

Buttons for Idiots

A Serious Game About the Daily Struggles of In-House User Experience Professionals

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ABSTRACT

In this work we present our initial findings of leveraging a serious game for knowledge transfer between user experience professionals. “Buttons for Idiots” (BFI) is the prototype of a game designed to help user experience professionals to discover the influence of communication and other so-called soft skills on the effectiveness of their work. We will discuss the origins of the concept, give an outline of BFI’s development, and present the findings of its empirical evaluation during the “Mensch und Computer” 2020 conference. We conclude that serious games are a promising approach for knowledge transfer in the target demographic.

KEYWORDS

User Experience, Serious Game, Communication, In-house UX, Knowledge Transfer, Adult Education, Software, Unity, Interaction, 3D

1 Introduction

Like many other specialists, user experience professionals (UXP) do not only require “hard skills” to do their work effectively. Communicating and educating about the purpose of user experience (UX) activities and a fundamental understanding of other fields of work is also a prerequisite. This is especially true for in-house UXPs, who usually don’t have the benefit of explicitly negotiating their access to users, stakeholders and resources on an order-by-order basis. Through our own research within the German UXP community we have learned, that many in-house UXPs struggle with establishing themselves as important participants in the product development process and thus seek advice and strategies on how to promote the acceptance of their discipline (see section 2) with colleagues and stakeholders.

This knowledge and experience transfer can be facilitated by a number of different means. Professional conferences allow for

direct exchange, as do other, more informal community gatherings. Also, seminars, trainings, blogs and textbooks are a source of advice on how to match “hard skills” with stakeholder needs. In this paper we explore a different medium to share experiences on communication strategies and stakeholder management for UXPs: a so-called “serious game”.



Figure 1: The default UXP player avatar in “Buttons for Idiots” talks to the security guard Mike in front of the Hectosoft building

“Buttons for Idiots” is a 3D, third-person adventure video game set in the fictional company Hectosoft. The player is a UXP assigned to “Jupiter”, the company’s most important project. Since the protagonist arrives late in the product development cycle, they will find the UX of Jupiter to be lacking in several key areas.

As the only UXP in the company it is up to the player to promote the human-centered development methods and activities needed to improve Jupiter’s chances for success.

However, their peers at Hectosoft have their own motivations and priorities. Rather than just performing UX-related work and activities themselves, the player’s effectiveness heavily relies on their ability to take the needs, pains and motivations of the other characters into account.

Our prototype presented and evaluated at “Mensch und Computer 2020” conference encompasses the player’s first (game-time) day at Hectosoft, which translates to 10-40 minutes of real playing time depending on playing style and choices made [1].

The demo concludes with a prompt to fill out a two-part questionnaire. The first part is an evaluation of the BFI prototype, the second is a survey based on the Kano Model to guide future development.

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2 Previous Work

Our work on BFI is informed by several influences, first of which is the continuation of the workshop session “Stakeholderwirksame UX-Kommunikation” (“Effective Stakeholder Communication about UX”) at “Mensch und Computer 2019” conference [2]. In that session, Hörchel et al. presented the prototype of a card game for matching the needs of stakeholders with that of UXPs. It consists of two decks of cards: One represents the UXP’s toolbox of methods and activities required for successful human-centered design. The second deck represents typical personas of stakeholders like tech-savvy lead developers or stressed-out product owners. The game points out possible stakeholder motivations, pains, and needs. Also, it gives hints on viable options for a communication strategy addressing these personas. The cards of both decks are linked by reference numbers, so users may identify which methods to pursue with which kind of stakeholder and vice-versa. The German UPA Working Group In-house UX hosted a series of workshops at “Mensch und Computer” conference since 2017, the results of which formed the basis of the cards and subsequently the NPCs and situations depicted in BFI [2].

The second line of influence is the business-fable. The genre wraps textbook teachings in entertaining narratives. Well-known examples include “The Goal” by Goldratt & Cox [3] and “Phoenix Project” by Kim et al. [4]. In these books, the reader along with the protagonist learns critical knowledge about how to overcome an existential threat to their business. While the authors enjoy these books and found them valuable in their respective fields, we are not aware of any comparable work in the domain of user experience.

