



DIGITAL BUT AUTHENTIC?

Defining the Authenticity of Two Church Interiors Reconstructed with Mixed Reality Technology

ABSTRAKT

I denna artikel definierar jag begreppet autenticitet då det används för att bedöma trovärdigheten av rekonstruktioner av förflutna rum som baserar sig på blandad verklighet (mixed reality). Som exempel använder jag mig av två applikationer som har skapats vid Åbo universitet inom projekten Futuristic History och MIRACLE. En virtuell rekonstruktion av Helgeandskyrkan i Åbo visar, hur kyrkan kunde ha sett ut under slutet av 1500-talet och applikationen Sanan seppä, som utnyttjar förstärkt verklighet, inkluderar rekonstruerade interiörer och detaljer i Åbo domkyrka under reformationstiden. De båda applikationerna kombinerar den fysiska verkligheten och digitala element på sätt som förändrar existerande rum till rekonstruktioner av det förflutna. Jag presenterar olika sätt att definiera autenticitet och värderar hur de passar för dylika rekonstruktioner. Jag föreslår att autenticitet skulle förstås som en egenskap med gradvis variation. Ingenting borde ses som helt autentiskt eller helt icke-autentiskt utan någonting däremellan. Dessutom anser jag det viktigt? att separera begreppen historisk autenticitet, dvs. ålder, och autenticitet baserat på motsvarighet med det förflutna. Det senare begreppet har ja delat vidare till autenticitet baserat på äkthet (genuineness) och autenticitet baserat på likhet med verkligheten (verisimilitude). I den sistnämnda kategorin består autenticitet av publikens upplevelser och i de andra av förbindelsen med historisk kunskap.

INTRODUCTION

For a long time, the idea of time travelling has captivated the human mind. We have been fascinated by the thought of being able to travel back in time, see the past as it was and relive it. Along with the development of such new technologies as mixed reality, this dream seems to have become closer to realization. Today, it is possible to alter visible reality and with the help of digital

elements such as 3D animated characters, objects, and milieus to make it appear as it might have done hundreds of years ago. The retrieval of the past thus experienced can make it possible to forget that it is not the past itself we are looking at, but only a reconstruction¹ created in the present.

The relationship between a reconstruction and past reality is problematic. The representation created is much more than mere nostalgic fiction but far less than an undistorted window displaying a view directly across time. The concept of authenticity could be most useful in assessing the reliability of these interpretations of bygone days. It may help to distinguish between works based on serious research and those built on pure fantasy and meant only as history-inspired entertainment. The concept, however, has become ambiguous and impregnated with different meanings and therefore needs to be redefined for each new purpose.

In this article, I study how the concept of authenticity should be defined in the context of reconstructions of historical spaces created with the help of mixed reality technology. I use two case examples to illustrate the question: a virtual reality reconstruction of the interior of the Holy Ghost Church in Turku, Southwest Finland, and an augmented reality application representing the history of the reformation displayed inside Turku Cathedral. These applications were created at the University of Turku during the Futuristic History² and MIRACLE³ projects in which the aim was to study how mixed reality technology can be used in museums and heritage sites to interpret and present the past. I took part in both projects as a historian responsible for the background research and the theorizing of the process of representing the past.

I analyse the concept of authenticity, examine different ways in which it has been previously used, and evaluate their relevance in relation to the case examples. Based on this scrutiny I suggest a suitable use for the term authenticity with regard to assessing the credibility of mixed reality representations of the past.

