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here provides an important resource for the consideration of the well-established limitations and concerns which surround the use of games in the history classroom. This study is in no way intended as a conclusive or final word on this matter: it is restricted by sample size and locality; it cannot comment meaningfully on the impact of games on non-binary or genderqueer students; and it does not address the intersection of gender with other demographic characteristics (including but not limited to sexuality, racial identity, nationality, age or social class). Nevertheless, the study highlights some important trends and avenues for further research.

## Hypotheses

This article presents four inter-connected hypotheses:

- 1) Games can substantially influence their player's interest in and perceived understanding of history, but this influence is not universal.
- 2) Games of different genres influence their players in different ways and to different extents.
- 3) Male students are typically influenced more strongly by games than female students, but there is substantial variation within these groups.
- 4) Difference in genre preference along gender lines is a principal driver of the discrepancy in influence of historical games between male and female students.

## The Varied Influence of Games

The preliminary study suggested that while computer games were less potent on average than several other forms of media in terms of influencing both student's interest in and understanding of history, numerous individual students reported computer games to be particularly influential. This was balanced by a substantial

body of students who reported that games had little or no influence on their interest in history or their understanding of the past. In short, games seemed to have either a substantial or very limited impact on students (Houghton 2016, 24-25).

As demonstrated through the various studies highlighted above, the potential impact of games on their players understanding of history is immense. However, the relative impact of games on students' formative perceptions of the history may be limited by a number of factors. At its most basic, the impact of games is restricted by audience size. While the number of players has steadily increased over recent decades, there remains a substantial proportion of the population which does not engage with computer games. Kort-Butler's (2020) recent survey (n=896) of undergraduate students at a large public university in the USA found that 62% of the sample reported that they did not play games. Although a substantial proportion of the population of several countries report playing games, this proportion remains significantly lower than those who engage with television, cinema, or literature (Hamilton and Ashton 2003, Conrad, Létourneau and Northrup 2009). No matter how great the influential potential of games, they cannot influence the perspective of those who do not engage with them.

Other factors may also be at play here. Even within the game playing population, only a proportion play games which they would consider historical. Although games with historical settings and themes such as the *Battlefield* (2002-2018), *Assassins' Creed* and *Civilization* series (1991-2016) are among the best-selling, substantial market share is also commanded by games which have little or no historical bearing ranging from *Pokémon* (1996-2019) and *Tetris* (1984) to *Grand Theft Auto* (1997-2013) and *Mass Effect* (2007-2021). Again, no matter how great their potential, historical games cannot influence those who do not engage with them. The extent of play may also a

factor here: those who play games regularly and for prolonged periods are more likely to be influenced than those who play intermittently for shorter periods and are more likely to view them in a positive light (Kort-Butler 2020).

The basis of impact of any media is in large part driven by audience interaction with this media. As such, this paper hypothesises that fewer students will report engaging with historical games than any other type of historical media and that these students will typically report either a profound or negligible impact of games on their formative interactions with history. The mean impact across the student body can likewise be expected to be amongst the lowest of all historical media as despite the proliferation of games and gaming devices, the medium remains less accessible than books, film, education or most other forms of media.

**Genre**

The initial study suggested that while action and adventure games such as *Assassin's Creed* or *Uncharted* (2007-2017) and real time strategy games such as the *Age of Empires* (1997-2020) and *Total War* series (2000-2020) tended to play a greater role in developing students' interest in history (Houghton 2016, 26), strategy games such as the Paradox Interactive historical games were more influential on students' understanding of the past (Houghton 2016, 26-27). Other genres of game did not appear to be influential in either regard.

