Master Thesis in Science Communication

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Middle Ages Dead or Alive
An Evaluation of the first interactive exhibition at the National Museum of History
MEDELTID – DEAD OR LAJV?

HISTORISKA MUSEET
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Abstract

This is a study conducted at, and for, the National Museum of History in Stockholm. The aim of the study was to confirm or disconfirm the hypothesis that visitors in a traditional museum environment might not take part in interactivity in an interactive exhibition. And if they do the visitors might skip the texts and objects on display. To answer this and other questions a multiple method was used. Both non participant observations and exit interviews were conducted. After a description of the interactive exhibits, theory of knowledge and learning is presented before the gathered data is presented. All together 443 visitors were observed. In the observations the visitors were timed on how much time they spent in the room, the time spent on the interactivity, texts and objects. In the 40 interviews information about visitors’ participation in the interactivity was gathered. What interactivity the visitor found easiest, hardest, funniest and most boring.

The result did not confirm the hypothesis. All kinds of visitors, children and adults, participated in the interactivities. The visitors took part in the texts and objects and the interactive exhibits.

Keywords: observations, interviews, interactivity, theories of knowledge and learning, indications of learning, epistemology, qualitative, quantitative, evaluation, traditional museum environment, attraction power, holding power, engagement
1. Introduction

This study took place at the National Museum of History in Stockholm, Sweden. In May – August 2004 the museum displayed their first exhibition with interactive exhibits. The exhibition was the temporary summer exhibition and it aimed to show images of the medieval era from different times/interpretations.

The reason to why the National Museum of History was chosen for this study was because the author wanted to see how interactivity can be used in a traditional museum. Interactive exhibits are often used to help explain and give knowledge about scientific and abstract topics. A lot of studies have been made in science centres and planetariums that show interactive exhibits efficiency and how visitors, above all children, gain a greater understanding of these so often difficult topics. But not so many traditional museums, at least in Sweden, seem to have acknowledged interactivity as a way to supply knowledge. Can an interactive exhibition increase interest and knowledge for history if the children are allowed to “feel” the history?

1.1 Aim

The National Museum of History is a traditional museum. Most of the museums smaller exhibitions are temporary but the larger ones are permanent. As in all traditional museums the visitors are to stroll through the museum looking at objects and reading labels. In this environment one would, as an experienced museum visitor, not expect to be allowed to touch and play with objects in the exhibition. As the medieval summer exhibition was being constructed the hypothesis arose as to if the visitors actually would dare to interact with the exhibition. Considering the environment and that this exhibition only took up a small place in the museum where the rest of the exhibitions was as usual “hands-off”. Because of this the museum wished that this study would confirm or reject this hypothesis. The museum wanted to know if visitors interacted with the exhibition and if all kinds of visitors “dared” to interact.

Therefore the aims of this study are to:

- Find out what kind of exhibition, from George E Hein’s theories of knowledge and learning, this was and which epistemology was used to give the visitors that knowledge.
- Show if the visitors actually used the interactive exhibits in the exhibition (or would they be afraid to touch exhibits in a traditional museum?), and what kind of visitors who used them.
- The study is also to show if objects and texts where neglected by visitors due to the interactive parts or vice versa.
- Did the visitor “use” the exhibition as intended? As the exhibition was constructed so that some interactivities were easier if the visitor read the texts and observed the objects.
- Did the visitors show behaviour that according to established theories indicates that learning can take place?
1.2 Acknowledgement

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2. Method

This is a quantitative and qualitative study. To reach the aims of the study, a multiple method was used. As Hein (2003:132) states a multiple method is often used when aiming for more thorough study results and more insights. As this study is aiming for both quantitative and qualitative results the multiple methods of both interviews and observations is used.

In this study data was collected, as just mentioned, by observations and exit interviews. The study is based on two in beforehand made forms. One for observations and one for interviews (see appendix) In order to confirm or reject the hypothesis, that visitors might be intimidated by the traditional museum environment and not interact with the exhibition and to reach the other aims, these questions had to be answered:

- What in the room has the highest attraction power/what does the visitor go up to first? Is it the texts/labels, interactive exhibit or objects on display?
- What in the room has the longest holding power/what occupies a visitor the longest? Is it the texts/labels, interactive exhibit or objects on display?
- Which room in the exhibition has the longest holding power?
- Which visitors are interacting with the interactive exhibits? Is it children, youths, women or men?
- Which visitors read the texts? Is it children, youths, women or men?
- Which visitors pay attention to the objects on display? Is it children, youths, women or men?
- What kind of interactivity is considered most fun?
- What kind of interactivity is considered less fun/boring?
- Is it the hard or the easy interactivities that are considered fun/boring?

Definitions of what the author means with “kind of interactivity” will be explained later.

2.1 Observations

The visitor observations made in the exhibition are the quantitative approach of this study. A total of 180 observations, 20 per room, were made in the exhibition and in these observations a total of 434 visitors were observed. The observations were non-participant and the observer tried to be as little noticeable as possible. Because of this it was not possible for the observer to observe a visitor through the entire exhibition. The exhibition labyrinth shape did not allow that kind of observations without the observer getting noticed. Therefore the observer
pretended to do other work in the exhibition so that the visitor, if she or he noticed the observer wouldn’t feel observed.

The observations were made following a beforehand made form (see appendix). The observer timed the visitor and what the visitor did during that time. According to the form these questions were to be answered:

- What visitors enter the room?
  Is it children, youths or adults?
- What in the room attracts the visitor first/what does the visitor stop and look at first?
- How much time does the visitor spend in the room?
- How much of that time does the visitor spend on the interactive exhibit?
- How much of that time does the visitor spend on reading the texts?
- How much of that time does the visitor spend on the room/objects?

Visitors that came in group and stayed in group were observed together as one observation. The observer just noted gender, number of children, youths and adults. If the group did split up, the observer followed the person easiest to observe unnoticed. If the rest of the group disappeared from the observers sight they where taken out from the observation.

The observer did not include observations of visitors who only went through the room without looking. Visitors who spent less than 30 seconds in a room did not participate in the observation study. Other than that the observer has not looked for any particular kind of visitor. Any visitors who entered the room, and stayed longer than 30 seconds, were observed.

### 2.2 Interviews

This is the more qualitative approach of the study. The interviews also followed a beforehand made form (see appendix). The interviews were conducted as the visitor left the exhibition, so called exit-interviews. In this part of the study arose the problem of several exit possibilities. The “real” exit was used by visitors who had taken part of the interactive challenges through the exhibition. The other exit was used by those visitors who might not have taken part of the interactive challenges. Explanation to this will be given (in the chapter about the exhibition) in chapter 4.

In order to cover both exits, five summer hosts helped with the interviews. In this way both exits could be covered, one by the author herself and the other by one of the summer hosts. The interview form was designed to answer these questions:

- The gender of the visitor being interviewed and if it is a child, youth or adult?
- Did the visitor do any of the interactive tasks in the exhibition?
  If not, why?
- Did the interactive tasks add something to the exhibition?
- Which task was the easiest?
- Which task was the hardest?
- Which task was most fun?
- Which task was the least fun?
- What does the visitor think will be the strongest memory from the exhibition?
2.2.1 Notice

In the study the interviews has not been used as they first were intended to. The interview form was constructed to be compared with the observation data and see if it had validity and to get an insight of what the visitors thought. However, when most of the interviews were being conducted the interactive task in room 2 was closed due to repairs. The fact that it was closed for repairs and had broken was due to its popularity. This means that the visitors answers of the funniest, hardest, easiest and less funny interactivity and the interview overall does not have the highest possible validity. If the interactivity task in room 2 had not been broken, the author feels confident that a lot of answers would have looked differently. The results of the interviews will be presented and used in the study but not as thorough as the author first intended.
3. Theoretical background

Science centres, planetariums and museums are environments of learning. Most education in the school environment is formal, highly didactic, with predetermined content, a curriculum and controlled by exams and grades. The education in museums, science centres and planetariums are often informal, a by free will and self-directed learning, often unplanned and in a social context, without curriculum, grades and exams.

In this study the author has chosen to lean on George E Hein’s theories of knowledge, learning and teaching. The reason to this is because the author was more interested in putting the first interactive exhibition made by a traditional museum, in a traditional museum environment, in context with theories perhaps more usually used in establishments such as science centres. The author wants to show the museum and the reader which direction this particular exhibition had, according to Hein’s theories, rather than to compare different theories against each other. Since the museum did not have a tradition of evaluations of its own the author did not want this study to be confusing. The reason to why the author specifically chose Hein’s theories was because she was already familiar with them.

In finding theories showing indications of learning taking place the author looked to others, not just Hein, to find material.

3.1 Epistemology

Every museum, science centre and planetarium wants their visitors to learn something. For this to be possible an educational policy has to be used. For museums and other organizations to educate what and how they want they first need an educational theory.

In order to develop an educational theory, three kinds of issues, two theoretical and one more practical, must be addressed: an educational theory requires a theory of knowledge (an epistemology); it requires a theory of learning; and, finally, a theory of teaching.

(Hein 2002: 16)

When talking about these kinds of issues Hein refers to knowledge as – what to we think knowledge is and how is it acquired? Does the museum exhibition show the “real world” or does it present a phenomenon for the visitor to interpret as s/he will?

Epistemological theories can, according to Hein, be classified on a continuum between two extremes. (Hein 2002: 17) With this he means that there are many theories that claim that the “real” world exists out there no matter what ideas and interpretations people makes of it. The classic realistic view is the theory of Plato, who argued that our interpretations of the world are only poor imitations of the real and true world. The story about how the people sit in a
cave studying the world by observing its shadows on the cave wall instead of observing it for real outside in the sunlight is a classical example of the realistic viewpoint.

On the other extreme epistemological viewpoint is idealism. According to this view, knowledge exists only in the minds of people and does not necessarily correspond to anything “out there” in the nature. There can be no ideas, no generalizations, no “laws of nature” except in the minds of people who invent and hold these views. (Hein 2002: 17) The British philosopher George Berkley argued that there would be no sound of a tree falling in the forest if there were no one there to hear it. The sensations of the world depend on human minds for their existence.

The epistemological position is nothing that museum staff has to keep in mind at all time while planning and constructing an exhibit. However either position in the extreme may cause trouble if not properly considered, and any standpoint made should be made clear for the visitor. Is the exhibition portraying the truth or is it presenting several perspectives for the visitor to draw their own conclusions from?

### 3.2 Learning Theory

According to Hein, these theories can also be organized on a continuum between two extremes. On one end of the continuum is the transmission-absorption view of learning: people learn by absorbing information that has been transmitted to them. They do it in small pieces, step-by-step, by adding individual items to their storehouse of information. (Hein 2002: 21) This way of learning is common practice in the formal way of learning in the schools. A teacher transmits knowledge to the pupils, little-by-little, and the pupils absorb the knowledge and store it in their minds.

On the other end of the continuum is the constructivist learning theory: that people construct knowledge. This theory is based on the earlier work of, especially, Piaget and Vygotsky. This theory accentuates the participant mind in the learning process and that the learning process is not a simple addition of items into some sort of mental data bank but a transformation of schemas in which the learner plays an active role and which involves making sense out of a range of phenomena presented to the mind. (Hein 2002: 22)

### 3.3 Theory of Knowledge (epistemology) and Learning Theory

The epistemologies and theories of learning can be compiled for easier targeting the position of educational theories where each theory takes a position on both the epistemology theory and learning theory, simulated is Figure 1. (Hein 2002:25)
The guidelines in figure 1. makes it is easier to see the position for the third of Hein’s necessity for a educational theory, the theory of teaching.

### 3.4 Theory of teaching

The epistemologies and learning theories are important for an educational theory but not enough. When the first two are established a theory of instruction is necessary. Now a plan for how to carry out the educational activities as described by the theory is necessary.

Hein describes four pedagogic approaches: 

- **Expository-didactic education** that focuses on the subject. Teaching something is to analyze it and then to present it. The pedagogic challenge associated with this epistemology is to find the essential structure of the subject, the challenge from the learning theory is to find the individual units that can be most easily learned. (Hein 2002: 37)

  As this pedagogy is placed in the Figure 1.1 it belongs in the top left corner as it has a realistic epistemology and a formal theory of learning.

- **Stimulus-response education** has same challenges in the learning theory as expository-didactic education, but the epistemological challenges are different. Now it is only important that the teacher have a clear idea of what should be learned. (Hein 2002: 37) The focus is on the method, not that what is learned agrees with an external regulation.

  As this pedagogy is placed in the Figure 1.1 it belongs in the lower left corner as it has an idealistic epistemology and a formal theory of learning.

- **Discovery learning** requires an active learning situation in which learners have the opportunity to manipulate, explore and experiment. (Hein 2002: 38) However, if the mind is not participating and the activity does not lead to new ideas and tests beliefs held previously, the activity itself does not lead anywhere. The epistemological challenge is to create a structured learning environment where learners can discover and reach desired conclusions.
As this pedagogy is placed in the Figure 1.1 it belongs in the top right corner as it has a realistic epistemology and an informal theory of learning.