MIXED REALITY

Mixed reality includes different combinations of reality, virtual reality, and augmented reality. Virtual reality (VR) is a pure computer-generated environment that can simulate a real or imagined world, while augmented reality (AR) is positioned between the fully virtual and entirely real environments. Whereas the more known virtual reality experiences attempt to recreate all of our sensory signals, augmented reality only attempts to complement

the natural ones with some artificial flavour. It is thus located somewhere in between physical reality and a completely simulated virtual reality.⁴

Virtual, and especially augmented reality, can be experienced via various types of devices. Currently, the most used device platform is the mobile device segment most consumers carry with them in their everyday life: mobile phones and tablets. In AR applications, the image from the camera of the device is displayed on the screen and the virtual content is drawn on top of it to create a seamless viewing experience. While traditional mobile devices allow widespread adoption of AR experiences, they can, at most, provide a window-type of experience into the augmented world. The next phase, currently taking its initial steps will be in the form of wearable eyewear developed from the devices used in viewing VR contents: in the future, with see-through displays, both the real world and the virtual elements can be overlaid on top of the whole field of vision.⁵

Both AR and VR have also previously been adopted to represent the past in museums and cultural heritage sites. A good example of using VR is the 3D reconstruction of the Pudding Lane area in London, which makes it possible to explore in virtual reality, how the area might have been in the 17th century.⁶ AR has also been deployed to visualize on site, how the Roman Coliseum used to look in antiquity. This application created by a company called AR-media adds digital reconstructions of the missing parts on top of the real-time camera view of the building.⁷ The applications created during Futuristic History and MIRACLE projects have developed the possibilities of MR technology even further.

HOLY GHOST CHURCH IN TURKU

The construction of the Holy Ghost Church began in 1588 at the command of King Johan III. The purpose was to build a church for the Finnish-speaking residents of Turku and to reserve the Turku Cathedral for the services of the Swedish congregation. The Holy Ghost Church may never have been entirely completed but it probably was consecrated before it was severely damaged in a fire in 1593. Even afterwards, the ruins of the church were still used as a cemetery and hundreds of burials were conducted inside its walls. The last visible remains of the church were cleared in the 1650s to make way for the realization of the new street plan for the city. In the archaeological excavations of the 1960s and 1980s, the foundations were unearthed. Later, it was decided that the foundations should be left visible for visitors. In addition, the Holy Ghost Chapel was established on the remnants of the foundations.⁸



The 3D reconstruction of the interior of the Holy Ghost church in Turku.

The aim of the pilot application created during the Futuristic History project was to visualize the interior of the building as it might have been when the church was in use. A 3D model was created to be viewed with the help of a tablet computer. The model available for tablet computers and VR headsets is entirely virtual, but the viewpoint changes based on the moves of the user thus creating an immersive experience of being inside the church as it once was. The model can be viewed anywhere, but – despite the fact that no geolocational referencing was applied to the model – the experience is even more immersive, if the application is used in the actual location, in the ruins of the church.⁹

This model combines historical knowledge about the Holy Ghost Church and general knowledge concerning Finnish and Swedish churches, their furnishing, and the services held within them in the 16th and 17th centuries. Contemporary images and preserved objects and spaces were used as reference material. This is how the model was made historically as accurate and reliable as possible. The description of the creation process of the application, however, was not integrated within it but published separately.¹⁰

TURKU CATHEDRAL AND THE REFORMATION

The second case is connected with the coming commemoration in 2017 of the 500th anniversary of the reformation of the Evangelical Lutheran Church of Finland. The aim of the application, created as part of the MIRACLE pro-

ject, is to present the long-term changes brought about in religious life and in the whole of Finnish society by the reformation. The presentation will be implemented with the help of mixed reality technology inside Turku Cathedral.

The Cathedral has undergone enormous changes and modifications during its history of over seven centuries. The small wooden church built at the turn of the 13th and 14th century has phase by phase become a vast cathedral. Even the interior has been altered remarkably in the course of its history. The altars and sculptures of saints from Catholic times have made way for the benches and pulpits of a Lutheran place of worship. The side chapels of various saints have been transformed into burial chapels for the most powerful families of the Finnish nobility with their grandiose monuments made of marble and sandstone. Fires have destroyed some elements in the cathedral and modern interventions still more.¹¹ As a result, modern visitors find a building stratified by countless layers of time. Unable as they are to read the history of the Cathedral from the visible material remnants of the past visitors can become easily frustrated with the confusing mixture of different periods with which they are confronted.

