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Learning through playing

Implementing learning aspects in video games
and evaluating the outcomes

Verfasserin

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Meine Freude über die Fertigstellung dieser Arbeit

ist so grenzenlos

wie die Dankbarkeit

gegenüber all jenen Menschen

die deren Entstehung erst möglich gemacht haben.

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Table of Contents

Introduction

In the course of this paper and the research behind it, it will be discussed if it is possible for people who want others to learn something by playing video games, to implement that aspect in a game and evaluate if the desired learning objective was - in fact - learned. The issue of video games and their effects, good as well as bad, has become popular over the last few years especially since the effects of video games started being discussed in newspapers[1], TV and other media. In most cases the discussion is reduced to either unreflecting overestimation or rejection. Many researchers in different fields try to research and discuss video games in their variety, keeping in mind their potential but also their risks.[2] One of the suspected potentials is the one of learning with, through and/or beyond games[3]. This paper wants to research the possibility of learning through a game and furthermore the issue of how to implement a learning aspect in a game to make the learning of a specific aspect possible.

Background

There are already researches which show that learning through games is possible: Aufenanger for example talks about learning in social contexts and the development of competences through the use of video games[4]. Shaffer, Squire, Halverson and Gee are completely convinced about learning in computer games and even state:

> Games bring together ways of knowing, ways of doing, ways of being, and ways of caring: the situated understandings, effective social practices, powerful identities, and shared values that make someone an expert.[5]

Even if Gee among others is convinced that computer games are teaching us something - as he explains in his book **"**What Video Games have to teach us about learning and literacy" - he cannot underline his ideas with a

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[1] F.e. http://www.bostonglobe.com/business/2012/06/13/play-that-works/oISjbuX6g5ydkpR8I53RcJ/ story.html
[2] Compare Mitgutsch/Rosenstingl, 2008, p.1
[3] Compare Mitgutsch2011b
[4] Compare Aufenanger, 1997
[5] Shaffer/Squire/Halverson /Gee, 2004, p. 7

lot of scientific research, he mostly speaks out of experience and observation from his son. Leaving aside the unusual approach for the proof of a thesis - the book leads researchers to ask themselves: how can we find out what exactly video games teach us? What is the potential of learning through playing games? We are sure computer games teach something; at least they teach the game mechanics and how to win the game but this knowledge is not enough to make games another medium for learning and/or teaching. For that we need to research the potential and in addition of course the possible risks of video games. This paper concentrates on the possible learning opportunities that games have to offer.

Commented Research Question

The information provided leads to the following Research Questions

If a learning aspect is put into a computer game: How does the player reconstruct the intended learning objective on the different learning levels?

The learning objectives contain some information and attitudes towards a certain topic that should be learned through playing the game. The learning objectives are defined after establishing the theoretical framework in the practical part of this paper. The outcome will be measured through a quantitative analysis which consists of a background questionnaire before playing the game and a questionnaire regarding actual play behavior in the game and probable learning.[6]

In the research question it is furthermore implied that somebody - the designer or the producer - wants to include a learning aspect in their games which limits the games being talked about in this paper to games which precisely want to include learning something in their game; such games are nowadays mostly called serious games[7] as they convey a

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[6] A discussion of methodological aspects follows in the chapter „Methodological approach" and a detailed description on how the survey was conducted follows in the chapter „Developing the questionnaire"
[7] A Definition will follow in chapter "Serious Games: The perfect combination of learning and playing?"

serious content. This means they include issues like development aid, the challenges of refugees or environmental topics. The desired learning aspects vary from game to game and depend heavily on the organization or people behind the game. There are for example universities which work on such games[8] but also various companies[9] which develop games. In the last couple of years Non Governmental Organizations[10] and Non Profit Organizations[11] have started to have such games designed to make their intentions known to a wider public.

Not only should, in the course of this paper, be found out what people learn but also how the implementing of a learning aspect theoretically has to be managed so that the intended learning outcome will happen. The learning theory of Gregory Bateson will be the theoretical foundation for the game. It is furthermore important to establish what has already been found out about how an implementation of learning aspects has to happen so that learning can take place; on the other hand it will be evaluated if and what people playing the game learned.
This leads to the following subordinate question:

How does an implementation of a learning impact (theoretically) has to happen to be successful – so that players learned what was aspired to from the producer/designer?

In the practical part of the paper there are two important aspects which should be looked at closely: firstly, a design will be constructed where the intended learning aspects should be put in, in a way that fosters their "being-learnt" based on the theoretical framework; secondly, the outcome will be measured – the intention is to measure if the knowledge and desired attitudes toward the chosen topic was actually learned or achieved.

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[8] F.e. http://gambit.mit.edu/loadgame/afterland.php
[9] F.e. http://www.electrocity.co.nz/
   F.e. http://www.playsweatshop.com/index.html
[10] F.e. http://www.jeuxvideo.com/videos-editeurs/0001/00013106/wwf-panda-junior-en-afrique-pc-deve nez-garde-forestier-00004404.htm
[11] F.e. http://www.insidedisaster.com/experience/Main.html

Structure of the paper

The paper consists of two main blocks: the first one is the theoretical one talking about learning, games and the connection of these two over time; it also contains a description of the intended learning aspects which are put in the game and a short overview of the theoretical methodological approach. The second one is the practical one in which the process of designing the game will be outlined and the empirical work will be described.

Theoretical part

The goal of this part of the paper is to outline the history of games and learning, but it focuses on the definition of learning that is used through the course of the paper, which is the one after Bateson[12], probably with some small amendments after Mitgutsch[13]. After the term learning has been outlined and a working definition has been found the term game is put into the focus of attention and discussed.

Another focus lies on the discussion of the term "serious game", especially on the word game. There will be a short overview of the many different definitions of serious games and some of the difficulties will be explained; for example if they have to be "fun" and how we can justify games for learning when games are supposed to be voluntary. Furthermore, the learning aspect of fair trade which will be implemented in the game will be outlined and discussed. The methodological approach will be discussed in theory and an explanation for the method of choice will be given.

Practical part

The method of answering the research question will be literature research followed by designing a serious game. In the practical part of this paper the design circle and everything around the process of the quantitative evaluation will be discussed.

The part of designing will be grounded on what was found out to be important about implementing learning aspects. For example it is already

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[12] Compare Bateson, 1972
[13] Compare Mitgutsch, 2011b

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known that if text is used it has to have an impact on the further gaming experience. The serious game in question will be played by people, which shall be found through various social network platforms and mailing lists. The goal is to find many different people even such which are not used to play to find out as much as possible about different outcomes with people from different backgrounds.

The questionnaire will consist of a background questionnaire which will ask about age, gender, current occupation, how often computer games are played and such and a questionnaire consisting of items on the learning and gaming part: how much the player knew about the theme in question before and what he or she thinks he or she learned through playing the game. There will be a short one before the actual playing and one afterwards.

The reason for using a questionnaire – a quantitative method – is that this paper wants to find out if the transfer from an intended learning aspect to a learning experience through the player is even possible on a very basic level, because there has not been a lot of research yet. If the answer is yes further, and probably qualitative, research will be needed.

As Mitgutsch and Wagner have already stated in a paper about learning with computer games in school[14] it is important for researches and teachers to find out more about learning through playing and that is exactly what this paper aims to do.

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[14] Compare Mitgutsch/Wagner, 2009

Theoretical part

Learning and games have a long connected tradition and there is still a lot of research to be done, not just on both of them together, there are also huge discrepancies regarding exact definitions of both of them separately. As the game project is called "Another Theory-based Design Project"[15]; in the following chapters the theory for the project will be outlined and discussed as well as the learning theory of Gregory Bateson. In the next chapter the term "learn" will be described and a working definition will be found. In the following chapters the same will happen with the term "games" and afterwards the connection of games and learning in the course of history will be outlined[16], with a following special focus on "serious games".

To Learn – one definition amongst many

There is not one single definition for learning but there are many. One reason for that may be that the discourse about learning can be traced back to the ancient Greeks, namely as far as Parmenides and Socrates. [17] The Greek theories were followed by various others through the different centuries.[18] In the middle ages the focus was put on being able to read the bible the right way because all knowledge was thought to be lying with god. Comenius started to see learning not just as text-based anymore. In the Age of Enlightenment the interest in learning grew rapidly because of the way people were being seen as self - governed individuals and with the concept of the "tabula rasa" the necessity of learning became evident. John Locke und Jean-Jacques Rousseau were only two of the researchers to occupy themselves with the theory of learning at that time. Since then the view on learning differed - whereas in Europe the German progressive education decided rather to talk about "Bildung" and let the word learning lay aside, in the United States Dewey worked on his own learning theory.

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[15] Based on Konstantin Mitgutsch and his „Theory – based Design Project" Afterland
[16] In as much detail as needed to become a basic understanding necessary for this paper
[17] Compare Mitgutsch, 2009 S. 31 - 33
[18] Compare Göhlich, 2001, S. 13 - 16

Today it seems that the focus on learning can not only be found in social and political discourse but it is talked about more than ever in scientific research – not only in the field of education, but for example also in psychology and neurobiology. Because of the rapid changes in economy and (digital) media people have to be able to adapt quickly and un-/relearn quickly.[19] In the science of education in Austria and Germany there are many different views and ideas about learning but there is no general definition.[20] The reasons for that are the many assignments that are brought into the science of education and the missing fundamental research on this topic in the field. Anhalt criticizes that in many publications the term learning is not defined, the author doesn't state where his/her term of learning comes from – if it is a classical conditioning term of learning or if it is taken out of cognitive psychology for example.[21]

For keeping learning as an object of research we have to keep in mind that the term learning is a complicated one that has to be defined for every single project individually – it is crucial for researchers to think about how they see learning and how it will be evaluated. This goes hand in hand with a restriction of the results of the research, based on the chosen or outlined definition of learning. Legitimating a definition of learning in the science of education does not need to be based on the quest for truth but on one for capability – we need a definition we can work with.

In the next few pages the term of learning used in this paper will be outlined and discussed. Bateson has been chosen because of his widely acknowledged theory and the fitting of his theory with the author's approach towards learning. Furthermore, his theory offers the possibility to be implemented in the game and being used for the evaluation as well.

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[19] Compare Anhalt, 2009 p.6
[20] Compare Anhalt, 2009 p.21 - 30
[21] Compare Anhalt, 2009 p.6

Learning through the eyes of Gregory Bateson

One of the most famous quotes on learning comes from Bateson, in "Steps to an Ecology of Mind**",** which was originally published in 1972, he states that

> The word 'learning' undoubtedly denotes *change* of some kind. To say what kind of change is a delicate matter.[22]

For him change denotes process, but these processes are also subject to change so in order to sort out the complexity of the phenomenon of learning he starts at a case where an entity shows minimal change when it responds to a repeated item of sensory input – he calls this *zero learning*.

He orders the processes of learning in a hierarchic classification based on how errors can or cannot be corrected – starting at the zero learning level.

Learning Zero

> *Zero learning* is characterized by *specificity of response*, which – right or wrong – is not subject to correction[23]

Zero learning describes the process of receiving information from an external source, which can be adapted at a later time to a similar event to carry the same information. Bateson states as an example: Somebody *learns* from the factory whistle that it is twelve o'clock.

Very important at this level of learning is that it is not possible to correct a choice by the concept of trial and error. A choice once made cannot be revised; when the "learner" discovers that he/she was wrong it does not contribute to his future skill, because he/she used all the information that was given correctly.

Zero learning in Serious Games occurs when the player starts collecting information in the game and reacts to it with a specific action but they do not put it into the context yet.[24]

Learning I

> *Learning I* is *change in specificity of response* by correction of errors of choice within a set of alternatives.[25]

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[22] Bateson, 1972, p.283
[23] Bateson, 1972, p.293
[24] Compare Mitgutsch, 2010 p.7

While describing Learning I Bateson stresses the importance of the assumption of repeatable context. While the stimulus is the same in Context A and B the reaction is a different one. The most famous example is the Pavlovian conditioning: The entity, in this case a dog, gives a different response to the stimulus, a buzzer, at time 2 than it gave at time 1. At time 2 it salivates, because it "learned" that at the time of buzzing it would get food.

If we assumed that there is no repeatable context, all learning would be type zero – it would be a different reaction to a different context. There would not be the possibility to learn from errors which would eliminate the concept of "trial and error".

At this level the person starts to choose what to do and does not react automatically with the same behavior to the same stimulus. The situation is being analyzed and the reaction is chosen based on what has been learned through trial and error in earlier situations. Bateson calls this framing; individuals think about the context in which the situation takes place. The special skill learned at this level is to classify different contexts and to learn to identify those.

Learning II

> *Learning II* is *change in the process of Learning I, e.g.*, a corrective change in the set of alternatives from which choice is made, or it is a change in how the sequence of experience is punctuated.[26]

Bateson uses 3 examples to describe how learning II is developed:

1. When we describe someone's "character" through adjectives we are able to assign the used adjectives to their logical type. All describing adjectives, for example optimistic and casual, can be the result of Learning II – on the one hand we have learned in the courses of our lives, what the meanings of these words are and on the other hand the result of being optimistic is a result of social influence.

[25] Bateson, 1972, p.293
[26] Bateson, 1972, p.293

2. In this second example as Bateson states it is important that: "No man is "resourceful" or "dependent" or "fatalistic" in a vacuum"[27]. He stretches the importance of interaction between individuals and the individual and his /her environment, for learning. The adjectives describing a character do not only describe the individual but transactions between him/her and others and their environment.

   So this example states the importance of the social context in which learning becomes possible and which structures the process of learning.

3. In his third example for Learning II he talks about psychotherapy as an example of how we bring patterns from old relationships[28] to the new relationship with the therapist. These transference patterns usually date from early infancy and are unconscious – while Bateson thinks these generalizations are true he states that they are one way of seeing Learning.

Learning II as putting Learning I in contexts includes external events but also the subject's behavior – but because we mold the behavior after our learned patterns to fit the expected situation it seems that Learning II is inalterable and likely to persist our whole life. It is not a "right" or "wrong" of learning something; it is a way of seeing the world. The conclusion can be drawn that Learning II gets less over the course of a lifetime because people "know" how the world works in their mind – it becomes a repeating pattern and doesn't change anymore. How we think the world works and how we view the world always reassures us in those assumptions and makes a change of them hard to initiate.

Learning III

> *Learning III* is *change in the process of Learning II, e.g.*, a corrective change in the systems of sets of alternatives from which choice is made.[29]

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[27] Bateson, 1972, p.298
[28] Bateson states that it is usually the relationship with our parents that shape these patterns
[29] Bateson, 1972, p.293

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Because of the self-validating character of Learning II, Learning III seems to be hard to achieve and after Bateson even very rare in human beings. This type of learning is a profound reorganization of character that can occur for example in psychotherapy or religious conversion. It is possible to learn at the Level of Learning II and merely replace a premise without achieving Learning III, but when a greater flexibility in the premises of Learning II occurs a redefinition of the self can be reached. It is a change but also a realization of one's habits and furthermore a learning of the context of contexts – the knowledge that with processes of learning one controls how habits are constructed. As the three possible results of learning III he states psychosis, profound reorganization of character through a collapse of what was learned on level II or "being swept away by an oceanic feeling."[30] None of those seem really appealing to achieve so it seems Bateson wants to warn from reaching learning Level III. While Bateson is convinced it is very hard, close to impossible, to reach this state of learning and that positive examples would be successful psychotherapy or religious conversion it seems that he went a little too far. In his book Lutterer[31] states that it is possible and "normal" because the view of the world is not only subject to change but can also be viewed as an image or abstract that can be constructed.

Learning IV

Learning IV would *be change in Learning III*, but probably does not occur in any adult living organism on this earth.[32]

Bateson limits most of the discussion about his hierarchical learning theory to the Levels I and II – especially because as he states, as can be read in the citation above, that Learning IV is very unlikely to occur in any adult living organism on this earth. As the Levels before already seem hard to reach, for this paper the challenge of trying out a theoretical and practical approach to a learning level that is believed to be hardly achievable will be left out.

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[30] Bateson, 1972, p.306
[31] Lutterer, 2011, p.83
[32] Bateson, 1972, p.293

While it seems that with that little piece of information the discussion of the learning levels stays incomplete it is fitting. Bateson's theory itself offers the suggestion that we always learn -even if it is just to not have to learn on a different level.[33]

Bateson's theory is one in many theories on learning but it is one that offers a linear approach in which the preceding level of learning is included in the higher one; this idea offers a base when working with computer games as they also work with levels and information that is organized in hierarchical and consecutive levels. The theory does not lead us to one "perfect" definition of learning, but as this paper is working with the different levels of learning, the working definition of learning after Gregory Bateson will be:

> Learning is a process that, initiated through a stimulus, makes change happen.

The concept of this paper is based on Bateson's approach but remains vague on what exactly happens when people learn because to form a theory that would define what kind of change happens would go beyond the limits of this thesis and it would also engross at least the whole paper and make a further inquiry of learning in games throughout this paper impossible. This working definition does however fulfill the requirement of describing how learning is viewed in the course of this paper and for the purpose of finding out if learning happens in the game in question.

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[33] Compare Lutterer, p.85

What is this – a game?

Before the theory gets attached to the game project, it is important to look at the term *game*. While Abt defines games in a very limiting way first and afterwards in a way which is too broad he offers a few important ideas for the definition of games:

> Reduced to its formal essence, a game is an activity among two or more independent decision-makers seeking to achieve their objectives in some limiting context.[34]

With the limitation of two or more "decision – makers" he leaves out games which are played alone, if he doesn't think of boards or computers as "decision–makers". He did see the limitations of his definition and broadened it, but in the attempt to do so he included most real-life activities. Important in this first definition being looked at is that games always offer a "limiting context" – a specific set of rules. Of course some games are structured stricter than others, but some form of restriction of the "game space" appears in almost all definitions of the term game.

Looking at games through the eyes of a game designer Jesse Schell came up with the following:

> A game is a problem-solving activity, approached with a playful attitude.[35]

Schell uses this definition for practical reasons: he wants to use the definition to guide his readers through the book and give them insight on how to make better games. The different approaches on how to define games show how the different purposes have to be taken into account and when looking at them also be reflected. The question which remains is not what the word game exactly means, as "game is a word of many meanings and implications."[36], but what definition of game can be found as a working one fitting the question asked in this paper? For the definition of the term game two important implications have to be considered: it has to be a definition that views a game from a designer's AND a player's view,

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[34] Abt, 1971, p.6
[35] Schell, 2008, p. 37
[36] Prensky, 2001, p. 118

as done in Schell's definition, but also through the eyes of a theoretical researcher.

To achieve a satisfying result for both aspects we will take a look at two more definitions of game, one from from Scheuerl[37] and his book "The game"[38] and the other one from Salen and Zimmerman out of their book "Rules of Play"[39]– to satisfy both views necessary for the definition.

In his book "Das Spiel"[40] Hans Scheuerl is trying to look behind the phenomenon of games in relation to its value for progressive education. "Das Spiel" is a phenomenological work and wants to answer the question: "What is game?". His method is to think about and look at the phenomena of game without the use of empirical methods. For him this needs to be done before all research or must be innate in the research.[41] In the case of Scheuerl's work the reason for looking at the term game is that only when it is evident what game purely as phenomena is and in which manifestation it can appear it can be assessed and evaluated how pedagogical game phenomena can be used in an educational context.[42] For Scheuerl the word "game" indicates not an activity but a movement – which in the English language would be the difference between "game" and "play". Game is always a play with, around or in between something; if that is looked at as the primary phenomena it is not game which is being looked at but play. The game is always free because it is not being done - which would be play - but it is happening. From the player this demands activity and willingness to devotion[43]. Furthermore, Scheuerl offers 6 central point's which he calls moments which define a game, all of them are included in his definition:

> Spiel ist ein reines Bewegungsphänomen, dessen in scheinhafter Ebene schwebende Freiheit und innere Unendlichkeit, Ambivalenz und Geschlossenheit in zeitenthobener Gegenwärtigkeit nur der Kontemplation zugänglich ist. Auch wo es zu seinem

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[37] Scheuerl, 1990
[38] Pieces translated from German by the author of the paper
[39] Compare Salen/Zimmerman, 2004, p. 80 f
[40] Scheuerl, 1954
[41] Compare Scheuerl, 1954, p.6f
[42] Compare Scheuerl, 1954, p.59
[43] Compare Scheuerl, 1954, p.129ff

Zustandekommen Aktivität voraussetzt, ruft es den Spieler zu dieser Aktivität nur um der Kontemplation willen auf.[44]

Game is a phenomenon of movement which in its illusory appearance hovering freedom and inner infinity, ambiguity and closeness in timeless presence is only approachable by contemplation. Even where it requires activity, it does so in the sense of contemplation. The 6 central points are:[45]

- The moment of freedom; which means that you have to be free of natural needs because the game is free of purpose outside of the game space.

- The moment of inner infinity; in the game you don't want it to come to an end. The players want to keep going and keep the tension of being in an in - between game space.

- The moment of illusory appearance; game is always on a level of pictures. It does not act in the "real world" of needs and responsibilities.

- The moment of ambiguity; game is always an in - between something. Between too much tension and not enough, between not taking the game seriously and taking it almost too seriously.

- The moment of closeness; game is closed to needs and worries in time but it is closed in itself to laws from the outside as well.

- The moment of presence; game is happening in the now. It does not find its purpose before or after but always in the infinity of the game space.

This definition focuses completely on the theoretical description of the phenomenon of games and does not offer a definition to work with on an empirical level. It is important to see is that the game is a primal phenomenon and if game-activities are being researched it has to be kept in mind that we are not looking at the game itself but at what the game is activating.

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[44] Scheuerl, 1954, p.136
[45] Compare Scheuerl, 1954, p.69ff

Salen and Zimmerman take a look at 8 different definitions of game and play to form theirs in order to define what their book is actually about:

A *game*[46] is a system in which players engage in an artificial conflict, defined by rules that result in a quantifiable outcome.[47]

"Artificial" in this context means that games occur within the real world but they keep a distance from the "real world" in time and space. All games contain a contest of power – this contest is not limited to people against each other but can take many different forms which is called "Conflict" by Salen and Zimmerman, they also contain rules which provide a structure of the game by establishing boundaries in what the player is allowed to do and what not. The "quantifiable outcome" is used to distinguish a game from other (less formal) play activities. Salen and Zimmerman describe their definition as "intentionally quite narrow"[48], but they include puzzles and role-playing games – they do however state that the question of whether or not a game is a game is a very subjective, individual one and these many different views offer valuable opportunities to understand the complex phenomenon of games as a whole. For them the definition is a limitation of games for the study of game design – a very practical one.

In comparison these two definitions of game do not seem to have anything in common but they both offer valid and important points that have to be kept in mind when talking about games: From Scheuerl it is important to bear in mind that game is a phenomenon of movement that has to be differentiated from the activity of game which can be translated as play. Game is a context in which playing happens and it does not imply an active player. Salen and Zimmerman broaden the definition in this specific point and include active players because they need to for the purpose of talking about how to design games for players. In this paper and the project behind it the same is necessary: game cannot be viewed in a purely phenomenological approach because it talks about specific games and gaming activities as well as what can happen through playing.

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[46] Cursiv as in the original
[47] Salen/Zimmermann, 2004, p.80
[48] Salen/Zimmerman, 2004, p.80

Research about the effects of games needs to view game together with an active player but keep in mind phenomenological limitations. The working definition after Salen and Zimmerman cannot be viewed as an explanation on "What is game?" but is used to establish what a game is for the course of this paper.

The system for this paper is the designed game in which the player acts through controlling his figure. Through this figure he or she tries to find his or her way through the narrative and game mechanics which are the rules. The quantifiable outcome will be defined through the learning objectives on the three different levels.

Games and learning: a quest from the past up to today

> […]learning by playing may even be called the oldest learning method there is.[49]

As Mäyrä states in his book "An Introduction to Game Studies" the history of designing games for learning purposes can be traced back to the eighteenth century. He names chess as being an early war game that teaches strategic thinking necessary for battle.

From that time on until the twentieth century games for learning focused on teaching tactics and strategies for battle. In 1960 the North American Simulation and Gaming Association was formed out of the East Coast War Games Council. This association was interested in using games to enhance learning. Soon more similar associations evolved and a rich community for research on games for learning was formed. The advance of technology led to an increasing interest in the possibilities of new media.

While there were still broad discussions in the field about the theoretical background for example between supporters on the "ludologist" position and researchers who wanted to realize interactive fiction as their goal, no school of game studies has been established till this day. Mäyrä states that apparently "No one actually seems to be willing to reduce games either into stories or claim that they are only interaction […]"[50]

Although it has been claimed that a common approach would be necessary - the contributions to game studies still come from various fields of science and therefore there are also a lot of methods from different disciplines brought into games studies.

It is not the Intention of game studies to find out just about the connection of games and learning but it does help with a lot of contributions from different researchers. While in game studies the view of learning from games is one in many – in the science of education games are one of the many media to be looked at for learning and teaching. Over the last few

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[49] Märyä, 2008, S.7
[50] Märyä, 2008, S.10

years research in the field of education about video games has increased, pushed especially through the works of Marc Prensky and James Paul Gee – not because of their flawless theories or methods but because of their optimism and their relatively new and innovative ideas. Prensky and Gee share a similar confidence in the power of games for learning. As Prensky states:

> Another exciting Digital Game-Based Learning vision is to have games and learning so integrated that the hottest new game on the market immediately becomes a new learning tool.[51]

He does admit that this vision is still a dream of the future but his optimism cannot be ignored in his ideas about the future. For an example from James Paul Gee one just has to take a look at his homepage and pick one of his publications:

> While I have mainly focused my work on commercial games, I have also argued that video game technologies hold out great promise, beyond entertainment, for building new learning systems for non-entertainment purposes in and out of school.[52]

Prensky and Gee both cannot verify their statements with scientific empirical research in their most – cited works "Digital Game-based Learning" and "What Video Games have to teach us about learning and literacy". Regarding both authors it has to be mentioned that neither of them comes from a background in the Science of Education. Whereas Prensky started out as a teacher he is now a CEO at Games2Train, a company which "marries computer games and serious business content into a new 'Nintendo Generation' approach to training: Digital Game-Based Learning (DGBL)"[53], Gee comes from a background in literature and is now a Professor of Literacy Studies – their work cannot be transferred easily to the Science of Education, but they do offer an enormous amount of ideas for research questions and empirical research.

The first flood of optimism seems to have faded at least a bit and many researchers have realized that more and deeper research is necessary to

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[51] Prensky, 2001, p.407
[52] Gee, 2009, p.1
[53] Compare http://www.games2train.com/site/html/whowhat.html

come to conclusive results that can be applied to a general group of people. This was to be seen especially at the Future and Reality of gaming (F.R.O.G.) conference in Vienna in October 2011: While most of the speakers emphasized the probable chances of "better" learning through games, they later stated that we still could not say for sure what we were learning and how we could use games because further research was needed.[54] Of course there are a lot of different questions to be researched, some people focus on learning with or in off-the-shelf-games, like Prensky and Gee do, while others focus on games designed for learning purposes or on how to design games for learning purposes, like Wagner and Mitgutsch, while still others focus on researching on specific themes in games, like Consalvo[55] and Kutner/Olson[56].