Constructivism has the pedagogic challenges as the Discovery learning pedagogy to find experiences that stimulate and challenges. The differences are in the epistemological challenges as the constructivist epistemology requires an environment where the learner can make connections. The environment needs familiar references for the learner to continue building the new knowledge on. As this pedagogy is placed in the Figure 1.1 it belongs in the lower right corner as it has an idealistic epistemology and an informal theory of learning.

![Figure 1.1](image.png)

3.5 Indications of Learning

A common goal for all staff working in museums is off course to give visitors a new knowledge. An exhibition is designed so that visitors can learn something.

The exhibition “Middle Ages Dead or Live” was, according to Hein’s theory of teaching, a constructivist exhibition. An effort was made to allow the visitors to make associations between the known and the new. Because of the exhibitions set up and environment the visitors could make connections to the familiar. And as Anita Olds (1990) stresses in Hein (2002:158), that a constructivist exhibition should have the visitors had the:

- Freedom of movement – the visitors were free to move as they pleased. The exhibition did not acquire a linear walk round to make sense. Signs told the visitor where they were so that visitors wouldn’t feel lost.
- Comfort – a comfortable environment with places to sit. Some text where even possible to bring with you to a couch if the visitor wanted to sit down while reading it.
• Competence – The new information was mixed with the familiar so that the visitor could make comparisons. Instead of just delivering new information the exhibition used familiar things to help explain the new. Example: comparing the lives of the medieval people with the chessboard or using the Disney paintings as a description of the western popular culture of the medieval princess.

• Control – the exhibition was made so that not all objects and texts were on the walls leaving an empty space in the middle of the room. This meant that the visitors did not have to stand with their back to an open space. As mentioned earlier a few of the longer texts could be moved and the visitor could bring it with if s/he wanted to read it somewhere else.

The list of factors that make an exhibition to a constructivist exhibition can be increased but the reason to why the author points this out is because of the contradictory constructivist viewpoint of finding indicators of learning taking place. To measure learning in museum visitors are very difficult and it also goes against the constructivist paradigm, which means that learning is an act of development, where new knowledge is constructed based on the old. This paradigm conflicts with the idea that learning outcomes are measurable. (Griffin, 1999: 110)

Our constructions of life are conditioned by our experiences and this means that – since we all have different experiences – we are all likely to have different perceptions about ideas, actions, behaviours, incidents, situations, tasks, feelings and so on. (Bentley and Watts, 1994: 8)

With this in mind it is not what visitors learn when visiting the museum that comes in focus, but how they learn. What visitors learn can not be revealed through a formal test like one would use in the school environment. To determine if learning is assessed it is necessary to look on the very nature of learning in the informal environment such as the exhibition where this study took place. Much of the indicators pointing at the possibility that learning is taking place are to observe and gather information from the visitors’ behaviour in the learning environment/the exhibition. Museums are informal learning settings where learning is intrinsically motivated and proceeds through curiosity, observation and activity. (Ramsey-Gassert et al. 1994)

Other indicators of learning presented by Perry (1992) include these six factors:

• **Curiosity** – The visitor is surprised and intrigued.

• **Confidence** – The visitor has a sense of competence.

• **Challenge** – The visitor perceives that there is something to work towards.

• **Control** – The visitor has a sense of self-determination and control.

• **Play** – The visitor engages in meaningful social interaction.

(Perry 1992:9)

For the visitor to even be able to show some of these indicators the visitor first of all have to spend time in the exhibition. There must be something that catches the visitor’s attention and awakes some curiosity and it has to be interesting enough for keeping the attention of the visitor for some time. If not the visitor will just walk through and not stop and read, look and interact with the exhibits hence not learn anything.
People learn in museums but to present empirical evidence for this is not so easy since the informal learning in museum is difficult to measure, grade and test. The empirical evidence that most easily can be presented is the theories of visitor’s behaviour that might indicate to learning. According to Hornung (1987) visitors can be introduced to the process of learning through observation, experimentation and deductive reasoning. (Boisvert and Slez 1994: 138)

In Boisvert and Slez (1994) Wolf (1985) noted how important the visitor’s engagements with the exhibits are and according to him this is the key component in the visitors learning process. Visitors engagement is defined as paying attention to the exhibit by looking at it, reading accompanying labels/directions, and touching and manipulating the exhibit. (Boisvert and Slez 1994: 138)

In the best museums, learning is multisensory, and the exhibits support many learning styles and abilities. (Semper 1990: 5) By this Semper refers to how exhibits should be visually exciting as well as having an explaining text. The exhibits can touch all senses by sounds, smells, and encouraging touching. Words, images, sounds and music may all help connect with many different learning modes that people have. Howard Gardner has pointed out in his book **Frames of Mind** (1985) that people learn in a multiplicity of ways. In his book he presents different ways one might categorize these multiplicity ways into eight different intelligences.

Even though this might have been an interesting approach for this study, the author has not compared Gardners theory against the results of the data collected in this study. But with Gardners theory in mind the author her self has categorized the different interactive exhibits into three different kind of difficulty level; from less difficult to most difficult. This was made to see if there is a difference between what level of difficulty children versus adults prefer and find most fun. And without explaining the theory of Gardner the author can stress out that the exhibits levelled as more difficult required more attention and knowledge from the visitor then the less difficult exhibits.

### 3.6 Learning power through attraction power, holding power

Some of the most enduring findings in the early behavioural research conducted in the early 1900’s were the definitions of attraction power and holding power, first defined by Robinson (1928). Since then several definitions of these two terms has been made. In *Science Center: Forum för lärande* Aadu Ott describes attraction power and holding power. When translated to English Aadu Ott’s description is:

> A display case is only given a few seconds in attracting a strolling visitor’s interest. In technical terminology it is called attraction power in the context. Attraction to a certain display case does also mean that the aesthetic, the unpredictable and the artistic notice exposed by a display case to be important…

Once a visitor has stopped by a display case it is important that he or she does not immediately run of to the next display case. In technical terminology this is called holding power. A high demand is made on a display case to succeed in keeping a visitors interest. The display case has to fascinate the visitor for as long as needed for the visitor to through interaction be able to grasp the message intended or to
exercise the purposed skills. In technical terminology one refer to this as learning power to emphasise the learning that might occur if the visitor is attracted to the display case and stays long enough to investigate what the display case has to offer. (Ott 2011:25)

There are other definitions to what attraction power and holding power stands for.

Attraction is the ability of an exhibit to grasp the attention of a museum visitor. Holding power is the ability of an exhibit to retain the visitor’s attention. Visitor engagement is the observed degree to which the visitor pays intention to the exhibit. (Boisvert and Slez 1994:145)

The Author was inspired by these two terms and how they could be used in this study. But since the observer wanted to be as unnoticeable as possible during the observations the terms attraction power and holding power were used in a much more simplified way, not very unlike the definitions given by Ott (2000) and Boisvert and Slez (1994).

The author has used these definitions in the study:

**Attraction power** – what exhibit in the room attracted/grasped the visitor first? What did the visitor go up to first?

**Holding power** – At what exhibit, in the room, did the visitor spend most time?

These definitions mean that the exhibit that attracted the visitor first does not have to be where the visitor spent most time. Since the observer timed the visitor’s entire time spent in the room, also looking at how much of that time the visitor spent at the interactive exhibit, the texts and the object exhibits, the time (holding power) was to show the level of visitor engagement to the exhibits in the room.

There is evidence that might support the relationship between learning and attraction, holding power and visitor engagement. Falk (1983) found significant relationship between holding power, engagement and visitor learning. Visitors who had spent more time with the exhibits scored much higher points on a post-test then on a pre-test given to them at arrival to the museum. Those visitors, who also engaged with the exhibits by reading labels and used them as intended, scored even higher in the post-test. In Boisvert and Slez (1994: 139) results from the study at the Living Land-Living Sea Gallery in the British Colombia Provincial Museum, made by Peart (1984), is presented. The study showed that visitors who observed an exhibit but did not interact or read accompanying texts did not show any difference in gain of knowledge when compared with a control group who had not seen the exhibit. In contrast did visitors who engaged with the exhibit, such as interact and read texts, show a significant gain of knowledge when compared with the control group.

Due to the simplification of the two terms (attraction power and holding power) the author does not try to use the data in order to show any evidence between learning and attraction and holding power outside theories presented in the study. The data collected through studying attraction power and holding power in this study is to present what attracted the eye of the visitor when entering the room, and what in the room captivated the visitor to stay the longest time. This is not to show that the visitor learned anything during that time. The data collected is only to show, by using indication of learning theories, the possibility of the visitors learning through their engagement with the exhibition, and the way to do so was to observe what the visitors were attracted to and where they spent their time.
4. The exhibition

As the author was working on this study she read other studies done in science centres and museums. Many times the data in these studies were incomprehensible since the reader was not informed about the environment the study was conducted in. When presenting data collected in an exhibition it is, according to the author, many times easier for the reader to understand the results if the reader has also been introduced to the environment where the study took place.

In this chapter follows a short description of the medieval exhibition and in particular the interactive exhibits. For more information and images see appendix.

4.1 The theme of the exhibition

In the autumn of 2003 the unit of SHMul (National Museum of History development and learning) decided that it was time for a new temporary exhibition about the middle ages. The exhibition was planned to be the temporary summer exhibition for 2004 and appointed producer for this exhibition was Karl-Olof Cederberg. Different ideas were discussed before it was decided to present the medieval based on the images people have and have had of that era today and before.

In the western popular culture of today the Middle Ages is presented as a time with fairy princesses, handsome knights, brave heroes, evil magicians and grand castles. The medieval reality was nothing like this but even during the medieval, images of brave heroes and fairy princesses existed. Looking back a hundred years in the Swedish history the images of the middle ages had the same stereotypes but the nationalism during this time made the stereotypes look a bit different. In the exhibition three themes/stereotypes are presented and each of these themes is shown from the perspective of three different eras in history. The three eras are:

- From today, the image presented by the western popular culture
- From about a hundred years ago, when the Swedish nationalism flourished
- From the middle ages

The three different themes/stereotypes through the exhibition are:

- The image of a hero and the enemy the hero has to conquer
- The people, the life of the every day man
- The beloved, the reason to why the hero is fighting

As the visitor goes through the exhibition he or she will see these different themes/stereotypes from three different perspectives/images. The exhibition does not instruct the visitor as to “look what twisted image we have of the medieval people today”. The exhibition just tries to show the visitor the similarity of these images, how the same theme/stereotype has existed since the middle ages but how the images have changed.
4.2 The environment

The exhibition is built as if the visitor enters a castle. In the castle there are nine rooms. In the first room is an altar where the visitor finds a fill out form (see appendix.) This form tells of the evil magician who has stolen the castle treasure. He has hidden the treasure in the chamber of secrets.

The visitor finds the treasure if he or she can answer the clues and riddles that the Magician has left behind in the castle. There is one clue or riddle in each room. At the end of the exhibition the visitor will find the locked door to the chamber of secrets. If the nine riddles and clues are answered correctly the visitor will know which key will open the door.

The door to the chambers of secrets is the door leading to the question mark on the map to the right. The other door leads to the stairs and was open due to safety and for visitors who needed to use the elevator. This was the problem when conducting the interviews, as mentioned earlier.

Each room has one interactive exhibit. All of these are the clues and riddles left behind by the sneaky magician. Each and every one of these has a label that is named “The magicians first challenge” “The magicians second challenge” “The magicians third….”, and so on. This meant that the visitors knew which challenge they had done but it was not necessary to do them in numerical order. If one of the exhibits was occupied the visitor could skip that and come back later.

The “Magicians challenge” labels also had a different look from the rest of the labels in the rooms. The interactive/magician labels were black with white text. This was for the visitors to easy identify the interactive exhibit when entering a new room.

Apart from the magicians challenges there were other interactive parts of the exhibition. In the first room, next to the altar, there were a clothes rack with contemporary medieval clothes and
fairy tales clothes for the children to wear during their visit in the exhibition. The children could dress them selves up to be perhaps a knight, a king or a princess.

In the last room, when all the riddles and clues have been answered, the visitor had to open the door to the chamber of secrets. There where five different keys to be chosen from, but only one opened the door. If the visitor had answered the riddles and clues correctly, s/he would now have a symbol that would tell which key to use.

The magician’s challenges are connected to what the exhibition is presenting and many of the riddles and clues are easier to solve if the visitor has taken part of the objects and texts in the room. Since the visitors couldn’t be allowed to touch and play with the actual historical objects, this was the way chosen to give the objects on display and the texts some connection to the interactive exhibits and vice versa. The decision that the exhibition would contain interactive exhibits was made deliberately by the producer, Karl-Olof Cederberg, since otherwise the theme of the exhibition might be to abstract and hard to grasp.