Finally, there is a long-running trend of so-called serious games and job simulators in video games. Early works include the 1996 learning game “Project Challenge” from Thinking Tools [5] to teach project management. More recently, the topic of software development has also been the topic of economy simulator “tycoon games” [6][7] and narrative games [8]. As with business novels, we are not aware of any attempt to present a game with a UXP as the protagonist.

3 Design

In order to manage the complexities of real-world communication in a game-like environment, we use several abstractions and simplifications in modelling the player character (PC), non-player characters (NPCs), and the UX of Jupiter.

3.1 Player Agency

We restrict available dialogs and actions through deterministic multiple-choice prompts. At its core the game is a very complex branching (and looping) story, completely defined by the player’s progression through dozens of multiple-choice decisions. These are presented through either explicit dialog choices or locations in the game world with which interaction is possible. This allows us to control the flow of the story, limit possible outcomes, and thus to “hard code” plausible reactions of the NPCs in the game. We borrow this simplification of human agency in the world from

many established genres of video games, especially “point-and-click” adventures, role-playing games (RPGs) and visual novels. Since the game “remembers” all player choices it can lock certain options until the player discovers them through the branching story. A prominent example in our prototype is the opportunity to find and talk to Laura, a hidden NPC that only becomes available to the player if they are curious enough. Without meeting Laura, the player will not be able to learn important user pain points regarding Jupiter’s UX in our short demo.

3.2 Player Knowledge

Like in an RPG the PC has a number of attributes that model their proficiency in different areas of expertise. BFI models the player’s skills using five scalar values representing different areas of knowledge as they relate to Jupiter’s development:

1. Domain: the field(s) of expertise relevant for Jupiter’s intended purpose
2. User Empathy: the needs, pains, and motivations of Jupiter’s user base
3. Usage Context: the users’ work environment, daily business operations and other constraints
4. Technical Options: the capabilities of the Hectosoft development team and technical limitations of Jupiter’s code
5. Business: the market conditions in which Jupiter must turn a profit

Players gain knowledge through dialog with NPCs. In turn, these skills determine how effective some of the player’s UX work and NPCs interactions are. Some dialog options may only become available if the player manages to raise a relevant attribute to the necessary level.

3.3 NPCs

Non-player characters feature custom-written dialog for the branching narrative. They are the main vehicle for the story and the gameplay to progress. However, they also feature a number of attributes, that define their relationship with the PC.

1. Reputation: scalar value for how much they respect and like the player character professionally and personally
2. Needs: what they need professionally to get their work done and to reach their goals
3. Motivation: what drives them, why they choose their profession, and what led them to their job at Hectosoft
4. Social: how they interact with other people at the office, including sympathies and conflicts
5. Personal: private facts like hobbies

While the reputation is a scalar that raises and falls based on how the player reacts to an NPC, the other attributes are simple “tokens” to be discovered through dialog. These attributes determine the options available when talking with a given NPC and allow the player to make informed decisions on what choices are appropriate in order to enlist their cooperation.

3.4 Product UX

To keep track of Jupiter's UX it is modelled using six scalar values, loosely based on the properties revealed by the User Experience Questionnaire (UEQ) [9]:

1. Attractiveness
2. Clearness
3. Efficiency
4. Dependability
5. Stimulation
6. Novelty

The choices made by the player can move the needle on any of these properties. E.g. the player may discover that the development team has been unaware of a common user pain regarding misleading wording in the user interface (UI). If the player finds a way to improve the labels in the interface it will improve the Clearness attribute of Jupiter. Likewise, if the player starts to work the issue without the help of any developer, they will deteriorate the Dependability attribute of Jupiter due to the protagonist's insufficient technical knowledge.

4 Implementation

We chose the Unity engine [10] as the basis for our prototype, as it provides many common game systems "out of the box" and supports rapid integration of thousands of ready-made third-party assets. This allowed us to concentrate on core game mechanics and writing the game's story and dialogs. The prototype took roughly 120 hours of work and was realized on a very low budget of less than € 100.00 for licensing assets.