As it is not possible to look at all the different angles of research in the course of this paper, it is necessary to limit the field of research, as has been done in the introduction – so for the rest of the course of the paper the games looked at specifically are Serious Games. The term Serious Games is not completely supported by all researchers so in the following chapter a differentiation to another concept will follow which is widely acknowledged, Digital Game-Based Learning. After that the term "Serious Games" and its issues as well as potential will be discussed.

Digital Game – Based Learning – an excursion

This chapter offers a differentiation to the concept of Digital Game – Based Learning. In the following chapter the concept and problematic issues for the paper at hand will be outlined.

Prensky wrote his book "Digital Game – Based Learning" in 2001 to which a majority of studies refer when talking about Digital Game – Based Learning (DGBL) and he states a very optimistic view on learning with

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[54] To see on http://www.arimba.com/frog2011/vod/ especially talks of Mitgutsch, Kutner, Mittel and Breitlauch
[55] Consalvo, Mia wrote a book about cheating and is currently working on projects about casual gamers and the influence of Japan in the gaming culture to read at http://gambit.mit.edu/updates/2009/09/an_interview_with_mia_consalvo.php
[56] Kutner/Olson are the Authors of „Grand Theft Childhood" a book about violence in Video Games

digital games. Admittedly it can be assumed as the work of a pioneer trying to convince more than one generation of the need

>*to invent radically new ways of learning* that mesh with the new world, style and capabilities of Generations X, Y, Z and beyond.[57].

But in his book he does so by leaving out important definitions and talking about examples which are not fully or not at all researched, for him it is enough to cite from a telephone interview: 'We know the technology works. We just want to get on with using it.'- He takes on the view from the US Military which has used simulation and games for training since the 1930s when the first flight simulator was invented. The problem is that the military mostly uses simulation and apart from that it trains for very special skills and does not teach pure knowledge or critical, reflective thinking but strategy, team work and the knowledge of the military hierarchy. Although Prensky defines learning in a later paper he does not fully do so in his book on DGBL – he reduces the process of learning to the motivation of the learner.[58] Of course he is a pragmatist and wants to communicate preferably to the general public and does so in the way he thinks is easily comprehensible but in the course of doing so leaves out important critical points such as:

- How does he think games can change ways of learning without any valid researched empirical evidence and without having the term learning defined?
- In his Chapter "Why Digital Game – Based Learning works" he describes his thesis on why DGBL learning works in three points: the added engagement, the interactive learning process and how engagement and the interactive learning process are combined. He does not work out this thesis theoretically nor does he offer empirical research which would support his thesis. He limits the idea in saying that DGBL is not supposed to do an entire teaching job alone and that the content needs to be well matched with the

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[57] Prensky, 2001, p. 18
[58] Compare Mitgutsch, 2008, p.23

learner – but his ideas lack definitions and a well conceived framework.[59]

- Throughout the whole book he puts fun first and learning second; albeit without giving a definition for either fun or learning.[60] How do we know that helps the current generation in living their future lives? – Again no empirical data is provided.

- He differentiates between Digital Game – Based Learning for Kids and Students and for Adults – again no exact separation for these three groups and he mixes together Kids and Students and calls Digital Game – Based Learning for them Edutainment.[61]

- Prensky believes that Digital Game-Based Learning can lead to a change in behavior and leaves out the problem of transfer from the game to real life. He describes that it works in the game but again no empirical data for changing behavior in real life[62], for Prensky it is enough to quote Don Johnson from the Pentagon: "'We know the technology works. We just want to get on with using it.'"[63]

- In his book there is no reflection on the companies from which he takes the examples and why many of them come from the financial sector. His examples are such which ground on "boring" content that needs to be taught very quickly and efficient to adapt to the fast changing structures of economy.[64]

Although all these points can be summoned up under a lack of definition, reflection and available empirical data –his book is still important for the field of games and learning. It is a book that in his writing style has reached a lot of people and motivates users to try out elements of digital games in their teaching. Apart from the lack of valid researched empirical examples and theoretical explanations of what Prensky assumes logical and not needed to be explained, his work is helpful in providing examples of the implementation of various training tools based on digital games

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[59] Compare, Prensky, 2001, p.147
[60] Compare, Prensky, 2001, p.110 as well as p.179
[61] Compare, Prensky, 2001, p.181
[62] Compare, Prensky, 2001, p.291 f
[63] Prensky, 2011, p.316
[64] Compare, Prensky, p.327

which seem to have worked for the companies and in providing sparks of ideas on what to look for in the current research.

For Prensky Digital Game – Base Learning is "any marriage of educational content and computer games."[65] Which would mean Serious games are a part of Digital Game – Based Learning. He is not the only one thinking this way: There are a lot of different ideas out there about serious games; one is from Van Eck who states in an article[66] that for him Serious Games are one of three approaches to implement games into the learning process, so a part of Digital Game-based learning, aligned with the other two general approaches: students designing games and commercial off-the-shelf games used in classrooms or training situations. Why are the other two excluded though? Students put serious content into games and when teachers use games which are designed for entertainment, for teaching or training that could be viewed as serious, depending on the author's definition and research question. That leads to the following statement for this paper:

Short of a conclusive definition of Game Based-Learning in Prensky's book which is the groundwork for the concept of DGBL[67] Serious Games will not be viewed as part of Digital Game-Based Learning but as a combination of games and learning based on the theoretical framework established.[68] Apart from that Prensky's ideas on game design especially his view as a person from his professional activity can be used when talking about the game design process.

Matching Bateson with Salen and Zimmermann

The described definition of learning after Bateson needs to be brought together with the used definition of what a game is viewed as for this paper to make it possible to construct answers to the research question. In

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[65] Prensky, 2001, p.145
[66] Compare Van Eck, 2006
[67] Although there have been amendments from different authors as well as from Prensky himself
[68] A complete working definition will follow in the chapter "Serious Games: The perfect combination of playing and learning?"

this part the important terms of the research questions are being operationalized to make a conclusion possible.

The research question and the used definitions of learning and game are:

> If a learning aspect is put into a computer game: How does the player reconstruct the intended learning objective on the different learning levels?

> Learning is a process that, initiated through a stimulus, makes change happen.

> A *game*[69] is a system in which players engage in an artificial conflict, defined by rules that result in a quantifiable outcome.[70]

It all starts with putting a learning aspect into a game – using the definition of learning this means that a stimulus which should make change happen is put into a system. A system in which the player engages in an artificial conflict defined by rules; the system is the designed game, un*fair. The artificial conflict happens through trying to or interacting with the game through controlling the stick figure.

The different stimuli should make change happen and therefore make learning happen which would be the quantifiable outcome measured through the questionnaire. Considering Bateson's learning levels this change should happen **in** the game on level 0, **through** playing the game on level I and **beyond** the game on level II. For each level a learning objective is constructed and put in the game.

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[69] Cursiv as in the original
[70] Salen/Zimmermann, 2004, p.80

Serious Games: The perfect combination of playing and learning?

Lennard, be serious. We are playing a game here.[71]

The term "Serious Game" did not get a lot of attention at the start. When Clark Abt wrote his book on Serious Games the term wasn't discussed broadly at all; but with the formation of the serious game initiative in 2002[72] a discussion as broad as the terms "serious" and "game" themselves started.[73] There is still not one definition for the term "Serious Game" but there exists a widely acknowledged concept that is based on the combination of games with learning, where the game is not primarily used for amusement but supports the intended learning aspect. For finding a working definition the author turned to Michael and Chen and their book "Serious Games: Games That Educate, Train and Inform.": Both authors have a background in designing video games and offer a perspective from a designing point of view connected with the idea from Clark Abt.

In their second chapter Michael and Chen ask "What is a 'serious game'?", and they tell their readers "[…] you will learn that all games are serious."[74]

In their search for a definition they turn to Abt and follow his definition. They describe serious games as such that don't have entertainment, enjoyment or fun as their primary purpose. They continue in saying that serious games use the artistic medium of games to deliver a message, teach a lesson or provide an experience. In addition they turn to Ben Sawyer[75], who said that the "serious" in "serious games" reflects on the purpose of the game and not on the content. Abt is very explicit about serious games in his definition:

> We are concerned with serious games in the sense that these games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement.

[71] The Big Bang Theory, S04E03, Intro
[72] Compare http://seriousgames.org/about2.html
[73] Compare Rockwell/Kee, 2011
[74] Michael/Chen, 2006, p. 17
[75] Co – Founder of the Serious Games Initiative http://seriousgames.org/about2.html

This does not mean that serious games are not or should not be entertaining.[76]

Serious Games are games specifically designed for a purpose, their content does not have to be serious if serious implies that it cannot be fun. The game is created with an important message behind it for designer or producer, the narrative and game mechanics are supposed to support the intended message. To speak in the words of Abt:

Serious Games combine the analytic and questioning concentration of the scientific viewpoint with the intuitive freedom and rewards of imaginative, artistic acts.[77]

Based on Abt's statements about Serious Games the working definition used in this paper will be:

Serious Games are Games which are made with a predetermined learning goal in mind; they combine learning with playing in all Elements of Games.

This definition is based on the Definition of Games and Learning provided in earlier chapters and it limits Serious Games to such games which are made with the intention of being used for learning – which excludes commercial off-the-shelf games used for teaching and teaching methods that use games just for evaluation. The part "combine learning with playing in all Game Elements" eliminates Edutainment which takes content that needs to be learned and includes just elements of games to make learning more fun.

Before talking about limitations of Serious Games it seems important to state that this working definition is one that has a lot of potential: if it is possible to make such Serious Games (which is not proven yet) then this could lead to a rapid change in teaching and training; for people growing up with games or for people who started playing a lot of games learning would start in a way they are used to and they would not have to switch from academic learning, which usually happens through reading, memorizing and practicing on paper or other media to learning through and hopefully beyond games.

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[76] Abt, 1971, p.9
[77] Abt, 1971, p. 11

The term "Serious Games" holds the benefit of sounding like something politicians and policy makers can agree on to advocate and support also on a financial basis.

However, in this definition of Serious Games it seems that this special combination of learning and playing could lead us to a holy grail of learning: The learning content, which might be boring or hard to learn, is combined with what seems to be freedom in learning and rewards in the sense of instant achievement. For thinking about Serious Games in such an optimistic way we would need to be very ignorant: Firstly, it is not that easy to design a good game that teaches what designers/producers want people to learn, and we are not even sure yet if games can "make" us learn a specific aspect; secondly, not everybody likes to play games, learning is something highly individual and one teaching tool for everybody would not be enough. In the next part of this paper the author will focus on problematic issues of designing Serious Games as well as on what is important to even make it possible to support a learning aspect.

Problematic issues of designing a serious game

The problem remains that most game designers are not educators and vice versa, which results in the dilemma that each lacks the competences of the other – how can serious games offer a good combination of learning and gaming if we seldom have professionals of each domain working together and even if they do so, how can we assure that in the process of designing the learning aspect doesn't get lost? In their book Michael and Chen try to offer the following solution: Designers have to take back their assumptions about good Video Games in order to create good Serious Games.

This statement is underlined with a few examples:[78]

- Bigger, faster and newer isn't always better
  Good video games are usually produced to work on the latest and best hardware, software and other technical equipment – the market for serious games usually doesn't have the latest equipment

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[78] Michael/Chen, 2006, p. 31 ff

so Developers have to cut back in their desire to design for the latest technical innovations. This also applies for simulation; serious game design is more about what can be left out opposed to perfect realism so the player can focus on what learning aspect should be learned.

- Thinking through Assumptions

  In retail games simplification is a key for simulation games; if it matches up with reality most of the time it is good enough. In serious games this isn't always enough, it is important that Designers weigh carefully what they can leave out and what they have to include in order to concentrate on the intended learning aspect and still be real enough.

- Simulation shortcuts may be fun but they might prevent learning

  Designers tend to use a few tricks to keep the fun in the game which in a serious game can prevent a learning success. Examples for such tricks and what the problem with those could be in a serious game are:

  o Random numbers

Those are used for creating environments to explore or keeping reactions of avatars unpredictable; in a serious game however the game should respond more consciously to the decisions of players.

  o Time compression

Reduces or removes the time between action and reaction. In serious games that work with real life simulations time compression is not an option.

  o Process simplification

Removes or reduces steps which otherwise might take out the fun. For example in driving games the process of shifting gets simplified – important for the design of a serious game is that the designers closely watch which process is important to be kept completely and should not be simplified.

  o Headache removal

This is the process of removing little, authentic problems – like an engine failure – because they frustrate and probably take the fun

out of the game. In a serious game the player might have to learn that those things can happen or how to handle the frustration.

In retail games the biggest objective is that it takes the player in, that it creates a unique experience, that it is fun. In a serious game on the other hand the biggest objective is the purpose for which it was created and fun takes a backseat. Designers have to realize that and take back some of their usual assumptions about game design.

Another important issue when creating serious games is that the Designer has to be completely in the picture of the purpose of the game or he or she has to get exact instructions, which is probably hard for someone who does not know about the process of designing. The reason for that is, as Schell states regarding designers:

Because you will be able to work in relative obscurity, no one is going to ask you to take responsibility for what you create.[79]

It should be assumed that the designers know about their responsibility, that they realize that it is not the producer, the publisher or anybody else who is responsible on an ethical level.[80] But as people are not perfect we cannot generally assume such a thing and have to take into account that the designer might not care about the desired learning aspect of the person that wants to produce the game. For this issue there are two solutions:

1. Intense communication throughout the whole designing and testing process
2. Producer as designer

Of course the second solution might not work in large projects and it comes with a lot of other problems but for a small project that has a specific target group or a small thought out purpose it can be done, especially because game design is not impossible to do for people who have no or very little programming skills because of drag – and drop game design surfaces. For the course of this paper the second solution will be tried as the resources for a Master Thesis at the Institute for the Science

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[79] Schell, 2008, p.455
[80] Compare Schell, 2008, p.454 f

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of Education at the University of Vienna are very limited and the learning aspect should be built in as carefully and exact as possible.

Another issue that comes up when talking about serious games opposed to commercial games especially for but not limited to the use in classrooms is the issue of the importance of testing and tracking: Michael and Chen write that for the use of serious games in classrooms it is necessary to include instruments for evaluating the learning progress of players but not only for that purpose: to find out what players learn we need those instruments too. In most serious games such evaluation instruments are not included, especially when they are used by companies to transport a message[81], not even Nongovernmental Organizations like the red cross think about how they would track what people learn through a game[82] and of course there are games that make you think about what you are doing in life produced by people who just like to design[83] which don't track what the player has learned.

For organizations and individuals it is not that important to track the learning process of the players, apparently they have the feeling that it is enough to pack their message in a game and "throw" it out in the world – as educators and researchers in the field of education we want and need to know what has or has not been learned. But curiosity is not the only reason for the quest to find out about learning processes and new media for learning, the structure of our education system is built around testing about what has been presented in school.[84]

Learning in school is how pupils mainly learn; they spend a lot of time in school and on work for school at home. Because learning in school or studying at home differs from learning through games regarding the method used, we need to find out if and what can be learned through games – another one is our desire for knowledge about learning in games of course. As game designers are usually not researchers of education

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[81] As an example http://www.electrocity.co.nz/Game/
[82] Compare http://game.roteskreuz.at/
[83] Compare http://www.casualgirlgamer.com/articles/entry/22/Ten-games-that-make-you-think-about-life/
[84] Michael/Chen, 2006, p.37

they do not think of including mechanisms which track learning progress in games and bluntly we don't really have the instruments for that either. We can find out how people learn in games but not what they learn through games for "real life" – although this is currently tried by researchers such as Mitgutsch in his paper "Playful Learning Experiences. Meaningful learning patterns in players' biographies."[85], as well as on his talk at the Game Developers Conference 2012 and Joeren Jansz as he talked about on the Conference Future and Reality of Gaming in Vienna in 2011.[86]

Apart from the issues in designing a working Serious Game there is another topic which is discussed with much controversy: The issue of motivation. As this is not only an issue for designing it will be discussed in its own subchapter:

The motivational issue

Video games are being used for educational and learning purposes because people find them motivating. This is a commonly assumed statement. Mc Gonigal even goes as far as saying that gamers have had enough of reality[87] because games compared to reality offer rewards. The problem with this assumption is that it can lead researchers into a vicious circle: one of a self – fulfilling prophecy.[88] Researchers who like to play themselves assume everybody likes to play and people drawn to games participate in research about games – which leads to prejudiced findings. To avoid this circle it is important to reflect on why people join a research project and play the games in question and this will have to be added to the questionnaire; but it can be assumed that many people will play the game and join the research because of sympathy for the researcher and the Master Thesis behind it. So this will probably not be the perfect surrounding for a paper on motivational issue. Apart from this constriction this chapter shall look into how motivational aspects can be used for keeping players in the playing process.

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[85] Mitgutsch, 2011b
[86] Compare http://www.arimba.com/frog2011/vod/4
[87] Compare McGonigal, 2011, p.2 ff
[88] Compare Whitton, 2007

For learning Motivation is a key factor and the motivational power of Video games can be considered a powerful educational resource.[89] Abt states in his book "Serious Games": "To be motivated is to have a reason for action."[90] For designing serious games which work in the sense of making people learn we have to construct such a reason for acting. In a first observation this reason for action – the reason for playing the game – must be an instant one. One which is realized right away so it has to be something which is seen at the first glance, which further means that it has to do with the design of the first screen or the homepage on which the game is implemented. But getting the player to start the game is not the whole thing – the player has to stick with it and furthermore be motivated to think about the game beyond the game play.[91] For the game it is important that the narrative of the game supports the learning task and transforms it to something of personal importance for the player, who becomes the learner in the case of a Serious Game. The question remains in what way learning can be packed into the game to foster learning. For this we have to take a look into the research on motivation: Schell discusses Maslow's Hierarchy of Needs and describes how different genres are placed on different levels in the Hierarchy:

For example while many games are about achievement, they are placed on level four - self esteem - multiplayer games fulfill needs on level 2 or 3 Safety and Belonging/Love. As most Serious Games are neither multiplayer games nor do they have an extensive budget they work with the motivational element of achievement - so on Level 4, as will this Serious Game. Achievement means the completion of the game. This shows further limitations to the possibilities of Serious Games on this level: To achieve a learning impact the other needs have to be fulfilled.

While it becomes evident that motivation is a key factor for arguing how valid games can be for learning there is still no set of specific guidelines how motivation can be packed into a game. For game designers the

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[89] Pivec / Moretti, 2008, p. 38
[90] Abt, 1971, p.16
[91] Of course in this case we are talking about extrinsic motivation because throughout the research players will be asked to play the game as a favor for the researcher who needs the results.

motivational aspect is reduced to designing what they think to be fun and what they would like to play. This approach proved to be quite successful as designers brought us games that involved players for days and one could say nearly made them addicted. So as the question of motivation in design cannot be answered here for the research project in question this approach will be tried out: the genre is one the designer likes to play and the design is constructed after the preferences of the designer – in play testing it will become evident if this approach in motivation has worked.

As stated in this chapter there are still a lot of problematic issues regarding the design of good serious games but identifying and reflecting on them is the first step to a solution. What needs to be added here is that "Another Theory - based Design project" is a very small research project with very limited resources, which will not be able to fully adapt to all the problematic issues; others will not be relevant, such as the bigger is not always better issue, because those resources do not exist. For this project it will be necessary to focus on what is possible to be achieved through the design of a game in a drag and drop surface and with that other issues will arise which will be reflected on in the course of the practical part of the paper.

How to design a serious game and make the learning aspect stick

To design is to create meaning.[92]

After extensive literature review this paper will focus on a few important points for the possibility of learning through a game and beyond the pure pleasure of playing to learn something for the player's "real" life. These aspects are picked out of the research on video games and not from research on didactics because the aim of the paper is to find ways to make a game that teaches something on its own not in combination with instruction in class or other training.

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[92] Salen/Zimmerman, 2004, p.46

One aspect is based on Konstantin Mitgutsch's work and is the one that stretches the importance of the possibility to relate to one's life to be able to transfer something from the game out into "real" life:

> […] serious learning can only be processed if the frames of reference patterns developed in the game can be transferred to real life settings.[93]

For Mitgutsch trainers and educators appear crucial for this whereas in this paper it should be tried to make players relate to the topic in question through a very simple narrative that looks like taken out of the player's daily life. Nevertheless the point of Mitgutsch, the importance of the transfer to real life settings, is a crucial one and needs to be worked on very carefully throughout the whole design process.

The second important aspect is based on the work of Michael G. Wagner and states that for an effective learning tool it is important that the target of learning should be equal to the target of the game.[94] The narrative should support the learning aspect in all levels. This means that for the design of a serious game that is supposed to support learning the designer needs to create a game that makes it possible for the player to relate the game or at least game elements to his or her real life and furthermore through the whole design process it needs to be made sure that the learning target stays equal to the target of the game. This is another issue that has to be focused on throughout the design process of a serious game. Wagner applied this concept to the very successful learning tool "Ludwig"[95].

The third aspect is a very practical one that seems to be understood by all good game designers but is seldom written down: It is the aspect of not using too much text in a game. Prensky states in his book in the example of creating a game, "The Monkey Wrench Conspiracy"[96], for Engineers to learn a new software product: that testing revealed that most users hardly read the text[97]. As usual teaching methods rely heavily on text the question for games in general but serious games especially is, how can

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[93] Mitgutsch, 2011b, p.56
[94] Compare Wagner, 2008
[95] Compare http://www.playludwig.com/forschung/
[96] Compare http://www.games2train.com/site/html/tutor.html
[97] Compare Prensky, 2011, p.26

games especially those for learning work around the issue of not putting too much text in the game so the player doesn't just click it away. This is an important aspect for the design of serious games as most of them work with a lot of text.[98] For a solution we can take a look at the ideas from a very successful commercial game: Plants vs Zombies. This game was released in 2009 by PopCap[99]. The designer, George Fan, gives a talk at the Game Developers Conference 2012 speaking on why it is so successful not just with hardcore but also with casual gamers. Fan includes teaching of game mechanics in the form of a tutorial into the game and finds 10 key points which make people invest a lot of their time and enjoy learning more about the game.[100] These points can be adapted to what might help in Serious Games to make people understand certain elements; for this paper two of the points seem especially important:

"Better to have the player 'do' than 'read'

1. 'The best way for a player to learn is to actually perform actions in the game, Text-based tutorials can certainly communicate a lot of information, but actually doing something will always prove more fun'."[101]

    As a tribute to Gee speaking of the experience of the author the tutorial really is a lot of fun and in contrary to other commercial off-the-shelf games does not overstrain the player. For a serious game this would mean that tutorials where the player first does the reading and then tries out what he or she has just read would radically have to re – think their strategies.

2. "Use fewer words

    'There should be a maximum of eight words on the screen at any given moment, I do break [that rule] from time to time, but it's a good thing to shoot for.'"[102]

    In Fan's explanation he states that it is more likely that the player reads descriptions if they are formed as if an 'eloquent caveman' would be

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[98] F.e. Sweatshop, Migrantenangeln, Electro City
[99] http://www.popcap.com/about-us
[100] Curtis, 2012
[101] Curtis, 2012
[102] Curtis, 2012

talking. And that is what it sounds like when you get information in the game Plants vs. Zombies. And again as a tribute to Gee from the experience of the author and observations of friends: you are more likely to read it because the effort seems minimal and it might help you through the course of the game.

These main points will be used as guidelines in the design process and will have to be kept in mind throughout the whole project. However, even implementing these points cannot guarantee that a learning aspect can be transported through or even beyond a game; but it is a starting point. The guidelines are not too complicated so it would be good if they could successfully be included in every serious game project, however not at the cost of fun and certainly not at the cost of motivation, because as discussed fun and motivation are presumably the main reasons why computer games can work as learning tools.

Learning levels applied to serious games

> Serious games are intentionally designed playful learning experiences[103]

The goal of this paper and the work behind is to design such a playful learning experience with Bateson's learning theory in mind. Having discussed the terms game and learning and their combination in serious games – in this chapter Bateson's learning levels will be applied to the game design.

Having discussed Bateson's levels of learning in detail it becomes fairly obvious that reaching for the fourth level, learning III, seems a little farfetched so this paper will focus on learning 0, I and II. This does not mean that learning III is not to be achieved through playing a game – but for this broader, better funded research and probably a longer, more in-depth game would be necessary, especially for the design part of the game.

The learning levels of Gregory Bateson in Serious Games have already been discussed in Konstantin Mitgutsch's "Serious Learning in Serious Games. Learning in, through and beyond Serious Games". A paper published in "Serious Games and Edutainment Applications."[104]. He does so with a focus on looking for transformative learning which he concludes cannot be guaranteed based on his literature and study review – he states that the potential of Serious Games is promising but that it is clear to him that it takes educators and designers to foster "serious learning through serious games"[105]. The idea that learning through games needs educators is a widely acknowledged one in the current discussions of the use of video games in school – however this game is thought for a non – school – context and to be used without educators or other people guiding the playing process. Here the designer comes into the picture: it is necessary to design the game in a way that fosters intended learning; to find out how that should happen the learning levels will be discussed again with the

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[103] Mitgutsch, 2011b, p.46
[104] Mitgutsch, 2011b
[105] Mitgutsch, 2011, p.56

focus on how learning takes place in games and the theoretical concept for the game will be worked out.

Again learning 0

Mitgutsch writes that learning 0 "can be understood as a specific behavior in relation to information"[106]. Transferred to Serious Games this level would mean the basic information that the player encounters at first "sight". In the words of Mitgutsch this means that the player collects data and reacts to it but does not make sense out of it yet. This level is the base for all further learning levels. For the game design approach this means that bits of data and information are being put into the game.

In the designed game at the level learning zero the player collects information on how to move, what he/she has to do to get through the game (speaking in game mechanics not in finding out the goal of the game), what the avatar can do and in what kind of game environment he/she is moving. It is important to remember that at this level the information is not put into context yet. Mitgutsch describes learning at this level as "Learning *in* games[107]" and that it is all about "linear interaction, collecting, reacting, and memorizing.[108]"

Again Learning I

On this level the player starts to put meaning into the collected data, he or she starts interpreting the information that started out as an empty vessel. As described above in the discussion about Bateson's learning levels at this level the player starts to put the information into context and reacts according to his or her interpretations of the frame. Mitgutsch calls this "learning *through* playing the game."[109]

This is the Level in which players find their way through playing the game, where they develop different strategies and where errors in game mechanics or flaws in the narrative are discovered.

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[106] Mitgutsch, 2011, p. 48
[107] Mitgutsch, 2011b, p. 48
[108] Mitgutsch, 2011b, p. 48
[109] Mitgutsch, 2011b, p.50

Again Learning II

In the words of Mitgutsch this level of learning can be summarized as: "'What does this mean to me?'"[110] In theory this would mean when this level of learning is reached the players' concept of themselves, of others and/or the world changes.

This is where the process of learning reaches beyond the game itself and transforms values, believes and such in the "real" life of the player. It should be more than a game that teaches a subject and/or helps memorizing facts. The player should develop new strategies in approaching something – a new way of thinking about something or about him- or herself.

Based on these adapted learning levels the learning objectives of the game project will be laid out specifically in the practical part of the paper.

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[110] Mitgutsch, 2011b, p.51

Why fair trade?