**4.3 The interactive exhibits**

The first theme, going through the first three rooms in the exhibition, was the image of a hero and the hero’s arch enemy.

**Room 1. The fairy tale armoury**

The image of the medieval hero of the western popular culture is in this room. The last years images presented are for instance Conan The Destroyer (Arnold Schwarzenegger) and Xena The Warrior Princess (Lucy Lawless). Recently the western popular culture has introduced a hero that is handsome, strong and brave. But he is also emotional and gentle with good manners. The main image of a medieval hero produced by the western popular culture today is heroes like Aragorn (Viggo Mortensen from Lord of The Ring).

The western popular cultures image of the hero’s arch enemy is the dragon.

**Interactive exhibit/the magicians challenge**

In the first room the magician has given the first clue to the treasure to the hungry dragon. The visitor is dared to put the hand in the dragon’s mouth and identify the clue. As the visitor puts in the hand the dragon’s eye starts to glow red.

**Room 2. The national armoury**
The image of a medieval hero a hundred years ago was the Swedish soldier, always prepared to die defending king and country. The Danish soldier represented the archenemy.

**Interactive exhibit/the magicians challenge**
In room 2 the magician has placed the archenemy to guard the next clue to the treasure. To see the clue the visitor has to use the sword. When the sword hits the enemy’s heart a light will shine the exhibit in the shape of a symbol – the next clue.

---

**Room 3. The medieval armoury**
The medieval image of a hero was the knights of Christ. The patron saints of the knights were others who had defended Christianity against evil. Like the archangel Michael who drove Lucifer out of heaven and Saint George who defeated the dragon. For the knights of Christ the sword was their crucifix and violence and Christianity often went hand in hand for the medieval heroes.

**Interactive exhibit/the magicians challenge**
In room 3 the magician wonders if the visitor knows what symbol represented the knights of Christ during the medieval. This question is easier to answer if the visitor has read the texts in the room. The symbols that the visitor gets to choose from are a dove, a hart and a sword. The visitor can’t see the symbols until s/he puts in their hand and let the light shine on it.

---

The second theme going through room 4, 5 and 6 was the image of people’s lives during the medieval.

**Room 4. The great hall of the fairy tale**
In this room the image of the medieval people’s lives according to the western popular culture is presented. According to this image the people lived in grand castles and they had big celebrations all the time. To illustrate this, the room contains a table full of food. The knights and heroes are returning after a successful battle.

**Interactive exhibit/the magicians challenge**
In room 4 the table is set for party, but the magician has let in an uninvited guest. Above the table is a projector that changes image every 10, or something, seconds. On one of the images the uninvited guest appears.

**Room 5. The national living room**
The people’s lives during the middle ages according to the image of a hundred years ago aren’t quite as festive as the room before. In the early 1900’s the Swedish welfare state emerged and schoolbooks and museums started to present the medieval peasant family lives in an idyllic way. The images in the room are collected from contemporary schoolbooks, showing happy, healthy working men and women and playing children.

**Interactive exhibit/the magicians challenge**
In room 5 the magician requests the visitor to sit down and rest. To sit down and look at the fire can be very relaxing. The magician has lit the fire, but why? Is he trying to hide something? Behind the fire is the next clue.

**Room 6. The medieval living room**
The medieval image of the people’s lives can be compared with a chessboard. The feudalistic society worked in the same way. The knight = defends, the bishop = prays, the pawn = works. The king has limited freedom of movement but everybody works together for his ultimate defence. However, a chessboard is never static and always demands changes. History tells us how the people during the medieval seem to have had an idea about the unpredictability of
life. The chessboard/life can fall apart and the knight can end up horseless, the pawn might eat the horse and in the middle the bishop prays in vain.

**Interactive exhibit/the magicians challenge**
In room six the magician has left a chessboard with an ongoing game for the visitor. The magician wonders which move is the winning move. On each side of the chessboard there are options of moves for the visitor to choose from. As the visitor chooses one s/he pushes the button and the next clue will show itself. Right answer and the clue appear – wrong answer and death will appear.

In the three last rooms the theme is the beloved. In this case the beloved means – the reason why the hero fights, the reward he is hoping for.

**Room 7. The princess’s chamber of fairy tale**
According to the western culture image the thing that makes the hero throw himself into the fight is the fairy princess. The love for the princess makes the hero defy any dragons and enemies. To illustrate this, the room is filled with the classical princesses of Disney. Paintings of Snow white, Cinderella, Sleeping beauty and other princesses hangs on the wall.

**Interactive exhibit/the magicians challenge**
In room 7 the magician has left a picture frame and the painting of a heart. The visitor is to use the frame and find a numeral. The numeral tells the visitor which Disney painting to go to. Every painting has a clue but only the one with the right numeral has the correct clue.

**Room 8. The national coronation room**
The image of the beloved a hundred years ago was the king. A hundred years ago the king was the father of the nation and therefore presented as the reason to why heroes fought and challenged their enemies.
**Interactive exhibit/the magicians challenge**

In room 8 the magician has left a painting with six Swedish regents from the medieval era. If the visitor knows in which order these regents ruled, and connects the rope in that order the next clue will appear. This challenge will be a little easier if the visitor has read the texts in the room.

**Room 9. The medieval centre of power**

The medieval image of the beloved is God. God controlled the medieval world and man. The hero fought for God and his words. During the medieval, many revelations occurred. In this room there are some texts from the Revelations of St. Bridget and Bernhard Clairvoux.

**Interactive exhibit/the magicians challenge**

In room 9 the visitor gets to be God for a minute. By operating the computer screen the visitor can let the voice of God be heard in the entire exhibition. The visitor can also start lightning’s flash in the exhibition. The magician does however warn the visitor from letting the power lead into pride and arrogance. If the visitor isn’t careful and looks up towards heaven s/he might miss the next clue, the all seeing eye of God.
5. Collected observation-data

All data presented in this study has been processed in Excel. Any percentage presented has been rounded off to the closest integer, for example 16.8 % is presented as 17% and so on. All timing done in the observations was, during the observations, rounded off to the closest half minute, for example 1 minute and 23 seconds was recorded as 1½ minute.

When the author talks about the “different visitor groups” she refers to children age 1-12, youths age 13-19 and adult women and men. Since the ages of the observed visitors had to be estimated by the observer some inaccuracy might be present. The reason to why the author decided to divide the visitors into these three age groups was because of the difficulty the author had to estimate the age of children between 9-12 years old. Therefore it was easier to set the age so that all visitors that looked to be under 13 years old ended up in the children group. The age 13-19 for the youth group was decided, by the author, because of the school groups. If it was a school group they would probably not be over 18 years old, even if they looked to be.

5.1 Number of observations

<table>
<thead>
<tr>
<th>Room 1-9</th>
<th>Men</th>
<th>Women</th>
<th>Youth</th>
<th>Children</th>
<th>visitors observed in each room</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fairy tale armoury</td>
<td>10</td>
<td>19</td>
<td>4</td>
<td>21</td>
<td>= 54</td>
</tr>
<tr>
<td>The national armoury</td>
<td>17</td>
<td>12</td>
<td>0</td>
<td>14</td>
<td>= 43</td>
</tr>
<tr>
<td>The medieval armoury</td>
<td>13</td>
<td>18</td>
<td>2</td>
<td>18</td>
<td>= 51</td>
</tr>
<tr>
<td>The great hall of fairy tale</td>
<td>9</td>
<td>14</td>
<td>3</td>
<td>19</td>
<td>= 45</td>
</tr>
<tr>
<td>The national living room</td>
<td>13</td>
<td>20</td>
<td>2</td>
<td>25</td>
<td>= 60</td>
</tr>
<tr>
<td>The medieval living room</td>
<td>12</td>
<td>19</td>
<td>1</td>
<td>20</td>
<td>= 52</td>
</tr>
<tr>
<td>The princess’s chamber of fairy tale</td>
<td>8</td>
<td>17</td>
<td>6</td>
<td>14</td>
<td>= 45</td>
</tr>
<tr>
<td>The national coronation room</td>
<td>19</td>
<td>16</td>
<td>7</td>
<td>11</td>
<td>= 53</td>
</tr>
<tr>
<td>The medieval centre of power</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>11</td>
<td>= 40</td>
</tr>
<tr>
<td><strong>Totally 111 men</strong></td>
<td><strong>Totally 145 women</strong></td>
<td><strong>Totally 34 youth</strong></td>
<td><strong>Totally 153 children</strong></td>
<td><strong>= 443 observed visitors</strong></td>
<td></td>
</tr>
</tbody>
</table>
5.2 Time spent in the room and how the time was spent

According to the table above the average visitor spent 6 ½ minutes in room 1.

Together the 54 observed visitors spent 339 ½ minutes (5 hours and 39 ½ minutes) in room 1, the fairy tale armoury. The 339 ½ minutes was spent on:

- The interactive exhibit  – 39 ½ minutes
- Reading labels  – 19 ½ minutes
- The room/objects  – 14 minutes

= 73 minutes

The remaining 266 ½ minutes was spent on trying clothes that children could borrow and wear during their visit in the exhibition. The clothes were both fairy tale clothes and medieval inspired clothes. The children could for instance dress themselves up as a princess, king, knight, peasant or blacksmith.

Even though this, trying out clothes, is an interactive activity the time presented as “time spent on interactive exhibit” does only refer to the time visitors spent with the interactive exhibits - the magician’s challenges.

Of the 54 visitors who did spend this time with the interactive exhibit, read labels, observe the room and its objects and tried clothes, the participating percentage was:
As the table above shows, the observed youths in this room only spent time trying on the fairy tale clothes.

According to the table above the average visitor spent 2 ½ minutes in room 2.

Together the 43 observed visitors spent 106 ½ minutes (1 hour and 46 ½ minutes) in room 2, the national armoury. The 106 ½ minutes was spent on:

- The interactive exhibit - 27 minutes
- Reading labels - 31 minutes
- The room/objects - 48 ½ minutes

= 106 ½ minutes

Off the 43 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects the participating percentage was:
According to the table the average visitor spent 2 minutes in room 3.

Together the 51 observed visitors spent 101 minutes (1 hour and 41 minutes) in room 3, the medieval armoury. The 101 minutes was spent on:

- The interactive exhibit - 50 minutes
- Reading labels - 29 ½ minutes
- The room/objects - 21 ½ minutes

= 101 minutes

Off the 51 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (18)*</th>
<th>Youth (2)*</th>
<th>Women (18)*</th>
<th>Men (13)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interactive exhibit</strong></td>
<td>100%</td>
<td>100%</td>
<td>61%</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Reading labels</strong></td>
<td>22%</td>
<td>0%</td>
<td>50%</td>
<td>77%</td>
</tr>
<tr>
<td><strong>The room/objects</strong></td>
<td>50%</td>
<td>0%</td>
<td>44%</td>
<td>23%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 2 minutes in room 4.

Together the 46 observed visitors spent 96 ½ minutes (1 hour and 36 ½ minutes) in room 4, the great hall of the fairy tale. The 96 ½ minutes was spent on:

- The interactive exhibit - 35 minutes
- Reading labels - 29 minutes
- The room/objects - 32 ½ minutes

= 96 ½ minutes

Off the 46 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (19)*</th>
<th>Youth (3)*</th>
<th>Women (14)*</th>
<th>Men (19)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive exhibit</td>
<td>58%</td>
<td>100%</td>
<td>29%</td>
<td>5%</td>
</tr>
<tr>
<td>Reading labels</td>
<td>32%</td>
<td>0%</td>
<td>93%</td>
<td>21%</td>
</tr>
<tr>
<td>The room/objects</td>
<td>79%</td>
<td>67%</td>
<td>86%</td>
<td>37%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 2 minutes in room 5.

Together the 60 observed visitors spent 111 ½ minutes (1 hour and 51 ½ minutes) in room 5, the national living room. The 111 ½ minutes was spent on:

- The interactive exhibit - 36 minutes
- Reading labels - 6 ½ minutes
- The room/objects - 69 minutes

\[ \text{= 111 ½ minutes} \]

Many of the 69 minutes spent on the room occurred because in this room the visitors had the possibility to sit down. 25 of the 60 visitors observed in this room, spent the time in the room sitting down.

Off the 60 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (25)*</th>
<th>Youth (2)*</th>
<th>Women (20)*</th>
<th>Men (13)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive exhibit</td>
<td>76%</td>
<td>100%</td>
<td>70%</td>
<td>23%</td>
</tr>
<tr>
<td>Reading labels</td>
<td>12%</td>
<td>0%</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>The room/objects</td>
<td>80%</td>
<td>50%</td>
<td>70%</td>
<td>85%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 3 minutes in room 6.

