

УДК 93/94-047.22:794-028.23

**THE ROLE OF VIDEO GAMES IN
OBTAINING AND DISSEMINATING
HISTORICAL KNOWLEDGE**

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**РОЛЬ ВІДЕОІГОР У НАБУТТІ ТА
РОЗПОВСЮДЖЕННІ ІСТОРИЧНИХ
ЗНАНЬ**

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The formation of the historical background in video games is provided by spatial narratives. In recent years, they are more and more amenable to adjustments in the direction of maximally exact correspondence to socio-economic, political, cultural, domestic, geographical, climatic and so on elements of the localized on the scenario of the game`s chronotop. This may indicate another qualitative transformation of video games as a socio-technical and socio-cultural phenomenon, as well as about the positive cultural and intellectual dynamics of the modern "consumer society".

Computer video games, as part of the digital, educational and entertainment industry as a whole, are in a state of constant high-speed dynamic transformation in the context of global digitalization of all aspects of society and a lot of competition in the field of video games in particular.

Based on the analytics of the results of direct surveys, statistical and factual data, in article an attempt was made to assess the use of video games as a non-formal education tool for relaying and consolidating historical knowledge for different age and social groups of game products consumers, as well as the appropriateness of their use in the classical educational system at different levels.

Computer video games with the most accurate historical content as well as "alternative" historical content can become highly effective additional pedagogical tools for acquiring basic and in-depth knowledge of history both for self-education and in academic institutions. As part of the study of academic history, whole historical digital laboratories can be created that study both the multivariance of history and bring "alternative realities" into the linear real history of the development of human civilization. The success of using video games with historical content for the needs of academic history is high only if the teacher understands not only historical but also technical terms, knows the features of developmental psychology, knows the scenario and features of the video game proposed for modeling, and can develop their own teaching methods based on an interdisciplinary approach.

Key words: *video game, gamer, historical background, relay of historical facts, historical modeling, out-of-school learning, informal learning*

Introduction.

2013 US school statistics [1], which included studies by the Joan Ganz Cooney Center, Bill & Melinda Gates Foundation, PBS LearningMedia, Pew Research Center on teachers' attitudes toward integrating technology into their classrooms, showed that 54% teachers of history and social sciences expressed high confidence in their ability to use digital technologies in teaching in the classroom. But, at the same time, evidence is provided that teachers aged 45 and older are less likely to use technology as regularly as teachers under 35, as there are noticeable generational differences in how teachers use digital technology in their professional life.

Given the many aspects of the development of Ukrainian society that deserve a separate comprehensive study, as well as the lack of such detailed statistics in Ukraine, we believe that the above statistics generally reflect the current state of things in teaching history in Ukrainian schools.

Therefore, in our opinion, non-formal education and training outside the school class can play a big additional role in the students mastering the teaching material, and historical factology in particular. And computer video games with historical content can play a positive role.

In order to understand the connection between the input (using thematic computer video games) and the result (training in school subjects), it is important to imagine how the results of such training correspond to the subject area in which this technology is used. [2]

Formulation of the problem.

If we strictly follow the terminology, the concept of a video game is much broader than computer games, since they arose at different times and the second was developed as part of the first. [3]

In our study, we take this fact into account, but are based on the modern identity [4] of these terms.

Video games, as part of the digital, educational and entertainment industries as a whole, are in a state of constant high-speed dynamic transformation in the context of global digitalization of all aspects of society and great competition in the field of video games.

Video game development teams should take into account both the requests of the initially target part of game products consumers and consumers who want to develop intellectually, who no longer have a “colorful picture” on the device’s screen. Therefore, we believe that video games are a multi-faceted issue that remains constantly relevant.

Analysis of recent research and publications.

The study of computer video games in modern humanities, in contrast to the technical sciences, is a relatively new area. Games, both computer and regular, are not easy to learn due to their multidimensional nature.

If we consider the historiography of the object of our research on a global scale, we can confidently say that over the past decades a layer of both scientific and popular studies has been developed, based on describing an interdisciplinary approach to the study of computer games as a phenomenon of modern culture in the aspect of human-machine interaction. [5]

There are quite detailed studies of the very history of the development of both the video game industry and some individual video games. [6]

There is even more research devoted directly to the development of application tools for creating video games in general and their structural elements in particular [7], since interactive products, applications and systems can be designed to meet the educational needs of users.

A rather large stratum of theoretical and practical studies of the positive effectiveness of computer video games has been accumulated for the study of non-historical disciplines [8], in particular, philological ones. We believe that some conclusions and results of these studies are applicable to the development of historical disciplines. Thus, a study [9] (without specifying the division into disciplines) shows that out of 500 teachers surveyed in the USA, 70% agree that the use of digital games in the classroom increases the interest and involvement of students in the content of the lesson, and less than 10% of teachers indicated a negative experience using digital video games in the classroom.

We agree that video games of relevant content can be designed in accordance with selected educational principles, which will facilitate learning. Computer games also allow players to feel "inside" the game, to design a virtual environment with a rich factual background, where players are actively involved.