Fair Trade as the topic of the learning objective has been chosen because it is a topic that can be viewed in numbers, material and information and is controversial enough to make people think further. In this chapter some of those points will be outlined. To go into depth about the concept of fair trade and its issues is not the goal of this paper so this will remain a rough outline of the concept and its history.

For the learning objectives a further research about the concept of fair trade with a focus on how this concept works in Austria and Germany was performed. Over the following sections some collected information on the idea of fair trade and its development as well as problematic issues will be discussed.

A history of fair trade in Austria and Germany

In his book "Fairer Handel" Markus Raschke describes the development of the concept of fair trade. He states the beginning of fair trade in Germany with the initiatives from catholic and evangelic youth groups in 1970 with their campaign "Aktion Dritte- Welt – Handel". While it started out as a campaign for bringing working conditions of people in developing countries to the minds of the consumers it evolved to a parallel economic line of trade: fair trade. The focus shifted from arts and crafts products to coffee and cocoa to show the structures of injustice in world trade. With this came a shift from just wanting to make the injustice obvious to try to achieve a change in attitude towards products from developing countries. The company that evolved out of the campaign is the GEPA.[111] GEPA was short for Gesellschaft zur Förderung der Partnerschaft mit der Dritten Welt – Society to foster partnerships with the third world but calls itself today only "GEPA – The Fair Trade company".[112]

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[111] http://www.gepa.de/p/cms/media/pdf/fairer_handel/GEPA_Chronik.pdf

[112] http://www.gepa.de/p/index.php/mID/2.2/lan/de/xtra/a87e37ebfb4d478e3f8f1a2c4de1e657/msg/0b0b455ff68ec9be829b0da8963e3cc2/itt/Wer_ist_die_GEPA_und_was_macht_sie_genau/index.html

In Austria the most known company for fair trade products is the EZA – Entwicklungszusammenarbeit – Fairer Handel.[113] It was founded in 1974 as a daughter to the Dutch foundation S.O.S. which was the first alternative trading organization in Europe.

In the middle of the 1980s the EZA as well as the GEPA had to deal with a loss in profit but overcame the loss before the beginning of the 1990s, despite the drop of the world market price of coffee which is one of the most popular products. In 1990 the European Fair Trade Association (EFTA) was formed. EZA as well as GEPA are members of the EFTA. The EFTA wants to support the European importers of fair traded products concerning coordination and cooperation. The Fair Trade organizations have both evolved in quite a similar way and they both try to create public awareness through the organization of different events.[114] From the year 2000 on the profit of both organizations has risen but critical voices have started to get loud. For example a TV documentation on May 16th of the year 2000 about fair trade on the German channel ZDF in the documentation series "Frontal" states that the extra costs of fair trade products never get back to the producers. While most of those accusations could be disproved the loss of faith in the concept of Fair Trade could not be completely amended and of course not all the critical points are completely wrong. The critical points will be discussed in a later chapter.

The concept of fair trade

The above mentioned organizations concern themselves with many different problems regarding trading with developing countries. They all use the combination of the words "fair" and "trade" as a brand, which was developed as follows: As many economics players demand the word "fair" for their actions and usually set it in relation with good which means cheap prices for their consumers the word was set in connection with trade and is used with a capital letter in Austria and Germany. The word is used for the

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[113] http://www.eza.cc/start.asp?ID=226295&b=1522
[114] F.e. http://www.gepa.de/fairpay/htdocs/promis.html and
http://www.eza.cc/start.asp?ID=226296&b=1522

social movement that is occupied with politics about trade with developing countries. Principals of fair trade evolved over the years beginning with the first movements in the mid 70s. The most commonly known principle is the one of paying fair wages to producers, which is a very important one but focusing on only this part would leave out a lot.[115] The concept of fair trading was understood as a partnership with the producers. Producers which should be organized in collectives or unions if they are not organized in such ways, other forms of codetermination are needed. It should be guaranteed that workers get wages that make it possible to support themselves and their families. There are special aid funds that support not only issues in production but also social and medical projects.[116] The fair prize should go directly to the trading partner and within the framework of the unions, collectives or together with the institution of codetermination it should be decided what the money is used for.

Another important aspect of fair trade is the transparent composition of the prize for a product as well as the possibility to preliminary financing of deliveries. As a trading partner guidance and advice is another effort from Fair – trade – companies. All those issues need time to be implemented in the companies in the developing countries. That means that relations between the companies and the producers are created to be long – term. To make sure that the higher costs of fair trade products get back to the producers and especially the workers control mechanisms have been created. Control is not the main issue of a fair trading partnership but it has to be maintained to receive trust from the consumers through documentation and inspection.

This ideal concept is a description of the common base of different fair trade organizations across Europe. The concept has been worked out by FINE[117], which is a loose association of 4 international organizations of fair trade:

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[115] Compare Raschke, 2009, p.21f
[116] Compare Pilz, 2001
[117] Compare Raschke, 2009, p.24

F–Fair-trade Labeling Organisations international[118]

I–World Fair Trade Organization WFTO (former International Fair Trade Association)[119]

N-Network of European Worldshops (NEWS)[120]

E-European Fair Trade Association (EFTA)[121]

On a national level the different companies have specified parts of the concept and have their own more defined concept and catalogues of criteria.

The definition which the 4 organizations agreed on goes as follows:

> Fair Trade is a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading condition to, and securing the right of, marginalized producers and workers – especially in the South. [FINE 2001][122]

Raschke concludes from the international linking between the different organizations and their increasing numbers over the years that Fair Trade is a worldwide social movement. For him the question is now if this movement is an alternative or a model. Which means: Is trading fair trade goods a side track to the "normal" trading systems or is it a pioneer system that will be adopted by all companies and organizations? For this paper Fair Trade will be viewed as a symbol to remind the general public that a fair world trading system can be possible.

Of course there is not only a good side to Fair Trade: Weber[123] describes issues concerning the example of coffee. His first point is that in the labeling organization FLO also big companies are allowed to get their products certified "even though such companies are only in Fair Trade for the profit."[124] In Weber's opinion this is only a search for blame and not the reason for the problem. One of the problems with the discrepancies

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[118] http://www.flo-cert.net/flo-cert/ Accessed 14.06.2012
[119] http://www.wfto.com/ Accessed 14.06.2012
[120] http://www.worldshops.org/ Accessed 14.06.2012
[121] http://www.eftafairtrade.org/ Accessed 14.06.2012
[122] Weber, 2007, p.109
[123] Compare Weber, 2007
[124] Weber, 2007, p.110

between image and actuality of Fair Trade products is that not the producers are guaranteed a minimum price but the organizations of the producers. Because intermediaries are not being used the organizations of the producers have to sort and process coffee and coordinate the export which can be more expensive if no one has had any prior experience. Furthermore, the guaranteed wage is only for employees. On coffee farms however most workers are seasonal. These points are not reasons for losing hope and abandoning the concept though – new ways of handling those situations and finding solutions are necessary.

Game Design

The Game enables the experience, but *it is not the experience*.[125]
In his book "The Art of Game Design" Jesse Schell describes important aspects and the processes involved in designing the above mentioned experience. He does not only talk about electronic games but about the general act of designing games. For him the process starts with the game designer. This is one of the main reasons why it is important to look closely at the designer of a game, especially when talking about games for learning. For Schell „*Game Design is the act of deciding what a game should be*"[126]; this decision relies heavily on the person designing and what he or she thinks is important for the game and how an intended message could best be transported. In the past research about games usually worked in the following pattern: Researchers construct a research question, they look for a game that fits their topic and then they try to evaluate the game and find answers to their research question. What is being ignored is the importance of the designer. We don't know exactly what the designer put in the game – what the person thought was important to make the game entertaining. Usually a learning aspect is not that important for game designers and even if it should be put in most game designers do not have a background in educational science or a specific learning theory in mind. They lack the theoretical knowledge. People working in the science of education usually do not have the abilities and knowledge in game design so they are not able to help in the actual design work.

Although people are starting to address this issue[127] there is a lot of research still to be done.

Because of this, the game for this paper is a small self-designed online game that wants to transport the message defined in the course of the research. By doing so the translation problem from those who want a message transported to those who pack the message in a game is taken out of the discussion. Of course there arise new problems; the most

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[125] Schell, 2008 p.10
[126] Schell, 2008 p. XXIV
[127] Compare Goins, 2012

serious of them is the enormous amount of knowledge that has to be acquired for designing a game and the restricted timeline for doing so – that in mind this shall be an experimental try out for further research with probably more resources of time and people.

In the chapters following the method of creating the experience will be outlined and encountered problems and solutions will be described.

Iterative design

> Test; analyze; refine. And repeat.[128]

Many Designers write about the importance of iterative design. One aspect of iterative design is the early involvement of the prospective audience. Prensky found that out for his, theoretically not well founded, combination of games and learning:

> One of the most important things that you can do in designing Digital Game – Based Learning is to get representatives of the audience involved very early in the process.[129]

Salen and Zimmerman describe it as "[…]a play-based design process."[130], in which alterations in the design are based on the players experience while playing a prototype. Prototypes should be tested very early in the design process. These early prototypes do not have to be pretty but they should offer possibilities of interaction.

Zimmerman states that the process of iteration, which he calls design through play, "is a way of discovering the answers to questions you didn't even know were there."[131]

There is no manual that takes designers through the process of different iterations – for that the games and projects are too different. But as a guideline the examples of Zimmerman can be looked at to establish a preliminary route for the design of the video game at hand.

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[128] Zimmerman, 2003, p.1
[129] Prensky, 2001, p.154
[130] Salen and Zimmerman, 2004, p.11
[131] Zimmerman, 2003, p.12
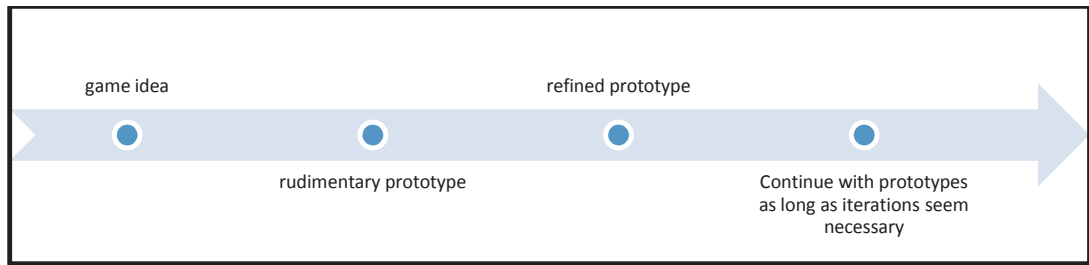
Figure 1: Iterative Design process based on Zimmerman

In each iteration the prototype has to be tested, refined and analyzed which leads to the next iteration. This can be seen in the following figure:
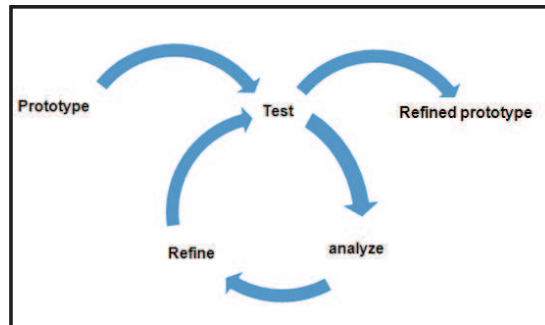
Figure 2: Prototype iteration based on Zimmerman

This can be a circle that lasts forever. In retail game design processes it is mostly put to an end through the deadline the designers get from the company which commissioned the game. In serious games projects that can be the case as well, for this project the iterations are put to an end when a group of test player meet the learning objectives and the assumption can be made that other people playing the game will show a similar learning effect.

Methodological approach

In science researching about social and cultural topics there are two main positions: the qualitative and the quantitative paradigm.

The method of using a questionnaire, which is a quantitative method, has been chosen because the aim of this paper is to explain the relation of learning, as it has been discussed, and video games. This is opposed to qualitative methods which are used as instruments to understand human behavior and make it possible to reconstruct the process.[132] Another reason for using a questionnaire is that it should be a starting point in finding out if people learn something in the way learning is trying to be achieved in the course of this paper. The results of the survey have to be further inquired probably with the use of qualitative methods.

As a method of distribution an online questionnaire has been chosen. Not only is it very simple in ways of getting the questionnaire to the people, but it is also affordable. Of course this choice also implies limitations – for example people who do not own a computer are immediately taken out of the contactable group.

Stages of creating a survey

After forming the research question and forming the hypothesis the questionnaire can be started. Specific dimensions of all the important terms have to be worked out so those can be operationalized with the goal of making features of the terms countable. To measure those aspects Items have to be constructed and arranged in a fitting manner. After that the Item construction can start. It is very important for the items that the reader understands the questions not just in terms of syntax but also regarding semantics. For this a careful, well-thought-out construction is necessary. Furthermore, it needs to be decided how the items are arranged.[133]

Raithe calls this next stage of creating a survey the phase of conceptualizing. In this stage the survey researcher chooses his or her

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[132] Compare Raithel, 2006, p.11
[133] Compare Raithel, 2006, p.28

target group and the aspect of length in time for the survey. Is it a cross – sectional analysis or is it a longitude analysis? The questions of target groups from before leads to the question of what type and size of sample the survey asks for[134] and if the researcher wants a census, a representative study or a random study. For surveys trying to verify or falsify a hypothesis a random sample can be used as well.[135] This stage of survey creation includes necessary pretests and iterations of the questionnaire.

The next step is survey preparation and data collection. This includes everything that ensures a smooth process of conducting the survey. In case of an online questionnaire that would be to try if the survey works in all browsers and on pc as well as Mac. In addition necessary approvals need to be obtained. If needed for conduction of the survey press releases, announcements and information meetings are to be prepared and held at this stage of creating the survey. The actual conduction of the survey should be documented carefully and in detail. It should also be in a time frame as short as possible to hold influences that might change the outcomes at a minimum.[136]

After conducting the survey the data need to be saved in a fitting manner. When using an online questionnaire this would mean saving and structuring the data in ways matching the used analysis tool. Furthermore, the data need to be verified in matters of consistency, plausibility and integrity. This means that questionnaires which are not complete or filled using a pattern can and should be eliminated. This clean up of the data should be strictly technical and not influenced by expectations of the researcher.[137]

The clean up and structuring of data is followed by analysis. A simple descriptive analysis requires less statistical know-how than other multivariate methods of analysis. Usually it should be started with a

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[134] For example: simple random sampling, quota sampling, accidental sampling
[135] Compare Raithel, 2006, p.29
[136] Compare Raithel, 2006, p.30
[137] Compare Raithel, 2006, p.30 f

descriptive method documenting frequency of occurrence and tendency followed by testing for correlations.[138]

The last stage includes putting the analysis on paper and interpretation of findings. A technical report has to be composed and after that publications in their various forms are written and published.[139]

Important issues of surveys

Before even starting to construct items for the questionnaire the researcher needs to make sure that the hypothesis is formed in a way that makes it possible to be verified or falsified by the chosen method. That includes the careful operationalization of key terms in the research question; as Raither states in his tips from his own research experience it is better to spend more time on forming research question and hypothesis than being sorry later.[140]

Research teaches us further that a questionnaire needs to be kept as short and simple as possible[141]; this leads the researcher through a process of complicated item construction and a process of evaluating every item with regard to its necessity for the research question.

Another topic that needs to be planned is if the survey should be conducted by one person or a research team. Both alternatives have their benefits but also their downsides: in a team additional motivation and support can be expected but differences in work ethic and competitiveness can lead to a drawback. When working alone the researcher knows what he or she wants to find out exactly but can be at risk of missing important aspects because of not being able to take a step back and look at his research more objectively.[142]

Regarding the distribution it seems very easy to get many responses by advertising the questionnaire in topic-related forums and on websites. This however holds the danger of being biased because participants might be likely to already offer a very similar opinion on the topic of the survey as

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[138] Compare Raithel, 2006, p.31
[139] Compare Raithel, 2006, p.31
[140] Compare Raithel, 2006, p.202
[141] Compare Raithel, 2006, p.201, Mäyrä, 2008, p.159 and Prost, 2009, p.165
[142] Compare Raithel, 2006, p.202

the researcher does. The survey is at risk to be biased and does not represent all of the different views in the actual target group.[143]

The last important aspect is to always maintain an as objective perspective as possible. It is not possible to be completely objective but taking a step back in all stages of the research might help keeping the research as objective as possible. This includes a thorough reflection especially after conducting the survey and filtering out problems that arose, reasons for that and possible mistakes that have been made on the way.

Chosen type of sampling

There are three main types of sampling procedures: the convenience sample, the purposive sample and the random sample. The purposive sample is defined through the use of criteria which the participant has to match. The random sample is strictly spoken the only method from which it is possible to draw a conclusion related to the complete population. There are many different methods to get to the random sample. Their common core is that every element of the target group has the same chance of getting chosen for the survey.

For this survey the convenience sample has been chosen to get a basic idea if learning beyond a designed game is possible because it is a very simple method. In addition it offers the possibility to make qualified assumptions about the correlation between the game and learning.

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[143] Compare Mäyrä, 2008, p.160

The theoretical part summed up

The following practical part about "Another theory-based design project" works with the learning theory of Gregory Bateson and views learning as a process that, initiated through a stimulus, makes change happen[144]. Stimuli happen on different learning levels and the learning objectives will be outlined exactly in the next chapter[145]. The definition of game is a practical one after Salen and Zimmerman and describes a system in which players engage in an artificial conflict, defined by rules that result in a quantifiable outcome.[146] Furthermore, this project is working in a specific sub-form of games – the one of serious games. A serious game is one made with a predetermined learning goal in mind; it combines learning with playing in all Elements of Games.[147] The problematic issues of serious games have been discussed and have to be kept in mind to design a game that can help foster learning of the desired aspects.

The theoretical approach on designing games has been outlined and the specific method used for designing the game for this paper, iterative design, has been described. Furthermore, the method which will be used to answer the research question has been described and a few important issues have been looked at, for example the need for careful operationalization, the concept of short and simple and issues regarding forms of distribution

The following practical part builds on the theoretical framework established and is concerned with the detailed design of the serious game in question as well as the construction of a questionnaire which shall carefully evaluate was has and has not been learned by the player.

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[144] Definition in reference to Bateson, 1972
[145] Chapter: Explicit Learning objectives
[146] Salen/Zimmermann, 2004, p.80
[147] Definition in reference to Abt, 1971

Practical Part

As in the theoretical part, this part will start with learning and describe the specific learning objectives based on the established theoretical framework after Bateson. Following this, the game design chosen for this project will be outlined. The chapter on game design will end with the description of the actual game. The part on learning and games will be followed by the description of the construction of the questionnaire and its difficulties. Having discussed learning, games, the design of games and how learning will be evaluated it is time to look at the game design process, the procedure of the research and to analyze the findings.

Game Design Process

General game idea

Before being able to establish the learning objectives a short overview over the general game idea seems to be necessary.

The problem that shall be addressed is an economic issue: producing clothes in a fair trade manner. For the reason of researching it could have been any learning aspect but because of personal interest and already existing knowledge about the topic this is the one that has been chosen. Due to restricted resources the game will be a very small one and because of that very simple – still it is very important to find a possibility to connect to the life of the player to make a transfer possible. Because of this a simple platform game has been chosen in which the player controls a figure that he or she has to buy clothes for in the course of the game. The player controls the figure and moves it through screens and from platform to platform back to the grandmother's house. Another reason for choosing a platform game is that the author prefers such games and it is important for the designer of games that they produce games that they would like to play themselves as well.[148]

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[148] Compare Prensky, 2001, p.216 f

Learning objectives based on the established theoretical framework

The following learning objectives are being implemented in the game on different levels: In the game mechanics as well as in the narrative and the design itself.

Through the iteration of the different types of the game the learning objectives changed a bit through every amendment but were always kept closely in the mind of the designer. In the following part the final learning objectives will be described and the adjustments will be outlined briefly.

Learning objectives at level 0

Through all the iterations the learning objectives on this level were kept quite similar: the player learns that he or she is controlling a stick figure. While in the first prototype the goal was to get dressed and get to his or her grandparents' house in the next few minutes, this changed to going shopping and coming back. The player does not get specific instructions on what to buy, but has a lot more options in the final prototype compared to the first one. In addition to learning what he or she has to do the player should find out how to control the stick figure, and explore the screens by moving through them. In the final game the player is presented with far more options and should collect the information provided in the stores.

Learning objectives at level I

In the first prototype the main learning objective on this level was for the player to find out that there is not enough money to buy all three pieces of clothing and develop a strategy for him- or herself how to handle the situation. In the final game the main objective is to choose what to buy based on the information provided. While the player gets very little to none information where the clothes are produced in "normal" shops he or she gets detailed information on where the clothes are from in the fair-trade shop.

At this level of learning the player should contextualize the information given on level 0, which means he or she starts to realize that the clothes are either claimed to be produced in a fair trade way or not but that they

are not more expensive than clothes in shops which sell specific expensive brands. The game mechanics leave room for different kind of choices: Spend all the money on "normal" clothes, spend all the money on fair trade clothes, buy more "normal" clothes or buy more fair-trade clothes. All different options lead to a slightly different outcome.

Learning objectives at level II

Target of the game at this level is that the player starts thinking about the conditions under which cheap clothes are being produced. Furthermore, people should start thinking about what they can do or change if they don't like the fact that most of their clothes are being produced under conditions that are not fair for the workers. Admittedly the possible impact of this game is very limited because the game is very small and the game itself does not give the opportunity to either explore the situation of producing nor does the game provide the opportunity to change the situation of the people working under bad conditions.

The three learning objectives on the different levels are intentionally kept very small and do not seem very ambitious. Hereby it has to be taken into account that the game itself is a very short and simple one and the project is a very small one which offers room for limitations rather than room for false ambition. Furthermore, these learning objectives have to be phrased in a way that makes them verifiable in the questionnaire following the game play.

Development of un*fair

In this chapter the Development of the game un*fair will be outlined briefly and problems which arose as well as their solutions will be discussed. After this the final game will be described in detail with the focus lying on the actual implementation and thoughts on the learning objectives.

A limitation in developing the game is that a programming environment has to be used. The programming environment "Scratch" designed at the

MIT Media Lab[149] in 2006 has been chosen, because of its promise to offer maximum creation freedom. Scratch was designed for ages 8 and up with the approach of learning by designing. This approach is based on Jean Piaget's constructivist theory and the constructionist approach by Papert Seymour.[150] Scratch is available for download at the scratch website http://scratch.mit.edu and is easy to install. The handling of the interface is quite intuitive and easy to learn. Support is offered through the community in form of the forum and the Scratch Wiki. There are also videos that help people to get started.[151]

First Prototype

Figure 3: Snapshot of Playtesting I

After the first idea the question most pressing seemed to be *if people really would relate to the game narrative* so the game was put in a setting played in a seminar group. This iteration happened some time before the exact definition of the learning objectives to find out if the narrative would trigger that players see the relation to their real lives. It was played with a person as the figure that would be played by the player of the video game. She got a T-shirt with the figure drawn on it and the possibility to stick acquired clothes to the shirt. The other participants of the seminar displayed the stores in which clothes would be sold and instead of having to collect money physical exercises had to be accomplished to get a piece of clothing. For clothes being produced in a fair trade manner the player had to do more and harder exercises. In conclusion the players enjoyed the game but it became quite boring because after the first few "shops" the player knew that the game wanted to make you think about if you are willing to do more for clothes which are being produced in a fair trade manner. Nevertheless it was a fun experience for all of them because of

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[149] http://info.scratch.mit.edu/de/Scratch_Credits
[150] http://info.scratch.mit.edu/sites/infoscratch.media.mit.edu/docs/learning-by-designing.pdf
[151] http://info.scratch.mit.edu/de/Support/Videos

the special twist at the end where the player got a hug for shopping, which was intended to happen no matter if the person just bought fair trade clothes or not. The intended message relied heavily on text but in the end it fit and it could be observed in the room that everybody was listening very carefully and everybody started laughing because they seemed to be relieved after the physical reward the player got.

With regard to the question at hand the involved players said that they did relate to their shopping routines and that they realized the game intended to make you think about your shopping habits. They did however criticize two points of the Prototype:

1. It was easy to find out what the game is about
2. After the first two shops it gets boring because you do the same thing all over again.

The first point of criticism is intended: the game is about fair trade and the players are bound to realize that. The game is too short and simple to offer the possibility of a slow realization what the game is about on the player's part. Therefore the intentions of the game are completely straightforward. The player should realize the message without thinking the designer would want to hide it from him and feel fooled.

The second point is a little more critical: The intention was to move from platform to platform and have the possibility to visit another shop on every other platform, as this was considered boring in the first prototype testing. In conclusion the new idea is to have one screen from which the player can visit three different shops as opposed to the first idea of at least 5 to 6 screens with different shops and focus on the issue of fair trade clothing being more expensive. Because of that reason the player doesn't get a budget from the beginning of the game without doing anything for it. He or she has to collect it him- or herself.

Second Prototype
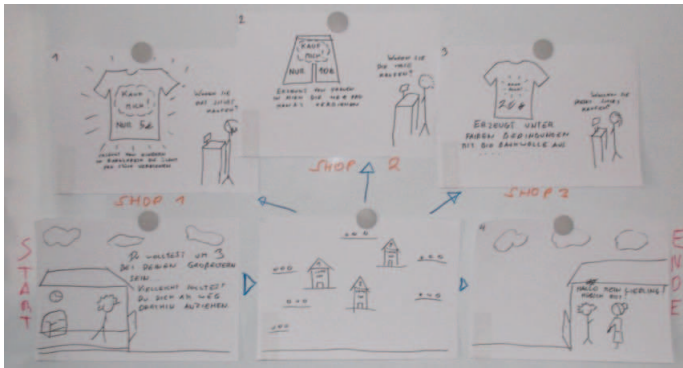
Figure 4: Papermodel of prototype II

This prototype should ensure that the player doesn't get bored after visiting the first few screens but put the player in a thought process about what to buy. He or she collects the coins and has to decide if he or she wants to buy one piece of fair trade clothing or two pieces of clothing and still have some money left. On the second screen learning on the second level should have started: the player put information he or she got on the first screen in context of the narrative and starts to understand what he or she has to do to reach the goal of the game. He or she should switch back and forth between the shops and the second screen and decide what to buy based on the information given in the shops. After having decided how and if to get dressed the player moves on to the last screen. On this screen the player is being welcomed by his grandmother and she ends the game with the words: "Hello, my dear you look very pretty, but did you realize that there is blood on your clothes?" or, when the player decided to buy fair trade pants: "Hello, my dear. You are missing a shirt but at least your shorts come with a clean consciousness."

This prototype was tested with three different players and they concluded in unison that it was a nice game but it lacked important aspects of playing a game. While all of them enjoyed the form of the game (platforms) and could relate to the problem of not having enough money to buy all your clothes from fair trade retailers they did not enjoy the lack of missing options and information to where the clothes are from as well as the presentation of the small amount of information. Furthermore, there were issues regarding game control and design of the shops. Due to the points of criticism a new prototype was designed.