The Sanan seppä mixed reality application will take the visitors to the Cathedral back to the year 1514, that is, to the situation before the reformation, and then it will represent the changes during the next 150 years from a viewpoint of a fictional family. The story written by the author Tytti Issakainen is told by using objects and historical characters digitally added in the church and made visible by tablet computers. The objects include both, digital replications¹² of real objects and 3D modelled, “born digital” reconstructions of objects. The characters also include some prominent figures of the Finnish reformation as well as fictional, ordinary people. The goal has been to create an experience that is both educating and entertaining.

AUTHENTICITY

The concept of authenticity has long been an issue for extensive scholarly debate. Different branches and disciplines have varying traditions on how to use and define the concept. Due to this ambiguity, the usefulness of this term has been questioned on several occasions.¹³

According to Charles Lindholm, authenticity, as we now understand it, originally derives from the concept of sincerity, which emerged during the 16th century as a consequence of the breakup of the feudal system. Sincerity became a virtue on which the worth of a person was decided.¹⁴ The same rationale lay behind the adoption of the term authenticity in museums to

describe objects which were what they purported to be or claimed to be.¹⁵ The history of the concept is also deeply connected with judging the financial value of art and antique objects and distinguishing genuine works of celebrated artists from forgeries of all kind.¹⁶ As awareness has grown of the myriad of meanings and uses connected to the concept many scholars have tried to answer the critique addressed against its usefulness by dividing it into several more precisely defined subordinate categories.

Lindholm states that in cultural studies the distinction between genealogical or historical authenticity on the one hand and authenticity based on identity or correspondence on the other is quite common. The first refers to an object or a phenomenon which itself is old, and its provenience or roots are verified and traced back in time. The second way of understanding authenticity is used for cases in which authenticity is determined by identification with a phenomenon, a tradition, or a group. A good example is the debate on how much the decision as to whether an individual is deemed as belonging to a Native American tribe should be based on genealogy or the traditions followed and feelings of togetherness.¹⁷ In the following, I refer, with the term historical authenticity, to originality or old age of the relics of the past. With the term authenticity of correspondence, I mean correspondence with the past reality.

Anthropologist Edward Bruner has listed four different ways in which authenticity can be understood. First, a reproduction may be authentic, if it is credible and convincing. Authenticity means historical verisimilitude. Second, the term may refer to a genuine, complete, and immaculate simulation, an exact copy of something that has been. The third meaning of the word is original, as opposed to a copy or a replication. Fourth, authentic can be something certified, authorized as official or legally valid. In this case, authenticity depends on an authority giving an official status to an object or a phenomenon.¹⁸

As Ning Wang has stated, within the discipline of tourism research it has been crucial to separate existential authenticity from the authenticity of objects. The latter form of authenticity can be further divided into objective and constructive authenticities. Existential authenticity or authenticity of experience refers to a state of being in which one feels able to be true to oneself. This form of authenticity is highly subjective and concerns only the inner feelings of an individual. The objective and the constructive authenticities concern how the authenticity of (toured) objects should be defined. According to objectivists, authenticity is objectively measureable and it can be decisively determined by experts, whereas constructivists suggest that authenticity, as so many other things within a culture, is socially or culturally constructed in

terms of different points of view and thus relative.¹⁹ The distinction between the authenticity of objects and the authenticity of experience is common also in museology and cultural studies. Here the authenticity of experience, however, refers to how objects are experienced by the audience. In this article, I concentrate mainly on the authenticity of objects. I deal with the authenticity of experience only in this latter meaning, i.e. how relics and reconstructions of the past can be experienced.

The well-known UNESCO Nara Document on Authenticity, nonetheless, stresses the varying criteria of authenticity from culture to culture and even within the same culture. For the heritage sector, authenticity is the foundation of the values embodied in objects. All decisions of preservation and conservation depend on these values and therefore it is impossible to impose fixed and universal principles for this work at a detailed level.²⁰

Common to all these ways of understanding or defining authenticity is that they usually examine authenticity as something that an object or a phenomenon either has or has not. Authenticity could be more useful concept if it was viewed as a property with varying degrees. A notion seldom explicated²¹ is that one object could be less authentic than another one and yet, at the same time, more authentic than a third object without any of them being entirely authentic or inauthentic. Even the degrees of different kinds of authenticities could be assessed separately thus making it possible for an object to simultaneously be highly authentic, for example, in terms of correspondence and less so considering how it is experienced by museum visitors or other audiences. This is the point of view I have adopted in this article.