4.1 Story and Dialogs

One of the third-party assets we picked is support for the Ink markup language from Inkle Studios [11], which powers the core logic of the game. All systems described in section 3 are realized through Ink. While the player interacts with a 3D world, this is in fact only a very elaborate interface for the underlying text-based story engine. This separation of concerns allows us to rapidly test the entire game through a text-only interface while writing the story within the official Ink editor Inky.

The Ink files of BFI contain more than 1,500 lines, the majority of which are dialog for the six NPCs and the PC.

In writing the story we were able to draw on our own research within the German UX community (see section 2).

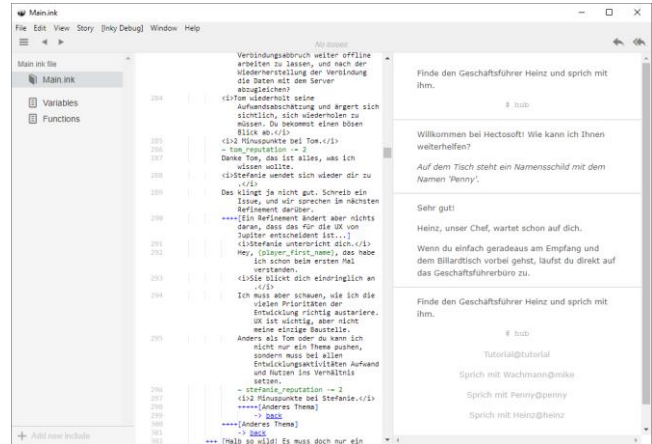


Figure 2: The Inky editor with the Ink markup for "Buttons for Idiots" on the left and a simple text interface to "play" the story on the right.

4.2 World

Since neither of the authors is a skilled 3D modeler or animator, we bought the "POLYGON – Office Pack" from Synty Studios [12] to create and populate the virtual offices of Hectosoft. The selection of the asset was primarily determined by availability and price. However, we found the asset to be very enjoyable for our players, with some of them dedicating significant time and effort in exploring the world with its many playful details.

We expanded the original asset, so that doors open and close automatically when the player moves through the offices, and added animations to the pre-made characters. Also, we created systems to interface with the underlying Ink engine. This includes the display of and interaction with dialog through a simple UI and the ability to make story choices by approaching and interacting with objects and NPCs in the 3D environment.

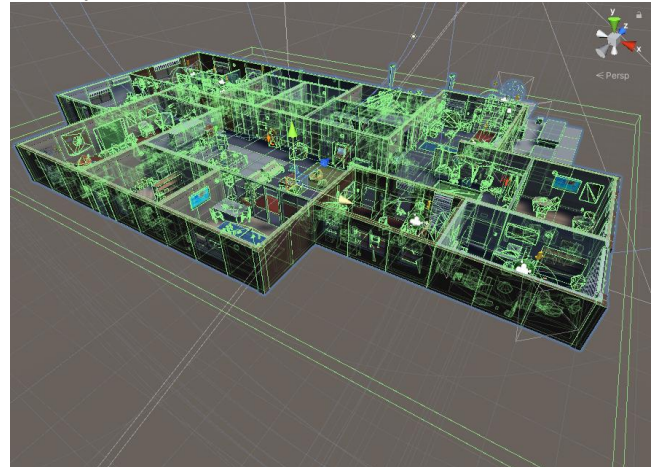


Figure 3: The offices of Hectosoft in the Unity editor

5 Evaluation

The prototype of the game was released publicly to coincide with “Mensch und Computer 2020” conference where we let 27 participants play it during a Barcamp session on September 6th 2020. We invited attendees to enter a discussion after playing the game and asked them to fill out a survey after play. We also provided the link to the game to all “Mensch und Computer” participants via the Discord server of the conference.

The survey yielded 17 responses. However, some of those are incomplete. The following statistics include partial responses if they are sufficiently complete for the statistical computations.

5.1 Prototype Properties

5.1.1 Quantitative Evaluation

The first ten questions asked participants to express their agreement with one statement each on a six-point Likert scale. The questions were designed to evaluate the following five properties:

1. Worthiness: Playing the game is a good time investment for UXPs.
2. Relevance: The game depicts realistic work situations.
3. Fun: The game is fun to play.
4. Clearness: It is clear how to progress, the game’s mechanics are transparent.
5. Presentation: The aesthetic quality of the game is pleasing.