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Third Prototype
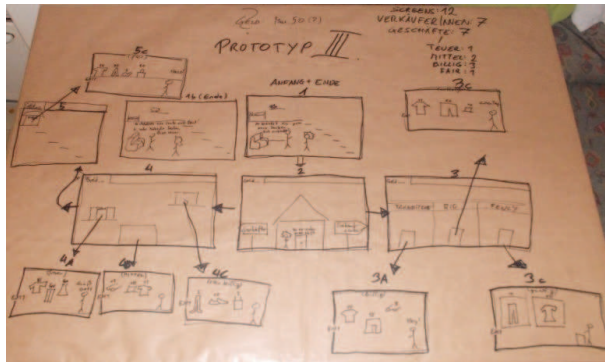
Figure 5: Papermodel of prototype III

In this prototype the player starts the game in the house of the grandmother and gets the instructions to buy a new set of clothing with 40 euros. From there the player walks out to explore the game world in which he or she has the option of visiting 7 different kinds of shops and gathering information on which kind of clothes they sell and where the shops receive their clothes from. Through the new design the player has far more options and can buy a lot of different clothes. While this game was played with far more pleasure and curiosity it was still lacking the moment of fun and did not seem to be very enjoyable for the players so the refined Prototype became the final one.

Fourth Prototype
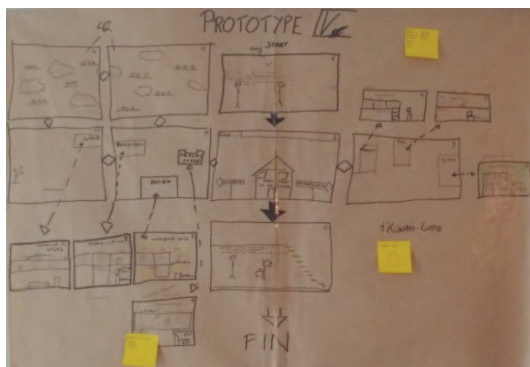
Figure 6: Papermodel of Prototype IV

This prototype is very similar to the third but the small changes seemed to make all the difference: a bonus level, cheat code and better designed clothes were added. Play test in combination with the survey started at the 16th of May at 22:11. The Play test showed a few problems in the game mechanics and grammar mistakes in the dialogues which were corrected but the game stayed the same in its essence.

Research behind the game

The behavior of the salespeople has been tried out in different shops in Vienna and Krems and is not representative for all salespeople. It is more

a personal observation. The rudeness of the salespeople in the shops "trendstore", "pik" and "fency" is added to amuse the player when reading the dialogues. The different behavior of the salesperson in the fair-trade shop "fairkaufen" is based on personal experience and the same small personal empirical research. This of course can be followed back to different reasons: first of all, usually fair trade shops are smaller and less frequented than bigger shops which makes the interaction with the salesperson much more intimate. Another reason is that in many cases people in fair trade shops work there voluntarily and are personally involved in spreading the concept of fair trade out of their individual interests.

The rude remark of the figure at the end of each dialogue ("Thanks, for nothing.") was included for amusement when reading the dialogue as well.

The information on all the clothes sold in "fairkaufen" was conducted in an internet research and in "Weltladen" shops in Austria[152]. Furthermore, inquiries in shops selling only fair trade clothes such as the "anukoo" shop in Vienna[153] and the "Göttin des Glücks" shop in Sankt Pölten[154] were conducted.

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[152] http://www.weltladen.at/
[153] http://www.eza.cc/anukoo/anukoo.asp
[154] http://www.goettindesgluecks.com/shopfinder

Description of the final game: un*fair

In the following chapter the game and implications will be described using screenshots. After the basic description information on ways of research for the game in matters of fair trade and salespeople's behavior was conducted. Furthermore, the implementation of the learning objectives are discussed in more detail. In the game the main screens[155] are allotted like follows:
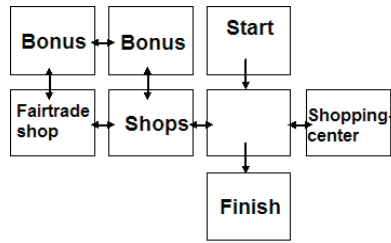
Figure 7: Illustration of the screen arrangement in un*fair
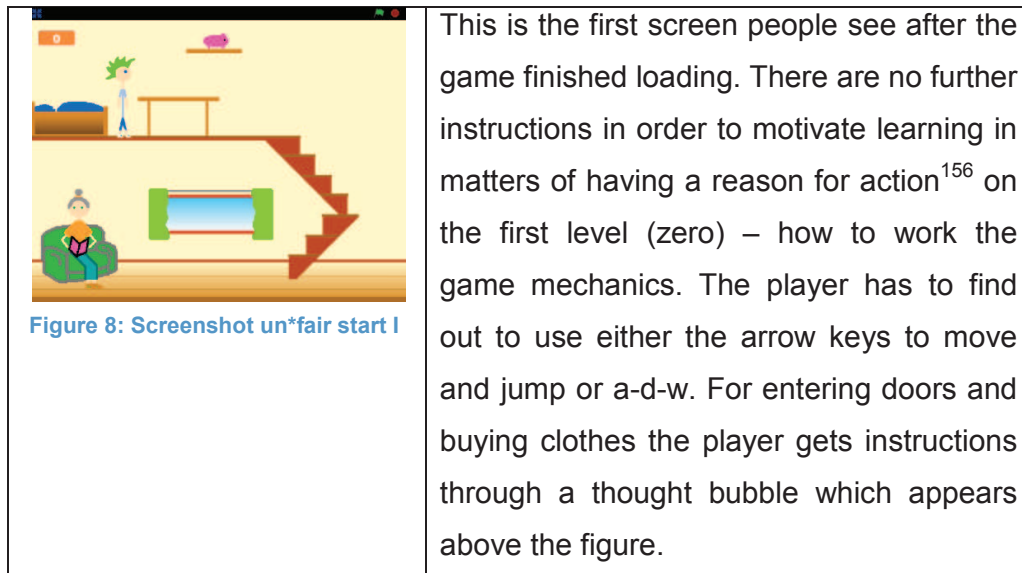
Figure 8: Screenshot un*fair start I	This is the first screen people see after the game finished loading. There are no further instructions in order to motivate learning in matters of having a reason for action[156] on the first level (zero) – how to work the game mechanics. The player has to find out to use either the arrow keys to move and jump or a-d-w. For entering doors and buying clothes the player gets instructions through a thought bubble which appears above the figure.

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[155] Main screens mean all the screens without the ones in which the player has the oppurtunitiy to buy clothes
[156] As discussed in Abts definition of motivation

	After figuring out the control and starting to move through the first screen it is inevitable to talk to the person sitting on the left-hand side of the screen who is the grandmother. It is inevitable because the screen doesn't offer any other possibilities than moving around and when the figure hits a specific point the grandmother starts talking and the figure is frozen on the spot. Leaving the screen is not possible before getting the information from the grandmother.
Figure 9: Screenshot un*fair start II	
	The dialogue with the grandmother gives the player directions in what the game is about. The grandmother tells the figure it should go buy some new clothes and gives it 40 units of money for that matter. What is important in this part of the game is that the grandmother doesn't specify exactly what should be bought and there is no mentioning of fair trade or anything similar. The game makes an obvious point in being about fair trade but in the eyes of the designer this seemed too forward and would take away important aspects of the game in means of curiosity.
Figure 10: Screenshot un*fair start III	

 Figure 11: Screenshot un*fair start IV	In this screen the grandmother hands the figure 40 units of money. Furthermore, the player has the opportunity to jump over his piggy bank and get 10 units of extra money. The amount of money that should be given at the beginning was calculated to be realistic. In addition to that it seemed important that in the "real world" the prices of clothes vary a lot and choosing should be an issue in the game but not frustrate through a lack of money.
 Figure 12: Screenshot un*fair start V	In this part of the dialogue the grandmother asks the figure to come back when he/she has bought something. This shows the explicit objective of the game: Go out, buy something and then come back to show the grandmother.
 Figure 13: Screenshot un*fair start VI	After the dialogue it is possible to leave the screen on the right side which is consistent with how games are usually designed.

 Figure 14: Screenshot un*fair house	This next screen offers the possibility to go either one screen to the right to a shopping mall or to the left where there are three shops in one screen; another one with a special shop follows and then there are two screens where the player can find extra money.
 Figure 15: Screenshot un*fair mall	This is the screen the player sees when going to the right. It is supposed to be a shopping mall and in the middle of the screen there is a sign that says "Welcome to the shopping paradise". The shops are supposed to be a mix of expensive, cheap and seemingly alternative. When moving in front of the doors the figure thinks: "Press space to enter".
 Figure 16: Screenshot un*fair fency	This screenshot shows the inside of the shop "fency". It is supposed to be a little more expensive and sells casual and sportswear. The T-shirts cost 10 units of money and the pants cost 20 units of money. The dialogue between the figure and the sales woman is very similar in all the shops. In this shop the sales woman greets the figure with: "Hello!" The figure replies "Hello, what brands do you sell?" Saleswoman: "We sell sportswear and casual wear and the fitting brands." Figure: "And where are your products from?" Saleswoman: "How should I know?"

	Figure: "Well then I'll look for myself. Thank you for nothing."
	The dialogue stays quite similar in all shops and should on the one side stay close to reality and on the other side be a little witty and fun for players to read. The dialogue cannot be skipped because it is important for the learning level and making it possible to skip it would lead to people not reading it.
	If the player wants to buy something and does not have enough money the salesperson says: "With this little money you will not get anything in here."
	When the player buys something the salesperson says: "You're welcome."
Figure 17: Screenshot un*fair PIK	This shows the inside of the shop "PIK". It is supposed to represent a very cheap shop. The first shirt costs 5 units of money, the second 10 and the pants cost 15 units of money.
	The dialogue between the salesperson and the figure goes as follows:
	Salesperson: "Hello!"
	Figure: "Hello, what brands do you sell?"
	Salesperson: "We just have no name brands."
	Figure: "And where are your products from?"
	Salesperson: "I have no idea."
	Figure: "Well then I'll look for myself. Thank you for nothing."
	If the player wants to buy something and does not have enough money the

	salesperson says: "You don't look like you have enough money."
	When the player buys something the salesperson asks: "Anything else?"
  Figure 18: Screenshot un*fair Green	This shows the inside of the shop "Green". It is supposed to create the belief that this is a shop in which ecological or fair trade concepts are accounted, which can be seen in the price. The lavender sweater costs 30 units of money, the turquoise tunic costs 25 units of money, the blue sweater 35 and the grey pants cost 40 units of money. The dialogue between the salesperson and the figure goes as follows: Salesperson: "Hello!" Figure: "Hello, what brands do you sell?" Salesperson: "We do not sell any specific brands, but we focus on specific fabrics that the clothes are made of." Figure: "And where are your fabrics from?" Salesperson: "Not where they are from. Just which fabrics. We sell clothes made from cotton and linen." Figure: "Well then I'll look for myself. Thank you for nothing." If the player wants to buy something and does not have enough money the salesperson says: "Please check again if you have enough money." When the player buys something the salesperson says: "Thank you for shopping with us."

Figure 19: Screenshot un*fair house II

To get to the other screens you have to pass the house again and move further to the right. When the figure passes the door the figure thinks: "I have to buy something before I can enter."

Figure 20: Screenshot un*fair shops

This screen shows three more shops. They are supposed to represent one store selling cheap and two selling quite expensive, fancy clothes. Again the player can move around the screen and enter the shops by pushing the space key.

Figure 21: Screenshot un*fair trendstore

This shows the inside of "Trendstore".

The clothes are designed in a very modern style and the price is 50 euros for the jacket, 25 for the sunglasses, 30 for the shirt and 40 for the blazer.

The dialogue between the salesperson and the figure goes as follows:

Salesperson: "Hey!"

Figure: "Hello, what brands do you sell?"

Salesperson: "Only the most important ones."

Figure: "And where are your products from?"

Salesperson: "People usually don't care about that. You might want to check the information on the label in the clothes."

Figure: "Well then I'll look for myself. Thank you for nothing."

	If the player wants to buy something and does not have enough money the salesperson says: "You do not have enough money for clothes this fancy."
	When the player buys something the salesperson asks: "Anything else?"
  Figure 22: Screenshot un*fair du&ich	The inside of "Du & Ich" is supposed to represent a shop with modest prices. The button-down shirt costs 10 units of money, the skirt 9 and the matching girlie shirt 7 units of money. The dialogue with the salesperson is as follows: Salesperson: "Hello!" Figure: "Hello, what brands do you sell?" Salesperson: "We sell the most important ones." Figure: "And where are your products from?" Salesperson: "I am sorry I don't know that." Figure: "Well then I'll look for myself. Thank you for nothing." If the player wants to buy something and does not have enough money the salesperson says: "Sorry you don't have enough money." When the player buys something the salesperson says: "Thanks for shopping with us."

The shop "Fresh Style" represents a very expensive shop. The pants cost 50 units of money, the skirt 45, the blazer 40 and the hat costs 30 units of money.

Now you can read the dialogue with the salesperson:

S: "Hi!"

Figure: "Hello, what brands do you sell?"

S: "High fashion mostly."

Figure: "And where are your products from?"

S: "We don't ask our suppliers where they produce the clothes but the designs are mostly made in Paris."

Figure: "Well then I'll look for myself. Thank you for nothing."

If the player wants to buy something and does not have enough money the salesperson says: "Sorry you don't have enough money with you."

When the player buys something the salesperson says: "Thanks for your purchase."

 Figure 24: Screenshot un*fair shop	This is the screen on the far left. The player has to pass the three shops and go further to the left. This represents the fair trade shop and is on the far left because in real life shops which sell only fair trade clothes are seldom in the main shopping streets and are a little harder to find than other shops. It's the only shop on this screen because of the same reason: most fair trade shops are a little further from other stores. To enter the player presses the space button as with all the other shops.
 Figure 25: Screenshot un*fair fairkaufen	This shows the shop "fairkaufen". In this shop the salesperson approaches the figure when it comes to a certain point. The dialogue is as follows: Salesperson: "Hello, how may I help you?" Figure: "Hello. I am interested in what brands you sell and where your clothes are from." Salesperson: "We only sell fair trade articles. I would be happy to answer your questions about specific clothes." Figure: "Thank you." Salesperson: "You're welcome." In this shop when the figure touches a piece of clothing the player gets the option to either buy it by pushing the "j" key or to get more information on where the clothes are from by pushing the "l" key. The turquoise shorts cost 30, the shirt with stars costs 30, the light blue shorts 35 and the long sleeve shirt costs 29 units of
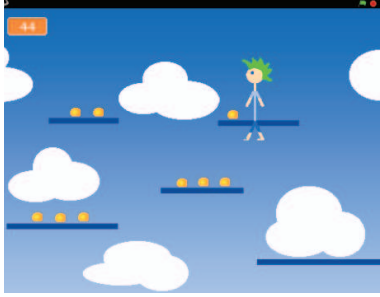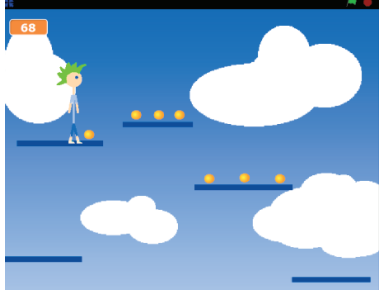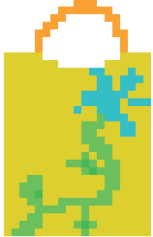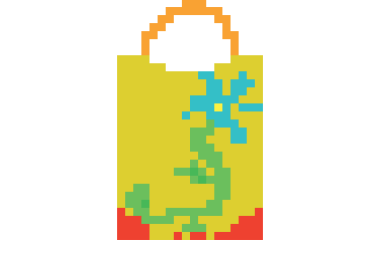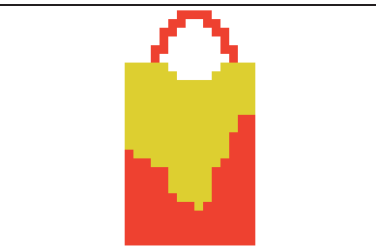
	money.
 Figure 26: Screenshot un*fair bonus I	This is part of the "bonus level" which the player finds when he or she jumps up from either the level with three shops or the one where the fair-trade shop is. The player has the opportunity to add 42 money units. 22 of those on the screen are shown at the left.
 Figure 27: Screenshot un*fair bonus II	This is the second part of the "bonus – level" in which the player can add another 20 units of money. The number 42 is picked because of its meaning as an answer to the question of life, the universe and the rest[157]. It is meant as an inside joke of the designer not as something supposed to be realized by the players.
 Figure 28: Screenshot un*fair house III	After purchasing something the figure gets a bag and can now enter the house again. There are 4 different possible endings. Each of them will be described. How the game ends depends on which items are bought. In this first case the player has bought only fair trade clothes and so gets the following bag:
 Figure 29: Screenshot un*fair bag I	The flower on the bag is a symbol for a responsible way of producing clothes and fostering fair conditions especially for people working in developing countries. It is meant as an instrument to show the different shopping behavior of the player in

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[157] With reference to Adams, 1979

	the game.
 Figure 30: Screenshot un*fair end I	When entering the house again with the bag above the grandmother greets the figure with the words: "Wow your purchase comes with a clean conscience." This statement does not completely relate to the starting instructions but offers praise for the decision to buy fair trade clothes.
 Figure 31: Screenshot un*fair final I	After 4 seconds the background changes to the picture on the left. The picture should create a positive association with buying fair trade goods.
 Figure 32: Screenshot un*fair house IV	Another ending is shown when the player buys more fair trade clothes than normal ones.
 Figure 33: Screenshot un*fair bag II	In this option the bag has a few spots of red on the lower end. They represent bloodstains as a symbolic message that a lot of clothes are produced in a situation that is not very humane and can be dangerous as well.

 Figure 34: Screenshot un*fair end II	When the figure reaches the house with this bag the grandmother says: "At least this is a start for fair wages for everyone." This comment is supposed to make players think about production conditions of the clothes they are buying. Especially regarding unfair wages and missing social benefits.
 Figure 35: Screenshot un*fair final II	This is the final screen the figure reaches when buying more fair trade products than non – fair trade products. The blood represents the clothes which are produced mostly by women and sometimes even children whereas the butterfly, star and heart are symbolic for the choice of buying fair trade products where of course not everything is perfect but wages are better and calculated in a fairer way.
 Figure 36: Screenshot un*fair house V	This shows the screenshot from the third option of ending the game where the player bought more non fair trade clothes than fair trade ones.
 Figure 37: Screenshot un*fair bag ...	This is the bag the figure carries when buying more non fair trade clothes than fair trade ones. As in the other bag the red represents bloodstains as a symbolic message; here they are bigger because more non fair trade products have been bought.

 Figure 38: Screenshot un*fair end III	When entering the house again the grandmother says: "And next time you can buy more clothes with no blood on them." As already stated above the statement is not supposed to be judgmental although it seems quite harsh but it has been chosen to make players think.
 Figure 39: Screenshot un*fair final III	This is the final screen the player enters when getting the bag above. As in the design of the bag there are some more drops of blood and there are fewer positive symbols.
 Figure 40: Screenshot un*fair house V	The last option of finishing the game is when the player only buys clothes which are not fair trade.
 Figure 41: Screenshot un*fair bag IV	This is the bag the player gets when buying only non fair trade goods. The flower is completely taken off the bag and it is drenched in blood symbolic for the inhumane production conditions.

Figure 42: Screenshot un*fair end IV	When entering the house the grandmother greets the figure with: "Hmm, did you notice the blood on your purchase?" This is not supposed to be a judgmental statement only something to make people think about their shopping habits. It is a fact that most clothes are produced in developing countries and the final sentence should make players think about that fact.
Figure 43: Screenshot un*fair final IV	This is the final screen of the option of buying only non fair trade clothes. As the comment of the grandmother this screen is supposed to make the player think about his or her shopping habits.

This detailed description should give insight in what way the designer wanted to implement different stimuli of learning throughout the game. The game can still be played on the homepage of the project[158] as well as on the page from the development environment.[159]

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[158] http://www.unet.univie.ac.at/~a0602475/index.php
[159] http://scratch.mit.edu/projects/Waldelfe/2534917

Conducting the survey regarding un*fair

The survey consists of an online questionnaire spread through social networks. It is a convenience sample, people can voluntarily choose if they want to participate or not.

The questionnaire regarding playing the game un*fair is one asking players for their personal experience and self – evaluation regarding their learning experience throughout and beyond playing. It is designed to find out about the learning experiences on the different levels as described in the chapter "Learning objectives based on the established theoretical framework". The target group consists of Austrian citizens of all ages who have access to a computer and are members of one of the social networks facebook, google+ or twitter or know someone who is a member. Items were carefully constructed to meet the needs of matching the learning objectives on level 0 through 2. The questionnaire consists of 36 questions and includes the gameplay of un*fair. The welcome message holds information on who the questionnaire is from and what the data is used for and the participants are informed that all the data is used in strict confidence. The estimated duration for filling out the questionnaire is given and the participants are informed of the structure of the questionnaire. The questionnaire ends with "Thank you for participating!" and offers the possibility to write to the designer of game and questionnaire if there are any questions or remarks. At the end the link to the game is offered if people would like to play it again. In this chapter the pretest will be outlined briefly; problems which arose and their solution will be discussed.

Findings through pretest

When conducting the pretest the questionnaire consisted of 23 questions. The pretest was conducted by 10 people aged between 22 and 50; 5 female and 5 male. The people were chosen because of their completely different backgrounds from people who play a lot to such who usually don't or seldom play video games. 4 are students of different fields, 3 work full time, 2 work part time and 1 is in between jobs.

In terms of structure a few statements didn't fit to where they were positioned, for example, the question on information in the shops was combined with questions to the process of gameplay and was rearranged which added one of the extra item blocks. The motivation of why people buy clothes was too narrow and had to be expanded which added another two blocks. The participants of the pretest were asked specifically if the questions were easy to understand and if the options were wide enough to find one that could fit. The feedback and result of the pretest lead to an iteration of the questionnaire as well as the game but was found to be good enough to put the questionnaire online. For the factor of motivation it can be said that the pretesters could relate to their "real" life's and felt engaged enough to play the game un*fair more often than they were asked to. This was taken as evidence for a certain amount of motivation.

Final Questionnaire

In this chapter the final questionnaire as it was sent out in the survey will be discussed and structured as it appeared online. It consists of a Background questionnaire in which demographic questions and questions regarding playing and shopping habits are asked. After this participants play "un*fair" and afterwards answer some technical questions and the final block regarding learning in, through and beyond the game.

Background questionnaire

Demographic questions

The challenges constructing this item block lay in the decisions concerning what kind of information was necessary for the final analysis and interpretation. Finally questions about age, gender, nationality, education level and current occupation were chosen. The choice was made because of practical reasons for the later analysis. The aim is to draw conclusions from learning compared between male and female players, at different ages and with different levels of education and occupations. The question of nationality was included because the target group are people from Austria and it seemed more efficient to eliminate the expected few other

nationalities than to start with a welcome message that asks only people from Austria to fill out the survey; this might also discourage people from participating because they could think it was biased towards people from other nationalities.

Questions regarding general habits of playing video games

These questions should help distinguish people who play a lot from those who are not playing much in the final analysis. The block asks if people like to play video games, if they are experienced players, when they played last, how long they play on average and how much money they are prepared to spend for video games in a month. The challenge with this pool of questions is that the questions for lengths of playing and money spending are such where people have to think back. As a solution to that options were offered to make it easier for people to rank themselves; the problem with that of course is that people might not find a given option suitable which was tried to be resolved by giving people the option "other" and a small text array to specify.

Questions regarding shopping habits

It was avoided to ask specifically if people buy fair trade in order not to give away the message of the game before people even start playing. Instead of that more general questions about what people look at specifically when buying clothes, which brands people know and which they possess and how much money they have per month for buying clothes are posed. In the first question people have to rank what is most important to them when buying new clothes. The question about the players' knowledge of brands includes four randomly picked brands which do not specifically consider how their fabrics and final clothes are produced and four brands which just offer clothes produced in a fair trade manner. This question offers insight into the knowledge of fair trade as these products are not commonly known and it is assumed that people who know the brands are at least informed that clothes produced in a fair trade manner exist. If people additionally possess such clothes they must

have been in stores or on internet pages selling those as they are not sold in "ordinary" stores. Asking after the monthly budget for clothes is important for the final analysis as most fair trade clothes are still more expensive than clothes from big companies not paying special attention to how their clothes are produced.

Gameplay

The playing of un*fair is embedded in the questionnaire in its own part of the survey. A short introduction of the game is offered and instructions on how to start the game. Two links to homepages where the game can be played are offered – one is the main homepage of the project[160] and the other one is the scratch project homepage[161]. Furthermore, people are asked to take a short look at their watch to know how long they have played and enter it in a number array bellow the links when they have finished playing.

Questions regarding process of playing and technical issues

In this item pool a junction is included: if people haven't played the game through at least one time they are asked why and the questionnaire ends for them. If people have played at least once they are asked how often they started and how often they finished it to make it possible to draw conclusions if different endings have been experienced. Players have answer if the game worked technically and if not what didn't work. Furthermore, they are asked if they found the fair trade shop. This is important in order to draw conclusions because if they did not they had no opportunity to get information on clothes at all, as such were only provided in the fair trade shop. People are also asked if they played on the project website and if they read more about the project. This offers insight into curiosity about the topic.

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[160] View at http://www.unet.univie.ac.at/~a0602475/ Accessed 02.06.2012
[161] View at http://scratch.mit.edu/projects/Waldelfe/2534917 Accessed 02.06.2012

Questions regarding the game, play and beyond

This item block is the one that asks about the learning experiences on the different levels. There are eleven blocks of items regarding learning on different levels. Control questions are included as well as two junctions. Because of the importance of the item blocks regarding the research these eleven blocks will now be discussed separately and in detail. The questions will be shown as pictures from the printable version of the screenshots, translated and then discussed. Specific problems that arose through mistakes in items construction will be left out[162] as this chapter describes the intentions and thoughts of the designer before conducting the survey.

25 [L1]Folgende Fragen sind mit trifft sehr zu bis trifft gar nicht zu zu beantworten. *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie die zutreffende Antwort für jeden Punkt aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Ich habe die Steuerung des Spiels (wie ich meine Figur bewege) sofort verstanden.	○	○	○	○	○
Ich habe die Informationen in den Geschäften gelesen.	○	○	○	○	○
Die Informationen die ich erhalten habe waren neu für mich.	○	○	○	○	○
Bei mehrfachem Spielen bin ich zu unterschiedlichen Ergebnissen gekommen.	○	○	○	○	○

Figure 44: Question 25

This is the first item pool regarding learning on level 0. The participant is asked to rate the statements on the left, using the following expressions: strongly agree, agree, undecided, disagree, strongly disagree. The statements are:

"I immediately understood the game controls (how to move the figure)."

"I read the information provided in the shops."

"The information I got was new for me."

"When playing more than once I reached different endings."

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[162] But follow in a later chapter.

The first two statements ask for the understanding of game control and if people read the information which if answered with "strongly agree" suggests that learning on level 0 happened. The answer to the next question should give insight if something could even be learned or if the knowledge was there before playing and the last question should give further insight into the probability of learning happening on level 0. If answered with "strongly agree" or "agree" successfull achievement of learning on level 0 and I might have happened because when people come to different results it indicates a deeper understanding of the game mechanics which would mean learning on level I.

