



Novigrad in the evening sun. *The Witcher 3: The Wild Hunt* (CD Project Red 2015)



## **Special Issue**

## **Gamevironments of the Past.**

by

Derek Fewster and Ylva Grufstedt



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# Where did you learn that? The self-perceived educational impact of historical computer games on undergraduates Robert Houghton

#### **Abstract**

Historical computer games are a relatively young medium but they have a great potential to influence popular perceptions of history. This article addresses the impact of computer games and other media on undergraduates' interest in history and their historical knowledge. On the basis of evidence collected through a survey conducted at the University of Winchester this paper argues four key points: Firstly, computer games can strongly influence undergraduates' perspectives of history. Secondly, computer games exert most influence on students' understanding of periods which they have not previously studied. Thirdly, different genres of computer games influence students in different ways. Fourthly, male and female students are influenced to different extents by computer games.

**Keywords:** undergraduate education, gender, pedagogy, historical computer games, gamevironments

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#### Introduction

This article addresses reflexive undergraduate perceptions of the influence of computer games and other media to their interest in and understanding of history. It presents the results of an online survey which was circulated in spring 2016 to first year students studying history pathways at the University of Winchester. The sample size, 41 students, is small and does not provide a comprehensive account of undergraduate views. However, the data collected here does inform discussion of some key issues. Moreover, this nascent research demonstrates the need for a more thorough investigation.



Computer games play an increasingly important role throughout international society (Bolter 1984, Beavis 1998, King 2002). The industry is incredibly valuable and forms an important part of modern media production (Poole 2000, Vorderer and Bryant 2006) and these games can influence human minds and cultures (Murray 2006). As a result, the role of computer games in pre-university education has been considered in great depth, sometimes negatively as a source of violence or antisocial behaviour (Funk and Buchman 1996, Anderson and Bushman 2001, Williams and Clippinger 2002), but also as a positive influence on gamers social and intellectual development (Fromme 2003, Prensky 2006, Tüzün et al. 2009). Edutainment games have been deployed with varying degrees of success (Egenfeldt-Nielsen 2010) and commercial games have been used in teaching at pre-university level (Short 2012, Tromba 2013, Overby and Jones 2015). Games have been used to support history education at various pre-university levels with demonstrable effectiveness in developing students understanding of historical periods (McMichael 2007, Watson, Mong and Harris 2011, McCall 2016). The growing range and accessibility of historical computer games dictates the continued influence of this

However, the impact of these games on undergraduate students is rarely considered. Their influence on learning outside the classroom has been demonstrated amongst younger students (Gee 2003), but the academy as a whole has not addressed the significance at university level. Rosenzweig and Thelen's (1998) wide ranging survey of popular media and public perceptions of the past in the USA considered a broad cross section of society including university students, but did not consider computer games. The impact of individual forms of media, such as film (Sturtevant 2012), on undergraduate perceptions of history and the academic impact of computer games on younger students has received attention (Prensky 2006), but their role in further

media.



education has not been addressed in the same depth. This may be a consequence of the reluctance of many historians to consider computer games a viable medium for historical study (Chapman 2013b).

This is an oversight as games are demonstrably influential at undergraduate level. They have been used successfully in teaching various aspects of history at university (Martin Wainwright 2014). Furthermore, undergraduates' personal experience of computer games can influence their understanding of history within the classroom. University students consume games at almost the same rate as pre-university students (Griffiths, Davies and Chappell 2004) and students often mention historical computer games in class and sometimes report these games as forming the basis for their interest in history (Elliott and Kapell 2013). Students have been observed using the mechanics of computer games to support assessed work. Some students' perceptions of history are clearly influenced by games.

In any event, the role of computer games in the development of undergraduate perceptions of history must be explored further. These games can be an important influence, but the extent and nature of this influence demands greater consideration.

For this purpose, it is possible and advantageous to consider computer games in conjunction with other media, but also as a distinct media format. Modern media must be understood as part of a broader interaction with society: media is shaped by society just as society is shaped by media (Krotz 2007, 2008) and links also often exist across different formats of media: works such as *Game of Thrones* are presented across literary, visual and digital media. However, while the interwoven nature of each format of media with other formats and with society in general must be acknowledged (Madianou and Miller 2013, Radde-Antweiler, Waltemathe and Zeiler 2014), this does not mean that interactions between different formats of media and



society are uniform. Different media types or genres may interact with society in different ways (Hjarvard 2008, 2013). It is therefore useful to gain an understanding of the actual and perceived role of different media formats. From an educational standpoint this is particularly important as students' perceptions of their learning can inform teaching practice.