The pronounced impact of these particular types of game can in large part be explained by the fact that historical games most frequently fall into these genres. As Rochat (2020, 11-12) has demonstrated, the significant majority of games with a historical setting fall into the strategy genre, with action and adventure genres



Games at opposite poles of Chapman’s dichotomy tend to influence their players in fundamentally different ways. Realist simulations tend to act as a means to grab a player’s attention and gain their engagement and interest in a period or event, but their relatively simple rules ensure that players do not learn very much directly from the game (Chapman 2016, 61-69). In contrast, conceptual simulations are less effective at gaining a player’s attention as they do not provide as welcoming or visually appealing an environment (Chapman 2016, 70-71). However, these conceptual simulations have substantially more potential to influence their player’s understanding of the past: they require their players to engage with and learn the game’s mechanics and corresponding historical arguments in order to progress (Chapman 2016, 72-79).

Beyond this, the historical impact of games of some genres may be limited by common tropes associated with that genre. Roleplaying games can be posited as a particular example of this: while their deep stories could easily form the basis of developing an interest in a historical period, the genre as a whole is dominated by fantasy and science fiction settings (Houghton 2016, 27-28). Likewise, other genres including racing and puzzle games rarely engage with historical settings to anything more than a superficial degree.

As a result, it can be posited that games within the genres associated with realist simulations (Action and Adventure games) will typically have a greater influence on students’ interest in history while those more closely aligned with conceptual simulations (such as Strategy Games) will usually impact students’ understanding of history to a greater degree. Other genres which rarely engage with history in a meaningful way can be expected to have a negligible or non-existent impact.

**Gender**

The previous study found that male respondents typically reported games to hold a significantly greater impact in developing their interest in all historical periods than female respondents and that this discrepancy was substantially larger than for any other media along gender lines (Houghton 2016, 28). This earlier study also found that male students tended to report greater influence of computer games on their understanding of history, although this difference was less pronounced and could not be verified on account of the small sample size (Houghton 2016, 23). Conducting a revised and specialised survey with a greater number of participants is necessary to verify this hypothesis (Houghton 2016, 28).

The stereotype of game players (whether digital or physical) as almost exclusively male is outdated. Repeated studies have demonstrated that games in general are played by almost as many (if not as many) women as men (Kowert, Breuer and Quandt 2017, 197-98). Other stereotypical features of assumed gamer demographics have also been challenged quite conclusively in recent years – such as gamers as predominantly white (Kort-Butler 2020, 9-10), or young (Salmon et al. 2017).

Nevertheless, the typical gendered content of games may have a profound impact on the extent to which games influence male and female players. As noted above, the majority of videogames are targeted at a male audience (Nakamura 2012, Hammar 2020). Player and non-player characters are predominantly male and what few female characters exist are often reduced to supporting, marginalised and sexualised roles (Miller and Summers 2007, Shaw 2012, Kowert, Breuer and Quandt 2017, Hammar 2020). The lack of visibility and agency of women in games may contribute to this media exerting a lesser degree of impact on female players.



have an impact not only on the reported impact of games on historical understanding but on the practical impact as well.

It can therefore be hypothesised that women will typically report a lesser impact of games on their understanding of history. However, the expected distribution of impact will be roughly similar between male and female respondents. The main driver of impact remains interaction with games and while in general women may interact with games in a different manner and to a different extent than men, we should expect to see a similar division in both of these genders between those who engage extensively with games, those who engage casually, and those who do not engage at all.

## Genre and Gender

The impact of genre and gender can be suggested to be strongly connected. Male and female genre preferences are significantly different (Hartmann and Klimmt 2006, Hartmann, Möller and Krause 2015, Rehbein et al. 2016). The audiences of action and strategy games are typically dominated by male players, while female players are more numerous within the playerbase of casual and puzzle games (Hayes 2005, Hartmann and Klimmt 2006, Vermeulen and Van Looy 2016, Kowert, Breuer and Quandt 2017, 198, Paaßen, Morgenroth and Stratemeyer 2017). Across genres, the level of violence within a game is strongly correlated with the gender balance amongst its players with men tending to favour more violent games than women (Hartmann, Möller and Krause 2015).