26 [L2]

Mir ist aufgefallen, dass ich durch unterschieldiche Einkaufsvariationen unterschiedliche Einkaufssackerl bekomme.

*

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie nur eine der folgenden Antworten aus:

○ Ja
○ Nein

<p style="text-align:center">Figure 45: Question 26</p>

This question offers further insight regarding learning level 0. The statement should be verified of falsified with clicking "yes" or "no".

"I realized that through different variations of shopping I got different shopping bags."

Through this item it should be found out if a player realizes small differences when playing more often. The answer can lead to conclusions related to the possibilities of learning on level 0. If players don't realize such small differences it could be that learning aspects have to be included more obviously.

27 [L3]

Mir ist die unterschiedliche Gestaltung der Geschäfte aufgefallen.

*

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
* ((SV1.NAOK == "Y"))

Bitte wählen Sie nur eine der folgenden Antworten aus:

○ Ja
○ Nein

Figure 46: Question 27

This item is very similar to the one above but refers to the shops which are bigger and easier to spot. As in the above question the participant is asked to answer with "yes" or "no". "I realized the difference in design of the shops."

28 [L4]

Bei diesem Kleidungsstück treffen folgende Aussagen zu/nicht zu:

*

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
* ((SV1.NAOK == "Y"))

Bitte wählen Sie die zutreffende Antwort für jeden Punkt aus:

	Ja	Nein
Zu diesem Kleidungsstück gab es Informationen zur Herkunft oder Herstellung.	○	○
Ich habe dieses Kleidungsstück gekauft.	○	○
Ich kann mich daran erinnern dieses Kleidungsstück gesehen zu haben.	○	○
Es ist ein fair gehandeltes Kleidungsstück.	○	○

Figure 47: Question 28

This item tests if people remember clothes and the information they got or didn't get. The participants are asked to answer with "yes" or "no" to the statements on the left, which are the following:

91

"Information on how or where this piece of clothing was produced was provided."

"I bought this piece of clothing."

"I remember having seen this piece of clothing."

"It is a fair trade piece of clothing."

This item offers further suggestions about learning on level 0 and tries to verify statements given before: If people say they read the information but answer here that they think information to production was given they have either a very short memory or didn't read the text which would limit the possibilities of learning on level 0 with this game.

29 [L5]Das Ziel des Spiels war für mich klar ersichtlich. *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie nur eine der folgenden Antworten aus:

○ Ja
○ Nein

Figure 48: Question 29

This is the first item constructed to get information on learning level 1:

"The objective of the game was clear to me."

This question should be answered with "yes" or "no". If the player found out the goal of the game or just thought about it he interpreted the game narrative and mechanics and learning on level 1 happened.

30 [L6]Das Ziel des Spiels war meiner Meinung nach: *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie alle zutreffenden Antworten aus:

☐ zurück zur Oma zu kommen.
☐ irgendetwas einzukaufen.
☐ fair einzukaufen.
☐ mit möglichst viel Geld zurück zu kommen.
☐ Sonstiges: [_____]

Figure 49: Question 30

In this follow-up question the participant is asked to clarify:

"In my opinion the goal of the game was:

- to get back to grandmother.
- to buy something.

- to buy in a fair way.

- to come back with as much money as possible.

- Other: _____ "

It is possible to pick more than one of the options so that people do not have to limit their ideas of the goal and because it can be viewed as an implicit goal to buy fair trade goods because then the final screen is the nicest. But the explicit goal of the game as voiced by the grandmother is to buy something and get back to her with that. With this question participants are asked what they learned on level 1 because if they answered the question before with "yes" they already stated a small learning impact.

31 [L7]Beim ersten mal spielen habe ich mich aufgrund folgender Gründe für die gekauften Kleidungsstücke entschieden. *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie alle zutreffenden Antworten aus:

☐ Geringe Kosten.
☐ Gestaltung der Kleidungsstücke.
☐ Informationen zur Herkunft der Kleidungsstücke.
☐ Weil ich der Meinung war ich müsste bestimmte Kleidungsstücke kaufen um zu gewinnen.
☐ Ich habe im ersten Geschäft das ich gefunden habe eingekauft.
☐ Sonstiges: [_____]

Versuchen Sie sich bitte so gut wie möglich zu erinnern.

Figure 50: Question 31

This and the next two items ask for the reasons of buying the clothes:

"When playing the first time I chose the pieces of clothing I bought because of the following reasons.

Low cost.

Design of the clothes.

Information on where the clothes are from.

Because I thought I have to buy a special piece of clothing to win.

I shopped in the first shop I found.

Other: _____

Please try to remember as specifically as possible."

This item asks for the relation between what is thought to be the goal of the game and the motivation to buy specific clothes. It should be found out

if they match or if people deliberately do something different than what the game narrative supposedly asks them to do. This question tries to closer define learning on level 1 – learning through playing the game. If people do something because they think they need to do it for winning it would be learning on how to get through the game which is learning on level 1. The first three answers are also about putting the information of the game in context whereas the last answer shows indifference toward the game and further probably the learning objectives.

32 [L8]Meine Motivation Kleidungsstücke zu kaufen hat sich nach öfterem spielen geändert. *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie nur eine der folgenden Antworten aus:

○ Ja
○ Nein

Figure 51: Question 32

This item is one with a junction: if answered with "yes" a follow-up question appears:

"My motivation to buy clothes changed when playing more often."

This question has to be answered with "yes" or "no". This question asks if learning on level 1, on the basis of trial and error can happen. If people don't reach the goal of the game which they think is right, do they try again and especially do they try a different way?

33 [L9]Beim letzten mal spielen war meine Motivation bestimmte Kleidungsstücke zu kaufen folgende: *

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y") and (L8.NAOK == "Y"))

Bitte wählen Sie alle zutreffenden Antworten aus:

☐ Ich wollte ein anderes Ende sehen.
☐ Ich dachte das Spiel würde den Einkauf verlangen um zu einem positiven Abschluss zu kommen.
☐ Gefallen des Kleidungsstücks.
☐ Es waren die einzigen Kleidungsstücke die ich noch nicht gekauft hatte.
☐ Sonstiges: _____

Figure 52: Question 33

This is the follow-up question only asked if item number 32 is answered with "yes".

"When playing the last time my motivation to buy specific clothes was the following:

I wanted to see a different ending.

I thought the game would ask for this purchase to come to a positive ending.

I liked the design of the piece of clothing.

They were clothes I hadn't bought yet.

Other: _____ "

The options one and two support the belief of learning on level 1 based on trial and error whereas options three and four seem to indicate curiosity and fun in playing but not necessarily a different attempt on achieving the goal of the game. Here it has to be taken into consideration that people might have already achieved all the different endings and keep playing for fun and therefore choose answers three and/or four.

Figure 53: Question 34

As the item number 28 this one tests if people remember clothes and the information they got or didn't get about them; this time it is about a piece of clothing sold in the fair trade shop. The participants are asked to answer with "yes" or "no" to the statements on the left, which are following:

"I remember having seen this piece of clothing."

"I bought this piece of clothing."

"It is a fair trade piece of clothing."

"Information on how or where this piece of clothing was produced was provided."

The answers are sorted in a different way to keep people from answering in the same pattern as they did with the other similar. This question also tries to verify if people got to the fair trade shop or read the information provided there. It is an item testing learning on level 0 and is placed here to not be directly under the first one and make people feel strictly tested on their memory.

35 [L11]

Die folgenden Fragen beziehen sich auf die Auswirkungen des Spiels.

*

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
* ((SV1.NAOK == "Y"))

Bitte wählen Sie die zutreffende Antwort für jeden Punkt aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Ich habe mir während des Spielens oder danach Gedanken darüber gemacht wo meine eigene Kleidung herkommt.	O	O	O	O	O
Durch das Spiel werde ich mich in Zukunft genauer über die Herkunft meiner Kleidung informieren.	O	O	O	O	O
Ich habe mich bisher nicht dafür interessiert wo meine Kleidung produziert wird.	O	O	O	O	O

Figure 54: Question 35

The participant is informed that the following questions regard the impact of the game. Participants are asked to rate the statements on the left using the following expression: strongly agree, agree, undecided, disagree, strongly disagree. The statements are:

"While playing or afterwards I thought about where my clothes are from."

96

"Because of this game I want to find out where my clothes are from."

"So far I was not interested in where my clothes are produced."

The answers to these statements should provide insights whether or not learning on level 2 happened – learning beyond playing the game. Very important is the third question to distinguish between participants who were interested in production conditions of their clothes compared to those who weren't until now.

36 [L12]

Vermutliches zukünftiges Einkaufsverhalten

*

Beantworten Sie diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wählen Sie die zutreffende Antwort für jeden Punkt aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Durch das Spiel werde ich in Zukunft eher fair gehandelte Kleidung kaufen.	O	O	O	O	O
Durch das Spiel werde ich vor allem auf Design von Kleidungsstücken achten.	O	O	O	O	O
Das Spiel hat keine Auswirkungen auf meine zukünftige Entscheidung beim Einkauf von Kleidung.	O	O	O	O	O

Figure 55: Question 36

This block of items is about the probable future shopping behavior of participants. The participant is asked to rate the statements on the left using the following expressions: strongly agree, agree, undecided, disagree, strongly disagree. The statements are:

"Because of this game I will probably buy fair traded clothes in the future."

"Because of this game I will look closely at the design of clothes."

"The game does not influence my future decisions when buying clothes."

The statement in the middle is added to prevent people from just clicking strongly agree in all three cases. If the game motivates people to look at the design of clothes, the participant has either not understood the objective of the game or he or she has not read the statement carefully or was simply not interested (anymore).

Of these 12 items five ask about learning on level 0, five about learning on level I and two about learning on level II. Here is a list giving information about which items were constructed for which learning level:

> Learning on level 0: Items 26 and 27, and item pools number 25, 28 and 34 consisting of four items each
>
> Learning on level I: Items number 29, 30, 31, 32 and 33
>
> Learning on level II: Item pools number 35 and 36 consisting of three items each

Because learning happens in a hierarchic structure it seemed important to ask specifically for learning outcomes on lower levels and because definite evidence for learning on level II cannot be given without a longitude survey. It seemed that two questions for participants to rate themselves would be enough to make a statement regarding the possibilities of learning on level II by playing this game.

Release, duration and documentation of the Survey

The online questionnaire was made accessible on May 23rd at 6:30 pm. The link was sent out per mail at 6:32 to three people indicating interest in the survey[163] but are not on any social platforms. At 6:35 pm it was published on the social platform google+, at 6:38 on twitter and on 6:42 on facebook. On all social platforms the link was published with a comment saying it is the link to the project for a master's thesis and that people should feel free to share it.

On google+ the link got two +1s and one share. On twitter it got one response mentioning that it is not possible to choose anything when asked what brand people possess which was corrected right away. Facebook had most of the responses. The status update was liked by 7 people, commented on 7 times and shared 14 times. To encourage people to participate an event was created on the 24th of May lasting till the 4th of June. The posts of the event were sporadically updated to encourage people to invite their friends.

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[163] They had heard about it through the people involved in the pretest.

During the first 48 hours 117 people participated in the survey and from then on participation slowed down; on May 30th 174 people had completed the questionnaire; the survey was closed on June 4th with a total of 422 participants. 178 of those did not complete the questionnaire which leaves 244 completed questionnaires. From these 244 a few had to be excluded because of the following reasons:

- Nine people were from other countries.
- Two had to be excluded because of obviously untrue statements in the background questionnaire: a 100-year-old student, playing video games for more than 2 hours per day and a 1-year-old student who has a budget of more than 100 euros for video games each month.
- One person stated he started the game one time and finished it 2222 times, another one started it once and finished it 3 times during 1000 minutes of play time.

The revised number of complete questionnaires is 231.

Analyzing data from the survey regarding un*fair

Descriptive Analysis

This analysis will give an overview over the conducted data before starting to set the items in relation to each other.
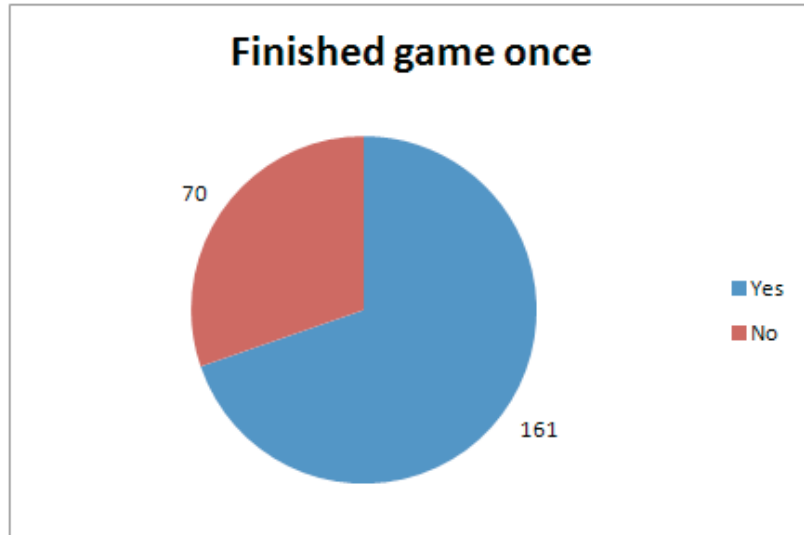
Figure 56: Game finished once

From the 231 complete and revised questionnaires 70 participants answered the question if they played the game until the end for at least one time with "no".
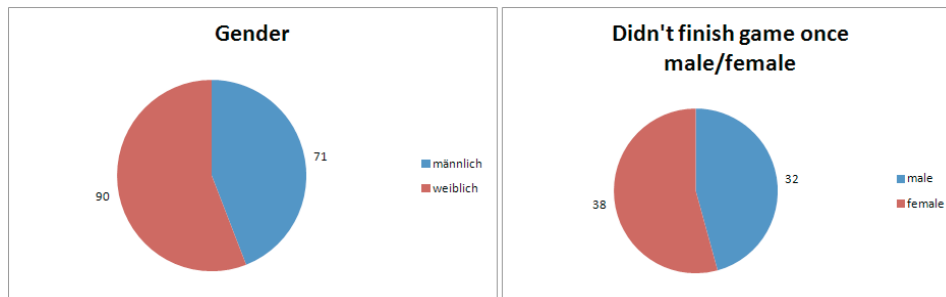
Figure 57: gender distribution

In terms of gender distribution there is not much difference between the group who played the game at least once and the one who did not. In the questionnaire it was asked why participants had not finished the game:
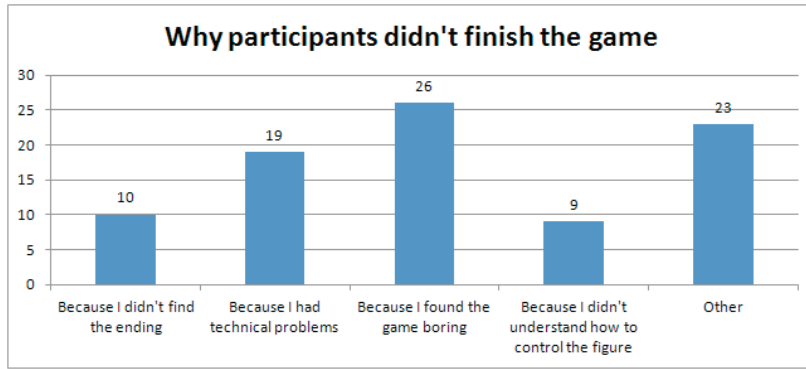
Figure 58: why participants didn't finish

The question offered five alternative answers and the majority stated that participants found the game boring. When people clicked "other" and were asked to be more specific some said that they didn't want to install java and five mentioned they had never played before. One mentioned that he or she didn't want to play because the game had no goal.

Now the results of the questionnaire, leaving out those who did not finish the game at least once, will be described. These have been chosen because for learning on the different levels it is necessary that people collect information throughout the game and especially for learning on level I people have to understand how to get to the end.
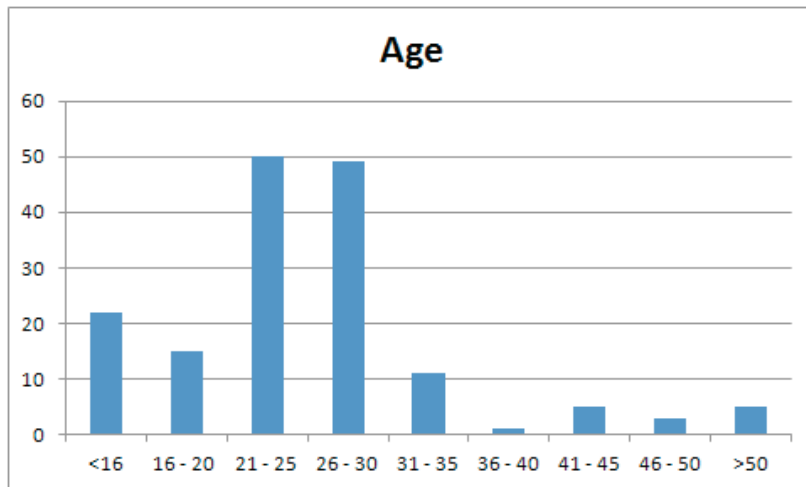
Figure 59: age distribution

The age distribution is shown in steps of five. The median lies at the value of 25 and so does the rounded value of average. The oldest participant is 58 the youngest is 10 years old.
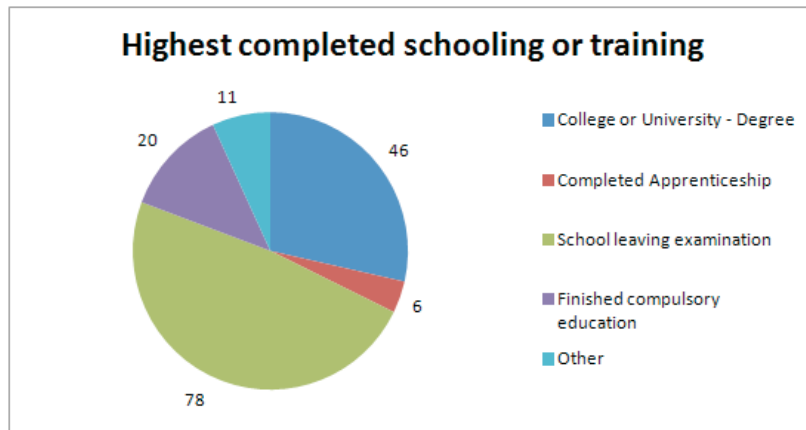
Figure 60: highest completed schooling or training

The highest number of those participating had a school leaving examination, followed by participants with a university degree. The problem which arose with this question was the missing option of still being in school. This probably concerned 23 participants under the age of 16 which either chose other and specified or assumed that they belong to the group "Compulsory Education".
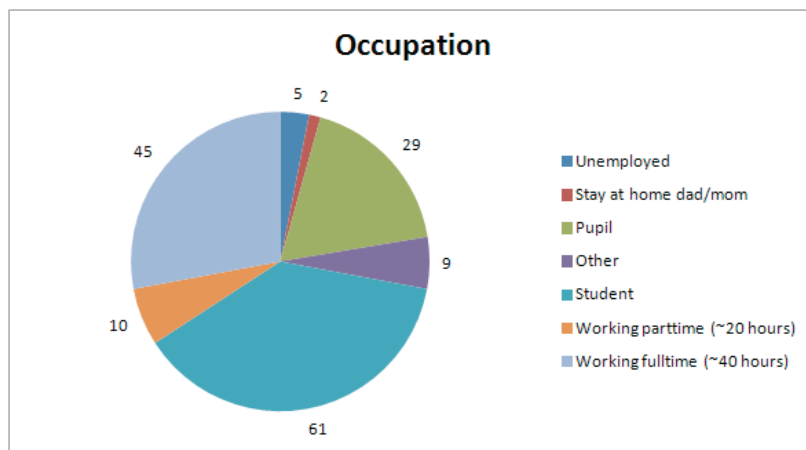
Figure 61: occupation

Most participants are either in school or at universities or working full time as can be seen above. Only two stay at home dads or mums participated and only five unemployed people. One reason for that could be the form of distribution: a student uses a social platform shared with friends from whom many are students as well. The many full time workers can be traced back to a special distribution from full time working friends in their firms.
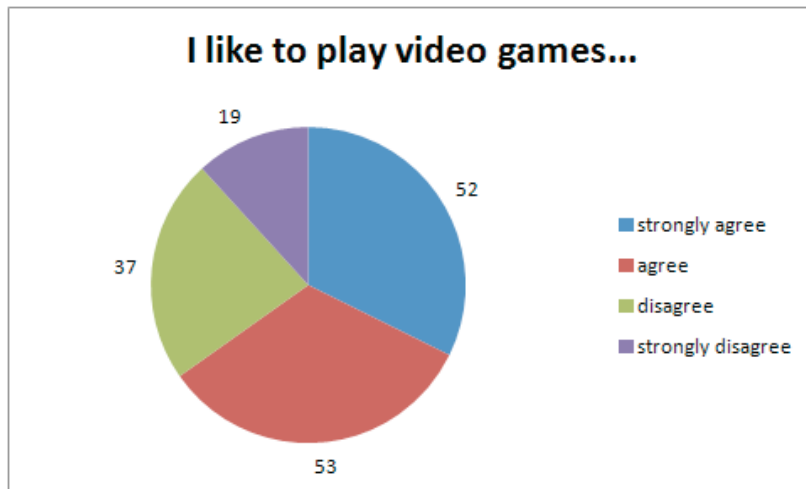
Figure 62: like to play video games

This is the first question of the questions regarding general playing habits. The answers to these questions show that over 65% of the participants like to play video games. In the questionnaire they have been informed that video games include all kinds of games using technical devices; from those played on the computer, to video game consoles to games on portable devices and cell phones.
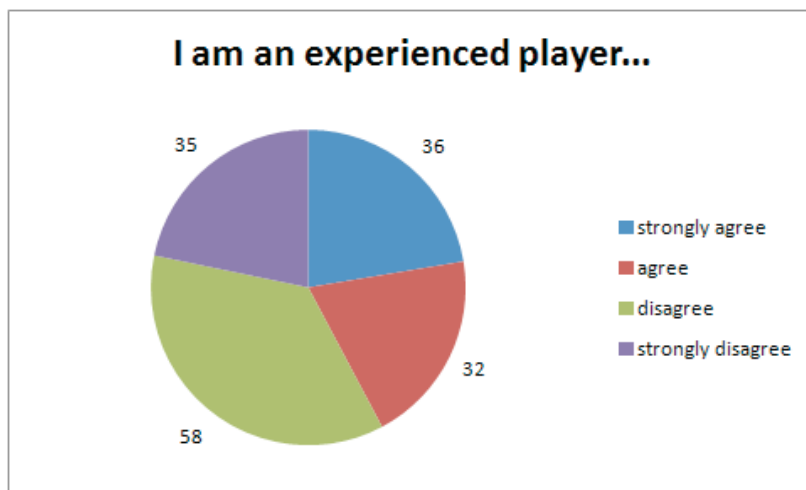
Figure 63: experienced player

Although participants state they like to play computer games a majority would not call themselves experienced players. A little over 57% do not agree or strongly disagree with the statement "I am an experienced player."
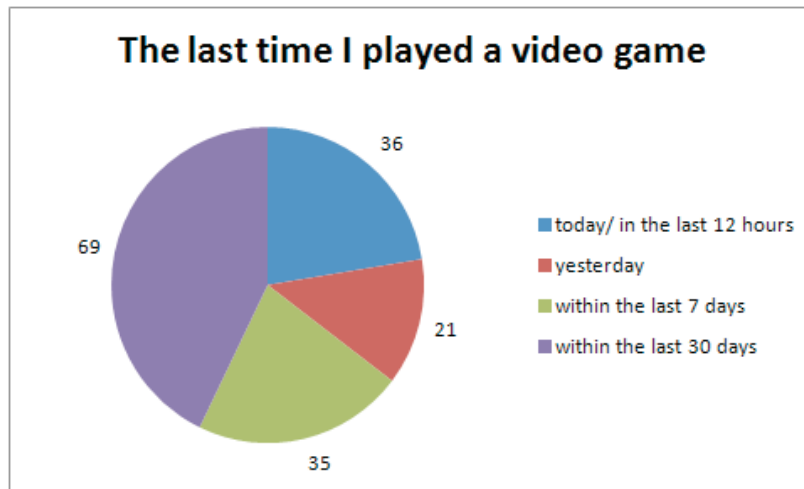
Figure 64: last time played

From the options given most participants stated the last time they had played video games was within the last 3 days. The obvious mistake with this question is that the option "I do not play video games" as it exists in the next question and as it was there in the pretest got lost somwhere in the process of conducting the survey. As this was an obligatory question the participants did not have the option to just leave it open and there was no "other" option. This makes it very unreliable to make statements about playing habits.
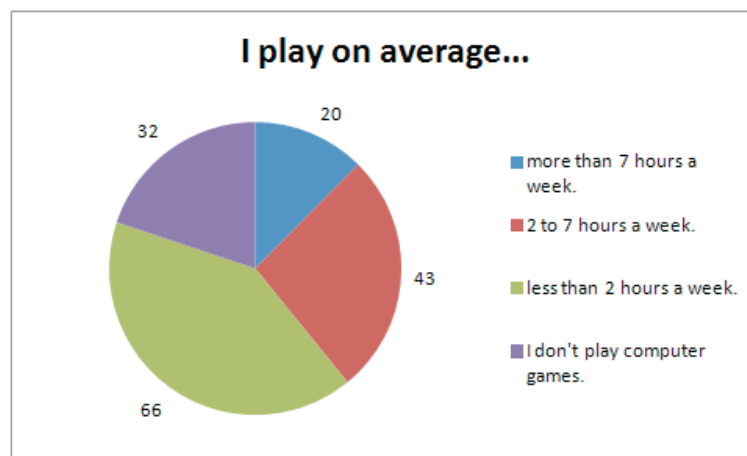
Figure 65: play on average

If given the choice participants do state that they don't play computer games which would mean the 32 who stated they do not play computer games are probably among the 69 people which state they played within the last 30 days.
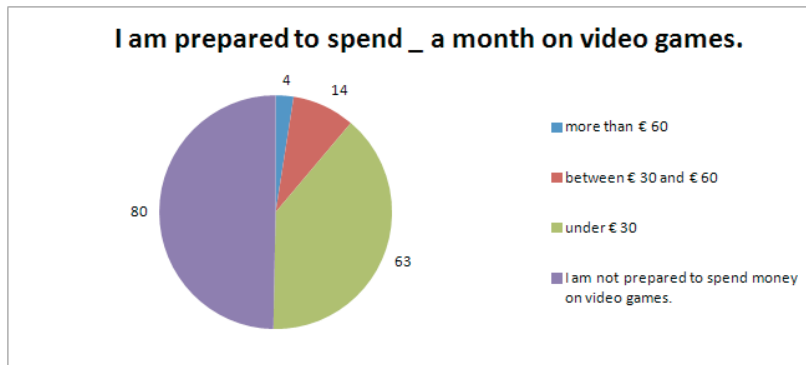
Figure 66: prepared to spend

This chart shows that not a lot of the participants are prepared to spend more than € 30 per month on the purchase of video games. The number was calculated as the average price of one game for pc or video game console which is not completely new on the market. For a newly released game between € 30 and € 60 have to be estimated. When taking the question the participants were informed that purchases include games, purchases of and for online games and gaming apps.