This article focuses on students' reflexive understanding of the relationship between their perceptions of history and the portrayal of history within media. Unconscious, non-reflexive influences are not addressed here but are undoubtedly of significance and must be analysed in the future. Furthermore, no distinction is made between the impacts of the technical or cultural worlds of these games. Nevertheless, this study is an important first step and will provide some indication of the nuances within this influence. The purpose of this article is not to calculate the precise significance of computer games to undergraduate perceptions of history, but rather to underline the importance of this area for further study.

#### **Hypotheses**

The premise of this article is that games influence students' interaction with history in a different manner from other forms of media. While games can certainly contain narrative and passive elements (Juul 2001), the unique interactive and ludic nature of computer games sets them apart from other media formats which by their nature are obliged to rely primarily on passive and narrative methods to portray history and hence to influence their consumers (Frasca 2003, Aarseth 2004, Juul 2005, Chapman 2012). The ludic and interactive nature of games can make them more engaging and better able to influence their consumers (Johnson 2006). When they focus on historical or semi-historical (i.e. fantasy) themes this engagement can develop formative knowledge and ideas about the period to a greater extent than that instigated by other media forms. The form of the game is of greater importance than



its content: the narrative and "facts" presented in games are less relevant than the mechanisms which drive them (Chapman 2012).

From this fundamental premise, three core hypotheses emerge:

1. Computer Games have the potential to exert great influence on their consumers' perceptions of history.

As has been demonstrated repeatedly, interactivity in the classroom supports deeper learning (Prince 2004, Roussou, Oliver and Slater 2008, Beauchamp and Kennewell 2010). The interactivity of games therefore provides a platform for the transmission of ideas and information (DeKanter 2005) and can encourage greater engagement with history than other passive media (Elliott 2011, Vosmeer and Schouten 2014, Hill 2016). The ability to construct counter-factual history through gameplay provides an important contrast to the determinism of other media forms and presents students with clear links between cause and effect (Ferguson 2001, King 2002, Brown 2008, Peterson, Miller and Fedorko 2013, Ortega 2015).

A corollary of this interactivity is that the player enjoys the freedom to explore what interests them. Even the simplest game provides the player with choices which lead to different outcomes. In more complex games this freedom of choice and action allows players to choose what they learn about the game world and, in the case of historical games, what they learn about history. This freedom of activity can be a major factor in players' enjoyment of games which can enhance the medium's impact (Ryan, Rigby and Przybylski 2006, Bostan 2009, Barendregt and Bekker 2011). The fact that the player is steering their experience towards their own interests increases their retention of information.

Because of this interactivity and freedom, games require complex and internally consistent mechanics and this may increase their perceived and actual impact. While



other media can present intricately detailed societies and systems, for example, *A Song of Fire and Ice* possesses a mechanically complex world with some basis in medieval societies (Stanton 2015, McCaffrey and Dorobăţ 2016), this is not necessary. Computer games are much more able to present detailed functioning worlds which can encourage the development of complex and critical thinking in their players (Johnson 2006).

Furthermore, computer games force their players to become familiar with these complex systems. If the player wishes to progress, they must learn to manipulate the game systems (Gee 2003, Juul 2005, Elliott and Kapell 2013, Suits, Hurka and Newfeld 2014). In historical games, this requires that the player understands history as represented within the game (Chapman 2013a). First person shooters require an understanding of their world's weapons and combat. Grand strategy games require learning about the social, military and economic systems of the period. These mechanics do not necessarily reflect an academic vision of a given period, but this inaccuracy is of little relevance to the potential impact of these games (Peterson, Miller and Fedorko 2013).

2. Computer games are more influential on UK students' knowledge of earlier periods of history.

Contemporary and modern history are taught thoroughly within the UK national curriculum. Almost all students studying a history A-level will focus primarily on events after 1500. A 2014 investigation demonstrated that only one of the ten most commonly taught modules on the OCR syllabus incorporated any material prior to 1500 (Child, Darlington and Gill 2014). Most students entering university to study modern history have a relatively strong educational background in the period. Meanwhile, students of medieval or ancient history are often only introduced to the period after entering university. As a result, they are more reliant on knowledge they



have developed outside the classroom, including that from popular media.

Undergraduates have grown up in a society focused on the history of the modern period. Culture and politics make frequent references to the events of the last hundred years such as the World Wars, Vietnam War and AIDS epidemic (Stuckey 1992, Sturken 1997, Biesecker 2002) while events before 1500 are barely mentioned unless they have a particular national significance – the Battle of Hastings or Magna Carta for example. Although the effects are primarily sub-conscious, students have engaged with a culture which relied in part on a shared knowledge of certain events on a daily basis. Even if this shared knowledge is only relevant occasionally it forms a broad support for students' confidence in dealing with more recent periods of history.