This connection between genre and balance of audience gender is significant for this study as it is the genres most typically favoured by men (action and strategy) are



This approach allowed the collation of a substantial data set as while participants were self-selecting, they had additional motivation to engage with the survey. Furthermore, by connecting the survey to a reflective academic module this approach mitigated several issues of social preconception.

The survey results were anonymised and were not shared with students, the pedagogic purpose of the exercise was to help students to consider and articulate their awareness of any connections between their academic and personal experience of history. The exercise was formative and reflective and formed no direct part of the assessment of the module. Prior to engaging with the survey, participants were asked to consent to the use of the data they supplied for this research. If they did not consent to the use of the data, their responses were not recorded and they were not asked to supply any demographic information. Respondents were reminded that they could suspend their participation at any time and none of the questions were mandatory.

For informational and comparative purposes respondents were asked if they had ever studied outside the United Kingdom and to place themselves within broad age bands. These elements do not form a core part of this study but will be useful for future work. The student body of the Department of History at the University of Winchester is primarily domestic and consists of a somewhat larger than average proportion of mature students.

Respondents were then asked their gender. They were presented with several options including *prefer not to say* and a free text box. This data was important to ensure a balanced sample and was of fundamental importance in addressing the core hypotheses of the study.



## Results

After filtering, the survey returned 172 responses (95 from 17/18, 77 from 18/19). This represents a response rate of 63% across the two student cohorts. Of these respondents 13 reported some previous study outside the U.K. and twelve respondents were over 25. 94 respondents identified as female, 76 as male and two preferred not to specify their gender. 86% of respondents reported that their interest in history had been influenced to some extent by Games. This was the lowest proportion of respondents for any media: 91% of respondents reported similar influence from Political Media and at least 95% of respondents reported that their interest in history had been influenced to some extent by every other form of media addressed within the survey. 73% of respondents reported that Games had informed their historical knowledge to some extent. Again, this was a smaller proportion than for any other media which returned positive responses from between 84% and 91%.

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
Interest in History	97.1	98.8	98.3	98.3	96.5	91.3	95.9	95.9	98.8	86.0
Knowledge of History	89.0	91.3	90.7	87.8	87.8	83.7	86.6	85.5	89.5	72.7

Figure 1. Percentage of Respondents (n=172) Reporting Impact of Different Media on their Interest in and Knowledge of History.

Across these positive responses, Prior Education received the highest mean score in terms of influencing participants' interest in history (7.74) closely followed by Museums (7.56), Cinema and Television (7.55), and Tourist Sites (7.46). Popular Memory (6.84), Literature (6.71) and Memorial Sites (6.64) were reported to be moderately influential on average while Games (5.88), Journalism (5.46) and Political



	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
1	0.0	1.2	0.0	1.2	2.4	5.1	3.6	3.0	1.8	10.8
2	1.8	1.8	1.2	4.7	9.6	10.8	1.8	3.0	0.6	8.1
3	1.8	0.6	2.4	3.0	8.4	7.0	5.5	3.0	2.4	6.8
4	3.6	4.1	5.9	11.2	10.2	12.1	4.2	9.1	3.5	6.8
5	4.8	6.5	5.3	9.5	19.9	15.9	8.5	10.3	5.3	6.8
6	7.2	9.4	13.6	15.4	15.1	16.6	17.6	17.6	8.2	8.8
7	15.6	18.8	16.6	16.0	15.7	16.6	17.6	11.5	20.0	16.9
8	31.7	24.1	22.5	16.0	12.0	10.2	13.9	16.4	25.3	14.9
9	14.4	15.9	17.2	10.7	3.6	3.2	11.5	12.7	16.5	12.8
10	19.2	17.6	15.4	12.4	3.0	2.5	15.8	13.3	16.5	7.4
n	167	170	169	169	166	157	165	165	170	148

Figure 3. Distribution (%) of Responses to the Question: *How important are the following forms of history in the public sphere to your interest in history? (1-10).*

Amongst respondents who reported that a media type influenced their interest in history, Games were the most likely media (25.7% of respondents) to be perceived to have a low impact (score 1-3) but were also reported to be strongly influential (score 7-10) by 52% of participants. A similar proportion reported Memorials (55%), Popular Memory (58.8%) and Literature (53.9%) to be strongly influential in this manner.