Together the 52 observed visitors spent 156 minutes (2 hours and 36 minutes) in room 6, the medieval living room. The 156 minutes was spent on:

- The interactive exhibit - 119 minutes
- Reading labels - 21 ½ minutes
- The room/objects - 15 ½ minutes

\[
\text{Total} = 119 + 21.5 + 15.5 = 156 \text{ minutes}
\]

Off the 60 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (20)*</th>
<th>Youth (1)*</th>
<th>Women (19)*</th>
<th>Men (12)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive exhibit</td>
<td>85%</td>
<td>100%</td>
<td>89%</td>
<td>42%</td>
</tr>
<tr>
<td>Reading labels</td>
<td>15%</td>
<td>0%</td>
<td>37%</td>
<td>42%</td>
</tr>
<tr>
<td>The room/objects</td>
<td>35%</td>
<td>100%</td>
<td>47%</td>
<td>67%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 2 minutes in room 7.

Together the 45 observed visitors spent 88 ½ minutes (1 hour and 28 ½ minutes) in room 7, the princess’s chamber of fairy tale. The 88 ½ minutes was spent on:

- The interactive exhibit - 50 ½ minutes
- Reading labels - 7 ½ minutes
- The room/objects - 30 ½ minutes

= 88 ½ minutes

Off the 45 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (14)*</th>
<th>Youth (6)*</th>
<th>Women (17)*</th>
<th>Men (8)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interactive exhibit</strong></td>
<td>93%</td>
<td>100%</td>
<td>53%</td>
<td>38%</td>
</tr>
<tr>
<td><strong>Reading labels</strong></td>
<td>0%</td>
<td>34%</td>
<td>18%</td>
<td>38%</td>
</tr>
<tr>
<td><strong>The room/objects</strong></td>
<td>71%</td>
<td>67%</td>
<td>88%</td>
<td>100%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 2 ½ minutes in room 8.

Together the 53 observed visitors spent 135 ½ minutes (2 hours and 15 ½ minutes) in room 8, the national coronation room. The 135 ½ minutes was spent on:

- The interactive exhibit - 119 minutes
- Reading labels - 8 minutes
- The room/objects - 8 ½ minutes

= 135 ½ minutes

Off the 53 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (11)*</th>
<th>Youth (7)*</th>
<th>Women (16)*</th>
<th>Men (19)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive exhibit</td>
<td>73%</td>
<td>100%</td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>Reading labels</td>
<td>0%</td>
<td>57%</td>
<td>6%</td>
<td>21%</td>
</tr>
<tr>
<td>The room/objects</td>
<td>27%</td>
<td>29%</td>
<td>19%</td>
<td>32%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
According to the table above the average visitor spent 2 ½ minutes in room 9.

Together the 40 observed visitors spent 97 minutes (1 hour and 37 minutes) in room 9, the medieval centre of power. The 97 minutes was spent on:

The interactive exhibit - 52 ½ minutes
Reading labels - 15 minutes
The room/objects - 4 minutes

= 71 ½ minutes

The remaining 25 ½ minutes the visitors spent on finding the right key to unlock the door to the chamber of secrets. At this stage, if the visitor has done all the interactive exhibits/magicians challenges, the visitor should have the answer to how to unlock the door leading them to the treasure.

Off the 40 visitors who did spend this time with the interactive exhibit, read labels and observe the room and its objects, the participating percentage was:

<table>
<thead>
<tr>
<th></th>
<th>Children (11)*</th>
<th>Youth (9)*</th>
<th>Women (10)*</th>
<th>Men (10)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive exhibit</td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Reading labels</td>
<td>0%</td>
<td>67%</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>The room/objects</td>
<td>36%</td>
<td>0%</td>
<td>10%</td>
<td>30%</td>
</tr>
</tbody>
</table>

* = Total number of observed children, youth, women and men in the room.
5.3 Attraction power

Most of the items that attracted the visitors can be seen in the appendix, where photos of some of the items and their locations in the rooms are presented. As explained earlier the attraction power measured in this study is according to the definition: What exhibit/item attracts the visitor first? What exhibit/item does the visitor go up to first? The items presented in the following tables are not the only items presented in the rooms. In most rooms only a handful different items attracted the visitors. So even if only four, five or six items are represented in the tables there were several other items in the room but they never attracted a visitor at first sight.

In the first room, *the fairy tale armoury*, the visitors were attracted to six different items.

1. The introduction text by the entrance
2. The clothes rack with the fairy tale- and medieval clothes for the children to wear during the visit.
3. A painting of Aragorn, from Lord of The Ring trilogy.
4. The altar where the visitor could find the form left by the magician. This form helped the visitor in the search for clues and answers.
5. A dragon skull.

### The number of visitors attracted to the six different items in room 1.

![Bar chart showing the number of visitors attracted to each item, differentiated by age group: Children, Youth, Women, Men.](chart.png)
Even in the second room, the national armoury, the visitors were attracted to six different items.

1. The interactive exhibit/the magicians challenge.
2. The display case containing remains from the battle *Korsbetningen*, a battle between the Danish and the Swedes at the ring wall of Visby, Gotland.
3. The display case containing a helmet called *Aranäshjälmen*.
4. The painting that depicts Visby under Danish siege.
5. The display case containing a contemporary book about the knight Arn written by the Swedish author Jan Guillou.
6. The statue of Saint George and the dragon.

![The number of visitors attracted to the six different items in room 2.](attachment:image.png)

In room number 3, the medieval armoury, there were also six different items that attracted the visitors the most.

1. The interactive exhibit/the magicians challenge.
2. The display case containing a vertebra from an unknown animal. In this case the reference is made to that this might be how a vertebra from a dragon would look like.
3. The display case containing a sword.
4. The statue of Saint Michael.
5. The display case containing a *doppsko* (a small piece of metal on the sword sheath which prevents the sword edge to go through the sheath.)
6. Introduction text at the room entrance.
In room 4, *the great hall of the fairy tale*, there were four different items that attracted the visitors attention.

1. The black and white label explaining what clue the magician has left in the room.
2. The table in the middle of the room. This was actually the interactive exhibit but the main reason why many visitors were attracted by it was because it shifted colour every 10 second.
3. The text explaining about the upcoming medieval *lajv* (role-play) in connection to the exhibition.
4. The walls in this room where mirrors and this attracted a lot of visitor’s attention.
In room 5, *the national living room*, there was three different items that caught the visitor’s attention.

1. The interactive exhibit/the magicians challenge.
2. The stuffed goat at the room entrance.
3. The introduction text at the room entrance.

![The number of visitors attracted to the three different items in room 5.](chart1)

In room six, *the medieval living room*, there were six different items that attracted the visitors most.

1. The interactive exhibit/the magicians challenge.
2. The display case containing a spur.
3. The introduction text at the room entrance.
4. A text about the unsafe life during the medieval.
5. A text about the *Gudhem* monastery.
6. A text about a famous ruin.

![The number of visitors attracted to the six different items in room 6.](chart2)
In room 7, *the princess’s chamber of fairy tale*, the visitors were attracted to six different items.

1. The photos from medieval role-plays. Since the museum was organizing a medieval role play in connection to the exhibition, photos of how it might look at a role-play were on display.
2. The interactive exhibit/the magicians challenge.
3. The display case containing a fairy tale princess dress.
4. The display case containing a red apple in reference to the Disney painting of Snow-white hanging above it.
5. The display case containing a fairy tale princess crown.
6. The display case containing a fairy tale crown.

The number of visitors attracted to the six different items in room 7.
In room 8, the national coronation room, there were four different items that attracted the visitors.

1. The interactive exhibit/the magicians challenge.
2. The chest made of stone.
3. The painting depicting a knight and a maid.
4. The introduction text.

The number of visitors attracted to the four different items in room 8.

In room 9, the medieval centre of power, there were four different items that attracted the visitors the most.

1. The interactive exhibit/the magicians challenge.
2. A revelation of Bernhard Clairvoux.
3. The locked door leading to the chamber of secrets. This is where the visitor found out if s/he had answered all the magicians challenge correctly or not.
4. The display case containing a key.

The number of visitors attracted to the four different items in room 9.
6. Collected interview-data

A total of 41 visitors were interviewed.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>18</td>
</tr>
<tr>
<td>Youth</td>
<td>8</td>
</tr>
<tr>
<td>Women</td>
<td>7</td>
</tr>
<tr>
<td>Men</td>
<td>8</td>
</tr>
</tbody>
</table>

Totally: 41

When the interview form was created the author planned to interview more visitors than 41. Due to different difficulties the author only managed 41 interviews. The author saw however no reason to why this data should not be presented in the study just because the number of interviews did not reach what she had aimed for. The interviews can still have a relevance to the study, according to the author. To not present the data would, according to the author, degrade the visitors who did take part in the interviews.

During the interviews, that took place as the visitors were leaving the exhibition, the interviewer showed the visitors photos of the interactive exhibits so that they would remember all of them, and not just the most recent one.

The interview questions were focused on the interactive parts of the exhibition, since this study wanted to show how and if the visitors received and interacted with them. The interview form (see appendix) was constructed so that the visitors would answer these questions:

- The visitor’s age and gender.
- If the visitor had taken part in the interactive exhibits/the magician’s challenges?
- If the visitor thought that the interactive parts provided the exhibition with anything?
- Which interactive exhibit was easiest?
- Which interactive exhibit was most difficult?
- Which interactive exhibit was most fun?
- Which interactive exhibit was most boring?
- What will be the visitor’s best memory from the visit?

Since the interactive exhibit in room 2 was closed due to repairs during the time most of these interviews where conducted, the data can not be viewed upon as complete and totally valid as information source.

6.1 The answers given by the 41 interviewed visitors

15 of the visitors had taken part of all of the interactive exhibits.
16 of the visitors had taken part in some of them.
10 of the visitors had not taken part in any of them.
Of the 41 interviewed visitors had:

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Some</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 children</td>
<td>10 children</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 youth</td>
<td>3 youth</td>
<td>3 youth</td>
<td>-</td>
</tr>
<tr>
<td>2 women</td>
<td>1 women</td>
<td>4 women</td>
<td>-</td>
</tr>
<tr>
<td>3 men</td>
<td>2 men</td>
<td>3 men</td>
<td>-</td>
</tr>
<tr>
<td><strong>15 visitors</strong></td>
<td><strong>16 visitors</strong></td>
<td><strong>10 visitors</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

The 10 visitors who did not do any of the interactive exhibits, answered on the question “why not?”
- “Did not see them”, answered 2 visitors
- “Did not see the altar and the magicians form”, answered 2 visitors
- “Did not understand the exhibits”, answered 2 visitors
- “Thought they where only meant for the children to play with”, answered 2 visitors
- “Did not have the effort to try them out”, answered 1 visitor
- “Did only look, did not try them”, answered 1 visitor

On the question “if the interactive exhibits provided the exhibition with anything”? The majority answered:
- “Do not know” (The majority of visitors who gave this answer were children)
- “It does not matter. The exhibition would be the same with or without the interactive exhibits”, answered 2 visitors
- The interactive exhibits make the entire exhibition more fun. They make you observe more and walk slower than what you would have done without them”, answered 5 visitors

### 6.2 The most easy, difficult, fun and boring interactive exhibit

The children answered that the easiest interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 1, feeling inside the dragons mouth</td>
<td>6 children</td>
</tr>
<tr>
<td>Room 5, looking into the fire</td>
<td>6 children</td>
</tr>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>1 child</td>
</tr>
<tr>
<td>Room 7, the hart and the frame</td>
<td>1 child</td>
</tr>
</tbody>
</table>
The **children** answered that the **most difficult** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>5 children</td>
</tr>
<tr>
<td>Room 5, looking into the fire</td>
<td>4 children</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>4 children</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>4 children</td>
</tr>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 child</td>
</tr>
</tbody>
</table>

The **children** answered that the **funniest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>5 children</td>
</tr>
<tr>
<td>Room 2, the Danish soldier</td>
<td>3 children</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>3 children</td>
</tr>
<tr>
<td>Room 7, the hart and the frame</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 1, feeling inside the dragon's mouth</td>
<td>1 child</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 child</td>
</tr>
<tr>
<td>Room 5, looking into the fire</td>
<td>1 child</td>
</tr>
</tbody>
</table>

The **children** answered that the **most boring** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 9, be God for a minute</td>
<td>6 children</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>6 children</td>
</tr>
<tr>
<td>Room 5, looking into the fire</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 1, feeling inside the dragon's mouth</td>
<td>2 children</td>
</tr>
<tr>
<td>Room 2, the Danish soldier</td>
<td>1 child</td>
</tr>
</tbody>
</table>

The **Youths** answered that the **easiest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 5, looking into the fire</td>
<td>2 youths</td>
</tr>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 youth</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>1 youth</td>
</tr>
</tbody>
</table>

The **Youths** answered that the **most difficult** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 youth</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>1 youth</td>
</tr>
<tr>
<td>Room 7, the hart and the frame</td>
<td>1 youth</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>1 youth</td>
</tr>
</tbody>
</table>
The **Youths** answered that the **funniest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 6, the chessboard</td>
<td>3 youths</td>
</tr>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 youth</td>
</tr>
</tbody>
</table>