Figure 67: attention when buying clothes

This is the first question regarding shopping habits to find out which participants already look for fair trade clothes or organic material. On rank one with more than 57% people stated that their personal style and taste is most important when shopping. Most hits on rank 2 gets quality followed by material, while quality was picked second most on rank one, material was listed less often than low price, current trends and fair trade. It seems

106

that the material alone is not important enough to be rated high but appears strong on ranks 2 to 5. The participants were informed that they did not have to pick all of the elements. Use of organic materials and fair trade where left out most of the time: 33 people did not pick the use of organic material at all and 31 did not pick fair trade at all.
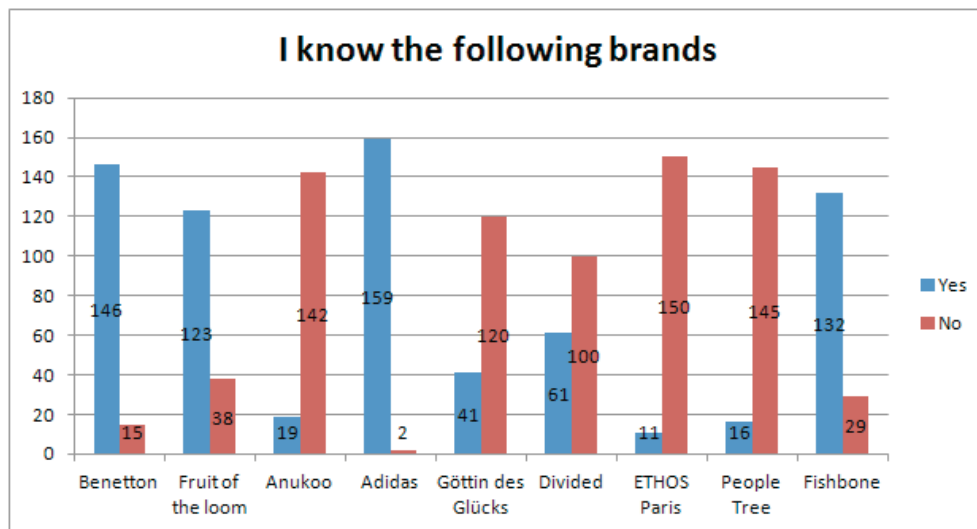
Figure 68: know brands

The four fair trade brands Anukoo, Göttin des Glücks, ETHOS Paris and People Tree are a lot less known than the four major brands; the brand of H&M was the least known of the major ones. Somwhere in between 41 and 87 people know brands that distribute explicitly fair trade and/or organic clothes. It can be assumed that those people have previous knowledge about the concept of fair trade or at least about the ideas and concepts of the designer teams.
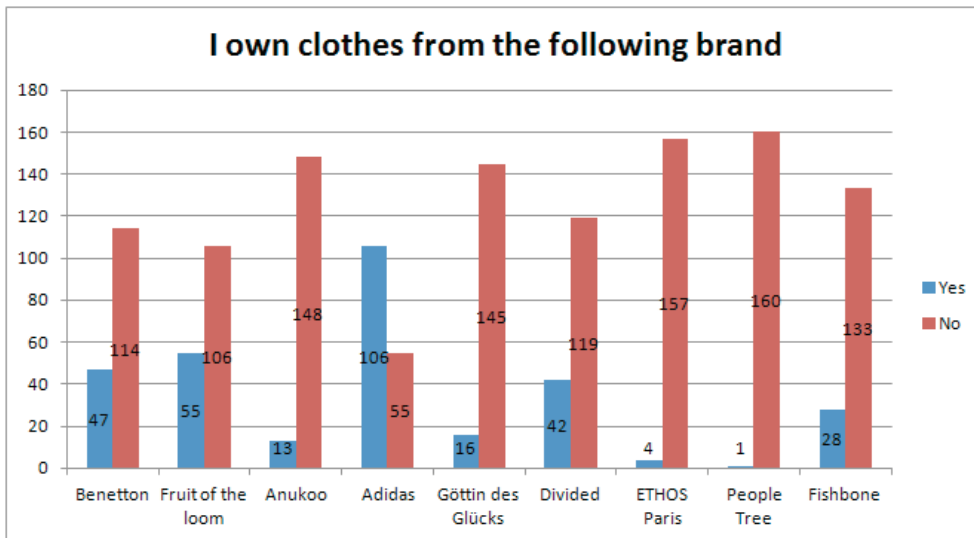
Figure 69: own brands

The answer to this question tells us that at least 16 people and at the most 34 people form the 161 participants own fair trade clothes and therefore already have had previous knowledge about the concept of fair trade or at least an idea about it.
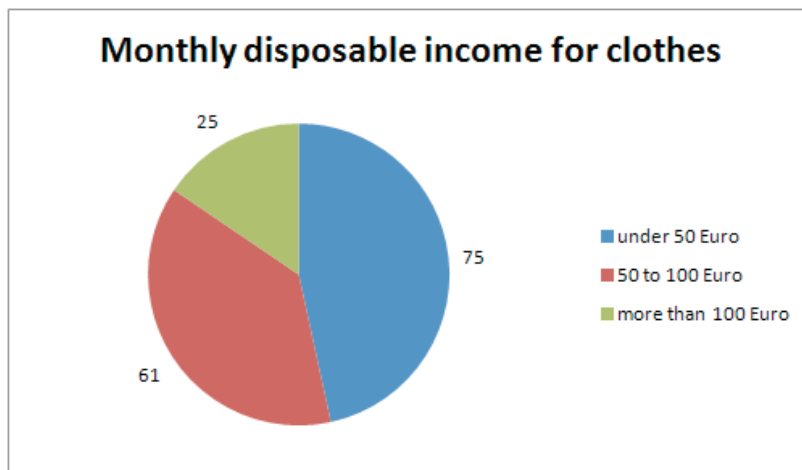
Figure 70: disposable income for clothes

As fair trade clothes are more expensive than clothes from some major stores like H&M or pimkie it is assumed that people have to have a certain disposable income for clothes. This question shows that 46 % of the people have less than € 50 for buying clothes per month. As fair trade products are about the same price level as brand clothes it is very probable that at least 46% of the participant can't afford buying fair trade clothes.

108
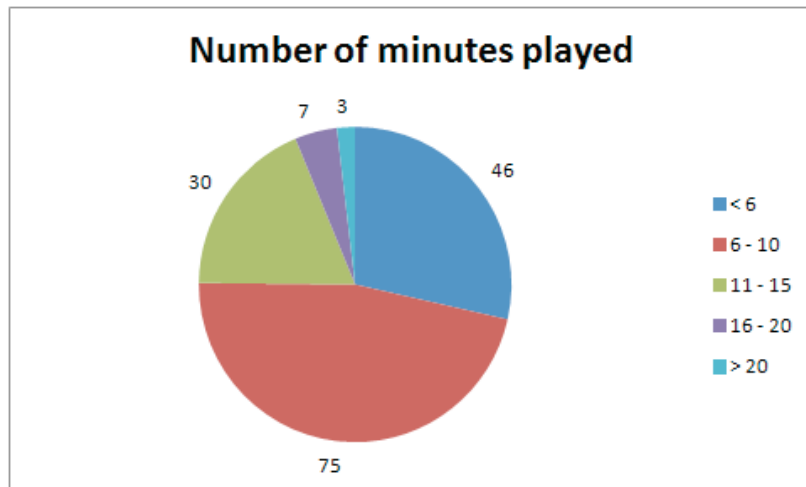
Figure 71: minutes played

The participants were asked to remember how many minutes they played un*fair. Most of them played either 6 to 10 or even under 6 minutes. It is a very short game but based on the time played it can be assumed that most people didn't play more than once.
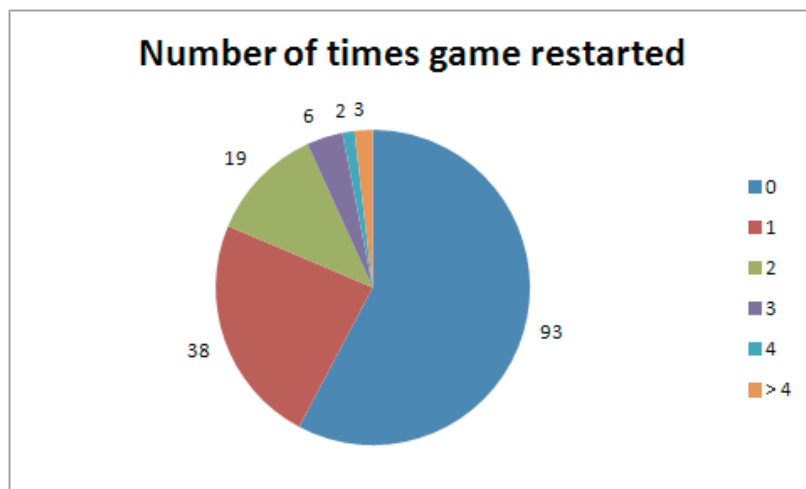
Figure 72: games restarted

68 people restarted the game one or more times and only 11 people had the possibiliy to see all 4 endings. This question was asked to find out about technical difficulties; if the number of times of restarting exceeds the numbers of finishing the game by far, the probability of technical diffculties or errors in game design is very high.
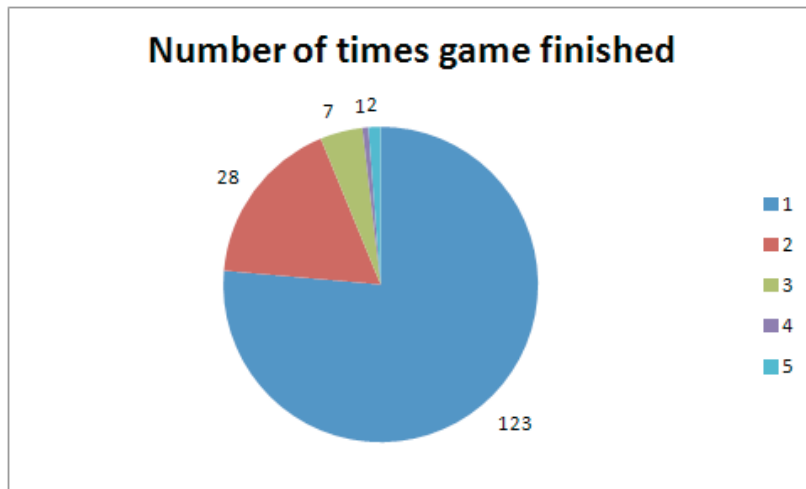
Figure 73: game finished

From the 11 people that had the opportunity only 3 people might have seen all 4 endings. The other 158 saw between one and three different endings.
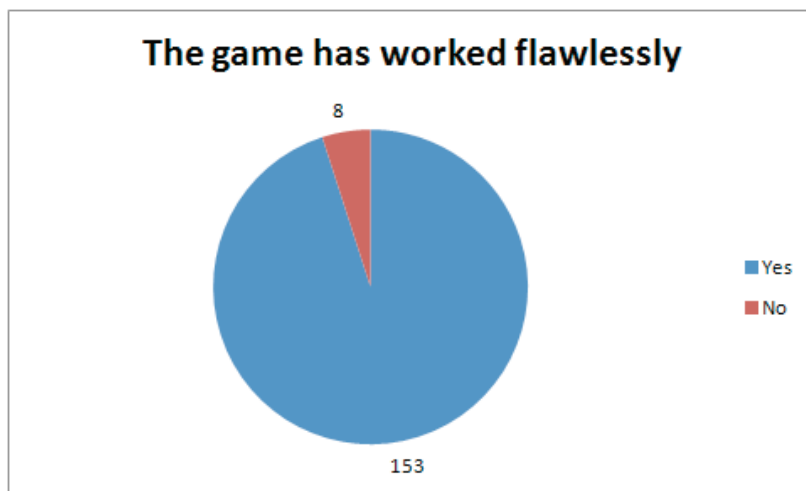
Figure 74: game worked flawlessly

When answering the participants were not asked to be specific. Most problems concerned the game mechanics which didn't seem to work equally well in different kinds and versions of browsers.

Figure 75: found fairkaufen

77% of the participants found the "fairkaufen" shop. This was a challenge for some of the pretesters which was the reason for putting this question in the questionnaire. People who did not find the "fairkaufen" shop did not get any information on clothes and could not finish the game with the positive "bloodless" ending.
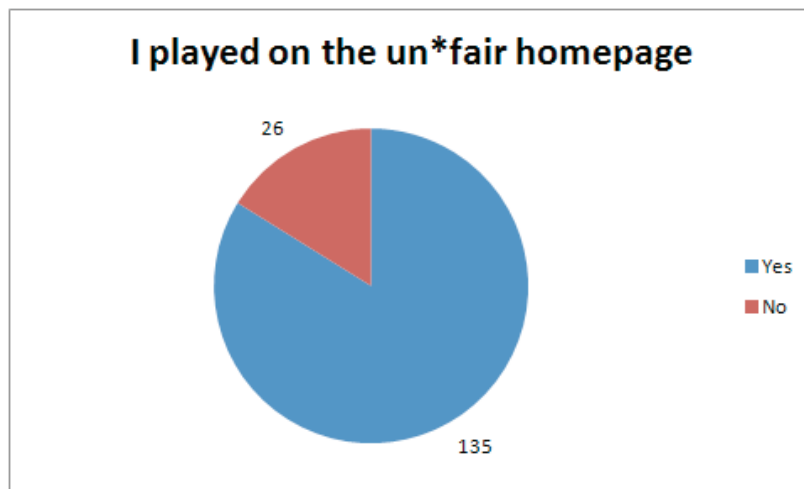
Figure 76: played on un*fair

More than 80% of the poeple played on the un*fair homepage. This question was asked for technical reasons and to find out if poeple would read the information on the page as well if playing there.
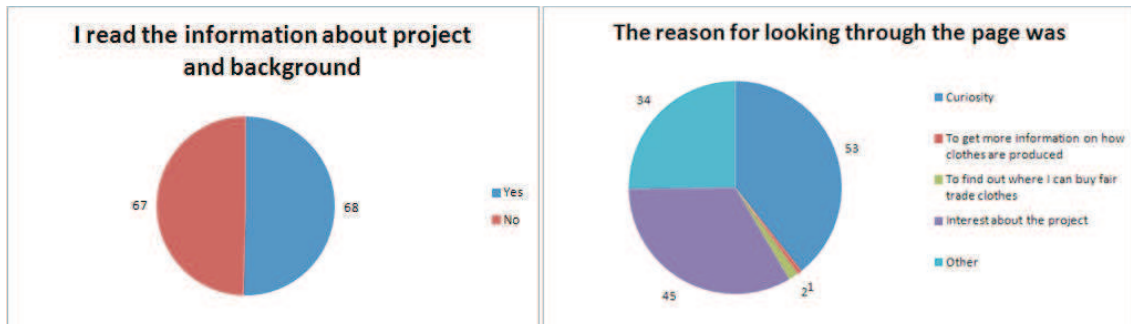
Figure 77: read information and reason

Almost exactly half of the people playing on the un*fair homepage read the information about project and background. As a reason for that 53 of the people chose the option "Out of curiosity", 45 read the information out of interest about the project and 34 people chose the option "other". Most of them did not specify why.
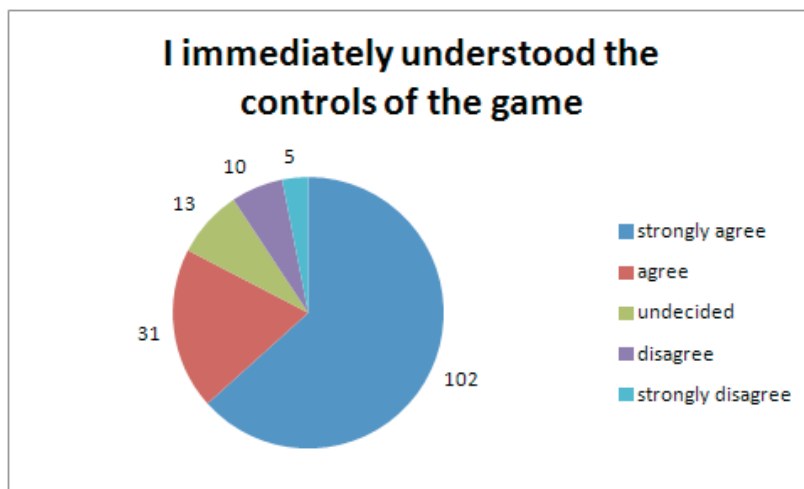
Figure 78: understood controls

With this question the group of items asking for learning on level 0 begins. 133 people which equals around 83% state that they understood the controls immediatly which can be read as a sign for learning on level 0. Only 15 people disagree on some level with the statement.
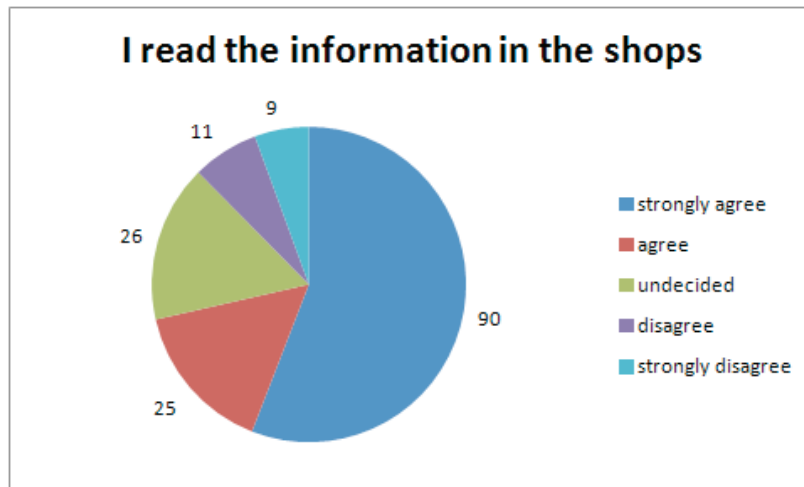
Figure 79: read information in the shops

115 participant state that they read the information in the shops more or less. This could indicate learning on level 0. People collected data and pieces of information.
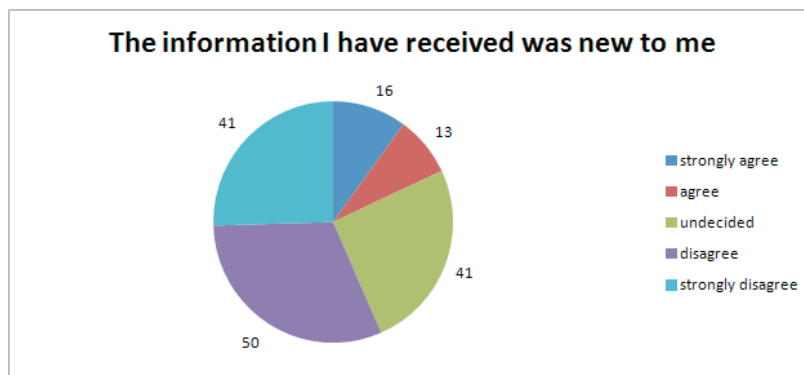
Figure 80: information received was new

This question should provide insight into the question if people had previous knowledge about fair trade clothes or shops. Unfortunately it is not correctly constructed because players do not get information if this question means all the information from the game or just the information from the salespeople. Because it follows right after the question regarding information in the shops, people probably assumed that this question asks for the same but it cannot be said with certainty.

113
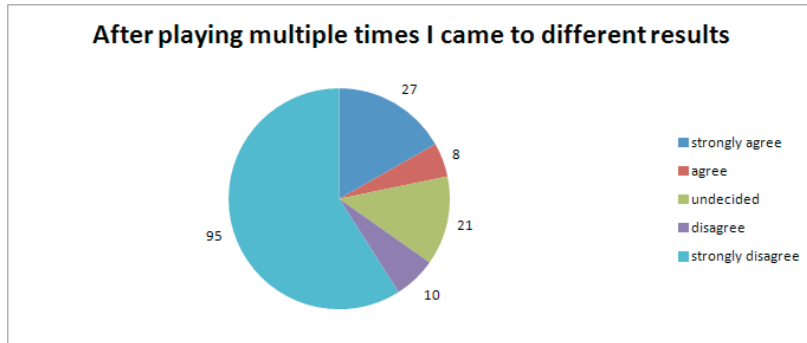
Figure 81: different results when playing multiple times

35 people state they came at least to one different result. 21 remain undecided which might be that two endings are very similar and it is probably hard to decide if one really reached a different ending.
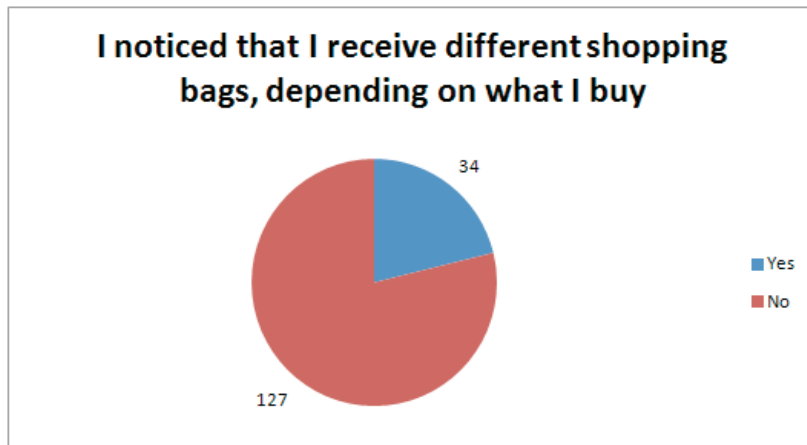
Figure 82: noticed different shopping bags

34 people realized that they got different shopping bags when purchasing different items which also means that these 34 people bought clothes in different shops.
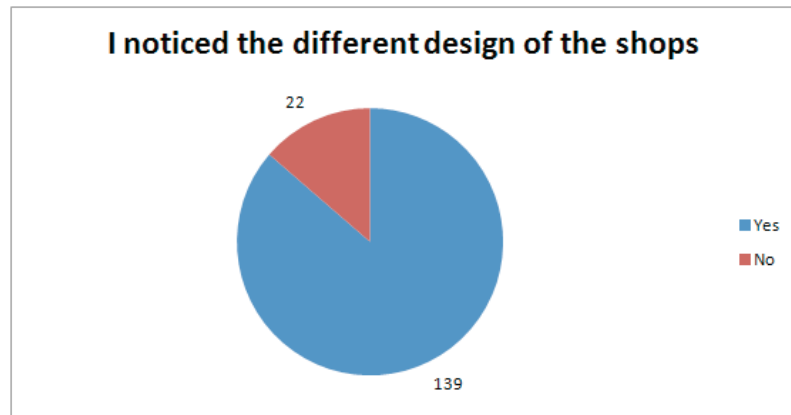
Figure 83: noticed different design of shops

More than 85% realized the different design of the shops. This question asks for learning on level 0 if people are attentive and collect data.
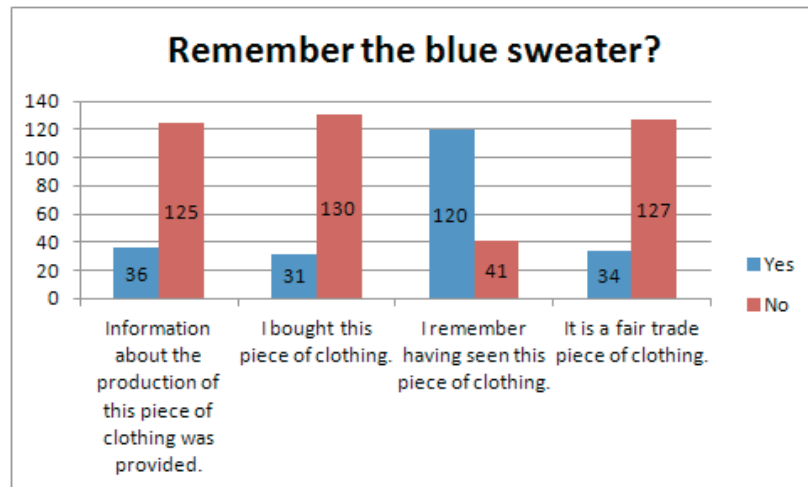
Figure 84: blue sweater

Most participants - around 75% - remember having seen the sweater and most participants remember correctly that no information on the production was provided and it is not a fair trade piece of clothing.

115
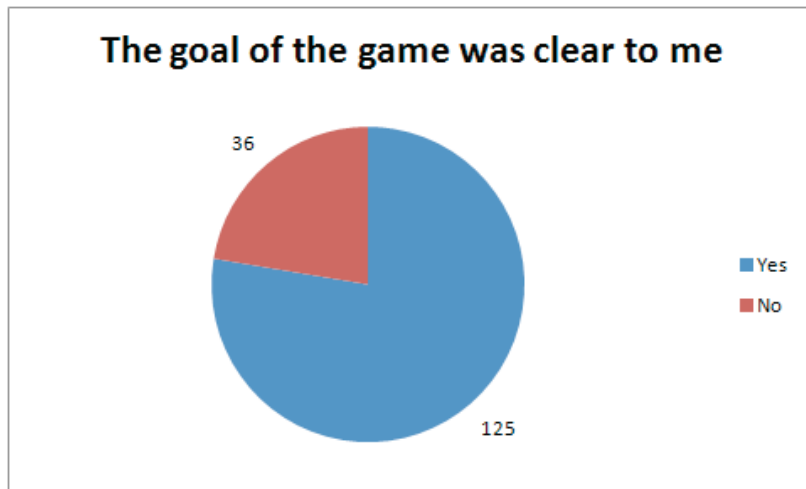
Figure 85: goal of the game was clear

125 people state that the goal of the game is clear to them which is equal to a little over 77%.
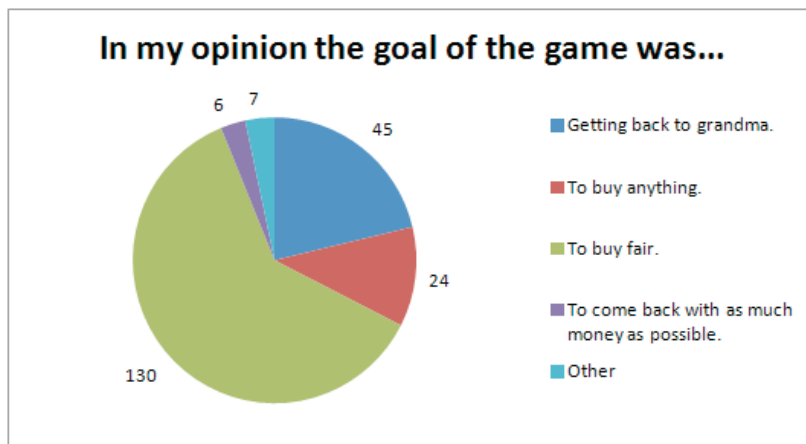
Figure 86: goal of the game was

130 participants state that the goal of the game is to buy fair trade, 45 think the goal is to come back to grandma, 24 people think they just need to buy anything, 7 think they need to come back with as much money as possible and 6 people pick the option "other". 4 of those state that the goal of the game is to make people think, one that it is to come back without money and one to compare prices and make a decision based on one's own style.

