Hassenzahl calls this "hedonic quality" [4], and describes it as containing strong potentials for pleasurable experiences [3]. In this article, we propose magical experiences as a possible hedonic quality that can support the achievement of be-goals.

Magic is a 5000-year-old tradition that is based on evoking experiences within the spectator. This evocation of experiences, whether it pertain to "being stimulated", "entertained" or the achievement of other be-goals, makes it an interesting area of study for UX.

Furthermore, what constitutes today's magic is filled with knowledge, within e.g. psychology and cognition, which is directly applicable to addressing the user experience. This has been argued by Kuhn et al. [7], who suggests that it could be possible for the interaction designer to guide the user's attention similar to how a conjurer (magician) would when performing his trick, thus improving the interaction with a system. Still, adding magical qualities to designs is nothing new. In 1993, Bruce Tognazinni [14], an interface designer, published an article on how he uses the teachings of conjurers in his work and called out to other designers within human computer interaction (HCI) to start doing the same. In spite of this awareness, no one has provided a conceptual framework for how this might be done.

Therefore, the question is: What constitutes magical experiences and how could they be addressed in UX design?

To answer this question, we must first define what magic is comprised of.

2. DEFINITION OF MAGIC

The common definition of the experience of magic is that it produces "a sense of wonder in the spectator" ([7], p. 350). This wonder comes from the trick, or the effect, which is the correct professional term. This is the spectator's actual experience of magic [7].

There are many methods that can be used to produce the same effect: E.g. to make something vanish (effect), the spectator's attention may be misdirected (method), while the conjurer performs one of numerous sleights of hand (method) ([9], p. 874).

Based on the book Sleights of mind [8], which reveals the methods of several magic effects, and the underlying cognitive principles that make the effects possible, we define magic as being constructed of three layers.
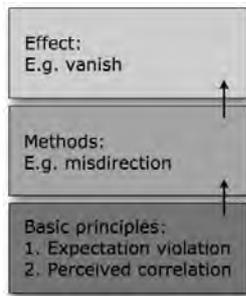
Figure 1. The three layers magic is comprised of

Figure 2. The experiment setup

All magic methods and effects are based on at least two basic principles, which produce the "sense of wonder".
(1) Expectation violation - that something happens, which violates your expectations ([8], p. 159), and (2) Perceived correlation - that two events, which have no proven connection to each other, are perceived to have a connection ([8] p. 193). This deals with cause-effect relationships, and an everyday example could be that if you touch your computer and it shuts down, you think you caused it even though you did not ([12], p. 11).

The literature published within the field of HCI takes point of departure on the levels of effects and methods. This research has either focused on how various methods and effects can be exposed using technology, e.g. gaze tracking [6], or employed in the design process [14]. Hepworth [5] has investigated on the level of basic principles and used them in design experiments. However, these were derived from a brainstorm on what constitutes a magical experience at B&O, not conjuring theory.

We believe that to develop a conceptual framework for addressing magical experiences in UX design, we must take point of departure in the basic principles of conjuring theory.

2.1 The conceptual framework
Based on the two principles, we propose that magical experiences can occur in two ways, thus creating two definitions:
(1) The *external* magical experience (EME), which originates in the environment, and stems from a violation of your expectations of what will/can happen, and the (2) *internal* magical experience (IME), which originates from yourself, and stems from experiencing a perceived correlation between your action and the response of the environment.

3. EVALUATION
To evaluate whether this framework could be used to address magical experiences through the use of technology, the framework was applied in an initial experiment. This experiment was set up to explore the interaction with the system (do-goal); afterwards the experience of magic and what/how that made the participants feel (be-goal) was discovered through an interview.
The experiment consisted of two lights, two chairs and some books.
Eight people participated, all students/teachers at the IT University of Copenhagen.

Each participant had to turn on the light in four ways: The traditional way (flipping the switch on the light), the IME (using a "magical" action), the EME (light reacts to picking up a book), and a combination of EME and IME (first light is lit by picking up a book, the participant was then told that they 'would rather sit in the other chair' and had to turn off the first light and turn on the second light with "magical" actions). In this way the experiment was similar to how a conjurer works: there are different methods (ways of interacting) that achieve the same effect (light on/off).
Using the Wizard of Oz technique [1], two different technologies were mimicked through controlling the lights with remotes from another room. The IME was tested through mimicking a gesture based interaction system [2], because gestures stem from the individual and potentially could create "perceived correlation". We did not want to limit the possible "magical" interactions, therefore the participants could make any action, they found "magical" to turn on the light.
The EME was tested through mimicking a context aware system [10], because such a system originates in the environment and potentially could create "expectation violation".

Before participating, the participants knew that the experiment was about magic and user experiences. They were asked do to the tasks, making this experiment more based on do-goals than be-goals, therefore the findings in section 4 present only an initial exploration into this field.
Next, the applicability of the framework should be tested in an explorative use-situation, because the meaning of using it will be discovered when a UX design is appropriated through use [13].