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
Low (1-3)	3.6	3.5	3.6	8.9	20.5	22.9	10.9	9.1	4.7	25.7
Mid (4-6)	15.6	20.0	24.9	36.1	45.2	44.6	30.3	37.0	17.1	22.3
High (7-10)	80.8	76.5	71.6	55.0	34.3	32.5	58.8	53.9	78.2	52.0

Figure 4. Distribution (%) of Responses to the Question: *How important are the following forms of history in the public sphere to your interest in history?* (Low, Mid, High).

Female respondents were marginally more likely than male respondents to report some degree of influence on their interest in history from almost every form of media. The only exception was in relation to games where 79.8% of female respondents reported some degree of influence compared to 94.7% of male respondents.

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
All	97.1	98.8	98.3	98.3	96.5	91.3	95.9	95.9	98.8	86.0
Female	98.9	100.0	98.9	98.9	96.8	92.6	96.8	97.9	98.9	79.8
Male	94.7	97.4	97.4	97.4	96.1	90.8	96.1	93.4	98.7	94.7

Figure 5. Percentage of Respondents Reporting Impact of Different Media on their Interest in History by Gender.

Female respondents reported a stronger mean influence than their male counterparts for almost every form of media on their interest in history. The singular exception was Games where female respondents reported a mean of 4.83 compared to 6.92 from male participants.







Distribution of scores within responses for each media type again followed normal distributions for almost every category. The sole exception was again Games with a bimodal distribution with peaks at 1 (13.6%) and 7 (20.8%).

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
1	0.0	1.3	1.9	4.0	5.3	5.6	3.4	6.1	4.5	13.6
2	0.7	1.3	2.6	6.0	6.0	10.4	4.7	5.4	3.2	9.6
3	0.0	2.5	4.5	7.3	7.3	13.9	10.7	9.5	5.2	6.4
4	2.6	4.5	5.8	6.6	13.2	9.7	8.1	10.9	4.5	8.0
5	5.2	3.8	7.7	12.6	16.6	18.8	14.1	12.9	9.7	8.0
6	3.9	15.9	17.9	17.9	17.2	16.0	16.1	17.0	20.1	12.8
7	11.8	12.7	20.5	17.9	17.2	6.3	14.1	10.2	16.9	20.8
8	29.4	21.7	19.9	17.2	11.3	12.5	14.8	8.8	11.7	12.8
9	19.6	24.8	9.6	7.3	3.3	4.9	9.4	13.6	16.9	6.4
10	26.8	11.5	9.6	3.3	2.6	2.1	4.7	5.4	7.1	1.6
n	153	157	156	151	151	144	149	147	154	125

Figure 12. Distribution (%) of Responses to the Question: *How important are the following forms of history in the public sphere to your knowledge of history?* (1-10).

Ignoring respondents who reported no impact from each source, Previous Education (87.6% of respondents) was referenced most frequently as a strongly influential factor in the development of historical knowledge. Of all media, Political Media (29.9%) and Games (29.6%) were most likely to be seen to be of little influence in this area. Games were quite likely to be seen as highly influential (41.6%)

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
Low	0.7	5.1	9.0	17.2	18.5	29.9	18.8	21.1	13.0	29.6
Mid	11.8	24.2	31.4	37.1	47.0	44.4	38.3	40.8	34.4	28.8
High	87.6	70.7	59.6	45.7	34.4	25.7	43.0	38.1	52.6	41.6

Figure 13. Distribution (%) of Responses to the Question: *How important are the following forms of history in the public sphere to your knowledge of history?* (Low, Mid, High).