The **Youths** answered that the **most boring** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>2 youths</td>
</tr>
<tr>
<td>Room 1, feeling inside the dragons mouth</td>
<td>1 youth</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 youth</td>
</tr>
</tbody>
</table>

The **Women** answered that the **easiest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 5, looking into the fire</td>
<td>2 women</td>
</tr>
<tr>
<td>Room 6, the chessboard</td>
<td>1 woman</td>
</tr>
</tbody>
</table>

The **Women** answered that the **most difficult** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 woman</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 woman</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>1 woman</td>
</tr>
</tbody>
</table>

The **Women** answered that the **funniest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>2 women</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 woman</td>
</tr>
</tbody>
</table>

The **Women** answered that the **most boring** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 woman</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 woman</td>
</tr>
<tr>
<td>Room 9, be God for a minute</td>
<td>1 woman</td>
</tr>
</tbody>
</table>

The **Men** answered that the **easiest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>2 men</td>
</tr>
<tr>
<td>Room 5, looking into the fire</td>
<td>2 men</td>
</tr>
<tr>
<td>Room 1, feeling inside the dragons mouth</td>
<td>1 man</td>
</tr>
</tbody>
</table>
The **Men** answered that the **most difficult** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 6, the chessboard</td>
<td>3 men</td>
</tr>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>1 man</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>1 man</td>
</tr>
</tbody>
</table>

The **Men** answered that the **funniest** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 6, the chessboard</td>
<td>3 men</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>2 men</td>
</tr>
</tbody>
</table>

The **Men** answered that the **most boring** interactive exhibits were:

<table>
<thead>
<tr>
<th>Exhibition</th>
<th>Number of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 4, finding the intruder on the table</td>
<td>2 men</td>
</tr>
<tr>
<td>Room 3, see the symbol on your hand</td>
<td>1 man</td>
</tr>
<tr>
<td>Room 8, connect the kings with the rope</td>
<td>1 man</td>
</tr>
<tr>
<td>Room 9, be God for a minute</td>
<td>1 man</td>
</tr>
</tbody>
</table>

### 6.3 What the visitors thought they would remember the best

38 of the 41 interviewed visitors answered this question, and they where all children. They answered like this:

- **12** visitors said they – “do not know”.
- **7** visitors answered – “the interactive exhibit in room 8”, where one was supposed to find a symbol by connecting the rope with the regents in the way one thought they had ruled.
- **3** visitors answered – “the interactive exhibit in room 4”, where one was supposed to discover the uninvited guest by observing the table.
- **2** visitors answered – “the treasure in the chamber of secrets”.
- **2** visitors answered – “the music in the exhibition”.
- **2** visitors answered – “the interactive exhibit in room 2”, where one was supposed to fight the Danish soldier.
- **2** visitors answered – “the display case in room 2”, where the visitors could see the remains from the battle at Visbys ring wall, *Korsbetningen*.
- **2** visitors answered – “the interactive exhibit in room 3”, where one was supposed to see symbols glow on the hands when the where placed in the light.
- **2** visitors answered – “the interactive exhibit in room 6”, where the visitor played chess against Death.
- **1** visitor answered – “the painting of Aragorn”, in room 1.
- **1** visitor answered – “all the texts and labels”, that s/he had read in the exhibition.
- **1** visitor answered – “all the entertaining special effects in the exhibition”.
- **1** visitor answered – “all the fairy tales”, that one could read as a sequel through the exhibition.
7. Results

According to Hein’s theories of knowledge, learning and teaching presented earlier, this exhibition “Middle Ages Dead or Live” has an idealistic epistemology with the attention of presenting multiple perspectives for the visitors to draw their own conclusions. The exhibition is only to show the differences—not to lecture to the visitor about the truth and the true image of the medieval hero, the people’s lives or symbol of power.

The learning theory applied for this task is to let the visitors learn actively and make sense of the information presented to them by them selves. The focus is on the learner/visitor and even though the target group of the exhibition are the children, the interactive exhibits, texts and objects have been chosen to attract both children and adults and the interactive exhibits varies in difficulty.

The pedagogy to carry out the educational activity intended is the constructivist pedagogy. The visitors are allowed to manipulate, explore and experience the exhibits and the themes are presented so that the visitor can connect with the familiar. Younger visitors can connect with the objects, texts and information in the first room of every theme—the image of the western popular culture. Older visitors might connect with the information shown in the second room of every theme—the image from about a hundred years ago, which survived in the schoolbooks and other sources of information for a long time in to the 1900’s. This makes it easier for all ages of visitors to see differences and make comparisons when introduced to the third room of every theme—the medieval image.

This exhibition “Middle Agesl Dead or Live” at the Natural Museum of History in Stockholm was constructed so that the visitor where to engage with the exhibition in as many ways as possible. The intention was that the visitor would manipulate the interactive/hands-on exhibit to find answers to riddles. If the visitor interacted with the labels, texts and objects some of the riddles would be easier to solve. Though this was not presented to the visitor, hopefully the visitor would discover this by him/herself. In order to see if this intention was fulfilled the visitors was timed as they used the interactive exhibits, read the labels and looked at objects. If the visitors used the exhibition as intended these three indicators should have a similar time/level of engagement. This might off course occur even if the visitors did not use the exhibition as intended, but the visitors could hardly use the exhibition as intended without interacting with texts, objects and the interactivities.

All data collected has earlier been presented room by room. In the next chapter follows the results and they are presented in a more overall view for the entire exhibition.
7.1 Did the visitors use the exhibition as intended? And did they read and look?

Of the 153 observed children did:
125 try the interactive exhibits
27 read any of the labels
76 look at objects and the room

Of the 34 observed youths did:
30 try the interactive exhibits
6 read any of the labels
6 look at objects and the room

Of the 145 observed women did:
76 try the interactive exhibits
53 read any of the labels
78 look at objects and the room

Of the 111 observed men did:
53 try the interactive exhibits
45 read any of the labels
63 look at the objects and the room

When the data for all visitors’ engagement is presented, the result does not look like the visitors used the exhibition as intended.

The author’s definition of visitor behaviour that indicates that the visitors are using the exhibition as intended is: the visitor’s level of engagement with the interactive exhibits, the reading and looking at objects would be similar through the exhibition. Another possible indication of the fact that the visitors used the exhibition as intended would be if the level of engagement for one of these three activities might start out low and then increase as the visitors detect the help they get from doing all three when solving the magician’s challenges.

If the visitors read the texts and look at the objects the visitors get a clearer understanding to the theme and why the interactive exhibit looks the way it does, that it is not a coincident that it is a chessboard in room six, where it is compared with the everyday lives of the medieval people. Also if the visitor reads the texts and look at the objects the interactive exhibits riddles are easier to solve.
All visitors level of engagement in interactivity, reading and looking at objects in the entire exhibition

The diagram above shows the level of engagement of all visitors together with the interactive exhibits, reading the labels and looking at objects. This diagram shows how the level of engagement with the interactive exhibits increase as the level of engagement with reading the labels and texts decreases. It is only in room 4 where over 50% of the observed visitors who read the labels or texts in the room. In all other rooms there are less then 50% of the observed visitors who reads anything.

The level of engagement with looking at objects is, almost, in every second room low and then higher in the next. In rooms 2, 4, 5 and 7 the objects seems to attract more visitors, which also can be seen on the diagram. In rooms 2, 4 and 7 the level of engagement with the interactivity decreases as the level of engagement looking at objects increases.

- In room 1 this might due to the fact that many visitors stayed only by the clothes rack, which in this diagram is shown as taking part with interactivity. Many of the visitors that did stay for a long time trying clothes did not stop looking at objects or to read text. They rush on to the next room.

- In room 2 it was the display case of sculls and other parts of skeleton from the battle at Visby ring wall Korsbetningen which attracted a lot (70%) of visitors. The interactive exhibit was to fight the enemy with a sword. This attracted a lot of children but they were also intrigued by the texts about the battles and the objects from the battle at Visby ringwall.

- In room 3 the objects and display cases were rather small. Perhaps this might have been a factor as to why 40% of the observed visitors observed the objects, for both good and bad. In this room it was easier to manage the magicians challenge if one first read the texts. Many visitors understood this and therefore many of them did.

- In room 4 the mirrors on the walls attracted a lot of the children but also the interactive exhibit. Even though the participation level with the interactive exhibit in this room is rather low, it still had a high level of attraction. The table/interactive exhibit shifted colours every 10 seconds or so. Many adults who did not do the magicians challenge in this room
still observed the table and therefore did nearly 80 % of the observed visitors study an object in the room. The colourful table did however attract some visitors away from the texts and labels.

- In room 5 the level of 75 % of the visitors observing objects might be a bit misguided since a lot of visitors spent a bit extra time in here since there was an opportunity to sit down in this room. Many visitors observed the paintings and the objects in the room sitting down by the table. If it was the objects that attracted the visitor to stay, or if it was the opportunity to sit down that made visitors to stay and study the objects, the author can not tell. One possible reason as to why so few of the observed visitors studied texts in this room might be because they could not read while sitting down.

- In room 6 there were more texts than objects. Many visitors looked at the display cases but only stopped at those containing an object and not by those who contained texts. The interactive exhibit, the chess game, did however seem to attract visitors of most ages.

- In room 7 the theme of Disney’s fairy tale princesses seemed to attract not only the children but also the youths and women. 80 % of the observed visitors studied the dresses and crowns in the display cases. Many visitors tried the interactive exhibit as well, not only those who were trying to solve the clues but also curios visitors who only looked through the exhibition.

- In room 8 could the biggest item on display through the entire exhibition be seen. It was a big coffin made in stone. Many visitors missed it however and only seemed to look at it as a room divider. The 25 % of the observed visitors who did study objects in this room were mostly those visitors who also noticed and studied the coffin. The interactive exhibit in this room, the rope puzzle, attracted many visitors, especially the adults.

- In room 9 did both objects and texts suffer some loss since the visitors, above all the children, just wanted to get the final answer to the magician’s challenges and try to open the door to the chamber of secrecy.

The fact that the visitors could enter the exhibition from two entrances, one in the beginning of the exhibition (the right entrance) and one in the end could maybe affect the result enough to say that one might look at the diagram backwards. Maybe a lot of the visitors entered the exhibition from the end and walked through it backwards. Since the exhibition did not have a specific path the visitors could do the interactive exhibits in what order they pleased. Then the diagram would support the definition of the visitors using the exhibition as intended. However the majority of the visitors did use the “right” entrance and those who did not where recommended walking through the exhibition and starting from the beginning since the altar with the magicians form where to be found in room 1. Therefore the author believes that the diagram should be read as it is, from room 1 – 9. Most visitors, even if they did not see the recommendation signs telling them where they could find the magicians challenge form (in room 1) discovered that they were not “following the flow”.

When the same data is presented looking closer to the different groups of visitors the results are a bit different.
This diagram shows the children’s level of engagement. In most rooms more than 70% of the observed children did the interactive exhibit. Only in room 4 is the number lower. In room 4 many of the children took a liking for playing in front of the mirrors which meant that one of the adults did the magicians challenge instead or it was not done at all. As the diagram shows, room 4 has the second highest number of children looking at objects in the room. Nearly 80% of all observed children looked at some object in room 4 and many of these children looked at themselves in the mirrors. The reason to why room 5 has the highest number of children that looked at any object is probably due to the fake fireplace. This object had high attraction power on the visitors and most visitors studied it to see how it came to look so real. Also the possibility to sit down and rest might have something to do with it.

In room 2 is the highest number of children who read any of the labels or texts in the room. 36% of the observed children read something in room 2 and most of them read the labels and texts belonging to the display case of the battle at Visby ring wall Korsbetningen.

The reason to why interactive exhibits in room 3 and 9 attracted 100% of the observed children to try it might be answered by looking at the answers in the interviews. The interactive exhibit in room 3 was according to most children the funniest. But the interactive exhibit in room 9 was also according to most children the most boring one. This might show that children do not decide in beforehand if something looks boring or not, they try it to find that out.
The majority of visitors in this study are children or adults. As the observations were made, only 34 of the visitors were youths. This is an indication of what kind of visitor the exhibition attracted and since the main target group was the children the exhibition succeeded to attract its target group, which brought the adults, but not so many youths.

In the first two rooms no youth observed did any of the interactive exhibits. In rooms 3 – 9 however all youths observed did the interactive exhibits. In contrast to the children the observed youths did not read any of the labels in room 1 – 6 but increased in numbers in the three last rooms. None of the observed youths did look at any objects in rooms 1 – 3 but in the rest of the rooms some participation occurred, except in the last room.

Women’s participation with the interactive exhibits is rather high. With exception from room 4, more then 50% of the observed women in every room did the interactive exhibit/the magicians challenge. After the four first rooms the level of engagement with reading labels decreases, but increases again in room 9. The level of engagement with looking at objects
varies in the first rooms between 35 – 85%. But in room 8 and 9 it was only 20 and 10% of the observed women who looked at any objects.