AUTHENTIC REMAINS OF THE PAST?

The mixed reality applications representing historical interiors are based on the combination of physical and digital realities. In an augmented reality application such as *Sanan seppä* this is clear. The digital elements representing past objects and people are augmented in the physical space within the Turku Cathedral. This combination of the real and the digital is also present in the virtual reality model of the Holy Ghost Church, but in a less obvious manner. The application can of course be used at the ruins of the church, in which case, the existing remains of the building enhance the VR experience. However, even if the 3D model of the church is viewed at other locations, the awareness that it is connected with a physical location that still exists binds these two realities together. The ruins justify and validate the model, thus linking the present with the past and the physical with the digital.

In both cases, the vestiges of the past are easily conceived as the authentic representatives of their time, or in Bruner's terms to bear the authenticity of the original instead of being copies. They can even be seen as something that actually is part of the period represented and belonging there more than in the present; whereas the digital additions might be considered inauthentic and more artificial present day additions. The case, however, is far from being this simple.

If we use the Lindholm's division, we are able to notice that the ruins of the Holy Ghost Church and Turku Cathedral indeed are authentic remains of the past as long as the historical authenticity is considered. They really are what they seem to be. Their substance bears the marks of the passed centuries and proves their genuineness. However, with regard to the authenticity of correspondence, the value of the physical remains must be questioned. As David Lowenthal has pointed out, "Any past now prized as authentic is bound to have been different from what we now make of it. Every relic displayed in museums is a fake in the sense that it has been wrenched out of its originally intended context."²² Furthermore, it can be said that regardless of whether their context has changed or not, their present form does not correspond entirely with how they used to look in the past. For example, the objects in Turku Cathedral are different today than when they were new; they are worn by time even if their context and use as ecclesiastical objects has remained roughly unaltered. The very same traces of passed time that confirmed their historical authenticity make them more inauthentic in terms of the authenticity of correspondence.

The variation in the degree of authenticity becomes clearly visible with my case examples. The interior of Turku Cathedral is still, despite various alterations, relatively similar to what it used to be in the beginning of the 16th century - while the few stones that are left of the Holy Ghost Church tell nearly nothing about how it looked when it was consecrated. The present day ruins of the Holy Ghost Church correspond with the original church far less than the Cathedral does with itself in the 16th century, thus making the ruins, in these terms, even more inauthentic than the Cathedral.

Jill Morena has described a parallel case concerning the conservation of a dress from the famous film *Gone with the Wind* (1939). This case is particularly interesting since an exact replica of the gown, known as the curtain dress, was made decades before the original film costume was conserved. The reproduction project was aimed at creating a detailed replica of the dress as it was at that time in 1986, because the original was thought to be too fragile to be kept permanently on display. The replica was never meant to represent the dress as it was in the film, but this was exactly what happened. This was

mostly due to the fact that the fading and discoloration of the original dress were considered an integral part of its history, however plans to artificially fade the fabric of the replica were abandoned as being too risky to be undertaken on the otherwise completed work. Consequently, as in the cases of the two churches, the original is more authentic than the replica only in terms of historical authenticity. Paradoxically, the alterations necessary for the conservation of the dress weakened the historical authenticity of the original. In terms of correspondence with the dress in the film, the replica seems to be the more authentic one.²³

The purpose of the VR reconstruction of the Holy Ghost Church and the Sanan seppä AR application is to demonstrate how these two spaces could have looked in the past. Therefore, the question of historical authenticity of those material relics that have been preserved to the present day is highly significant. This type of authenticity connects the digital content projected on the present day space with the same space in the past, since the very matter seems to function as a link²⁴ between the two periods. It is the authenticity of correspondence, in turn, that decides – especially for AR reconstructions – which parts of the worn out present day space should be digitally removed or masked as being too inauthentic to be part of the reconstruction.