Female respondents were more likely to report some degree of influence on their knowledge of history from almost every form of media than male respondents. In most cases this variation was marginal, but there were more substantial differences in relation to the influence of Memorials (90.4% / 85.5%), Political Media (87.2% / 81.6%) and Fiction Literature (88.3% / 82.9%). The only exception to this trend were the responses relating to games where 82.9% of male students reported some degree of influence compared to 64.9% of female students.

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
All	89.0	91.3	90.7	87.8	87.8	83.7	86.6	85.5	89.5	72.7
Female	90.4	92.6	92.6	90.4	88.3	87.2	88.3	88.3	90.4	64.9
Male	89.5	90.8	89.5	85.5	88.2	81.6	86.8	82.9	89.5	82.9

Figure 14. Percentage of Respondents Reporting Impact of Different Media on their Knowledge of History by Gender.

On average female respondents rated each source as a stronger influence on their historical knowledge than their male counterparts, with the exception of Games (4.51 compared to 5.87).

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
All	8.24	7.45	6.75	5.96	5.45	5.05	5.93	5.75	6.49	5.22
Female	8.45	7.90	7.28	6.36	5.61	5.38	6.40	6.17	6.72	4.51
Male	7.97	6.97	6.16	5.51	5.31	4.61	5.33	5.21	6.18	5.87

Figure 15. Mean Responses to the Question: *How important are the following forms of history in the public sphere to your knowledge of history?* (1-10) by Gender.

Amongst female respondents, games were the media format least likely to be perceived as strongly contributing to historical knowledge (29.5%) and most likely to be perceived as having limited influence (39.3%).

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
Low	1.2	3.4	8.0	11.8	12.0	25.6	15.7	15.7	12.9	39.3
Mid	10.6	12.6	19.5	30.6	56.6	43.9	32.5	37.3	29.4	31.1
High	88.2	83.9	72.4	57.6	31.3	30.5	51.8	47.0	57.6	29.5

Figure 16. Distribution of Responses from Female Respondents to the Question: *How important are the following forms of history in the public sphere to your knowledge of history?* (Low, Mid, High).

Among male respondents, games were more likely to be seen as strongly influential in this manner (52.4%): only Education (86.8%) and Museums (55.1%) were seen to be this influential by a greater proportion of male participants.

	Pre-University Education	Museums	Tourist Sites	Memorials	Journalism	Political Media	Popular Memory	Fiction Literature	Cinema / Television	Games
Low	0.0	5.8	8.8	23.1	25.4	35.5	22.7	28.6	13.2	20.6
Mid	13.2	39.1	47.1	46.2	35.8	45.2	45.5	44.4	41.2	27.0
High	86.8	55.1	44.1	30.8	38.8	19.4	31.8	27.0	45.6	52.4

Figure 17. Distribution of Responses from Male Respondents to the Question: *How important are the following forms of history in the public sphere to your knowledge of history?* (Low, Mid, High).

Scores for the impact of games on participants' knowledge of history followed bimodal distributions for both female and male respondents with peaks at 1 and 7 for both groups.

	Female	Male
1	18.0	9.5
2	14.8	4.8
3	6.6	6.3
4	8.2	7.9
5	9.8	6.3
6	13.1	12.7
7	19.7	22.2
8	4.9	19.0
9	3.3	9.5
10	1.6	1.6

Figure 18. Distribution of Responses to the Question: *How important are Games to your knowledge history?* (1-10) by Gender.

When asked if a single source had particularly influenced their knowledge of history respondents cited previous education most frequently (21.2%) followed by Museums (19.7%) and Cinema (18.2%) with Games a fairly distant fourth (12.1%). Among female respondents Previous Education (31.4%), Museums (22.9%) Cinema (17.1%) and Popular Memory (11.4%) were mentioned most frequently and none of these



	Interest in History	Knowledge of History
Assassin's Creed	1	0
Age of Empires	2	0
Warcraft	1	0
Civilization	1	0
Total War	3	2
Paradox Interactive Series	0	2
Unspecified Games	0	4

Figure 20. Frequency of citations of particular games/series as the strongest individual influence on participants' interest in and knowledge of history (number of responses).