Figure 87: reason for buying clothes

Motivation to buy clothes in the game was mostly the design of the clothes, chosen by 86 people and followed by low prices, chosen by 48 people and information provided on origin of clothes, chosen by 46 people. 33 people thought they had to choose certain clothes to win the game and 20 just picked the first shop to buy something. From the 13 people picking "other" 7 state that they wanted to buy fair trade.
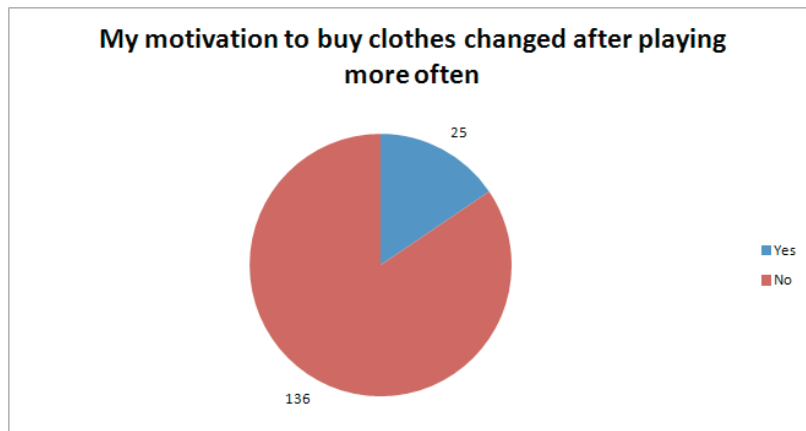
Figure 88: motivation changed

The motivation to buy clothes after playing more often changed only for 25 people. A reason for that is of course that not many people played more often than once.
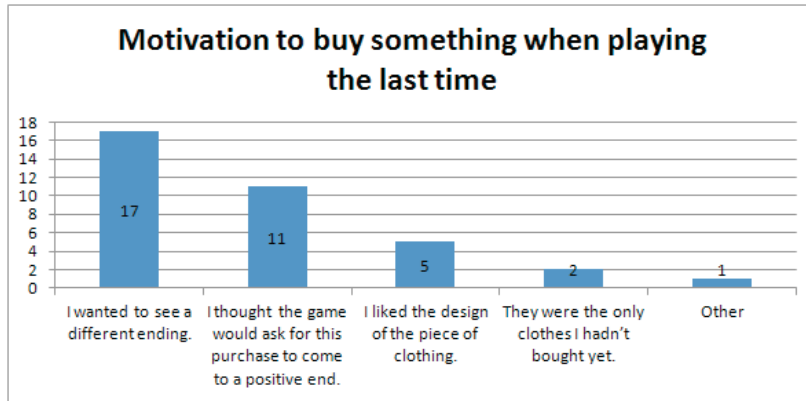
Figure 89: motivation when playing last

The most popular change in motivation is that people wanted to see a different ending followed by the belief that the game would ask for a special purchase to come to a positive ending. The person chosing "other" wanted to buy fair trade clothes.
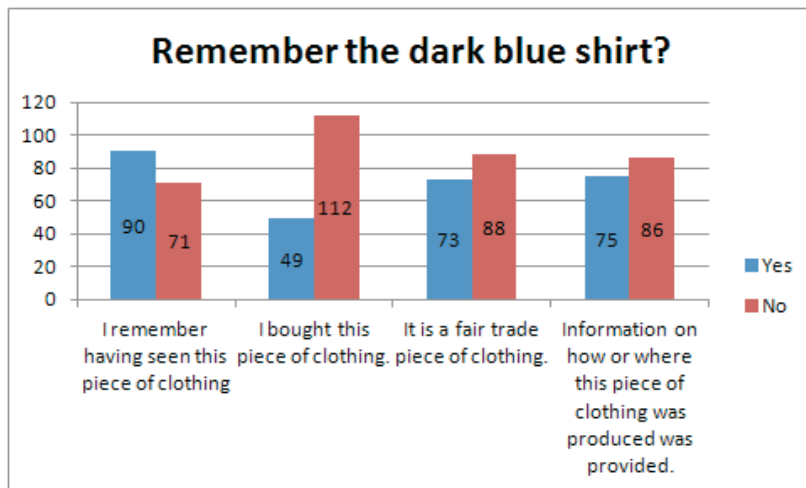
Figure 90: dark blue shirt

Less than half of the participants answer the two questions on fair trade or not and if there was information on how or where the shirt was produced was provided correctly. But only 90 people remember having seen the dark blue shirt and only 49 bought it.
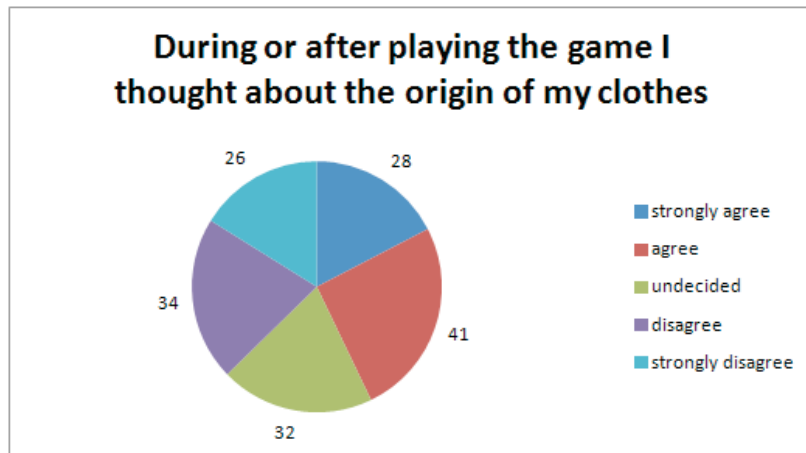
Figure 91: during or after playing I thought of my clothes

69 people agree on some level with the statement that they thought about where their own clothes are from during or after playing the game. 32 people are undecided and 60 disagree with this statement.
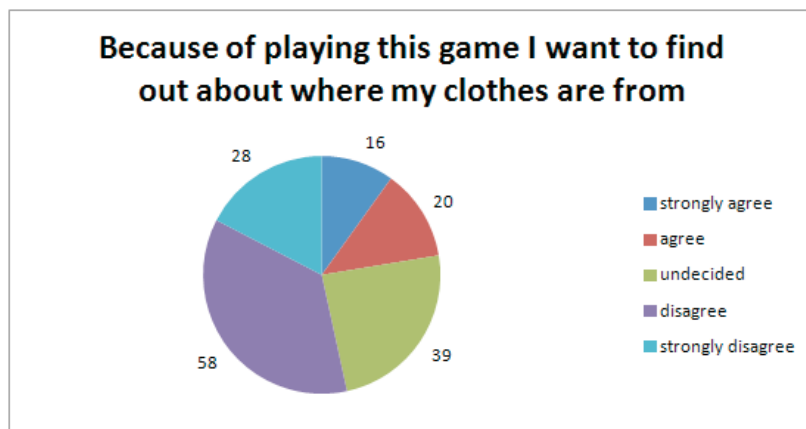
Figure 92: because of playing I want to find out

36 people agree that they want to find out where their clothes are from in the future. 39 are undecided and 86 strongly disagree witht this statement.
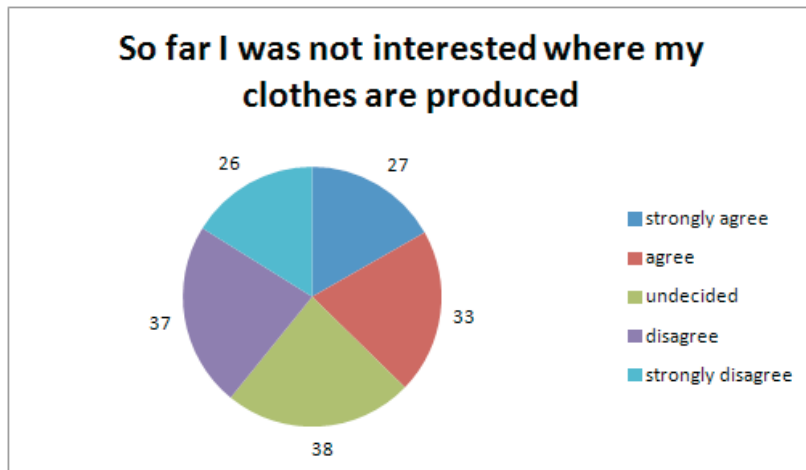
Figure 93: so far I wasn't interested

60 people state that until playing this game they were not interested in where their clothes are produced, 38 are undecided and 63 people disagree with this statement.
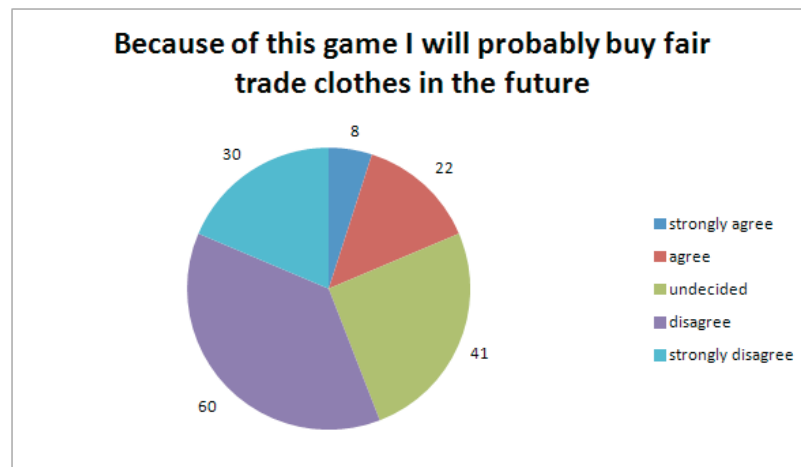
Figure 94: after playing I will buy fair trade

After playing the game 30 people agree that because of the game they will probably buy fair trade clothes. 41 are undecided and 90 disagree.
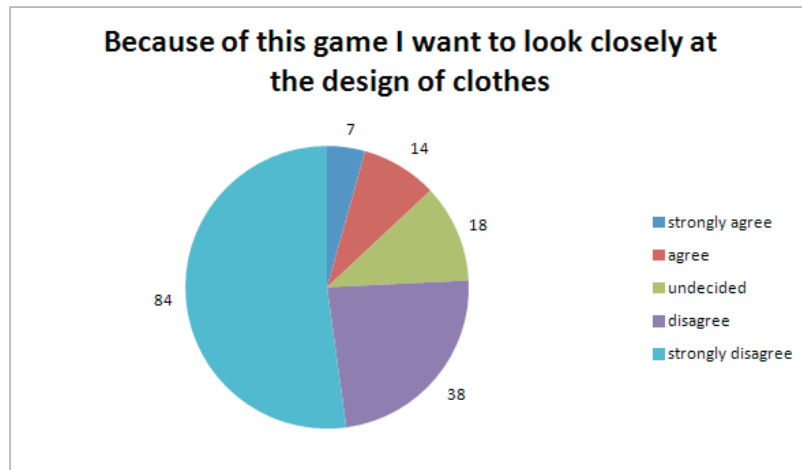
Figure 95: after playing I will look at the design

21 people state that they want to look closely at the design of clothes after playing the game, 122 disagree with this statement and 18 are undecided.
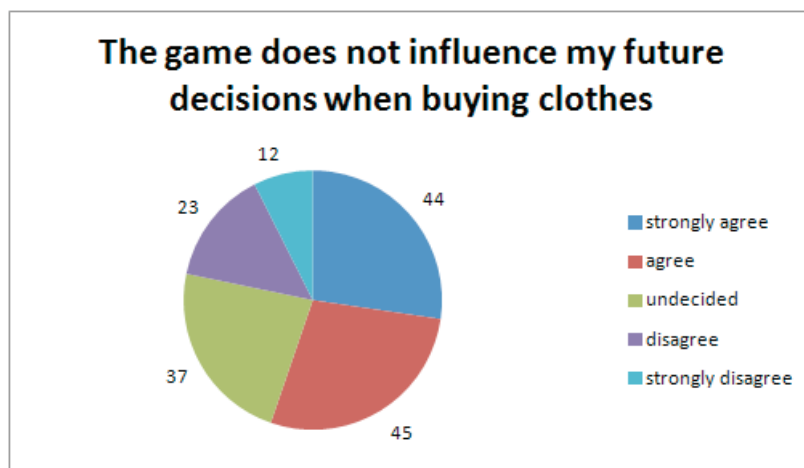
Figure 96: game does not influence future decisions

99 people agree that the game does not influence their future decisions when buying clothes, 37 are undecided and 35 disagree with this statement.

A closer look at the fair trade brands

53 people know one of the fair trade brands and 5 people know all of them. 20 people know only Göttin des Glücks (GDG) but 21 people who know GDG know another fair trade brand as well. The next best known brand is anukoo which is known by 19 people followed by 16 people who know People Tree. Least known is ETHOS Paris.

23 people posess at least one piece of clothing from one of the four fair trad brands but nobody has one of all four brands. 16 people own something from GDG, 13 something from anukoo, 1 owns something from PEOPLE Tree and 4 something from ETHOS Paris. Almost half the participants who know a fair trade brand also possess at least one piece of fair trade clothing.

The peoples knowledge of GDG, which was not expected to be 25% of all the participants, can tried to be explained with its achieved publicity at the Vienna Fashion Show 2011[164]. The brand anukoo is not only sold in Weltläden in Austria anymore but was successful enough to open a special shop in Vienna which also speaks for a certain success of the brand. PEOPLE Tree is the only brand not sold in Weltläden which is one of the best known chain of shops that sell Weltläden in Austria. PEOPLE Tree is sold only in one store in Austria which is in Velden, but it is possible to buy it online. It is assumed that people who know one of the fair trade brands have at least some knowledge of the concept of fair trade. This would mean that rounded 33% of the participants of the study already knew something about fair trade before playing the game. This assumption is supported by the answer of the participants when asked if they thought about where their clothes are produced so far. 39% stated that they did.

From the 108 people who did not know any of the fair trade brands 23 stated that they do not agree with the statement the game would not influence their future shopping habbits, 18 state they would consider buying fair trade clothes in the future and 24 participants think the will in future research where their clothes are from, 39 said they did think about where their own clothes are from during or after playing the game.

All the numbers lead to the assumption that 39 people who did not know any of the fair trade brands at least started thinking about the origin of their clothes and might consider buying fair trade clothes in the future or at least be a little more interested in the origin of their clothes.

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[164] Compare http://www.mqviennafashionweek.com/designer/goettin-des-gluecks.html

A closer look at the gender distribution

In this chapter a few aspects will be discussed after their gender distribution. The first aspect will be about the playing habits in hours per week.
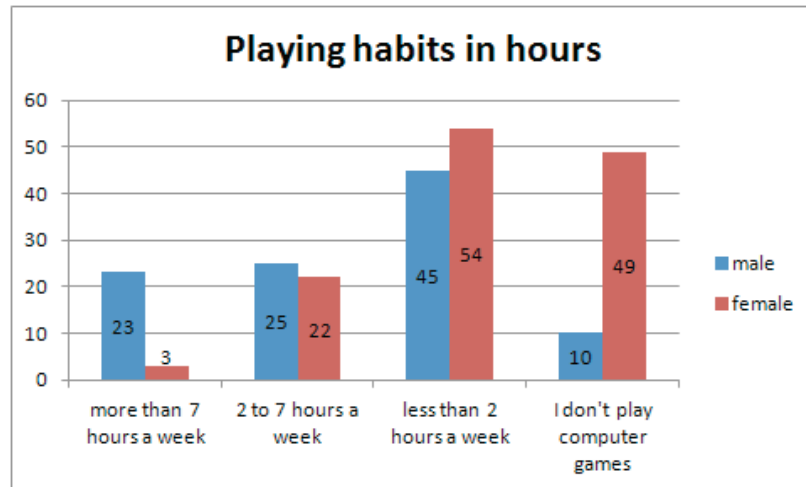
The gender distribution shows that there is a discrepancy in both extremes: far more female than male participants state they wouldn't play computer games at all but more male than female participants play more than 7 hours a week.
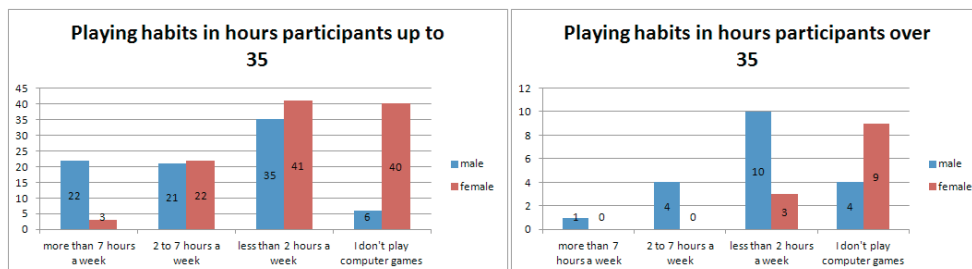

Figure 98: gender and age distribution playing habits

This stays similar also when the participants are split up by ages up to 35 and over. Here can be seen that there male participant are more likely to play also when they are older than 35.
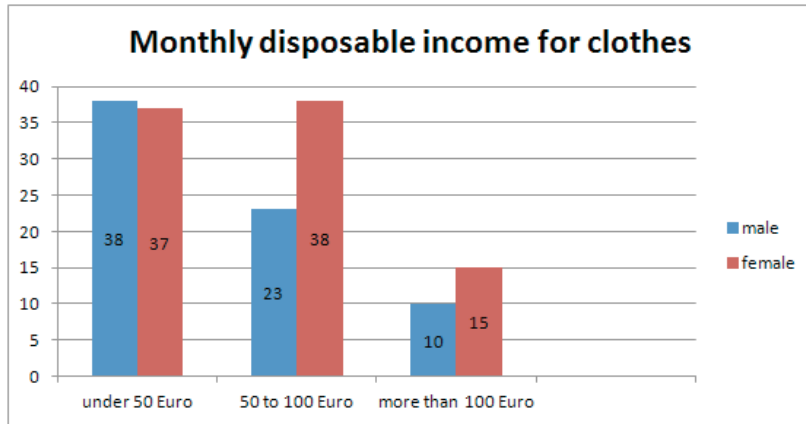
Figure 99: gender distribution of monthly disposable income for clothes

When looking at the monthly disposable income for clothes it can be seen that the distribution is quite similar. The option 50 to 100 Euros differs by 10% the most.
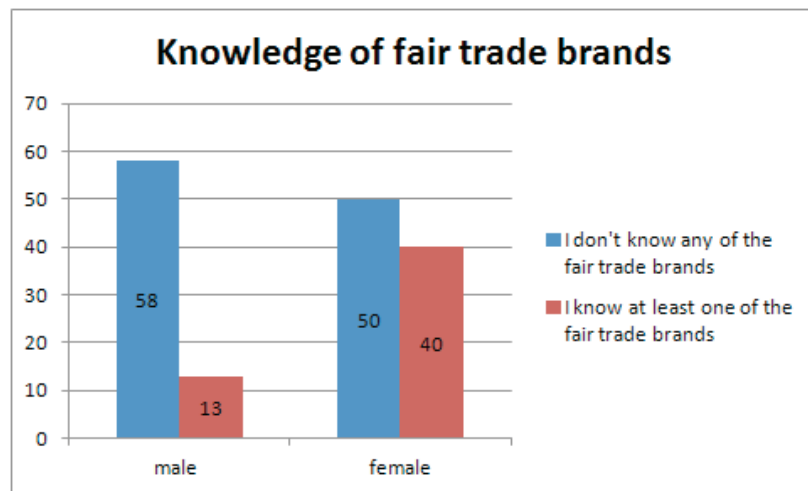
Figure 100: gender distribution knowledge of fair trade brands

When talking about the gender distribution in relation to knowing the mentioned fair trade brands it can be seen that female participants state they know one of the fair trade brands more often. More than 80% of the male participants don't know any of the fair trade brands while 56% of the female participants don't know any of the fair trade brands.

Figure 101: gender distribution posession of fair trade clothes

While a lot of female participants know at least one of the fair trade brands not a lot possess a piece of clothing of one of the fair trade brands. Percentagewise 18% of the female participants and only 8% of the male participants possess a piece of clothes from one of the fair trade brands.
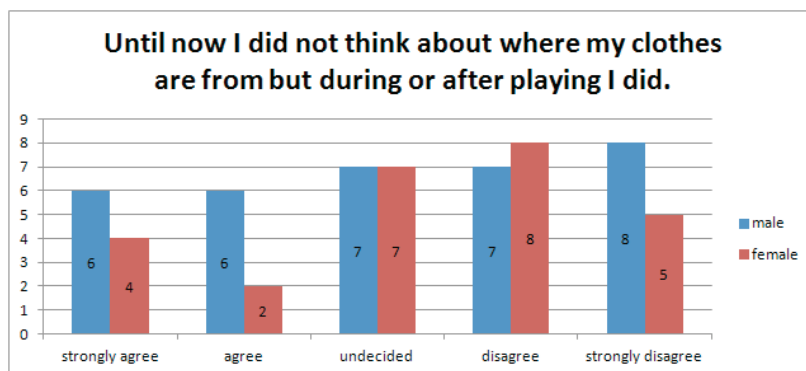
Figure 102: gender distribution about where my clothes are from

More male than female participants who did not think about where their clothes are from before thought about where they are from during of after playing un*fair. But more women than men thought about where their clothes are from already before having played. As can be seen in the chart below: It could be assumed that un*fair is a better learning tool for male participants but to confirm that we have to talk a look at another relation as well:
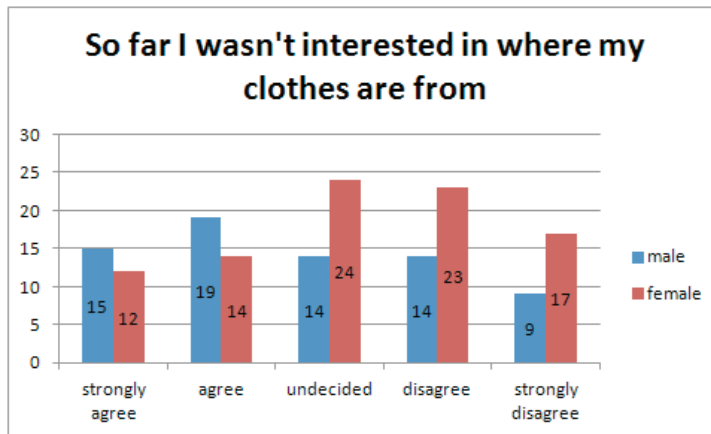
Figure 103: gender distribution not interested where my clothes are from

As it can be seen above it cannot be assumed that the game had a bigger impact on male participants because more women than men thought about the origin of their clothes already before playing the game. To measure if there is a difference in learning impact between men and women another survey would need to be conducting watching for equal distribution of men and women who did or did not concern themselves with the origin of their clothes.
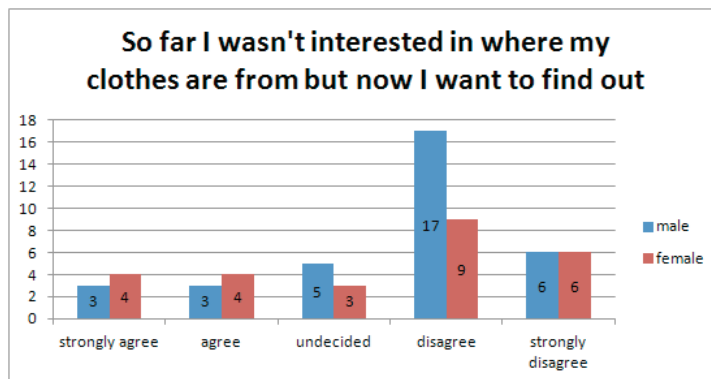
Figure 104: gender distribution want to find out where my clothes are from

While 12 male participants and 6 female participants thought about where their clothes are from only 6 male particpants want to find out more about the origin of their clothes but 8 female particpants. This would mean that male participants were more ready to think about the issue of where their clothes are produced but not to do research about it. While female participants were almost equally ready to think about, but also to consider researching about where their clothes are from.

126

Interpretation of Data on Learning 0

Learning on level 0 occurs when people collect data and information but do not set it into context. If people understood how to control the figure and read the information provided in the shops they have already achieved learning on level 0.

As a small test to find out if participants really read or better memorized the information provided for them in the shops it was asked after two single pieces of clothing. A sweater from the shop "Green" in the shopping center and a T – shirt from the "fairkaufen" shop.

133 from 161 participants agreed or strongly agreed that they understood the controls immediatly which would mean learning on level 0. This - together with the 124 participants that found the "fairkaufen" shop - leads to the conclusion that a majority of the participants achieved learning on level 0 regarding learning to control the figure and finding their way through the designed game world.

Regarding collecting information and data 115 participants state they read the information given in the shops. This self-evaluation is assessed with the help of the two test items asking for specific information given on the two pieces of clothing. In fact, more than 120 participants are right when asked if information on production was provided for the blue sweater and if it was a fair trade piece of clothing. When asked for the dark blue shirt, which was fair trade, people were not so sure: more than half of the participants say it was not. 86 people were wrong when asked if information on production was provided.

Summing up, learning on level 0 happened with all 161 participants to different extents because they all state having finished the game at least once and for that the player has to understand the game mechanics and buy at least one piece of clothing. It remains unknown if more than 75 people read and remembered the information given in the fair trade shop but it can be assumed that most people did read the information to some extent.

Interpretation of Data on Learning I

For learning on level I it is important that learning on level 0 occurred. In this case participants should have read the information given; starting with the directions from the grandmother. The grandmother sets the explicit goal for the game: "Go shopping and come back with something." The implicit goal, the one where you get a nice final screen, has to be realized by the player him- or herself, which was intentionally not very hard to find out to make it measurable.

While 125 people stated the goal was clear to them, it differed in what people thought the goal would be. Most participants realized the implicit goal to buy fair trade goods: 130. 45 stated the explicit goal: go out buy clothes and come back. In both cases the participants reached learning on level I; they thought about the goal and set the given information in a context. Despite the realization of the game's goal most people chose their purchase based on the design of the clothes and because of the low prices. Just for 25 this motivation changed when playing more often one reason for that is that only 38 people played more often than once.

Learning on level I was achieved as well by all the 161 participants finishing the game because they found their way through the game. Which is stated as learning I as discussed in the learning objectives for the game un*fair. Furthermore, most people could state the goal of the game although they did not care about what the game's intention was and what they were supposed to do. Another clue that learning on level I happened were the statements from people mentioning flaws in the game mechanics. As already stated in the theoretical part of the paper realizing mistakes in narrative and game mechanics proves that people set the given information into context and thought about the game and how to get through it.

Interpretation of Data on Learning II

Learning on level II can only be anticipated and speculated about because on this level the finishing of the game does not prove that learning on this level happened.