AUTHENTIC REPLICATION

Can a replication really be more authentic than the original in any sense? The case described by Morena suggests so, but by looking more carefully it can be seen that the replica dress is more authentic than the original only to the extent it differs from the original, i.e. to the extent it is not actually a replication of the original but, deliberately or not, is an interpretation of what the original might have been in the past. In terms of correspondence, the replica is more authentic than the original, because it is partly a reconstruction of the original state of the original.

The term authentic replica is commonly used, even for other than marketing purposes,²⁵ and it really refers to the authenticity of correspondence. However, the relationship of correspondence is formed here between the copy and the original as it is in the present, not between the copy and the assumed state of the original object in the past. An authentic replication is authentic because it is true to the object it imitates. Time is a meaningless aspect in this case since a replica can be authentic regardless of the age of the original. Whether the copied object is prehistoric or modern has no role in assessing the authenticity of the copy. As a representation of the past, an exact

replica is as authentic or inauthentic as the original, again in terms of correspondence.

Nevertheless, where the authenticity of digital replications of real objects within these two mixed reality applications is concerned, the case becomes even more complicated. The digital copies differ ontologically from other replications in that unlike the originals they do not exist physically but only electronically. For example, the pulpit in the 3D Holy Ghost Church is a digital copy of the pulpit in Hattula church from 1550, and the missing stoup at the northern entrance of Turku Cathedral will be replaced by a photogrammetry model of the stoup preserved at Vehmaa church. Digital copies of objects from other churches were used because the originals in the churches in question are missing. In fact, the digital copies have two representational functions. First, they replace the missing objects in the churches in which they are digitally inserted. Second, they are substitutes for the real objects of which they are copies. In this sense, they are twofold replacements, substitutes of substitutes.

Moreover, their authenticity can be viewed in at least two different ways. As digital replications, their authenticity is based on the similarity between the replacement and the originals, and as noted above, this makes them rather inauthentic in the context of reconstructing the past since they are authentic copies of something in the present. Unlike – or at least more than – the physical replications, the digital copies can also be considered as images representing the originals. Instead of trying to replace the originals, they are signs referring to them. In the example applications, the digital copies suggest that the users should look the space as if the original objects were there. The digital copies are meant to complement the present physical space and to show how it could look now, not so much how it might have looked in the past. In other words, the digital replications can be said to bear some of the historical authenticity of the originals and, as signs, to bring part of that authenticity to new locations, thus enhancing the historical authenticity of the space.

Consequently, the digital copies break the illusion of travelling back in time created by AR or VR reconstructions. This is perfectly clear with regard to the Holy Ghost Church, where the entire digital content is supposed to represent the situation in the beginning of 1590s, but it also applies to the Cathedral as well; even though the most important part of the content of the application is the physical experience inside the present day Cathedral. The copies decrease the authenticity of correspondence but at the same time, they strengthen the historical authenticity of the content in the applications. The digital copies – as signs referring to the original objects – and the actual

material remains of the past, have quite similar relationships to the two types of authenticity.

AUTHENTIC RECONSTRUCTION

With reference to the above, it follows that if we want to assess a reconstruction of a past space using correspondence with the past as the main criteria, a reconstruction can be more authentic than the actual relics or the actual relics complemented with digital replications. This of course presumes that the reconstruction is historically accurate.

Thus far, I have mainly used the distinction between historical and correspondence authenticity, but when examining the authenticity of reconstruction in more detail, further distinctions and other types of authenticity must be deployed. As we have seen, Edward Bruner separated two types of authenticity for historical reconstructions: authenticity based on verisimilitude and authenticity based on genuineness. Both these ways of defining authenticity can be held as subcategories of the authenticity of correspondence as they function on the level of correspondence with the imagined or researched past.



A screenshot from the test version of Sanan seppä application. 3D characters are merged on top of the real time camera view of a tablet computer inside Turku cathedral.