Popular media also tends to focus on modern periods. Of the 25 highest grossing historical films produced since 1995, only 4 were set prior to 1500 (Top-Grossing Movies 2016). This trend is present within computer games, but is generally less pronounced. The bestselling series are generally set in the modern period: *Call of Duty* (2003-present), the historical franchise with the highest sales, is set firmly in the twentieth and twenty-first century (McWhertor 2016). However, games like *Assassins Creed* (2007-2015), *God of War* (2005) and *Age of Empires* (1997–2015) are all set in the pre-modern world and have also enjoyed high sales figures (Pritchard 2000, Yin-Poole 2012, Ubisoft 2013). Proportionally, compared to other media, computer games may be more readily available for these earlier periods and hence are more likely to be influential.

3. Different genres of game influence their audience's perception of history in different ways.

Games with stronger ludic elements, higher levels of interactivity and freedom of play are more likely to influence their players understanding and knowledge than games



which are more linear, narrative and passive. Games which allow and require the player to engage with complex historical systems will leave a greater impression on their consumers. Likewise, games which supply a rich and varied environment to explore will have more of an impact on their players than games which only provide a superficial historical setting. As discussed previously, these elements are the foundation of the ability of computer games to affect students' formative understanding of a period of history. However, games which provide these environments in abundance can be less approachable than other genres which present less detailed accounts of a historical world and require less interaction with complex systems can have a greater influence on students' interest in history. In broad terms, and with obvious exceptions in every case, certain genres of game are more likely to influence student's knowledge of history while others are more likely to influence their interest in history.

Grand strategy games are typically well placed to influence gamers' knowledge of a period. This genre provides complex worlds with which the player must engage (Martin Wainwright 2014). They give the player control over a vast array of decisions with relatively few restrictions placed on their actions. The consequences of these actions are easily visible and a thorough understanding of the game mechanics must be developed in order to win. Grand strategy games can epitomise the factors which make computer games influential on consumers' understanding of history.

Other genres can produce games which influence student knowledge of a period, but this influence tends to be less noticeable. First person shooters such as *Call of Duty* influence their players' perceptions of warfare by requiring them to participate in combat (Gish 2010). However, the player is only rarely required to interact with historical details or systems. This leaves their consumption of history from these games as a passive and optional activity greatly reducing the potential impact of these games on students' understanding of the period.



These less complex games may have a much greater impact on student interest in history. The enforced interaction with complex worlds necessitated within grand strategy games can make play a daunting prospect and this often leads to players coming to these games with a pre-existing knowledge of history. First person shooters can require very high levels of skill and experience to compete at the highest levels, but generally provide an intuitive entry point for new players. Real time strategy games can also be difficult to master, but usually rely on a relatively small variety of player decisions facilitating an easy entry into the game. If these games are presented in a historical period, they could provide the impetus for further consideration of the period.

Roleplaying games have the potential to create a strong impression about historical periods on students, but it is likely that this is rarely realised. Like grand strategy games, roleplaying games provide complex and engaging worlds for their players and have the potential to influence perceptions of history significantly. In order to complete the game players are obliged to interact with the setting. Moreover, role playing games give the player a stake in their character and the game world which often does not exist in grand strategy games which tend towards the impersonal. This has the potential to increase their impact.

Furthermore, these games could serve as a prominent influence on students' interest in history. Like real time strategy games and first person shooters, modern roleplaying games tend to be easy to play but hard to master. Their learning curve is typically much more reasonable than that of grand strategy games. In addition to this the emphasis placed on social interaction and other non-combat orientated activities (such as crafting, building or farming) by many roleplaying games and their focus on narrative means that these games allow players to engage with a more fully formed



historical world, potentially encouraging gamers to investigate a period further.

However, roleplaying games tend towards fantasy which could limit their influence. *The Elder Scrolls V: Skyrim* (2011) is a complex game with many medieval elements, including mythological elements, but its influence is limited by the presence of dragons, magic and other fantastic elements (Hong 2015). At its most basic, the world of *The Elder Scrolls V: Skyrim* is quite clearly not medieval Europe, or even a rough approximation of medieval Europe. This disconnect between the game world and reality is a constant within most roleplaying games and may undermine their ability to affect their players' understanding of history or even their interest in a period.

#### Method

The survey was conducted through the Bristol Online Survey Tool. Respondents were drawn from first year students at the University of Winchester studying history or related disciplines. To provide an indication of the impact of students' education on their perceptions, respondents were asked the academic level to which they had previously studied different periods (Contemporary, Post 1900; Modern, 1500-1900; Medieval, 500-1500; Ancient, pre 500), which of these periods was of most relevance to their intended degree and whether they had ever been educated outside the UK. To provide a weighting mechanism respondents were asked to provide a score (0-10) for their level of interest in each period. In order to provide an indication of the perceived importance of specific genres, participants were asked if they considered a single item of media had particularly inspired their historical interests. They were then asked to score (0-10) the impact of their previous education and a variety of forms of media on their interest in each period. The option to respond that they had not consumed a particular format of media was included to allow the distinction between



media which had been consumed but was not perceived as influential and media which had not been consumed. The distinction between 'historical' and 'fantasy' media was left deliberately vague to encourage respondents to consider the overlap between the two.