The reason to why so many of the observed women in room 8 did the interactive exhibit can be compared with what the women said in the interviews. There the women said that the interactive exhibit in room 8 was both the funniest and the most difficult. The women seem to have liked the rope puzzle which had a high level of difficulty.

**Mens level of engagement with interactivity, labels and objects**

<table>
<thead>
<tr>
<th>rooms 1 - 9</th>
<th>interactive exhibits</th>
<th>reading labels</th>
<th>looking at objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>90</td>
<td>70</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>70</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>50</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>30</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>20</td>
<td>0</td>
<td>20</td>
</tr>
</tbody>
</table>

In room 1, 50% of the observed men did the interactive exhibit. This number decreases to room 4 where only 5% of the observed men did the interactive exhibit. Rooms 5 – 9 the level of engagement increases with the highest peak in room 8 where 95% of the observed men did the interactive exhibit. 20 - 40% of the observed men read any of the labels and texts except in rooms 2 and 3 where 65 and 77% of the observed men read something in the rooms. In room 5 did only 15 % of the observed men read something. This is probably due to the possibility to sit down and rest, as mentioned earlier. This might also be why 85% of the observed men in room 5 looked at objects, because they did so sitting down and resting. This might off course be the case for all the visitors but even though there were higher level of children looking at objects in this room the children was first of all fascinated of the fake fire. The men had more tendencies to sit down and rest.

When this data is compared with the answers from the interviews the men answered that they thought that the interactive exhibit in room 6 was the funniest, which 42% of the observed men did. The second funniest interactive exhibit was in room 8, which 95% of them observed men did. Most of the interviewed men said that the interactive exhibit in room 4 was the most boring one. This is also the interactive exhibit with lowest number of men who tried it. In contrast to the children, male visitors decided in beforehand that this looked boring so they did not even try it.
7.1.1 Did the visitors use the exhibition as intended?

The children did not, according to the diagrams, use the exhibition as intended. The level of 30 – 40% of the observed children reading labels in room the first three rooms was the highest level, then it decreases. The children read less and interacted more the further in the exhibition they went.

The youths went from doing nothing in the two first rooms, to 100% participation with the interactive exhibits in rooms 3 – 9. Nearly 70% participation with looking at objects in room 4 and 33, 57 and 67% participation with reading the labels in rooms 7 – 9. This concludes that they did not either use the exhibition as intended, with exception of that they might have understood the benefits of reading the texts from room 6-9. When comparing the men and women they had an overall a similar level of engagement with interactivity, reading and looking at objects through out the exhibition but they did not use the exhibition as intended. Looking at the table below the percentage numbers shows that the adults did use the exhibition as intended, but the peaks and valleys shifts to much in the diagrams, presented above, to support that conclusion.

<table>
<thead>
<tr>
<th>Number of children, in per cent, that participated in:</th>
<th>Interactive exhibits</th>
<th>Reading labels</th>
<th>Observing objects/the room</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>82 %</td>
<td>18 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Number of youths, in per cent, that participated in:</td>
<td>88 %</td>
<td>18 %</td>
<td>18 %</td>
</tr>
<tr>
<td>Number of women, in per cent, that participated in:</td>
<td>52 %</td>
<td>37 %</td>
<td>54 %</td>
</tr>
<tr>
<td>Number of men, in per cent, that participated in:</td>
<td>48 %</td>
<td>41 %</td>
<td>57 %</td>
</tr>
</tbody>
</table>

The women had a little higher percentage with the interactive exhibits than men, but the men had higher percentage with reading labels and looking.

The table above also shows that even though the exhibition had interactive exhibits - more then 50% of the adults still looked at objects in the display cases. Around 40% of the adults read the labels and texts in the rooms. But also did about 50% of the adult visitors do the interactive exhibits/the magicians challenge as well. The high level of engagement with the interactive exhibits by the children and youths are over 80% and reading labels 18%. But 50% of the children did look at objects in the rooms compared to only 18 % of the youths. Over all the exhibitions labels and objects seems to not have lost attention from the visitors because of the interactive exhibits, or vice versa.
7.2 Attraction power

In order to retrieve this data the observer noted what object the visitor approached and stopped at to investigate first when entering a room. If the visitor just walked through the room without stopping the observer did not note any object. Even if the visitor looked at an object while walking through the room the observer did not note any object. The visitor had to clearly approach and stop in front of an object for the observer to note it. Time spent had no effect, only which object the visitor approached and stopped at first when entering the room.

Here follows the results of which objects in every room that attracted the most visitors in all visitor groups. In some room the attraction power is the same for several objects and when so this is off course presented.

In the first room, the fairy tale armoury, the image of the medieval hero was presented, through the western popular culture perspective. In this room six different objects attracted the visitors. One of these objects was a large painting of Aragorn (a character from Lord of The Ring trilogy) which attracted a large number of the children, youths and women. Equal number of men however where first attracted by the introduction text or the clothes rack or the altar with the magicians form or a scull of a dragon.

<table>
<thead>
<tr>
<th>Children</th>
<th>38%</th>
<th>The Aragorn painting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>100%</td>
<td>The Aragorn painting</td>
</tr>
<tr>
<td>Women</td>
<td>32%</td>
<td>The Aragorn painting</td>
</tr>
<tr>
<td>Men</td>
<td>20%</td>
<td>Introduction text, clothes rack, altar, dragon scull</td>
</tr>
</tbody>
</table>

In the second room, the national armoury, the image of the medieval hero was presented from the perspective from about a hundred years ago. In this room there were six different objects that attracted the visitors. Among these was a display case containing a helmet called Aranäshjälmen (Helmet from Aranäs) that attracted a lot of visitors.

<table>
<thead>
<tr>
<th>Children</th>
<th>43%</th>
<th>The interactive exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Women</td>
<td>25%</td>
<td>The interactive exhibit, Aranäshjälmen</td>
</tr>
<tr>
<td>Men</td>
<td>29%</td>
<td>Aranäshjälmen</td>
</tr>
</tbody>
</table>

In the third room, the medieval armoury, the image of the medieval hero from the medieval perspective was presented. In this room six different objects attracted the visitors but apart from the interactive exhibit many visitors was attracted by the display case containing a large vertebra from an unknown animal. In this exhibition the vertebra was used as a fantasy trigger as to “what if it is a vertebra from a dragon”?

<table>
<thead>
<tr>
<th>Children</th>
<th>67%</th>
<th>The interactive exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>100%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Women</td>
<td>39%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Men</td>
<td>46%</td>
<td>The dragon vertebra</td>
</tr>
</tbody>
</table>
**In the fourth room, the great hall of fairy tale,** the lives of the medieval people was presented through the western popular culture perspective. In this room there were totally four objects that attracted the visitors. One of these was the tale in the centre of the room which attracted most visitors. Since the table also was the interactive exhibit one could say that it was the interactive exhibit that attracted the most visitors in this room. However the real reason to why the table attracted so many visitors was because it changed colour every 10-20 seconds or so. Another thing that attracted visitors was the text about the upcoming “live” role-play.

<table>
<thead>
<tr>
<th>Children</th>
<th>42%</th>
<th>The table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>67%</td>
<td>The role-play text</td>
</tr>
<tr>
<td>Women</td>
<td>36%</td>
<td>The interactive exhibit, the role-play text</td>
</tr>
<tr>
<td>Men</td>
<td>44%</td>
<td>The table</td>
</tr>
</tbody>
</table>

**In the fifth room, the national living room,** the lives of the medieval people was presented through the perspective from about a hundred years ago. In this room three different objects attracted the visitors but the fire attracted eth most. The fire was also the interactive exhibit but the real reason to why it attracted the visitors were because it looked like a real fire.

<table>
<thead>
<tr>
<th>Children</th>
<th>88%</th>
<th>The fire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>100%</td>
<td>The fire</td>
</tr>
<tr>
<td>Women</td>
<td>75%</td>
<td>The fire</td>
</tr>
<tr>
<td>Men</td>
<td>77%</td>
<td>The fire</td>
</tr>
</tbody>
</table>

**In the sixth room, the medieval living room,** the lives of the medieval people was presented from the medieval perspective. In this room six different objects attracted the visitors. Apart from the interactive exhibit many visitors stopped by the introduction text which presented the theme in every room.

<table>
<thead>
<tr>
<th>Children</th>
<th>75%</th>
<th>The interactive exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>100%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Women</td>
<td>63%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Men</td>
<td>50%</td>
<td>The introduction text</td>
</tr>
</tbody>
</table>

**In the seventh room, the princess’s chamber of fairy tale,** the beloved (the reason to why the hero is fighting) is presented through the western popular culture perspective. In this room six different objects attracted the visitors. One of these was a collection of photos showing how a medieval role-play might look like.

<table>
<thead>
<tr>
<th>Children</th>
<th>36%</th>
<th>The interactive exhibit, The photos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>67%</td>
<td>The photos</td>
</tr>
<tr>
<td>Women</td>
<td>53%</td>
<td>The photos</td>
</tr>
<tr>
<td>Men</td>
<td>50%</td>
<td>The photos</td>
</tr>
</tbody>
</table>

**In the eighth room, the national coronation room,** the beloved is presented through the perspective from about a hundred years ago. In this room four different objects attracted the visitors but the interactive exhibit attracted most of the visitors.
In the ninth room, the medieval centre of power, the beloved is presented from the medieval perspective. In this room four different objects attracted the visitors. Of these four objects the interactive exhibit attracted most visitors.

<table>
<thead>
<tr>
<th>Children</th>
<th>73%</th>
<th>The interactive exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youths</td>
<td>100%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Women</td>
<td>94%</td>
<td>The interactive exhibit</td>
</tr>
<tr>
<td>Men</td>
<td>79%</td>
<td>The interactive exhibit</td>
</tr>
</tbody>
</table>

When this data is compiled to an overall view it shows how the children and youths are more attracted to the interactive exhibits when entering a room then the adults. Women and men are about in 50% of the rooms more attracted to an object or a text.

<table>
<thead>
<tr>
<th>Room 1</th>
<th>Children</th>
<th>Youths</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 2</td>
<td>Object</td>
<td>Object</td>
<td>Object + text</td>
<td></td>
</tr>
<tr>
<td>Room 3</td>
<td>Interactivity</td>
<td>-</td>
<td>Interact + object</td>
<td></td>
</tr>
<tr>
<td>Room 4</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td>Object</td>
<td></td>
</tr>
<tr>
<td>Room 5</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td></td>
</tr>
<tr>
<td>Room 6</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td>Text</td>
<td></td>
</tr>
<tr>
<td>Room 7</td>
<td>Interact + object</td>
<td>Object</td>
<td>Object</td>
<td></td>
</tr>
<tr>
<td>Room 8</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td></td>
</tr>
<tr>
<td>Room 9</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td>Interactivity</td>
<td></td>
</tr>
</tbody>
</table>

The data presented so far were what attracted most visitors in every room. But if we look at what attracted the different visitor groups the most we see another result.

The children and youths were mostly attracted to the interactive exhibits when they entered a room, probably because they were going through the exhibition looking for the magician’s challenges. But even though the interactive exhibits were not all that caught the attention of every child and youth, there is a pattern as to what did catch their attention. Most of the items the children and youths walked up to first (except the interactive exhibits) were contemporary things made fairy tale like; like in:

**Room 1)** the Aragorn painting, the clothes rack and the altar with the golden tablecloth.

**Room 4)** the table and the mirrors.

**Room 5)** the goat and the fire

**Room 7)** the photos of medieval role-play and the princess and king crowns.
The adults were attracted to other things when they entered the rooms. They were also attracted to the interactive exhibits, women a little more then men, but from exception from that the adults were more attracted to the objects and texts than the younger visitors, like in:

**Room 1)** The men were not attracted to the Aragorn painting but more attracted to the introduction text and the guestbook.

**Room 2)** Even though some children were also attracted to the display case with remains from *Korsbetningen* the adults were more attracted then the children. Both men and women were also attracted to the display case with the helmet *Aranäshjälmen*.

**Room 3)** in this room the interactive exhibit did not attract the men at all but some women. The majority of the adults however were attracted to the display case with the vertebra from a “dragon” and the display case containing a *doppsko* (a small piece of metal on the sword sheath which prevents the sword edge to go through the sheath.)

**Room 4)** in this room both men and women were most attracted to the two texts in the room and not the mirrors like the younger visitors.

### 7.3 Holding power

In rooms 1 and 9 there was activities that caught the attention and made visitors spend much time in the room that has not been classified as an interactive exhibit in this study. Even though these activities were interactive they where not a part of the interactive exhibits in solving the magicians challenges.