Bruner himself studied the New Salem Historic Site in Illinois, a reproduction of an 1830s town in which Abraham Lincoln used to live before his political career. Most of the museum professionals interviewed by Bruner considered the site to be authentic, in the sense that it conformed to the present day expectations of how an 1830s town should look. Some of the professionals even thought that New Salem could be said to be authentic also in terms of genuineness, as it would appear to be true in substance even to a person from the 1830s.²⁶

It should be noticed that a site like New Salem is meant not only to show how the town might have looked in the past but also to help the visitors to understand life in the 1830s. Authenticity can also entail the meanings given to a site, and this makes the evaluation even more difficult. A revealing example given by Bruner is the fact that the lawns at New Salem are now mowed, which probably did not happen in the 1830s. However, as a member of the museum personnel told him, if you do not mow your lawn in present day Illinois, you are not regarded as a good citizen. Lawns are mowed to prevent visitors from thinking that the people of New Salem in the 1830s were all careless and untidy. Compromises must be made, because visitors always interpret the site, at least partly, through their own present day value systems.²⁷ It is obvious that in this case, in Bruner's own terms, the authenticity based on genuineness was partly sacrificed to the authenticity based on verisimilitude, in order to make the site more comprehensible to the visitors.

The aim of the 3D Holy Ghost Church was only to be a visual reconstruction of the interior of the church. It was not meant to give a thorough understanding of the values and world view of the community that built and used it. A reconstruction – or even the original building had it survived – can never be viewed in the way the contemporaries saw the actual church. Present day meanings given to the past will always interfere in the interpretative process. Nevertheless, compromises like those made at New Salem were not considered necessary. In this model, only authenticity based on genuineness was pursued.

Unlike the VR reconstruction, which can be viewed as a closed entity separated from the present day physical reality, the AR application *Sanan seppä* intertwines the physical and digital realities to the extent that the present day meanings connected with the physical space cannot be ignored. The fact that in *Sanan seppä* the communication of historical information is centred on a narrative instead of merely visual material makes it more important to pay attention to the possibilities of improving the understanding of the content.

In one scene, for example, the 3D character representing Bishop Mikael Agricola stands in front of a 19th Century fresco wearing a similar, if slightly anachronistic outfit, as depicted in the fresco. This twofold anachronism – the imaginary costume and the painting, which was not there in the 16th century, was necessary in order to help the audience recognize that the 3D character and the figure in the painting are meant to be one and the same person. Again, authenticity based on genuineness makes way for authenticity based on verisimilitude. Thus, a reconstruction can be authentic in that it is similar to past reality or alternatively in that it is similar to peoples' expectations of how past reality should be. Here we can also find a distinction between the object's own authenticity and the authenticity of experience.

AUTHENTICITY AND HISTORICAL KNOWLEDGE

At first, it might appear quite an easy task to assess objectively the authenticity of a visual reconstruction such as the 3D model of the Holy Ghost Church, since the authenticity in this case is primarily a matter of judging whether the model looks the same as the church at the end of the 16th century. However, in *Sanan seppä*, a more complex representation of not only a space but of life and meanings within that space, the interplay between past and present, and between different kinds of meanings makes us unsure of how to justify our judgements about the authenticity of the representation. Therefore, it is necessary to scrutinize in detail what kind of rationale can be found for these opinions. How can we separate past reality from our own expectations of how the past should have been? Or is it even possible to do this?

With a more careful observation, even the Holy Ghost Church case becomes questionable. As Yvette Reisinger and Carol Steiner have argued, “The rise of relativism, postmodernism, poststructuralism and constructivism has convinced many that there is no actual, true, genuine, objective reality that can be the standard against which to assess authenticity.”²⁸ Furthermore, they state that from a constructivist point of view authenticity is “so fluid, insubstantial, and beyond consensus that it is useless a basis for future research and knowledge making.”²⁹ Any kind of judgement about authenticity seems to become either impossible or meaningless.