These questions were then repeated regarding participants' understanding of history: how did they rate their knowledge of each period? Had a particular item of media particularly influenced their knowledge of history? How important was each form of media was in informing their knowledge of each period? These related but distinct questions allowed differentiation between media which inspired study and that which facilitated study. Finally, to ensure a representative sample and allow the consideration of differences in response along age and gender lines, participants were asked their age banding and their gender identity.

#### **Results**

One student was educated outside the UK, but only briefly at a very early stage in their education. They have been included in all the statistics below. Gender identity was split almost evenly 51.2% female (21 students) and 48.8% male (20 students). 68.3% (28 students) of respondents were under 20, 29.3% (12 students) were 20-25 and 2.4% (1 student) were over 25.

	Contemporary History	Modern History	Medieval History	Ancient History
Primary School	2.5	4.9	14.6	46.3
Early Secondary School	10.0	7.3	34.1	19.5
Late Secondary School	27.5	17.1	14.6	4.9
College	60.0	70.7	36.6	29.3

Table 1. What is the highest level to which you have studied the following periods of history? (%)



The majority of respondents studied contemporary and modern history to college level. Substantially fewer studied medieval or ancient history to this level. Almost half of the respondents had only studied ancient history at primary school.

	Contemporary History	Modern History	Medieval History	Ancient History
Interest in:	6.0	6.9	7.1	6.1
Knowledge of:	6.9	6.6	6.1	4.6

Table 2. Mean "Interest in" and perceived "Knowledge of" Different Periods of History (0-10)

Respondents consistently rated their knowledge of contemporary and modern history as substantially better than their knowledge of medieval and, especially, ancient history. However, when asked about their interest in the different periods, participants generally expressed more interest in modern and medieval history than other periods.

	Education	Museums etc.	Academic Books	Newspapers	Historical Literature	Fantasy Literature	TV Documentaries	News Broadcasts	Historical TV	Fantasy TV	Historical Boardgames	Fantasy Boardgames	Historical Computer Games	Fantasy Computer Games	Average
Contemporary	6.7	6.0	4.9	4.4	5.7	5.6	7.6	5.5	7.4	6.5	5.5	4.3	6.6	5.1	5.8
Modern	7.4	6.9	6.0	5.0	6.4	6.1	7.4	5.4	7.7	6.6	5.0	3.8	6.4	4.9	6.1
Medieval	6.2	6.8	6.3	4.9	6.6	6.0	7.1	4.6	7.3	6.4	5.3	4.8	6.2	5.2	6.0
Ancient	6.0	6.3	5.0	4.2	5.8	5.8	7.0	4.4	7.0	6.6	4.6	4.3	6.3	5.1	5.6
Average	6.6	6.5	5.6	4.6	6.1	5.9	7.3	5.0	7.4	6.5	5.1	4.3	6.4	5.1	5.9

Table 3. Mean responses to the question: *To what extent have the following forms of media influenced your interest in the following periods of history?* (0-10)

TV documentaries and Historical Fiction TV were consistently cited as very influential across all periods. Other forms of media including Museums, Fantasy TV and Historical Computer Games were perceived to have similar influence as previous education.

	Education	Museums etc.	Academic Books	Newspapers	Historical Literature	Fantasy Literature	TV Documentaries	News Broadcasts	Historical TV	Fantasy TV	Historical Boardgames	⊏	Historical Computer Games	Fantasy Computer Games	Average
Contemporary	7.9	5.9	7.3	5.7	5.3	4.4	7.6	6.1	6.8	5.7	4.4	4.4	6.5	4.7	5.9
Modern	7.8	6.4	7.4	4.8	5.6	4.4	7.6	4.6	6.8	5.0	4.7	3.8	6.4	3.9	5.7
Medieval	6.7	6.5	7.4	4.2	5.4	4.8	7.6	4.6	6.8	4.9	3.9	3.4	6.0	3.4	5.4
Ancient	6.3	5.8	6.4	3.7	4.7	3.9	6.4	4.0	6.3	5.0	3.5	3.3	6.8	4.3	5.0
Average	7.2	6.1	7.1	4.6	5.2	4.4	7.3	4.8	6.7	5.2	4.2	3.7	6.4	4.1	5.5

Table 4. Mean responses to the question: *To what extent have the following forms of media influenced your knowledge of the following periods of history?* (0-10)

Education was perceived as influential on participants' knowledge of contemporary and modern history but less important for earlier periods. Academic books, TV documentaries, historical TV, and historical computer games were also seen as influential.