## Analysis

### Impact of Games

These results suggest that games tend to have either a quite substantial or an almost negligible impact on undergraduate student's interest in history and their understanding of history. Games superficially appear to have little influence on students' interest in history. The medium was least likely to be reported as having any kind of influence on respondents' interest in history (86%) or on their historical knowledge (73%). The mean reported impact on interest in history (5.88) was amongst the lowest of all media, exceeding only that of Journalism (5.46) and Political Media (5.27). Every other media format was reported to be substantially more influential on average ranging from Memorials (6.64) to Previous Education (7.74). The perceived impact of games on student's knowledge of history was likewise low (5.22), with students reporting that only Political Media (5.05) had less impact in general.



## Genre

The games reported came from a range of genres: the Action-Adventure *Assassin's Creed*, the Real-Time Strategy *Age of Empires* and *Warcraft*, the hybrid Real-Time/Turn Based Strategy *Total War*, the Turn Based Strategy *Civilization*, and the Grand Strategy *Paradox Interactive* series including the *Crusader Kings* (2004-2021), *Europa Universalis* (2000-2021), and *Hearts of Iron* (2002-2020) series of games. Roughly speaking, these games lie in this order along Chapman's scale of realist to conceptual simulations. *Assassin's Creed* is certainly the most graphically detailed of any of these games and games of this series present history primarily through their world and story rather than their mechanics. *Age of Empires* and *Warcraft* are less graphically stimulating, and present history through their abstract and simple mechanics and through their campaign storylines. The *Total War* series combines real-time tactical battles with deeper strategic turn based play. *Civilization* presents a detailed but broad and abstract mechanical explanation of history. Finally, games of the *Paradox Interactive* series are amongst the most detailed historical games available and root their complex mechanical presentation of the past in real world geography.

The reported impact of different genres of game followed the expected pattern to a substantial extent. *Assassin's Creed* (one respondent), *Age of Empires* (two), and *Warcraft* (one) were reported as having an influence on student's interest in history which matches the hypothesis: these games are relatively simple and can serve well as an introduction to a period of history. They are also among the best-selling series of games and can be expected to have a relatively large player base amongst respondents.

Likewise, the citation of *Paradox Interactive* games as influential on student’s knowledge of history by two respondents, but not their interest in the subject correlates with the hypothesis. These complex games present a detailed account of specific historical periods through complex mechanics and give the impression of authority through their level of detail. However, the learning curve for these games is incredibly steep. They are very much at the conceptual extreme of Chapman’s scale.

The appearance of the *Total War* series as an influential factor on both students’ interest in (three respondents) and knowledge of history (two) is noteworthy and underlines the nature of the games as a hybrid of divergent genres. The games represent history through the graphical fidelity in their real time elements (realist simulation) and through the mechanics of their turn based elements (conceptual simulation) which have become progressively more complex as the series progresses. The games are also well selling and rooted firmly in particular historical periods.

The apparent anomaly here is the presence of *Civilization* as an influence for interest in history by one respondent, but not for historical knowledge. This seemingly runs counter to the hypothesis as *Civilization* is very much a conceptual simulation – indeed Chapman himself uses it as a core example of this sort of game (Chapman 2013a, Chapman 2013b). This may be a statistical outlier, but could also be a product of the abstract nature of the game. Games in the *Civilization* series are complex – typically more so than *Total War* but less so than those in the *Paradox Interactive* series – but the core games are set across c. 6.000 years of human history, take place within a randomised world, and make no attempt to recreate historical events and peoples beyond very abstract and broad sweeps. The disconnection between *Civilization* and actual geography, populations and events may undermine its perceived influence among students.