4. FINDINGS
Particularly control and communication arose as the constituents of the magical experience. The quality in the IME lay in the perceived control over the system (light) and the answer to the user's desire (turning on/off light), through direct interaction (e.g. pulling, snapping fingers, and Star Wars mind-trick gestures). In the EME, the quality came from the "intelligence" of the system; it's ability to understand what the user needed based on the context, and respond without the need for control or communication, making the interaction indirect.
The perceived longevity of the IME was described as potentially remaining magical a little longer than the EME, simply because of the need for an interaction. Once the expectation violation is gone, the external magical effect may have been somewhat decoded; this is why magicians never repeat a trick ([8], p. 192). The timing was also relevant: The IME needed quick feedback; the magical effect was gone if the light did not turn on at once. The timing in the EME was perceived as associated with either the book or the

Table 1. Constituents and qualities of the magical experiences[1]

	Constituents of the magical experience	The participants' perceived experiences	
		Internal Magical Experience (IME)	External Magical Experience (EME)
Why is it perceived as magical?	Control	Sense of control	No control needed
	Communication	Answer to "magical" communication	No communication needed
How is it perceived as magical?	Interaction (perceived as)	Intuitive gesture System understands user's desire (Direct Interaction)	Intuitive system System understands user's need (In-direct Interaction)
How long will it be perceived as magical?	Timeframe	Longer It remains an experienced interaction	Shorter You forget it/get used to it
	Timing	Quick feedback Remains magical as long as the timing is prompt	Disjointed feedback Remains magical as long as the timing does not give away method (sensors)
	Decryption interest	Important factor	Important factor

chair. This disjointed feedback could potentially improve the magical experience by making it harder to figure out.

The participant's individual decryption interest in the figuring out the "magic" was an important factor in relation to UX that needs further research, attempting to decode the experience creates a risk of removing aspects of the "magic". However, even after thinking they had decoded the system, the participants still perceived the experience as having magical qualities.

All participants agreed that it was a positive experience. They used words like "cool, nice, easy", and even "right", explaining that it did not seem "artificial". These findings indicate that using magical experiences in UX contains pleasurable aspects; we therefore argue that these experiences relate to Hassenzahl's concept of hedonic qualities [3].

5. MAGICAL EXPERIENCES AND BE-GOALS

Based on our findings, we can conclude that it is indeed possible for designers to use the framework to address the "magical experiences" users can have when they are using technology: Mimicking already developed technologies within a context the participants were familiar with, we were able to evoke different experiences, which were perceived as magical, and identify the above-mentioned implications.

Each participant had their own experience of the experiments, which depended on the person's frame of reference, as well as what the word "magic" meant to them. This is similar to one of the most important teachings of conjuring theory: that the most interesting effects are those that are made meaningful to the spectator in that individual's current context. So if, for instance, you say you are hungry and the conjurer produces a sandwich

from thin air, this is perceived as more relevant than if you were full ([11], p. 6). In other words, it is essential to consider how the user's subjective state of mind and current situation affects their receptivity towards the magical experience.

Consequently, we suggest that addressing magical experiences in designs must be done only when it is meaningful for the user.

Relating this to Hassenzahl's argument [4], we make the following two suggestions:

(1) That IME and EME will probably not be relevant when designing for do-goals only, as it is possible that the magical experience will be perceived as interference. Therefore this framework should be used in situations where the user is prepared to explore be-goals that involve expectation violation or perceived correlation. (2) That magical experiences are subjective, and therefore people do not necessarily share the same be-goals [3], hence, it is possible that magical experiences in UX will appeal to people with different be-goals.

6. CONCLUSION

In this article an initial conceptual framework addressing magical experiences in UX has been presented, evaluated and discussed. This framework is based on basic principles in conjuring theory as recognized by us, and proposes two definitions of how magical experiences occur: the internal and external magical experience.

These definitions, and the implications of applying them, were tested and some basic constituents of magical experiences were recognized. These were: control, communication, interaction, timeframe, timing and decryption interest. The findings concluded that the two magical experiences were perceived by the participants to have different qualities in each of these constituents.

The study proved that the sense of wonder that defines magic could be addressed and evoked in UX design, where technologies are used to apply the framework.

The purpose of this framework is to inspire UX designers in the development of designs, which focus on addressing the basic human needs that add a hedonic quality to the user experience

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[1] The combination experiment has been left out of the table due to the participants only focusing on and describing the internal magical experience in the experiment.

design, and therefore goes beyond the pragmatic function. We propose that magical experiences are such a hedonic quality, because they can provide a pleasurable feeling when interacting with a design.

Our argument is not that all UX designers should use this framework and design for magical experiences; we are merely suggesting that designers pursuing the hedonic qualities of UX can use this framework as an inspiration.

7. FUTURE PERSPECTIVES

This study has scratched the surface of using magic in UX, but further studies are relevant:

Implementation of systems using the conceptual framework in actual use-situation, serving different functions, e.g. controlling curtains, the TV, etc. and in different contexts where the evolvement of the experiences over time can be studied, e.g. everyday context vs. contexts where it is only experienced once or twice, like in a hotel. In continuation of this, the longevity of the magical experiences and the aspect of irritation and decryption interest in various situations should be studied, as well as the socio-cultural aspect of using these systems in front of others.

Additionally, an interesting study could be the aspects concerning the inconsistency in visibility and mapping (as identified by Norman [12]), in the designs.

Finally, researching the magical interaction could be an interesting study. E.g. how essential is timing to the effect? Why are the gestures perceived as magical? Are there other modalities that could be magical?

8. ACKNOWLEDGMENTS

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