	Education	Museums etc.	Academic Books	Newspapers	Historical Literature	Fantasy Literature	TV Documentaries	News Broadcasts	Historical TV	Fantasy TV	Historical Boardgames	Fantasy Boardgames	Historical Computer Games	Fantasy Computer Games
Contemporary	2.3	2.6	2.9	2.7	3.1	3.0	2.1	2.6	2.4	2.6	2.5	2.7	3.2	3.2
Modern	1.9	2.5	2.6	2.9	2.5	2.9	2.3	3.0	2.2	3.0	2.7	2.8	3.5	3.4
Medieval	2.9	2.4	2.4	2.7	2.7	3.2	2.6	3.2	2.4	3.2	3.1	3.4	3.8	4.0
Ancient	2.9	2.5	2.8	3.1	2.9	3.1	2.5	3.2	2.6	3.2	3.4	3.3	4.1	4.1

Table 5. Standard deviation of responses to the question: *To what extent have the following forms of media influenced your interest in the following periods of history?* 

	Education	Museums etc.	Academic Books	Newspapers	Historical Literature	Fantasy Literature	TV Documentaries	News Broadcasts	Historical TV	Fantasy TV	Historical Boardgames	Fantasy Boardgames	Historical Computer Games	Fantasy Computer Games
Contemporary	2.3	2.4	2.1	2.7	2.7	3.2	2.2	3.0	2.4	2.9	2.9	3.1	2.9	3.4
Modern	2.1	2.5	2.4	3.2	3.0	3.3	2.2	3.3	3.3	3.6	3.3	3.4	2.9	3.4
Medieval	2.7	2.6	2.3	3.2	3.1	3.3	2.5	3.2	2.8	3.5	3.1	3.4	3.6	3.6
Ancient	3.3	2.8	2.5	3.0	3.1	3.3	2.8	3.3	2.8	3.7	3.4	3.5	3.7	3.8

Table 6. Standard deviation of responses to the question: *To what extent have the following forms of media influenced your knowledge of the following periods of history?* 

The standard deviation of scores for both central questions was highest in relation to computer games. This indicates great variation in participant responses.

		Contemporary		Modern		Medieval		Ancient		All	
0	Low	4.0	20.0	12.5	41.7	15.4	26.9	16.0	32.0	12.0	30.0
1		8.0		16.7		7.7		12.0		11.0	
2		4.0		12.5		3.8		0.0		5.0	
3		4.0		0.0		0.0		4.0		2.0	
4	Mid	0.0	24.0	12.5	41.7	0.0	11.5	0.0	8.0	3.0	21.0
5		12.0		20.8		3.8		0.0		9.0	
6		12.0		8.3		7.7		8.0		9.0	
7	High	8.0	56.0	4.2	16.7	15.4	61.5	4.0	44.0	8.0	45.0
8		16.0		4.2		11.5		8.0		10.0	
9		8.0		8.3		3.8		8.0		7.0	
10		24.0		0.0		30.8		24.0		20.0	

Table 7. Distribution of responses to the question: *To what extent have Historical Computer Games influenced your interest in the following periods of history? (%)* 



		Contemporary		Modern		Medieval		Ancient		All	
0	Low	9.1	13.6	9.1	9.1	17.4	21.7	15.0	20.0	12.6	16.1
1		0.0		0.0		4.3		5.0		2.3	
2		0.0		0.0		0.0		0.0		0.0	
3		4.5		0.0		0.0		0.0		1.1	
4	Mid	4.5	31.8	13.6	36.4	8.7	17.4	5.0	15.0	8.0	25.3
5		13.6		13.6		8.7		0.0		9.2	
6		13.6		9.1		0.0		10.0		8.0	
7	High	18.2	54.5	13.6	54.5	17.4	60.9	5.0	65.0	13.8	58.6
8		4.5		13.6		17.4		15.0		12.6	
9		18.2		13.6		8.7		15.0		13.8	
10		13.6		13.6		17.4		30.0		18.4	

Table 8. Distribution of Responses to the question: *To what extent have Historical Computer Games influenced your knowledge of the following periods of history?* (%)

A relatively high percentage of responses appear at the high (7 or more) and low (3 or less) ends of the scale. This was particularly pronounced when considering responses for medieval and ancient history.

	Interest in History	Knowledge of History
Literary	14	16
Visual	19	9
Digital	9	4
Audio	1	
Total	43	29

Table 9. Frequency of citations of particular media formats as the strongest individual influence on participants' interest in and knowledge of history (number of responses). Note that totals may exceed number of participants as multiple responses were accepted.

Respondents frequently noted individual items of literary or visual media as the strongest single influence on their interest in history. Digital media appeared less often, but were still the most important single factor for more than a fifth of respondents. Both visual and digital media were less frequently cited as the most important individual items in developing participants' knowledge of history while literary media appeared more frequently.