Ultimately, the data collected here supports hypothesis two, but there is some indication that the hypothesis may require further nuance. Games such as the *Total War* series which straddle genres and contain elements of both realist and conceptual simulation can clearly inspire students' interest in the past and also provide a substantial basis for their understanding of history. Abstract games such as *Civilization* may be more likely to inspire interest rather than develop knowledge no matter how detailed they are or to what degree they rely on conceptual simulation to convey history.

**Gender**

The data collected emphatically support the hypothesis that games influence male students more than female students. Substantially fewer female than male respondents reported some degree of influence from games on their interest in history (79.8% / 94.7%) and on their knowledge of history (64.9% / 82.9%). Games were the only media format for which both the reported impact on interest (4.21 / 6.64) and on knowledge (4.51 / 5.81) was lower for female students than for male students. In both cases, this difference between responses by gender was more substantial than the corresponding divergence for any other media. Female students were considerably less likely to report a high level of influence of these games on their interest in (34.7% / 69.4%) and knowledge of (29.5% / 52.4%) history than male students. Furthermore, while male students reported that a particular game or games was the most influential factor in their interest in (20%) and knowledge of (26.7%) history, no female students reported the same influence.

These results are significant as they highlight the substantial discrepancy in the impact of games on historical conscience between genders taken as a whole and underline the importance of careful development of teaching history with games.

Assuming prior engagement with the medium as a historical device may disadvantage substantial sections of a typical class – where some students will not have played historical games or will not have viewed them as an authoritative or useful representation of the past. The results of this study strongly suggest that female students in general may be particularly disadvantaged through an incautious pedagogical approach around games.

However, it must be emphasised that it is very much not the case that games inevitably influence female students to a lesser degree than male students. Response values throughout the range were returned by both female and male students for each question and the bimodal distribution of the results for the entire sample does not corresponded to two distinct populations along female-male gender lines. Instead, the distributions of responses among female respondents and among male respondents all follow a similar bimodal distribution. The distribution of responses for impact on interest in history are relatively similar for female (medians at 1 and 7) and male (1 and 9) respondents and almost identical for impact on knowledge of history (medians at 1 and 7 for both female and male respondents). Both of these genders therefore appear to be split into two populations: those strongly influenced by games, and those who are barely influenced or not influenced by games. Gender identity correlates with the impact of games across the population, but it is not the sole causal factor in determining the impact of games.

Factors beyond gender must therefore be considered to explain this distribution of responses. Time spent playing is a possible factor here alongside the representation of different genders within historical games and societal perceptions of gaming as a gendered activity. Gender is certainly related to these factors (as discussed above), but is in effect a secondary influencer. This complies with Manero et al.'s findings:

while non-gamers and casual gamers are predominantly female and varied gamers and hardcore gamers are predominantly male, there are substantial representatives of both of these genders in all four groups (Manero et al. 2016).

**Gender and Genre**

This data also supports hypothesis four: that the gender discrepancy in responses is in part a function of the difference in genre preferences among male and female students. The games cited as influential factors on both historical interest and knowledge fall within genres whose players are predominantly male. Indeed, only male respondents reported a game as the most influential single item of media on their formative interaction with history.

The tendency towards extremes in degree of impact of games apparent among both male and female students suggests that gender is a secondary correlating factor. The likely (and seemingly self-evident) explanation is that impact is driven primarily by engagement with historical games and while male students may be more likely to engage with these games, it is assuredly the case that some female students engage too. The audiences of the games and genres which are reported to be most influential are predominantly populated by male players: most notably the substantial majority of action, adventure and strategy games are primarily designed for and played by a male audience. Gender is a factor in predicting impact of games on students' historical perceptions, but it is not the only (or even primary) causal factor. Instead, genre seems to be a more significant point of influence.

However, this evidence is inconclusive. While the data indicates a propensity towards certain genres amongst male respondents who reported a game as the most influential piece of media on their interaction with history, no information was

collected regarding the game playing habits of the rest of the sample (including all female and the vast majority of male students). This was a necessary design decision to facilitate the pedagogic utility and the brevity of the survey, but nevertheless restricts the confidence with which this element of the analysis may be asserted.