69 people state that they thought about the origin of their clothes during or after playing the game. From these 69 those who already thought about where their clothes are from have to be excluded which leads to 18 people who would start to think about where their clothes are from after playing the game un*fair.
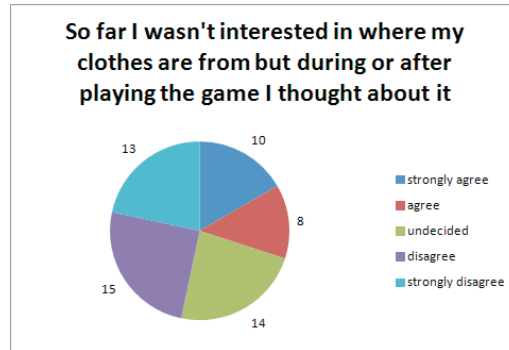
Figure 105: so far not interested but thought about it through playing

For 18 people a probable chance for learning on level II occurred, they started thinking about where their own clothes are from. The thought – provoking impulse could lead to a change in shopping habits or at least to a reflection on their shopping habits. 24 participants stated that they might want to find out where their clothes are from.
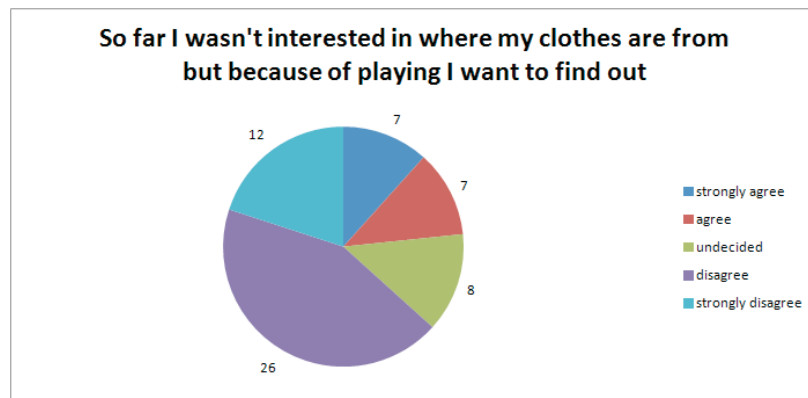
Figure 106: so far not interested but now want to find out

14 of those participants haven't thought about where their clothes are from before playing the game. For these 14 participants interest in where their clothes are from is new and learning on level II becomes even more likely.
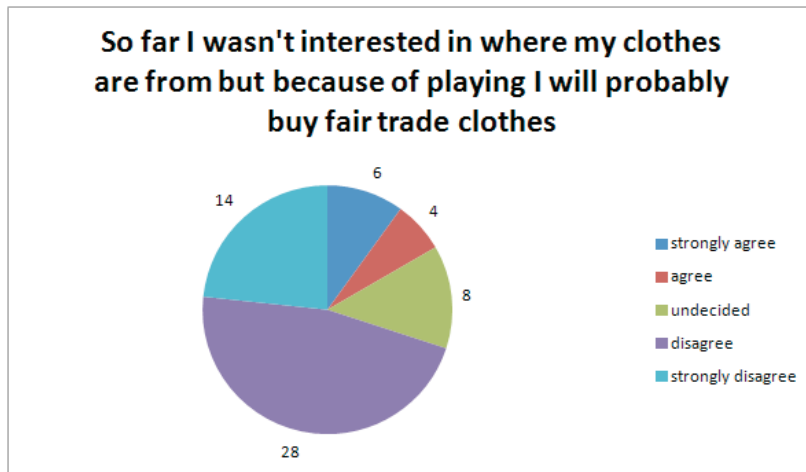
For the 10 people agreeing with this statement it could be assumed that they might start reflecting on this issue and change something about their shopping habits which would successful learning on level II – something could changes about their view of the world.

These cross evaluations should show that it is very difficult to draw conclusions from the item pool because many participants chose combinations that were not intended and so this makes them hard to interpret. For example, what does it mean if a person agrees he or she thought about how his or her own clothes are produced but states that he or she now wants to especially watch the design when buying clothes. Summarized, it can be said that the game does offer a learning objective which could have sparked learning on level II with a group of 18 people but definite statements if learning on level II occurred cannot be made.

Reflections regarding the questionnaire

One of the most problematic issues of the questionnaire was that in question7 regarding general playing habits the option to chose "I am not playing computer games" went missing in the actual questionnaire somewhere in the transition from the pretest to conducting the actual survey. As a solution answers from question 8 "I play on average _ hours per week" where the option did not get lost where taken to make a

differentiation between participants who state they do play computer games compared to those who state they don't.

Something that wasn't considered were the participants under the age of 16 when asking for their highest finished schooling or training in the general part of the background questionnaire. Participants found their way around that by choosing the option "finished compulsory education" or by clicking "other" and writing still in process of finishing compulsory education. Of the 32 people under the age of 16 25 chose the option "finished compulsory education". While this is a big flaw of the questionnaire a solution is possible through filtering out those who cannot have finished their compulsory education yet because of their age. Assumed that participants started school at the age of 6 they could not be finished before the age of 16 so it seems that 32 people still in progress of finishing their compulsory education participated in the survey.

The game seemed to be boring especially for the group of participants under 16 years, which would have to be verified with significant numbers. This is an important point because if it really is like that, it would exclude this serious game from being a good learning tool and teachers should not work with this and maybe similar games in class.

Another issue of the questionnaire was that a question was asked in order to find out if people just tick the first box in the second item pool regarding finding out about the learning on level II. The statements people should rank themselves in were:

"Because of this game I will probably buy fair traded clothes in the future."

"Because of this game I will look closely at the design of clothes."

"The game does not influence my future decisions when buying clothes."

It was assumed that participants would not feel encouraged to take a closer look at the design of the clothes they want to buy in the future because the designer did not implement anything that was intended to lead to the believe the design of their clothes would be important. Despite this believe 21 participants felt encouraged on some level to take a closer look at the design of clothes. Only 2 participants stated they strongly agree with all three statements, which indicates that they just wanted to finish the questionnaire because when they strongly agree with option one it would

mean that the game did influence their future decision in buying clothes and the participants would have to say they disagree with the last option. 9 people strongly disagree with all the three options which could also lead to the conclusion they just wanted to finish but it could be that they will not buy fair trade but they might think about what they are buying on some other level - maybe trying to buy clothes made from organic produced cotton. 8 people who choose they will now consider buying fair trade clothes also stated they would take a closer look at the design of the clothes. On some way this could be seen as a compliment to the designer of the fair trade clothes in the "fairkaufen" shop because the people liked how the clothes were designed in the game and now they want to buy similar ones. This interpretation is supported by the statements of the participants that all 8 did find the "fairkaufen" shop and 5 of them were not interested in fair trade clothes up to playing the game – so maybe these participants still thought of fair trade clothes as such which make people who wear them look like they are wearing a jute bag.[165] Of course statements regarding this unexpected result in the item pool can only be called speculations and interviews asking for the motives of the stated answers would have to be conducted to get a valid answer.

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[165] This was actually a problem in how fair trade clothes were viewed up to a few years ago and is an issue many world shops still try to fight.

Answering the research question

If a learning aspect is put into a computer game: How does the player reconstruct the intended learning objective on the different learning levels?

The question was answered in detail in the chapters before "Interpretation of Data on Levels 0, I and II". These chapters describe what participants stated about the reconstruction of the intended learning aspect from the designer. Summing up, it has to be said that the learning objectives were kept very small and that further, broader research is needed to verify the results of this convenience sample as no conclusions for a broader population can be drawn. Compared to the intended learning objectives the outcomes of the survey showed that the simpler the objective the more likely it is to be reached. The objective on learning level 0 - if people understood the controls - was reached by the whole cleaned-up sample. The objective of collecting information on the next level was only reached by very few people; about half of all the participants were right in all control questions. Reaching learning on level II is very hard to control but even when trusting the statements of the participants only 11 percent even state a probable change in their concept of the world beyond the gameplay. It seems that on learning level 0 and I the reconstruction of the learning aspects happened similar to what the designer of the game wanted to communicate. Whereas in level II not only cannot be specifically said what from the learning impact is taken out of the game it is also very complicated to construct items and item pools that exactly ask for what was learned in a way the player understands what was meant.

How does an implementation of a learning impact (theoretically) has to happen to be successful – so that players learned what was aspired to from the producer/designer?

It seems that at least for the 161 participants who finished the game at least once there was successful learning on the levels 0 and I and partially successful learning on level II. From the 70 who did not finish the game at least once 28 state that the found the game to boring which means this

particular game did not offer motivation to learn for them – this seems to be due to the narrative and game mechanics rather than the actual learning aspects which can be read out from the comments added when participants chose the option "other". 9 stated they did not understand the control which means that for this game no learning occurred. For 10 people who stated they did not find the ending it can be assumed that learning on level 0 occurred but probably no or little learning on level I. 19 participants had technical difficulties which can be traced back to the difficulties with embedding a game from the developing surroundings of scratch when using old browsers and having old java versions for those people no learning occurred as well.

As the game was designed after helpful tips from game studies and computer game designers as well as through extensive literature research it can be stated that the constructed method for designing worked as many as 171 participants which is almost 75% of all the participants who played the game. If this method is successful with other games has to be tested with constructing more games in the same way which seems very unlikely because of the differentiations which have to be made in genres and narratives but they can probably be verified as guidelines.

Reflection and prospects

„Another theory – based game design project" is an example for a small project that tried to accomplish a lot at once. From the literature research, over working out a way on how to design a serious game and making the learning aspect stick, to designing a game and a matching questionnaire to the answer of the research question. On some points the many different tasks led to difficulties in seeing mistakes especially in item construction as mentioned in the descriptive analysis. The faulty item construction led to a more difficult deeper analysis and required the exclusion of some items.

For future research ways of making the game more fun and engaging especially over longer periods of time should be found, using more research regarding game design and qualitative methods such as player observation or interviews. A group discussion about the game might give some valid insights as well.

After making specific statements on the possibility of learning 0 and I and a probable development of learning II it is important to start further research especially about learning two which would have to happen over a longer period of time is necessary.

This small project offers yet another positive aspect for the use of playing games to learn something but it is important that we also see restrictions of this method of learning and don't indulge in unrealistic optimism. Furthermore we have to see problematic issues as well such as that this way of learning can be easily brought to a wide population of people of all ages over the different media channels and a possible lack of reflection of the players about the message can be dangerous. As researchers in the science of education we have to empower players to reflect on distributors and implications of the messages which are put into games – because if it is possible to take out something good out of a game it might as well be possible to take out something bad.

On the whole, "Another theory – based design project" can be regarded as a small success in further research about learning in, through and beyond games.

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Table of Figures

Abstract

Learning can take place in many different forms and through a variety of media. One of those has been evolving rapidly over the last few years: Video Games. While it has been proven by many studies that we learn something through Video Games we do not know exactly what it is that a player learns through playing a game. Many organizations are trying to put a message in little games which are spread through social platforms or other websites and we still don't know if those messages really reach the players. It is important to find out if it is even possible to put a learning aspect in a game and through that make a person understand or learn what the person or organization behind the game wanted him or her to. Based on these questions the paper at hand will discuss learning and playing and furthermore evaluate a self-designed game in regard to its learning success or failure and reflect on the outcomes found.

Zusammenfassung

Diese Arbeit beschäftigt sich mit den Möglichkeiten des Lernens mit und durch Computerspiele. Im theoretischen Teil der Arbeit werden Lern- und Spieltheorien beleuchtet und Definitionen, mit denen gearbeitet wird, erstellt. Mit Blick auf den praktischen Teil der Arbeit wird Game Design und die Problematik von Serious Games diskutiert. Des Weiteren wird die verwendete Methode, ein online Fragebogen, vorgestellt. Mit der diskutierten Lerntheorie von Gregory Bateson als Basis wird ein Computer Spiel designed. Der Design Prozess und die Implementation von Lernaspekten wird beschrieben um danach im Fragebogen anhand von Fragen nach den Lernebenen feststellen zu können inwieweit diese Lernaspekte von den Spielern und Spielerinnen gelernt oder auch nicht gelernt wurden. Es folgen eine deskriptive Analyse und mehrere Analysen mit speziellem Fokus auf zum Beispiel Geschlecht und Kaufverhalten sowie eine Reflexion der Arbeit.

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Curriculum Vitae

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Ausbildung

1991 – 1995	VS Krems Lerchenfeld
1995 – 1999	Gymnasium Rechte Kremszeile
1999 – 2004	Bundesbildungsanstalt für Kindergartenpädagogik
2006 – laufend	Studium der Pädagogik an der Universität Wien
2007 – laufend	Studium der BWL an der Universität Wien

Weiterbildung

2003	Ausbildung zur Übungsleiterin in Judo
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2007	Ausbildung zur Snowboardbegleitlehrerin
2008	Ausbildung zur Landeskampfrichterin in Judo
2009	Ausbildung zum Lehrwart in Judo
2010	Ausbildung zur Rettungsfahrerin beim Roten Kreuz

Tätigkeiten im Bezug auf das Studium

2007 – 2011	Gewählte Mandatarin der Studienrichtungsvertretung
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2008	Vertreterin in der Curricularen Arbeitsgruppe
2010	Tutorin in der LV Quantitative Methoden II.
2011	Mitarbeit beim Forschungsprojekt Mediengarten – Bild- und Interviewanalyse
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Fragebogen zum Spiel un*fair

Die vorliegende Umfrage bezieht sich auf das Spiel un*fair, welches im Rahmen der Diplomarbeit von Cornelia Amon gestaltet und programmiert wurde.

Alle Daten, die Sie von sich preisgeben, werden anonymisiert und vertraulich behandelt.

Bevor Sie zu spielen beginnen, würde ich Sie bitten einige Fragen zu beantworten.

Nach dem Spiel folgen einige weitere Fragen.

Je nach Spielverhalten dauern Umfrage und Spiel zwischen 15 und 30 Minuten.

Diese Umfrage enthält 36 Fragen.

Fragen zur Person

1 [Alter]Ich bin ___ Jahre alt. *

Bitte gebe hier Deine Antwort ein:

2 [Geschlecht]Ich bin ___ *

Bitte wähle nur eine der folgenden Antworten aus:

○ Weiblich

○ Männlich

3 [Herkunft]Ich lebe in ____ *

Bitte wähle nur eine der folgenden Antworten aus:

○ Österreich

○ Deutschland

○ Schweiz

○ Sonstiges

4 [Ausbildung]Meine höchste abgeschlossene Ausbildung *

Bitte wähle nur eine der folgenden Antworten aus:

○ Lehre

○ Pflichtschule

○ Matura

○ abgeschlossenes Studium (Universität oder Fachhochschule)

○ Sonstiges [   ]

5 [Beschäftigung]Im Moment bin ich ... *

Bitte wähle nur eine der folgenden Antworten aus:

○ SchülerIn

○ StudentIn

○ Teilzeit berufstätig (~20 Stunden)

○ Vollzeit berufstätig (~40 Stunden)

○ Hausfrau/Hausmann

○ Arbeitssuchend

○ in Pension

○ Sonstiges [   ]

Sollten mehrere Punkte zutreffen wählen Sie bitte ihre hauptsächliche Beschäftigung.

Generelles Spielverhalten

Zu Computerspielen zählen alle Arten von Spielen auf den unterschiedlichsten technischen Geräten. Das inkludiert Spiele auf Konsolen (Playstation, X - box, Nintendo wii,...) , Spiele am Mobiltelefon und auf portablen Geräten (PSP, PSVita, Nintendo DS, iPod...) sowie Spiele am Computer.

6 [GS1]Angaben zum generellen Computerspielverhalten *

Bitte wähle die zutreffende Antwort aus:

	trifft zu	trifft eher zu	trifft weniger zu	trifft gar nicht zu
Ich spiele gerne Computerspiele.	○	○	○	○
Ich bin meiner Meinung nach eine erfahrene Spielerin/ ein erfahrener Spieler.	○	○	○	○

7 [GS2]Ich habe _____ zum letzten Mal Computer gespielt. *

Bitte wähle nur eine der folgenden Antworten aus:

○ heute bzw. in den letzten 12 Stunden

○ gestern

○ in den letzten 7 Tagen

○ in den letzten 30 Tagen

8 [GS3]Ich spiele im Durchschnitt _____ *

Bitte wähle nur eine der folgenden Antworten aus:

○ mehr als 7 Stunden pro Woche.

○ 2 bis 7 Stunden pro Woche.

○ weniger als 2 Stunden pro Woche.

○ Ich spiele keine Computerspiele.

9 [GS4]Ich bin bereit ___ Euro im Monat für Computerspiele auszugeben. *

Bitte wähle nur eine der folgenden Antworten aus:

○ über 60 Euro

○ zwischen 30 und 60 Euro

○ unter 30 Euro

○ Ich bin nicht bereit Geld für Computerspiele auszugeben.

Das inkludiert kaufen von Spielen für Computer und Konsolen, aber auch Ausgaben für online Spiele und den Kauf von Apps für Mobiltelefone.

Einkaufsverhalten

10 [EV1]Beim Kleidungskauf achte ich vor allem auf ....

Bitte nummeriere jede Box in der Reihenfolge Deiner Präferenz, beginnend von 1 bis 8

	niedrigen Preis
	Qualität
	fair trade
	Markennamen
	aktuelle Trends
	Material (z.b. Seide, Baumwolle,...)
	Verwendung biologischer Materialien
	Eigener Stil beziehungsweise Geschmack

Sie müssen nicht alle Elemente in der Rangfolge verwenden.

11 [EV2]Ich kenne folgende Modemarken. *

Bitte wähle alle Punkte aus, die zutreffen:

- ☐ Benetton
- ☐ Fruit of the loom
- ☐ Anukoo
- ☐ Adidas
- ☐ Göttin des Glücks
- ☐ Divided
- ☐ ETHOS Paris
- ☐ People Tree
- ☐ Fishbone

12 [EV3]Ich besitze ein oder mehrere Kleidungsstücke der folgenden Marken.

Bitte wähle alle Punkte aus, die zutreffen:

☐ Benetton

☐ Fruit of the Loom

☐ Anukoo

☐ Adidas

☐ Göttin des Glücks

☐ Divided

☐ ETHOS Paris

☐ People Tree

☐ Fishbone

13 [EV4]Ich habe im Monat ungefähr __ Euro für Kleidung zur Verfügung. *

Bitte wähle nur eine der folgenden Antworten aus:

○ über 100 Euro

○ 50 bis 100 Euro

○ unter 50 Euro

Spielen von un*fair

Jetzt ist es an der Zeit das Spiel um das sich alles dreht zu spielen.

Bevor Sie zu spielen beginnen, werfen Sie bitte einen kurzen Blick auf die Uhr um danach eine ungefähre Angabe zur Spielzeit machen zu können. Danach klicken Sie bitte auf einen der angegebenen Links und spielen sie das erscheinende Spiel solange Sie Lust dazu haben. Um das Spiel zu starten und auch um es öfter zu spielen klicken Sie bitte auf die grüne Flagge im rechten oberen Eck des Spiels.

Viel Spaß beim spielen!

Spiel auf der Homepage un*fair

Spiel auf der Homepage Scratch

Hinweis:

Es kann sein das aufgrund der Einbettung auf die homepage der fullscreen Modus nicht fehlerfrei funktioniert um das zu vermeiden spielen Sie bitte im kleinen Fenster.

---

14 [Spieldauer]

Ich habe ___ Minuten gespielt.

*

Bitte gebe hier Deine Antwort ein:

Fragen zum Spielverlauf und technische Fragen

Diese Fragen beziehen sich darauf wie es Ihnen während des Spielens ergangen ist.

---

15 [SV1]Ich habe das Spiel mindestens einmal zu Ende gespielt. *

Bitte wähle nur eine der folgenden Antworten aus:

○ Ja

○ Nein

---

16 [SV2]Ich habe das Spiel ____ mal neu gestartet. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte gebe hier Deine Antwort ein:

[   ]

Wenn Sie sich nicht sicher sind machen Sie bitte eine ungefähre Angabe.

---

17 [SV3]Ich habe das Spiel ____ mal zu Ende gespielt. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte gebe hier Deine Antwort ein:

[   ]

Wenn Sie sich nicht sicher sind machen Sie bitte eine ungefähre Angabe.

---

18 [SV4]Das Spiel hat technisch einwandfrei funktioniert. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

○ Ja

○ Nein

19 [SV5]Was hat nicht (gut) funktioniert?

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV4.NAOK == "N"))

Bitte gebe hier Deine Antwort ein:

20 [SV6]Der Grund warum ich das Spiel nicht zu Ende gespielt habe ist:

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "N"))

Bitte wähle alle Punkte aus, die zutreffen:

- ☐ Weil ich die Steuerung nicht verstanden habe.
- ☐ Weil es mir zu langweilig war.
- ☐ Weil ich technische Probleme hatte.
- ☐ Weil ich das Ende des Spiels nicht gefunden habe.
- ☐ Sonstiges: [_____]

21 [SV7]Ich habe das "fairkaufen" Geschäft gefunden. *

Bitte wähle nur eine der folgenden Antworten aus:

- ○ Ja
- ○ Nein

Das gefragte Geschäft befindet sich vom Ausgangsscreen zwei nach links und steht alleine im betreffenden Screen.

22 [SV8]Ich habe das Spiel auf der un_fair Homapage gespielt. *

Bitte wähle nur eine der folgenden Antworten aus:

- ○ Ja
- ○ Nein

23 [SV9]Ich habe mir die Informationen zum Projekt und zum Hintergrund angesehen. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV8.NAOK** == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

⭕ Ja

⭕ Nein

24 [SV10]Aus folgenden Gründen habe ich mir den Rest der Hompage angesehen: *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV9.NAOK** == "Y"))

Bitte wähle alle Punkte aus, die zutreffen:

☐ Aus Neugierde.

☐ In der Hoffnung mehr Informationen über Herstellung von Kleidung zu erhalten.

☐ Um zu erfahren wo ich fair gehandelte Kleidung kaufen kann.

☐ Aus Interesse über das Projekt.

☐ Sonstiges: [   ]

Fragen zum Spiel

Der folgende Fragenblock behandelt das individuelle Spielerlebnis.

25 [L1]Folgende Fragen sind mit trifft sehr zu bis trifft gar nicht zu zu beantworten. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wähle die zutreffende Antwort aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Ich habe die Steuerung des Spiels (wie ich meine Figur bewege) sofort verstanden.	○	○	○	○	○
Ich habe die Informationen in den Geschäften gelesen.	○	○	○	○	○
Die Informationen die ich erhalten habe waren neu für mich.	○	○	○	○	○
Bei mehrfachem Spielen bin ich zu unterschiedlichen Ergebnissen gekommen.	○	○	○	○	○

26 [L2]

Mir ist aufgefallen, dass ich durch unterschiedliche Einkaufsvariationen unterschiedliche Einkaufssackerl bekomme.

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

○ Ja

○ Nein

27 [L3]

Mir ist die unterschiedliche Gestaltung der Geschäfte aufgefallen.

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

○ Ja

○ Nein

28 [L4]

Bei diesem Kleidungsstück treffen folgende Aussagen zu/nicht zu:

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wähle die zutreffende Antwort aus:

	Ja	Nein
Zu diesem Kleidungsstück gab es Informationen zur Herkunft oder Herstellung.	○	○
Ich habe dieses Kleidungsstück gekauft.	○	○
Ich kann mich daran erinnern dieses Kleidungsstück gesehen zu haben.	○	○
Es ist ein fair gehandeltes Kleidungsstück.	○	○

29 [L5]Das Ziel des Spiels war für mich klar ersichtlich. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((SV1.NAOK == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

○ Ja

○ Nein

30 [L6]Das Ziel des Spiels war meiner Meinung nach: *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle alle Punkte aus, die zutreffen:

☐ zurück zur Oma zu kommen.

☐ irgendetwas einzukaufen.

☐ fair einzukaufen.

☐ mit möglichst viel Geld zurück zu kommen.

☐ Sonstiges: [   ]

---

31 [L7]Beim ersten mal spielen habe ich mich aufgrund folgender Gründe für die gekauften Kleidungsstücke entschieden. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle alle Punkte aus, die zutreffen:

☐ Geringe Kosten.

☐ Gestaltung der Kleidungsstücke.

☐ Informationen zur Herkunft der Kleidungsstücke.

☐ Weil ich der Meinung war ich müsste bestimmte Kleidungsstücke kaufen um zu gewinnen.

☐ Ich habe im ersten Geschäft das ich gefunden habe eingekauft.

☐ Sonstiges: [   ]

Versuchen Sie sich bitte so gut wie möglich zu erinnern.

---

32 [L8]Meine Motivation Kleidungsstücke zu kaufen hat sich nach öfterem spielen geändert. *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle nur eine der folgenden Antworten aus:

◯ Ja

◯ Nein

33 [L9]Beim letzten mal spielen war meine Motivation bestimmte Kleidungsstücke zu kaufen folgende: *

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y") and (**L8.NAOK** == "Y"))

Bitte wähle alle Punkte aus, die zutreffen:

☐ Ich wollte ein anderes Ende sehen.

☐ Ich dachte das Spiel würde den Einkauf verlangen um zu einem positiven Abschluss zu kommen.

☐ Gefallen des Kleidungsstücks.

☐ Es waren die einzigen Kleidungsstücke die ich noch nicht gekauft hatte.

☐ Sonstiges:

34 [L10]

Zu dem folgenden Kleidungsstück treffen untenstehende Aussagen zu/nicht zu:

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle die zutreffende Antwort aus:

	Ja	Nein
Ich kann mich daran erinnern dieses Kleidungsstück gesehen zu haben.	○	○
Ich habe dieses Kleidungsstück gekauft.	○	○
Es ist ein fair gehandeltes Kleidungsstück.	○	○
Zu diesem Kleidungsstück gab es Informationen zur Herkunft oder Herstellung.	○	○

35 [L11]

Die folgenden Fragen beziehen sich auf die Auswirkungen des Spiels.

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle die zutreffende Antwort aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Ich habe mir während des Spielens oder danach Gedanken darüber gemacht wo meine eigene Kleidung herkommt.	O	O	O	O	O
Durch das Spiel werde ich mich in Zukunft genauer über die Herkunft meiner Kleidung informieren.	O	O	O	O	O
Ich habe mich bisher nicht dafür interessiert wo meine Kleidung produziert wird.	O	O	O	O	O

36 [L12]

Vermutliches zukünftiges Einkaufsverhalten

*

Beantworte diese Frage nur, wenn folgende Bedingungen erfüllt sind:
° ((**SV1.NAOK** == "Y"))

Bitte wähle die zutreffende Antwort aus:

	trifft zu	trifft eher zu	teils/teils	trifft weniger zu	trifft gar nicht zu
Durch das Spiel werde ich in Zukunft eher fair gehandelte Kleidung kaufen.	O	O	O	O	O
Durch das Spiel werde ich vor allem auf Design von Kleidungsstücken achten.	O	O	O	O	O
Das Spiel hat keine Auswirkungen auf meine zukünftige Entscheidung beim Einkauf von Kleidung.	O	O	O	O	O

Vielen Dank für Ihre Teilnahme!

Für Fragen und Anmerkungen stehe ich Ihnen gerne unter cornelia.amon@gmail.com zur Verfügung.

Wenn Sie das Spiel noch einmal ohne Fragebogen spielen möchten hier der Link:

http://www.unet.univie.ac.at/~a0602475/

01.01.1970 – 01:00

Absenden der Umfrage.
Vielen Dank für die Beantwortung des Fragebogens.