	Interest in History	Knowledge of History
Age of Empires	1	
Assassin's Creed	3	1
Paradox Series		2
Total War	2	

Table 10. Frequency of citations of particular games/series as the strongest individual influence on participants' interest in and knowledge of history (number of responses)

1

9

**Uncharted** 

Total

**Unspecified Games** 

Assassin's Creed (followed by the Total War series, 2000-present) was the most frequently cited series for developing participant's interest in the subject while the series of grand strategy games produced by Paradox Interactive were most commonly mentioned as central influences on historical knowledge.

	Contemporary	Modern	Medieval	Ancient	Overall
Female	5.0	3.5	4.5	4.1	4.3
Male	7.3	7.6	7.0	7.4	7.3

Table 11. Mean responses by gender to the question: To what extent have Historical Computer Games influenced your interest in the following periods of history? (0-10)

Male participants on average and across all periods reported that historical computer games exerted a much stronger influence on their interest in history.

	Contemporary	Modern	Medieval	Ancient	Overall
Female	6.2	7.5	4.6	4.8	5.8
Male	6.5	6.2	6.3	7.3	6.6

Table 12. Mean responses by gender to the question: *To what extent have Historical Computer Games influenced your knowledge of the following periods of history?* (0-10)

The gender difference for reflexive knowledge of history is less pronounced, but still significant for the medieval and ancient period. The trend is notably and substantially reversed when considering the modern period.



#### **Discussion**

#### **Perceived Impact of Historical Computer Games**

Participants often felt Historical Computer Games had a very strong influence on their understanding of history (6.4 on average) when compared to other forms of modern media. Only previous education (7.2), academic books (7.1), TV documentaries (7.3) and historical fiction TV (6.7) were seen as greater influences. These games were also viewed as having an important role in the development of participants' interest in history (6.4). Although seen as less influential than historical fiction TV (7.4) or TV documentaries (7.3), they were thought to be roughly as influential as historical fictional literature (6.1), museums (6.5), fantasy TV (6.5) or students' previous education (6.6). While some other forms of media were generally reported as more influential, these results highlight the general perception that historical computer games had a significant impact.

The high potential of computer games to influence individual gamers' perceptions of history is demonstrated through massive variations in responses from individual students. The standard deviation of responses relating to historical computer games was the second highest of all media forms for every period (3.8). Respondents tended to report either very strong or very weak influence from games: 45% said they had a strong impact on their interest (7 or higher), 30% a restricted influence (3 or less); 59% rated them as very relevant (7 or higher) to their knowledge, 16% as largely irrelevant (3 or less). A substantial proportion of students who engaged with these games saw them as among the most influential factors in both their interest in and understanding of history in general.

Furthermore, a significant number of respondents (9, around a fifth of the responses) stated that a computer game or games were the most important factor in developing



their interest in history. A smaller, but still relevant number (4, about a seventh of responses) provided a game as the strongest influence to their knowledge of history.

This perceived influence was not universal; several participants reported that games had little or no effect. Nevertheless, these results support the first hypothesis laid out above: the impact of computer games on students' reflexive perceptions of history can be very strong and this medium is particularly influential on the development of students' reported knowledge of history. The perceived impact of games on students' interest in history is less prominent, but they remain an important factor.

#### **Variation by Historical Period**

The reported impact of historical computer games on participants' knowledge of history tended to be most pronounced when considering the periods about which they were least knowledgeable. In the case of ancient history, which students reported as their area of least expertise by a significant margin (4.6 compared to contemporary (6.9), modern (6.6) and medieval history (6.1)), computer games were perceived on average as the single most significant form of media in informing knowledge (6.8).

The standard deviation of the responses for medieval (3.6) and ancient history (3.7) (the periods which respondents claimed the least knowledge) are significantly higher than those for contemporary (2.9) and modern history (2.9). 61% of students reported games as highly influential (7 or higher) in their understanding of medieval history compared to 55% for both contemporary and modern history. However, this was offset by 27% of students who reported little influence (3 or less) compared to 9% for both contemporary and modern history. Likewise, when considering ancient history 65% of responses were very positive while 20% were negative. This split in responses indicates that a substantial number of students felt greater influence from



games regarding earlier periods.

This suggests a negative correlation between reported student knowledge of a period and the extent to which they perceived Historical Computer Games influencing their knowledge of that period. No other form of media follows such a strong correlation with student knowledge (or lack of knowledge). This supports the second hypothesis of this paper: computer games tended to be reported as more influential on students' historical knowledge when considering periods where they felt less knowledgeable.