In room 1 there was the clothes rack with clothes from the different time perspectives that the three different themes are presented through in the exhibition. There where medieval contemporary clothes, clothes that were considered medieval a hundred years ago and clothes from the fairy tale (the western popular culture perspective). The children could borrow these clothes and wear them during their visit in the exhibition. They could choose from princess dresses as the dress of Snow-White or Cinderella. There where royal cloaks, and peasants coats, the blacksmiths leather apron or the knights sword and shield. This was a very popular part of the exhibition and many visitors participated with the idea of dress one self up as a princess or a king.

**Number of visitors in percentage that spent time with the clothes:**

- 95% of the observed children
- 100% of the observed youths
- 58% of the observed women
- 50% of the observed men

In room 9 it was getting up the door to the chamber of secrets that visitors spend some time doing that even though it is an interactive part of the exhibition was not classified as an interactive exhibit in solving the magicians challenges.
When the visitor got faced with this door she or he had to find out which of the five keys would open the door. If all answers of the magicians challenges where correct the task was easy. But if something had been answered wrong, or if the visitor had not participated in the interactive part of the exhibition, the task of opening the door was a bit trickier.

<table>
<thead>
<tr>
<th>Room and total number of minutes</th>
<th>Interactive exhibit</th>
<th>Texts</th>
<th>Objects</th>
<th>Clothes rack and Opening door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 1. 399½ minutes</td>
<td>39 ½ minutes (12%)</td>
<td>19 ½ minutes (6%)</td>
<td>14 minutes (4%)</td>
<td>266 ½ minutes (78%)</td>
</tr>
<tr>
<td>Room 2. 106 ½ minutes</td>
<td>27 minutes (25%)</td>
<td>31 minutes (29%)</td>
<td>48 ½ minutes (46%)</td>
<td></td>
</tr>
<tr>
<td>Room 3. 101 minutes</td>
<td>50 minutes (50%)</td>
<td>29 ½ minutes (29%)</td>
<td>21 ½ minutes (21%)</td>
<td></td>
</tr>
<tr>
<td>Room 4. 96 ½ minutes</td>
<td>35 minutes (36%)</td>
<td>29 minutes (30%)</td>
<td>32 ½ minutes (34%)</td>
<td></td>
</tr>
<tr>
<td>Room 5. 111 ½ minutes</td>
<td>36 minutes (32%)</td>
<td>6 ½ minutes (6%)</td>
<td>69 minutes (62%)</td>
<td></td>
</tr>
<tr>
<td>Room 6. 156 minutes</td>
<td>119 minutes (76%)</td>
<td>21 ½ minutes (14%)</td>
<td>15 ½ minutes (10%)</td>
<td></td>
</tr>
<tr>
<td>Room 7. 88 ½ minutes</td>
<td>50 ½ minutes (57%)</td>
<td>7 ½ minutes (8%)</td>
<td>30 ½ minutes (35%)</td>
<td></td>
</tr>
<tr>
<td>Room 8. 135 ½ minutes</td>
<td>119½ minutes (88%)</td>
<td>8 minutes (6%)</td>
<td>8 minutes (6%)</td>
<td></td>
</tr>
<tr>
<td>Room 9. 97 minutes</td>
<td>52 ½ minutes (53%)</td>
<td>15 minutes (16%)</td>
<td>4 minutes (4%)</td>
<td>25 ½ minutes (26%)</td>
</tr>
</tbody>
</table>

In comparison with total number of minutes did:

**Room 1** have the best holding power with 399 ½ minutes.

**Room 8** have the interactive exhibit with the best holding power with 88% of the total time dedicated to that activity

**Room 4** have the texts with the best holding power with 30% of the total time dedicated to that activity.

**Room 5** have the object with the best holding power (the fire) with 62% of the total time dedicated to that activity.

**The clothes rack** in room 1 have the best holding power of all the interactivities, texts and objects in the exhibition with 266 ½ minutes dedicated to that activity.

As mentioned earlier room 5 was a room with possibilities to sit down and rest. The very realistic fire in room gained the visitors attention but the reason to why this object had best holding power might depend on the fact that the visitors sat down while observing it. In room 2 there where no possibilities to sit down, still the visitors spent 69 minutes looking at objects in this room. The reason to why the objects in this room had good holding power might be
because the display case with objects one would normally find in a traditional historical museum. Here the display case showing the sculls and bones, still in their armour, from the battle at Visby ring wall, *Korsbetningen*, was placed.

The reason to why the texts in room 4 where the ones with best holding power of all texts in the exhibition might be because of the lack of texts in this room. There where only two texts in this room. Maybe this made some of the visitors to put in the effort to read them since they were only two? The content of the texts was about the upcoming live “role-play” and the theme of the room. How in every fairy tale when the knights return to the castle after battle this is celebrated with a feast in the great hall. But sometimes an uninvited guest gets in and in this room the visitor has to find that uninvited guest.

In room 3, that has the same time spent with reading texts, there were a lot more texts in the room. In this room the texts were about the knights of Christ, the role Christianity played in the medieval lives and in the life of the medieval hero. In this room it also became more obvious for the visitor that it was easier to answer the magician’s challenge if the visitor had read the texts and looked at the objects in the room.

### 7.4 Easy, difficult, fun or boring interactivity?

As mentioned in the chapter number 2, *Method*, the author divided the interactive exhibits into different kinds of exhibits. The explanation to this is:

Since the author to this study took part in planning and constructing some of the interactive exhibits she felt competent to grade the exhibits level of difficulty. This she did before the exhibition had even opened to the public and also before doing this study. The classifications are made with children’s capacity to solve problems in mind when deciding which exhibit seems less or more difficult. For an adult most interactive exhibits are (should be) easy as soon as the adult knows what the challenge is about.

In the exhibition there are nine interactive exhibits/magicians challenges. These have been classified into the categories containing three exhibits each. The three categories are:

- Less difficult
- More difficult
- Most difficult

The three exhibits classified, by the author, as less difficult are:

| Inside the dragons mouth | The symbol in the fire | Find the uninvited guest |
These three were classified as less difficult since the visitor had only to observe in order to find the answer.

The three exhibits classified, by the author, as more difficult are:

- Fight the Danish soldier
- Find symbol in the light
- Record the voice of God

These three were classified as more difficult since they demanded the visitor to first manipulate the exhibit before she or he could find the answer.

The three exhibits classified, by the author, as most difficult are:

- The chess board
- The succession of regents
- The frame and heart

These three were classified as most difficult since they demanded the visitor to first manipulate the exhibit before she or he could find an answer. That answer had to be the correct one though or the visitor would not find the correct and final answer.

The move on the chessboard has to be the correct one or the visitor gets the wrong symbol/answer.
The rope has to be connected to the right regent and order or the visitor sees the wrong symbol/answer.
The frame has to give the visitor the right number. Wrong number will lead to wrong symbol/answer.

7.4.1 Result

According to the answers from the interviewed children the classification seems to be quit right. How ever did many children think that the interactive exhibit in room 4, “to find the
“uninvited guest” was one of the most difficult one, in comparison to the author who classified it as one of the less difficult.

According to the answers from the interviewed youths the classification seems accurate except from the exhibit in room 3, “find the symbol in the light shining on your hand”. Most youths thought this exhibit was one of the less difficult in comparison to the author who classified it as one of the more difficult one.

The interviewed adults answers adds up with the authors classifications except that one woman thought that the chessboard was the less difficult exhibit while the men thought it to be one of the most difficult.

Since the author divided the exhibits into three categories the result can be presented numerically where the category less difficult exhibit = 1, more difficult exhibit = 2 and most difficult exhibit = 3. The same numbers can than be used for grading the level of fun, where less fun = 1, more fun =2 and most fun = 3. Then the results look like this:

<table>
<thead>
<tr>
<th>Difficulty grade</th>
<th>Level of fun according to the children</th>
<th>Level of fun according to the youths</th>
<th>Level of fun according to the adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Most children thought that the more difficult interactive exhibits were most fun while youths and adults thought that the most difficult interactive exhibits were the most fun.
8. Did the study reach its aims?

The aims of this study were to:

- Find out what kind of exhibition, from Hein’s theories of knowledge and learning, this was. Which epistemology and pedagogy was used?
- Show if the visitors actually used the interactive exhibits in the exhibition (or would they be afraid to touch exhibits in a traditional museum?), and which visitors who used them.
- The study was also to show if objects and texts where neglected by visitors due to the interactivity parts or vice versa.
- Did the visitor “use” the exhibition as intended? As the exhibition was constructed so that some interactivities were easier if the visitor read the texts and looked at the objects.
- Did the visitors show behaviour that according to established theories indicates that learning takes place?

The exhibition ”Middle Ages Dead or Live” had, according to Hein’s theories, an idealistic epistemology with the attention of presenting multiple perspectives for the visitors to draw their own conclusions. The learning theory applied for this task was to let the visitors learn actively and make sense of the information presented to them by them selves. The pedagogy to carry out the educational activity attended was the constructivist pedagogy. The visitors were allowed to manipulate, explore and experience the exhibits and the themes were presented so that the visitor could connect with the familiar.

- Show if the visitors actually used the interactive exhibits in the exhibition (or would they be afraid to touch exhibits in a traditional museum?), and which visitors who used them.

The visitors did use the interactive exhibits and showed no restriction against touching exhibits though being in a traditional museum environment. Among the children 82% tried the interactive exhibits. Among the youths 88% tried them and among the adults ≈ 50% tried the interactive exhibits.

- The study is also to show if objects and texts where neglected by visitors due to the interactivity parts or vice versa.

The level of engagement with reading the texts were a little lower among the children and youths, while the adults were ≈ 40%. But all visitor groups besides youths had 50% or more of level of engagement with looking at objects.

- Did the visitor “use” the exhibition as intended? As the exhibition was constructed so that some interactivities were easier if the visitor read the texts and looked at the objects.
The data collected from the observations does not indicate that the visitor generally used the exhibition as intended. The level of engagement with reading text decreased as the level of engagement with the interactive exhibits increased.

- Did the visitors show behaviour that according to established theories indicates that learning takes place?

According to some of the learning theories presented earlier the visitor has to show a behaviour that indicates that learning might be taking place. For the visitor to even be able to show some of these indicators the visitor first of all has to spend time in the exhibition (which this study has proven that the visitors did)

There must be something that catches the visitor’s attention (which the study of attraction power presented in the study has shown that several objects in every room did). Some curiosity has to be awakened and it has to be interesting enough for keeping the attention, have a holding power on the visitor for some time. If not the visitor will just walk through and not stop and read, look and interact with the exhibits hence not learn anything. The timing of the visitors shows the holding power of each room and what it was that made the visitor spend time in the room. Some theories to why the result came out as they did have also been presented.

Wolf (1985) noted how important the visitor’s engagements with the exhibits are and according to him this is the key component in the visitors learning process. In this study the visitors level of engagement with in doing the interactive exhibits, reading labels and texts and looking at objects has been presented in number of visitors from each visitor groups.

As a result from these results some of the indicators of that learning might have been taking place are represented.

Curiosity – has been awakened since the visitors was attracted to things in the rooms.

Confidence – even many of the adults tried the interactive exhibits and most children tried them all.

Challenge – many of the interviewed visitors of the same visitor group listed the level of difficulty of the interactive exhibits the same, and many of them thought that the most or more difficult ones were the most fun ones.

Control – Many of the adult visitors also tried out some of the clothes on the clothes rack. Most children and youths did dress themselves out during the visit.

Play – The visitors did the interactive exhibits together. Both children and at least one of the accompanying adults tried them.
9. Discussion

As another similar exhibition is to be planned, there might be some things to be learned from this exhibition.

Even before the exhibition “Middle Ages Dead or Live” opened the hypothesis (and fear) was presented to the author that: maybe the visitors would not interact with the exhibition since it was in a traditional museum environment?

As this study shows the visitors showed no fear of touching, playing and interacting with the exhibits in the exhibition. That the children would dare to touch and play might not come as a surprise but even about 50% of the adults did try the interactive exhibits. As the exhibition had opened much time was spent in the exhibition by the author herself repairing things that broke. The visitors even handled some of the exhibits fiercer than expected, and as mentioned earlier the interactive exhibit in room 2 was closed while most of the interviews were conducted due to this. This is off course also an indication of that the visitors had no problems with the fact that an interactive exhibition was in a traditional museum environment.

As a traditional museum the staff working with the exhibition still wanted the exhibition to contain more traditional ways of giving the visitor knowledge. Display cases with historical objects, relevant to the theme of the room, together with texts and labels were still considered important. Visitor’s expectations of a traditional historical exhibition still had to be met in some way. The study shows that this is possible to achieve. The adults read the text and investigated the objects just as much as they investigated the interactive exhibits. The children and the youths however spent more time on the interactive exhibits then on reading. If this was due to the interactive exhibits stealing the attention from the texts or not, can not be answered. 50% of the children did look at objects in the rooms which still show that the interest for the historical objects connected to the interactive exhibit, and vice versa, might have increased the interest for the knowledge presented in the room.