If objective authenticity is logically impossible and constructive authenticity too relative, have we reached an impasse? Should we agree that existential authenticity in all its extreme subjectivity is the only intellectually acceptable way to use the term? Should we entirely abandon the term authenticity when we are speaking about the relics of the past since we cannot define it in

a way that would make it useful? This is the position Reisinger and Steiner argue for.³⁰

My suggestion is that we should consider a further aspect of constructive authenticity and connect it with another concept, that of historical knowledge. The possibility of an objective and definitive historical knowledge has long since been questioned. According to Paul A. Roth, historians constitute historical knowledge in the present based on prior but changing categorical structures.³¹ Regardless of this fluid nature of historical knowledge, historians have developed functioning principles for verifying historical knowledge. The theory of coherentism has been proven suitable for assessing the validity of statements concerning the past. According to this theory, a statement is justified if it belongs to a coherent system of beliefs.³² A statement about the past can be counted as historical knowledge, if it coheres with other statements about the past on which it is dependent.

Judgements about the degree of constructive authenticity, whether it is historical or based on correspondence, would stand on rather firmer ground if they were made on the basis of this relative but coherent historical knowledge. This would be in accordance with the view that there are no universal criteria to measure authenticity, but would nevertheless enable an analytical discussion about the level of authenticity of remains or reconstructions of the past.

Thus, the current historical knowledge would offer the required rationale for evaluating the authenticity of, for example, the clothes of the 3D characters as well as their opinions in the Sanan seppä story. The historical knowledge would help to note that the niche of the missing stoup in the Cathedral is historically authentic, but also that in terms of correspondence with the past it is less authentic since it has suffered from so much deterioration.

Therefore, the users of the application are provided with information about the historical knowledge behind the representation. The most essential part of the information is integrated within the application itself, the rest is to be found by following links from the application to an external website where it is gathered and stored. In accordance with the London Charter for the Computer-based Visualisation of Cultural Heritage, the information provided consists of sources, reference material (texts, images etc.), and literature used for creating the representation as well as the paradata describing the interpretative process and choices made during the creation of the representation.³³ The lack of this kind of clear link between the Holy Ghost Church application and the historical knowledge behind it hampers the assessment of the authenticity of its content. It can be labelled as one of the major weaknesses of the application.

CONCLUSION

In this study, I have shown that authenticity can be a useful but also a dangerous term when assessing different kinds of reconstructions of the past. Since the term has been impregnated with various meanings it is crucial to define it properly for each case in which it is used; a task that is too often ignored. In this paper, I have tried to outline an adequate usage for the term as regards the evaluation of virtual and augmented reality representations of the past. It should be stated that I count authenticity in all the following categories as socially constructed as I have rejected the idea of authenticity as objectively verifiable.

First, I suggest that the concept of authenticity should be understood as a property with varying degrees. Items can be more or less authentic or even more authentic in one sense and less so in another. Authenticity must, however, always be relative since there seems to be no means of measuring it.

Second, I found it useful to combine different definitions of authenticity from different scholars. For the two cases in this study, the distinction between historical authenticity and that based on correspondence is extremely useful, if historical authenticity is understood as the originality or old age of the relics of the past and the authenticity of correspondence as the correspondence with the past. In both cases, it is the current historical knowledge that validates the authenticity. It is crucial that the knowledge, assumptions, and interpretations on which the representation of the past is based are also made available to the audience.

Third, if it is required that the authenticity of experience be taken into account, it might be useful to divide the authenticity of correspondence into authenticity based on genuineness and that based on verisimilitude, as I have done in the case of the Sanan seppä application. In this case, it is the authenticity based on genuineness that is connected to historical knowledge whereas the authenticity based on verisimilitude depends on the experience of the audience. To be verisimilar a representation must be in accordance with the expectations of the audience or at least comprehensible to them. This is the only case in which a representation of the past can be authentic even though it partly deviates from historical knowledge. It is noteworthy, that explicating the historical knowledge and the rationale behind the representation is, however, likely to diminish the gap between these two categories of authenticity: genuineness and verisimilitude.

Finally, it must be remembered, however, that if priority is given to historical knowledge, the authority to decide what is authentic would now be solely in the hands of historians and other experts on the past. The audience and all

other people would be excluded, which is far from being unproblematic even if it could be justified.