#### **Variation by Genre of Game**

When asked if a particular item of media had influenced their interest in history, 9 of the respondents listed a computer game or games as influential. 7 named particular games of which 4 were first person shooters, 3 *Assassins Creed*, 1 *Uncharted* (2007-2016), and 3 named strategy games with emphasis on real time action, *Age of Empires* (1997-2015), *Medieval II Total War* (2002-2003) and *Rome Total War* (2004). The games indicated have a shallow to moderate learning curve and require a comparatively small time commitment to complete (although it is certainly possible to spend a very extensive period playing them). They all feature very visible historical elements but their core mechanics are relatively simple focusing, in the case of the first person shooters, on movement and combat, or, in the case of strategy games, on battles with some logistical elements. These games are also amongst the bestselling titles. In sum, they are well placed to reach a large audience, provide compelling game play and encourage a segment of this audience to develop an interest in further study.

However, different genres were reported when respondents were asked if a particular item of media had influenced their knowledge of history. Of the four respondents



who highlighted a computer game, three listed specific games or series: *Assassins Creed*; *Europa Universalis* (a grand strategy game by Paradox Interactive, 2001-2013); and the grand strategy games produced by Paradox Interactive in general. Paradox Interactive produce some of the most detailed games in this genre, the depth and learning curve of their games is infamous and the considerable potential impact of their games on students' understanding of history has been noted by Lucat and Haahr (2015). The appearance of these games here demonstrates that these more complex games had a considerable impact on student perceptions of history, even if they did not play a major role in students' development of an interest in the subject. These more detailed grand strategy games are less immediately appealing and reach a smaller audience than games of other genres, but when students do engage with them they can leave a very powerful image of a historical period.

None of the games reported as particularly influential employed roleplaying as the central mechanic. Fantasy works were consistently less influential than factual media and works of historical fiction. As roleplaying games generally rely more heavily on fantastic elements than games of most other genres these trends suggest that roleplaying games in general played a limited role in influencing respondents' perceptions of history.

However, these results also underline the potential for Roleplaying games to influence students. Most of the games listed by students incorporated some form of role-playing element, but this was never the central aspect of gameplay. *Assassins Creed* allows for character development or decisions in the style of a roleplaying game. Several Paradox Interactive titles include role-play through ruler events and customisation. The *Total War* games provide more basic role-playing elements, but they are still an important part of the games. The prevalence of games with roleplaying elements as dominant influencers of student thought and knowledge



demonstrates the potential power of Roleplaying games but underlines that for these games to be influential they must be closely and clearly linked with historical periods.

Taken as a whole, these results support the third hypothesis: participants viewed different games, and by extension different genres of game, as influencing their interaction with history in different ways. However, the very limited sample available in support of this hypothesis demands further exploration in the future.

#### **Variation by Gender**

further commentary.

This survey was not designed to test variations in perceived media influence across gender lines. The already small sample size is effectively halved by considering responses from only one gender hence it can offer limited insight here. However, the results of the survey present a clear difference between male and female respondents. On average male students reported that their interest in history was influenced by historical computer games to a significantly greater extent (7.3) than their female counterparts (4.3): the largest difference in impact of a single media type between genders by a wide margin. Furthermore, none of the female respondents listed a game as the most influential factor in either their interest in history or their knowledge of history. This is a dramatic difference between genders and bears

It is first of all important to underline that this divergence is not evidence of the traditional stereotypical identification of gamers as males under 25 years of age. Consumers of games in general are distributed across genders and age groups (Williams, Yee and Caplan 2008). These results do not demonstrate that female respondents were less likely to play computer games, rather it suggests that they are less likely to present games as an influencing factor in their interest in history or their historical knowledge.



However, these perceptions of gamers as male (and white and heterosexual) remain deeply ingrained in society (Nakamura 2012). This may have effected reporting of interaction with games (Ivory 2006). Although the survey was conducted anonymously, some students may have, consciously or unconsciously, sought to conform to perceived societal norms. This could potentially have led to male over-reporting or female under-reporting of the influence of computer games.

Computer games also tend to focus on male characters. Although player characters are increasingly customisable, they are typically male by default and men typically represent the majority of non-player characters (Beasley and Collins Standley 2002, Ivory 2006, Miller and Summers 2007, Williams et al. 2009). Furthermore, male non-player characters generally occupy positions of power or authority while female ones more frequently hold a subservient, and often sexualised, status (Beasley and Collins Standley 2002, Ivory 2006, Schut 2006). This can create an environment which can be ostracising for female gamers, reducing their enjoyment of the game and hence, in the case of historical or pseudo-historical games, its ability to influence their perceptions of history.

Differences in playstyles between genders may have contributed to these results. Male and female gamers as a whole interact differently with games, largely as a result of societal expectations. Most basically, female gamers tend to spend less time playing computer games than their male counterparts (Wright et al. 2001, Lucas 2004). Furthermore, casual female gamers are less likely to identify as gamers than casual male gamers and tend to present their views of gamers in a more negative light than casual male gamers (Vermeulen and Van Looy 2016). As a result, male respondents to the survey in general may have consumed a greater volume of historical computer games and may be more willing to view games as a valid pastime.