As this study showed it was, at least for the exhibition studied in this study, a success to let the visitor “visit the theme” the exhibition is to present. In this case the clothes rack did let the visitors do that. The visitors could not only read, look and play with the exhibition, they could also take part in it since other visitors enjoyed watching those who did dress up and walked through the exhibition as a princess, knight or king.

One reason to why the visitors did not use the exhibition as intended can be that the visitors were never told that the magician’s challenges might be easier to solve if they read the texts and observed the objects. The reason to this was to prevent the visitors to feel obligated to read the texts and observe everything, which could have evoked an opposite reaction. The visitors might not have interacted with the exhibition at all since this could have made the exhibition “feel” more like a formal learning environment.

Another reason to why there were more adults that read the texts might have been the appearance of many of the texts. If more children were to read the texts they might have been
made shorter, in simpler language and more fairytale liked. As they appeared in the exhibition it was almost natural that the parents read the texts and the children did the interactivities. (The author does not refer to the magician’s challenges texts, which many children did read or the parents read up loud for the children.) The fact that the intention of reading and observing might make it easier to do the interactivity was not so obvious in every room. Some rooms, as in rooms 3 and 8 the magicians challenge really got easier to solve if one first read the texts and observed the objects. In other rooms it was not the answer to the challenge that was provided if the visitor read or observed. In some rooms, as in rooms 4 and 5, the observant visitor more easily discovered the challenge it self, since it was a part of the room. Many children did not discover that the table changed in room 4, but as they were playing by the mirrors they saw it in the mirrors as it happened behind them. On the other hand did also many children play by the mirrors and did not see the what happened with the table, they did not read the riddle given by the magician either so they just guessed an answer and went to the next room. In room 5 many children were fascinated by the fake fire and discovered the challenge before their parents even got to read the instructions.

It might have had been a good idea if the visitors got some kind of “- if you do not know the answer to the magicians challenge look in the room and texts for clues” In this way maybe at least more children would have read the riddles and instructions left by the magician in every room.

Children do not seem to decide in beforehand that an interactive exhibit is boring. The exhibits most interviewed children considered boring had a 100% level of engagement in the observation study. Children seem more declined than adults to first try something before deciding if it was fun or boring. The exhibits that most interviewed adults considered boring had also the lowest level of engagement in the observation study. This indicates that the adults decides in beforehand and do not even try exhibits that look boring. This might indicate that it is more important for the exhibits to appeal the eye of the adult visitors then the children.

One way, which worked in this exhibition, to get adults engaged is to use several levels of difficulty for the interactive exhibits so that the adults get engaged and interact together with the children. Some of the exhibits in this exhibition were even made so that a short person (child) had to have help from a taller person (youth or adult) to solve the puzzle. This was made so that the visitors would interact socially as well. Some of the magician’s challenges were maybe to difficult for a child to solve on its own. This was also to engage the adults to interact. Still all challenges were made so that if a child did it on its own s/he could still solve them.

Several levels of difficulty might also attract several different kinds of intelligences. As mentioned earlier this study could have compared the results with Howard Gardners theory of different intelligences to establish which kind of intelligences the interactivity should aim at in order to attract children verses adults. This might be considered for further research.
References


Appendix

1. The exhibition
2. The observation form
3. The interview form
4. The magician’s challenges form
Here follows a more thorough presentation of the “Medieval Dead or Live” exhibition. On some of the photos the items that attracted the visitors the most can be seen. As much as possible will be shown and presented but since not all are visible on the photos only the items that attracted the most visitors will be presented.

Room 1
The fairy tale armoury was the first room of the exhibition, (if you entered the exhibition through the main entrance). In this room the image of the medieval hero was presented through the western popular culture perspective. Images of known movie and television characters were painted on the walls and the texts describe the popular culture hero as, not only strong and invincible, but also emotional and mannerly. The photo below is taken from the entrance and here one can see some of the items that attracted the visitors most.
On the blue wall to the right is the introduction text of the room. To the left just around the corner hangs the painting of Aragorn. (The author can from copyright reasons not show it). In the centre of the photo are the altar and the clothes rack.

The photo above is taken a bit further into the room. To the left is the interactive exhibit and beside that is the display case with the dragon scull.
Room 2
The national armoury presented the image of the medieval hero from the perspective from about a hundred years ago. In this room it is the heroes defending the Swedish nation from its “dragon” the Danes that comes into focus. The texts in this room describe battles between the two countries and specifically the one at Visbys ring Wall, Korsbetningen, from where a lot of remains have been found. To the left on the photo below is the display case with remains from Korsbetningen. In the foreground to the left is the display case containing the helmet from Aranäs.

In the back of the room is the Danish soldier/interactive exhibit which was broken during most part of this study.
Room 3
In this room the medieval hero is presented from the medieval perspective. The knights of Christ were the heroes that defeated the enemies of Christ with their symbol of the cross - the sword.

The photo above is taken in the entrance of the room. To the right is the introduction text and to the left is the statue of Saint Michael. Further into the room, to the right, is the display case containing a sword.
Room 4
In this room the lives of the medieval people is presented through the western popular culture perspective. The image of the people having grand parties at the castle celebrating victories are often presented in the popular culture. Objects and texts in this room are few and they are all about what the room is supposed to represent. In the middle of the room is a big table. In the roof is a projector that is projecting images on the table. The images change every 10 second or so. This photo is taken in the entrance of the room. The interactivity text and the texts about the upcoming role-play are to the right as the visitor enters the room.

The rest of the room consists of the mirrors on the walls and the table.
Room 5
In this room the lives of the medieval people is presented through the perspective from about a hundred years ago. The hard working, happy and content farmers represent the Swedish nationalism and therefore the room is painted as the Swedish flag. Objects and texts in this room are few and they are all about what the room is supposed to represent. In the middle of the room is a big table with chairs where the visitors could rest.

This photo is taken in the entrance of the room and it shows the goat, also painted as the Swedish flag, and the introduction text that attracted many visitors.

This photo is taken further in the room and it shows the fire/interactive exhibit which attracted most visitors in this room.
Room 6
In this room the lives of the medieval people is presented from the medieval perspective. There are a lot of texts in this room describing the uncertain lives of the medieval peoples. This photo is taken further in the room; the photographer is facing the exit of the room. The walls are decorated with chess pieces as a metaphor for the lives of the medieval people. The white rectangles on the photo are lit up texts and all objects are in small lit up display cases of glass, hanging on the walls.

To the right, as the visitor enters the room, is the interactive exhibit.
Room 7
In this room the beloved; the reason to the heroes fight is presented through the western popular culture perspective. In the popular culture it is almost always the love for the fairy princess that makes the hero fight against the dragon, enemy or evil. In this room therefore the walls are decorated with paintings of famous Disney princesses as Cinderella and Snow-White.

Unfortunately the author can not show these from copyright reasons and has therefore blurred the painting on the photo on purpose. Beneath the painting is the display case containing the crown which attracted some visitors. All paintings had a similar display case underneath it containing something relevant to the Disney stories. Beneath the painting of Snow-White, for instance, was a display case containing an apple.

The photo to the right is taken at the entrance of the room; the photographer is facing to the right side of the room.

The photo underneath is taken from the same location but the photographer is facing in to the room. Further back is the princess dress that attracted many visitors.
Room 8
In this room the beloved; the reason to the heroes fight is presented through the perspective from about a hundred years ago. It was the love for the king and country which made the hero fight. The king was viewed upon as a father and many of the kings that ruled during the medieval later became Swedish national symbols.

The photo below is taken in the middle of the room; the photographer is facing the exit. In this photo the introduction text and the chest made of stone is visible. Just to the right of the photographer, out of sight, is the interactive exhibit which attracted most visitors in this room.

In the photo below the photographer has turned around and is facing the entrance of the room. In the middle of the photo is the painting depicting a knight and a maid, which attracted some visitors.
Room 9
In this room the beloved; the reason to the heroes fight is presented through the medieval perspective. The love for God was the reason to the hero’s fight according to the medieval perspective. God controlled the medieval world and man. He existed everywhere and in everything, and his words revealed them selves through a lot of people during the medieval. The revelations of St. Bridget and Bernhard Clairvoux decorate the walls.

In the photo below, taken at the entrance of the room, the lit rectangles are extracts from the revelations of St. Bridget and Bernhard Clairvoux. The texts look to be on fire to give them a kind of doomsday feeling. Just outside the photo, to the left, is the interactive exhibit.

When the visitors had answered the riddle in room 9 the next task was to open the door to the chamber of secrets.
**Room 10**
As the visitor opened the door to the chamber of secrets s/he first had to walk through a dark and narrow corridor before finding the treasure.

In the chamber of secrets the visitors get to see the treasure that the magician stole. In reality this is a famous Swedish find called *Linköpingsskatten*, the treasure of Linköping.
Observation: *(Name of the room)* ................................. Date: ......................

Visitors?

<table>
<thead>
<tr>
<th>Child –12 years</th>
<th>Youth 13-19</th>
<th>Adults</th>
<th>Group</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Number of people)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What in the room does the visitor go up to first?

.........................................................................................................................

.........................................................................................................................

How much time does the visitor spend in the room?

<table>
<thead>
<tr>
<th>Under 1 minute</th>
<th>1-5 minutes</th>
<th>5-10 minutes</th>
<th>10 - minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(number of minutes and seconds)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How much of this time is spent on the interactivity?

.........................................................................................................................

.........................................................................................................................

How much of this time is spent on the labels?

.........................................................................................................................

.........................................................................................................................

How much of this time is spent on the room/objects?

.........................................................................................................................

.........................................................................................................................

Other ......................................................................................................................

.........................................................................................................................

.........................................................................................................................
Visitors

Did you do any of the magician’s challenges in the exhibition?

<table>
<thead>
<tr>
<th>Yes</th>
<th>Some</th>
<th>No</th>
</tr>
</thead>
</table>

Why not?

What did they mean for the exhibition/difference without them?

Which challenge was most easy?

<table>
<thead>
<tr>
<th>Dragon</th>
<th>Danish</th>
<th>Hand</th>
<th>Table</th>
<th>Fire</th>
<th>Chess</th>
<th>Heart</th>
<th>Kings</th>
<th>God</th>
</tr>
</thead>
</table>

Which challenge was most difficult?

<table>
<thead>
<tr>
<th>Dragon</th>
<th>Danish</th>
<th>Hand</th>
<th>Table</th>
<th>Fire</th>
<th>Chess</th>
<th>Heart</th>
<th>Kings</th>
<th>God</th>
</tr>
</thead>
</table>

Which challenge was most fun?

<table>
<thead>
<tr>
<th>Dragon</th>
<th>Danish</th>
<th>Hand</th>
<th>Table</th>
<th>Fire</th>
<th>Chess</th>
<th>Heart</th>
<th>Kings</th>
<th>God</th>
</tr>
</thead>
</table>

Which challenge was most boring?

<table>
<thead>
<tr>
<th>Dragon</th>
<th>Danish</th>
<th>Hand</th>
<th>Table</th>
<th>Fire</th>
<th>Chess</th>
<th>Heart</th>
<th>Kings</th>
<th>God</th>
</tr>
</thead>
</table>

What will be your strongest memory from the exhibition?


## Seek the castle treasure!

The cunning magician has hidden the castle treasure in the chamber of secrecy. Follow the leads that the magician has left behind in forms of riddles and tests. Answer and figure them out and you will each time be rewarded with a clue in the shape of a symbol. When you reach the last door you will outsmart the magician by choosing the key with the symbol that you have found the most of.

<table>
<thead>
<tr>
<th>Room</th>
<th>Here you can draw the symbol your self.</th>
<th>One of these symbols is the correct answer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fairy tale armoury</td>
<td><img src="image1" alt="Symbol" /> <img src="image2" alt="Symbol" /> <img src="image3" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The national armoury</td>
<td><img src="image4" alt="Symbol" /> <img src="image5" alt="Symbol" /> <img src="image6" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The medieval armoury</td>
<td><img src="image7" alt="Symbol" /> <img src="image8" alt="Symbol" /> <img src="image9" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The great hall of the fairy tale</td>
<td><img src="image10" alt="Symbol" /> <img src="image11" alt="Symbol" /> <img src="image12" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The national living room</td>
<td><img src="image13" alt="Symbol" /> <img src="image14" alt="Symbol" /> <img src="image15" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The medieval living room</td>
<td><img src="image16" alt="Symbol" /> <img src="image17" alt="Symbol" /> <img src="image18" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The princess’s chamber of fairy tale</td>
<td><img src="image19" alt="Symbol" /> <img src="image20" alt="Symbol" /> <img src="image21" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The national coronation room</td>
<td><img src="image22" alt="Symbol" /> <img src="image23" alt="Symbol" /> <img src="image24" alt="Symbol" /></td>
<td></td>
</tr>
<tr>
<td>The medieval center of power</td>
<td><img src="image25" alt="Symbol" /> <img src="image26" alt="Symbol" /> <img src="image27" alt="Symbol" /></td>
<td></td>
</tr>
</tbody>
</table>