**Conclusion**

The results presented above strongly suggest that while games can have a substantial influence on undergraduates both as a means of engaging students with history and as a source for historical knowledge and understanding, there is a pronounced division between two groups of students: those who report these strong influences and those who report little or no influence from these media with comparatively few students reporting a moderate influence. The results also almost unequivocally demonstrate that male students are typically influenced by these games to a greater extent than female students, but also indicate extensive divergence within both groups which suggests that the correlation between impact and gender is secondary or indirect. Instead, the results suggest that genre of game has a more direct influence on its impact on the player and that different genres of game influence students in different ways – realist simulations tend to spark student’s interest in history while conceptual simulations tend to encourage the development of formative historical thought – but this influence may be more nuanced than initially thought. These results also suggest that a dynamic interaction exists between impact, gender and genre: the correlation between maleness and greater impact of games on engagement with history seemingly exists in part because men dominate the audiences of the genres of game which are most likely to influence their players’ interactions with history.



games. Conversely, the deeper reported impact of conceptual games on students' knowledge of history suggests that understanding the narratives posed by these games will be of particular use in comprehending the preconceptions of some students: the emphasis of mechanics as the driver of the narratives presented within these games allows a deeper communication of historical arguments and systems. While it should be noted that these findings were not universal, the trends noted here have important consequences for our understanding of the nuances of students' historical preconceptions.

These findings underline the necessity for lecturers to carefully consider the variety of student experiences with the medium when creating classroom activities which make use of games. The markedly different reported impact of games by individual students corresponds with the frequently observed scepticism towards games as educational exercises displayed within cohorts at various levels of study (McCall 2016, 532-33, O'Neill and Feenstra 2016). As such, these findings corroborate McCall's emphasis that games should not be introduced as a *fun* classroom activity, but rather the educational value of these games should explained and emphasised clearly and repeatedly (McCall 2016, 533).

The markedly different manner in which realist games and conceptual games were reported to influence their players provides supporting evidence for key pedagogical theory surrounding the use of games in the classroom. The more pronounced influence of realist games on students interest in history conforms to the commonly expressed argument that these games are better suited to introduce students to historical periods and regions or to provide representations of historical data such as landscapes and material culture (Salvati and Bullinger 2013, 156-57, de Groot 2016, 152-53, Chapman 2016, 61-66, Houghton 2016, 24-25). Conversely, the frequent

reports of conceptual games as major influences on students' historical understanding of history corresponds closely to the hypothesis that their detailed rules and mechanics permit these games to better present deeper historical arguments for students to interrogate through play (Kee and Graham 2014, 275-78, de Groot 2016, 155-59, Chapman 2016, 70-75). There is an evident correlation between the manner in which games influence their players outside the classroom and how they may be deployed effectively within an educational setting.

More generally, these findings have important consequences for the understanding of the impact of historical games (and games in general) across their audiences as a whole. While the sample for this survey was drawn from a cohort of undergraduate history students, several of the broad trends identified here can reasonably be extended. The extent and manner of the impact of games can be suggested to vary substantially depending on a number of factors including in particular the genre of game. Further, it may be the case that apparent demographic differences in the consumption and impact of these games is ultimately driven by genre with the male dominance of the audience of violent, adventure and strategy genres accompanied by the tendency of historical games to fall within these genres equating to an increased impact of historical games on this demographic. More generally though, these findings suggest the existence of substantial nuance across all audience groups.

Ultimately, while games can be incredibly powerful pedagogical tools within the field of history and have the potential to be invaluable within the classroom, these findings highlight several considerations which must be taken into account when considering the interconnection between games and learning. The variation of impact between different games and amongst different students is substantial and any teaching approach must consider these complexities to ensure effectiveness. Understanding



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