We asked two questions for each property: one with an affirmative and one with a negative phrasing. To counter bias, we subtracted the score of the negative phrasing from the score of the affirmative phrasing, yielding a score from -5 to 5 for each of the five properties.

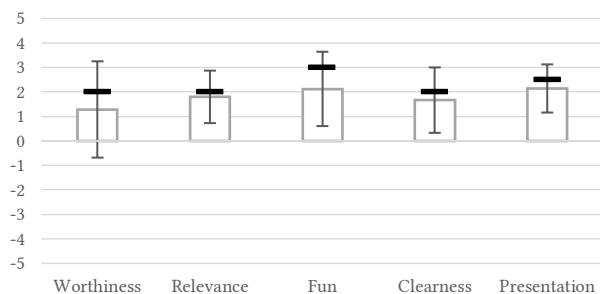


Figure 4: Evaluation of the prototype

	Worthiness	Relevance	Fun	Clearness	Presentation
Median	2.0	2.0	3.0	2.0	2.5
Mean	1.3	1.8	2.1	1.7	2.1
Std Dev.	3.4	1.9	2.8	2.4	1.7
CI 95%	2.0	1.1	1.5	1.3	1.0

Table 1: Evaluation of the prototype

5.1.2 Qualitative Evaluation

We also offered participants the option to leave qualitative feedback on their most enjoyable and most frustrating moments of playing the demo.

Players repeatedly praised the playfulness of the environment and the authenticity of the dialog with NPCs, which reminded many participants of their own experiences. Some quotes (translated from German) to the question, what their most enjoyable moment was:

- “... the statements/texts are so realistic, that it is at times almost painful. Some could be straight out of our project, and I could easily relate to the characters and their peculiarities.”
- “The way Tom talks about the tech stack, because that appears to me like real developer jargon.”
- “When I met Laura, the support lady. Was exactly like real-life =D”

Negative aspects of the qualitative feedback included the missing differentiation of UX, UI and visual design work (some of which was a point of frustration we intentionally wanted to provoke). Also, some players found the multiple-choice options to be too restrictive. These players could not find dialog choices that expressed how they wanted to react in a given situation. There was also one technical problem: For some players the prototype showed poor performance when running inside the Firefox web browser. Here are some representative quotes from the question on what frustrated players the most (translated from German):

- “That icons are considered the most important task of a UX designer.”
- “... But sometimes I wanted to use none of the given questions or answers. Especially regarding the cloud tech talk ... actually, I understand the topic, but I worried every answer would embarrass me in front of Tom.”
- “Demo ran very slowly, and the Laptop became extremely hot and loud.”

5.1.3 Discussion

While the quantitative results are encouraging and speak to an overall positive experience for players, the score and variance for worthiness is not ideal. This is primarily caused by two data records that rate worthiness as extremely poor. However, the sample size is too small to reliably classify them as outliers.

The qualitative answers enforce our assumption that a game like BFI is an engaging medium for knowledge transfer. We are especially encouraged by the reception of the characters and their dialog, which validates our selection of personas and typical situations UXPs find themselves in.

Also, we found the need to more thoroughly edit dialog to support different styles of play. While we want players to methodically work for the skill and knowledge of the PC, we must respect that players need enough freedom to identify with their avatar. E.g., we think it is fair to separate the player’s knowledge about cloud technology from the player character’s knowledge of the same topic, but we must be careful in communicating this in terms of game mechanics to avoid unnecessary frustrations.

The same is true for the separation of UX, UI, and visual design roles at Hectosoft. As the provocative game title suggests, we

assume that many organizations do not fully comprehend the role of a UXP, especially when there is only one such person in the company. Thus, the player receives superficial “beautification tasks” in the beginning of the game and must actively pursue meaningful alternatives. Obviously, the story gives no clear indication that the NPCs are operating on wrong assumptions that may be challenged and changed through player action. Thus, we are promoting player frustration.