NOTES

- ¹ With reconstruction I mean textual, visual and other interpretations of objects, events and other phenomena of the past created in the present.
- ² Futuristic History was a two year (2013 – 2014) multidisciplinary research project, which studied presenting and recreating history with the help of mixed reality (MR). The project has produced several demonstrator applications about augmented and virtual reality usage in history and museum contexts. It was carried out by the Technology Research Center and the Department of Finnish History at the University of Turku and VTT. The project was funded by Tekes – the Finnish Funding Agency for Innovation.
- ³ MIRACLE (Mixed Reality Applications for Culture and Learning Experiences) likewise is a two year (2015–2016) Tekes funded project, which continues the research begun in Futuristic History. In addition to the research organizations in the first project, the University of Helsinki and the University of Tampere also have joined the project. The aim is to find cost-efficient ways to create attractive mixed reality applications for cultural travel and out-of-classroom learning.
- ⁴ Milgram & al. 1994; Azuma 1997; Seppälä & al. 2016, 2–3.
- ⁵ Seppälä & al. 2016, 3.
- ⁶ Dempsey & al. 2014, 9–17.
- ⁷ ARmedia Augmented Reality 3D Tracker, youtube-video.
- ⁸ Gardberg 1966, 8–16; Kalpa, Junttila & Moberg 2011, 12–16 and 70–80; Viinikkala & al. 2013, 121–130. Uotila & al. 2013.
- ⁹ Viinikkala & al. 2013, 121–130.
- ¹⁰ Viinikkala & al. 2013, 121–130; Uotila & al. 2013.
- ¹¹ Gardberg & al. 2000; Hiekkanen 2007, 188–211.
- ¹² With replication I refer here, in the proper meaning of the word, to copies of existing objects, excluding reconstructions with features based on interpretation or imagination.
- ¹³ Lowenthal 1994, 38–40; Wang 1999, 349–350; Reisinger & Steiner 2005, 80–81.
- ¹⁴ Lindholm 2008, 3.
- ¹⁵ Trilling 1972, 92–100.
- ¹⁶ Lindholm 2008, 16–18; Brooks 2014, 3–5. See the discussion of the history of the concept in e.g. Trilling 1972 and Reisinger & Steiner 2005.
- ¹⁷ Lindholm 2008, 2–3, 25–27.
- ¹⁸ Bruner 1994, 399–400.

- ¹⁹ Wang 1999, 351–361.
- ²⁰ The Nara Document on Authenticity 1994; Brooks 2014, 6–7.
- ²¹ Among the few exceptions, see Herb 1994, 107.
- ²² Lowenthal 1994, 45.
- ²³ Morena 2014. The case is even more complex in that even the original film costume itself is a representation of a 19th century gown meant to look slightly worn and that the conservators did not know exactly which scuff marks in the dress were part of its original form.
- ²⁴ Aronsson 2012, 112–113.
- ²⁵ Lowenthal 1994, 38.
- ²⁶ Bruner 1994, 399–401.
- ²⁷ Bruner 1994, 402.
- ²⁸ Reisinger & Steiner 2005, 69.
- ²⁹ Reisinger & Steiner 2005, 73. With authenticity they refer here to the authenticity of objects.
- ³⁰ Reisinger & Steiner 2005, 81.
- ³¹ Roth 2013, 327–329, 338–339. According to Roth, this makes not only the knowledge about the past but even the past itself fluid and still constantly altering.
- ³² Kalela 2002, 145. According to logicians, the main weakness of the theory is that according to it a group of statements unconnected to the reality can form a system of beliefs on their own and justify each other regardless of the reality. This doesn't, however, greatly diminish its value to the epistemology of historical knowledge.
- ³³ Denard 2009, 7–9.

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APPLICATIONS

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and on AppStore

<https://itunes.apple.com/fi/app/holy-ghost-church/id808651153?mt=8&ign-mpt=uo%3D4>

Sanan seppä. The application is currently in the making at Technology Research Center at the University of Turku. According the timetable the application will be ready in November 2016.

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