Both factors could increase the chances that male respondents would describe this media as having an effect on their perceptions of history.

This divergence may also be indicative of a gender divide in preferences for genres of computer game. While gender differences may not be as marked as is typically thought (Vermeulen and Van Looy 2016), male players as a whole seem to be more likely to engage with role-playing, first person shooter and strategy games (Hayes 2005, Rehbein et al. 2016, Vermeulen and Van Looy 2016). The reasons for this divergence are complex but include differing attractions and aversions along gender lines towards violence, sexual content, social interaction, and competition (Subrahmanyam and Greenfield 2000, Lucas 2004, Hartmann and Klimm 2006, Hartmann, Möller and Krause 2015). As suggested above, the first person shooter and real time strategy genres are more likely to promote a player's interest in history, while grand strategy games can have a considerable impact on their knowledge of a period. If male gamers are more likely to play games of these genres, they are more likely to be influenced by games in this fashion.

These results suggest the existence of a divide between self-perceived impact of computer games on male and female interactions with history. The sample size is too small to draw any solid conclusions and the survey was not designed to support analysis in this area. Nevertheless, the results underline the need to investigate this issue further.

#### **Conclusions**

The survey has demonstrated that computer games have the potential to heavily influence undergraduate students' reported interest in history and their reflexive knowledge of history. In several cases, these games were perceived to play a central



role in the development of a student's interaction with history. Moreover, the results demonstrate that when students engaged with historical computer games they were more likely to feel heavily influenced by their depictions of history than when consuming other forms of media.

Computer games were perceived as more influential regarding periods about which students held little knowledge. Students were considerably more likely to state that they had been strongly influenced by computer games in relation to the ancient period (for which they claimed little knowledge) than modern or contemporary eras (which they reported as more well-known).

The perceived impact of computer games also varied depending on genre. Complex grand strategy games were most influential on respondents' reflexive knowledge of history but less detailed real time strategy games and first person shooters had a greater impact on students' historical interests. Roleplaying games did not have a significant impact, although roleplaying elements were a common theme among influential games. This suggests that games which require in depth understanding of complex game systems encourage retention of knowledge, while games which avoid overly elaborate mechanics are more accessible and facilitate interest in history.

A clear divergence along gender lines exists. Female respondents were significantly less likely to report influence from games than their male counterparts. The reasons for this are complex and require further study.

Taken as a whole, these results emphasise three things:

1) Students perceive different media forms and genres to have different influences on their interaction with history. This does not prove that the ludic format of games enhances their ability to influence their consumers (Frasca 2003, Aarseth 2004, Juul



2005, Chapman 2012), but it does suggest that such a link may exist.

- 2) An understanding of the portrayal of history in computer games (and modern media in general) is therefore of importance when teaching history at university level. Like all forms of modern media, computer games have the potential to influence students negatively by presenting misleading accounts. The interactive nature of computer games greatly increases this potential. Because computer games present working pseudo-historical systems they may be more able to influence their players' concepts of historical ideas or mechanisms (Johnson 2006). Where a film might present an unrealistic or anachronistic portrayal of physical items or individuals a game can demonstrate a working model of an entire society. If these systems are based on fundamentally flawed premises they can create a much deeper and more negative effect on students' understanding of history. This is particularly important when teaching earlier periods of history as computer games appear to be more influential on students' reflexive understanding of these eras.
- 3) Despite these potential pitfalls, computer games present a very useful tool for education in history. The value of games in developing understanding of history has been demonstrated repeatedly and these results support the use of games in an educational setting (McMichael 2007, Egenfeldt-Nielsen 2010, Watson, Mong and Harris 2011, McCall 2016). From these results, it seems that games could encourage students to engage with periods outside their area of expertise and could help to develop their historical knowledge. By using games in conjunction with tutor and peer discussion of the themes they raise they could be developed into an important part of a syllabus. Students could discuss how a game depicts a historical society and, through traditional research, discuss how this compares with academic perceptions.

These results are useful but they are not comprehensive. The sample size was too



small to be statistically significant and too localised to provide convincing wide ranging conclusions. In order to rectify this a pair of surveys will be circulated on a national and international level, the first addressing the impact of various forms of media on students' interest in history, the second dealing with the impact of this media on their knowledge of history. Following these surveys, targeted questionnaires addressing the impact of different genres of computer game will be circulated and interviews will be conducted with individual students. Furthermore, this survey only considered the impact consciously perceived by students. In order to address the extent to which students are unconsciously influenced by these games an extensive analysis of coursework and class contributions will be required. This compiled data will provide more substantial evidence for the influence of computer games and allow more detailed analysis. Nevertheless, even this small survey returns strong evidence of the importance of computer games in the formative development of undergraduate students of history and demands greater consideration of the role of these games in education.

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