Performance issues on Firefox were anticipated through our internal testing and seem particular to the interplay between Firefox’s implementation of WebGL and Unity’s Universal Rendering Pipeline. To reduce the issue on Firefox the players may change graphics fidelity using six presets in the game menu. Using Chromium-based browsers we found no performance problems even on a low-end machine from 2013, specifically an Intel Core i5-4200U with integrated Intel HD Graphics 4400, while running in the Chromium-based Microsoft Edge at full screen (1080p, “Very Low” settings).

5.2 Additional Features

In the second part of the survey we proposed nine additional features for future development and expansion.

5.2.1 Kano Survey

Following the Kano model [13], we asked participants to rate the following features using a functional and dysfunctional question:

1. More NPCs with diverse roles, interests and personalities
2. More and diverse UX tasks
3. Voiced dialogs instead of pure text
4. Visual design tasks instead of pure text multiple-choice
5. NPC animations and idling in the office
6. Cutscenes for important game events
7. Virtual journal for automatically tracking tasks and NPC attributes
8. UX compendium to explain relevant UX tasks
9. Development compendium to explain concepts and jargon

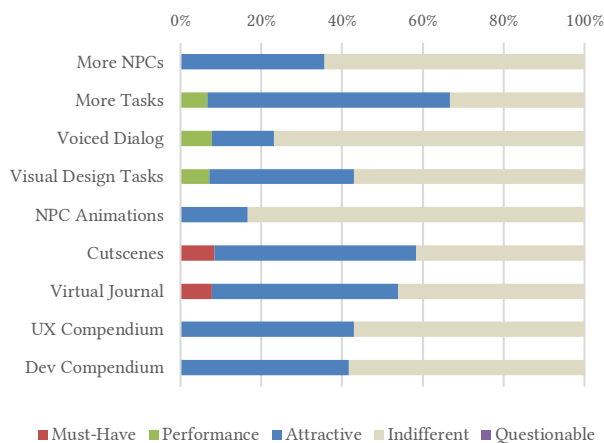


Figure 5: Discrete Kano analysis of proposed features

Feature	Category
More NPCs	Indifferent
More Tasks	Attractive
Voiced Dialog	Indifferent
Visual Design Tasks	Indifferent
NPC Animations	Indifferent
Cutscenes	Attractive
Virtual Journal	Attractive
UX Compendium	Indifferent
Dev Compendium	Indifferent

Table 2: Discrete Kano analysis of proposed features

5.2.2 Discussion

The discrete kano analysis shows that only three of the proposed features are desirable for a majority of participants: more content in the form of tasks (of which the prototype has two obvious and two hidden examples), cutscenes for a more immersive experience, and a virtual journal assisting the player in tracking tasks and attributes.

We also allowed participants to leave their own feature suggestions. However, no recurring theme emerged from the two suggestions made.

6 Future Work

The current version of BFI is a vertical slice for the purpose of evaluating the medium for knowledge transfer within the community of in-house UXPs. While our evaluation of BFI shows promise for the game to entertain UXPs, further research is needed to understand how the knowledge transfer achieved through BFI compares to a textbook, novel, video or other medium featuring the same content and learning objectives.

While the prototype achieved the goal of supporting a basic evaluation of our concept, it is not a complete game. Further development should integrate the lessons learned from the evaluation. This includes more content, cutscenes, an automatic journal, and performance improvements on Firefox.

Also, the later development stages of the prototype made clear that we need to reorganize the Ink files to sustain development of a bigger game. This is an engineering task and appears feasible. The same goes for the separation of concerns of custom scripts within the Unity project.

7 Conclusion

Our prototype of “Buttons for Idiots” shows promise in both qualitative and quantitative evaluations by user experience professionals. The strength of the medium lies in its ability to capture and recreate recognizable situations similar to real-life work. At its best, BFI allows players to discover solutions to familiar social and professional road blocks with a chuckle.

Special care has to be taken in order to allow enough freedom for players to choose different styles of play and to authentically capture the essence of colleague and stakeholder personas. Likewise, a nuanced approach is necessary to convey which parts

of the narrative are supposed to challenge the player and which make a statement about good practice.

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