Research in the psychological and pedagogical vein [10] confirms the benefit for the formation of a cluster of historical knowledge among students when using graphic elements of video games with historical content as a visual aid, which presents many objects of material culture of a large number of people from different eras.

We support the view [11] that in high-quality computer video games, player actions or inaction often come up with almost instant answers, which the player must then respond to. The execution of an action, the presentation of information as a result, the need for synthesis and analysis of this information and the implementation of something as a result - may correspond to the term "training". In turn, some players learn enough lessons from their failures in the game to continue the game further, taking into account the newly acquired knowledge. Thus, in video games, effective mechanisms for real-time learning assessment are discovered.

We do not quite agree with the authors of that sector of research on the large topics of "video games and history," who believe that the alternative story created by video game players with historical content distorts the history. [12] In our opinion, "an alternative history" in a gaming environment is in this case a

technical modeling based on knowledge of historical factology, which stimulates the development of logic to achieve the most advantageous and appropriate result. The worse the player's comprehensive knowledge of history, the less likely he is to "win". We are confident that the features of psychology divide the players into two categories: one after a series of "failures" to lose interest in the game, and other "failures" are encouraged to build basic knowledge of the historical baggage and historical features factology certain gaming era to achieve a "win".

In this context, we would like to highlight the 2018 study [13], in which the authors cited the results of their experience in teaching a mixed course of world history, which combined classic lecture and discussion elements, as well as video game sessions in which students play strategic video games with a deep historical focus. This course was designed for experiments on the integration of video games in the teaching of history, followed by assessment of students' knowledge by writing their final scientific work.

Summing up the historiography of our study, we must say that the issues we are raising are so multifaceted and change so quickly in accordance with the needs of society and the advent of new technologies that the relevance of new research in the field of computer video games, in particular, with historical content, for pedagogical purposes non-formal learning and academic education remains very high.

The purpose of research. On the basis of analytics of the results of direct surveys, statistical and factual data, identify the potential use of video games in relaying and consolidating historical knowledge for different age and social groups of consumers of gaming products as a tool for non-formal education, as well as the feasibility and level of their use in the classical and non-formal educational system at different levels.

Materials and research results.

According to some researchers [14], at this stage in the development of society, a lot of information has appeared, which is becoming increasingly difficult to process and assimilate, which causes the problem of information saturation. Such over-availability of information is transformed into a massification of knowledge and may mean a transition from an encyclopedic form of accumulation of factology to a "wikipedization" of knowledge, when any fact can be quickly obtained from the Internet without considering its validity.

However, according to the digital project of Oxford University Our World in Digital, in 2017 only half of the world's population had access to the "free" Internet, which was also relevant for 2018-2019. (figures1,2 [15]).

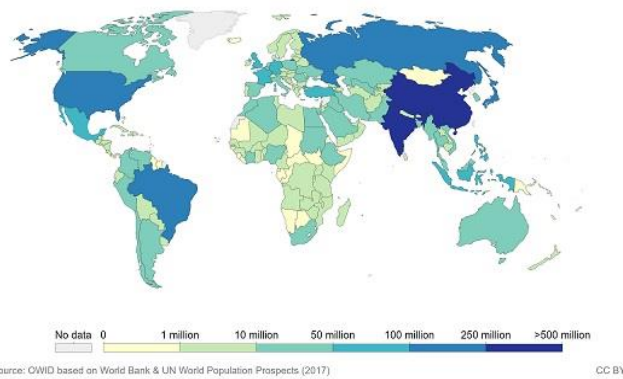


Figure 1. Number of Internet users by country (2017). The Internet can be used from any location via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.

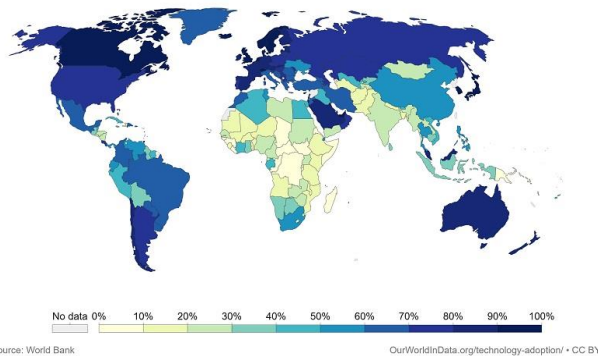


Figure 2. Share of the population using the Internet (2017). The Internet can be used from any location via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.

Modern computer video games that can be downloaded from discs, for example, often do not require access to the Internet and contain an already built-in “game wiki” that explains some game points, including historical factology.

Computer games are a fundamentally new tool for both the interaction between game actors and the manifestation of the influence of the pedagogical and cognitive components on the target audience or objects, since they have become one of the important phenomena of modern culture.

The basic structure of computer games can be represented in a general way, as the interaction of two large blocks, on the basis of which the gameplay takes place: 1) A narrative story that is determined by the gaming environment. This includes game space and game objects. 2) Temporary order. As for the course of the game itself, it is linear, since time is a priori linear. However, in the gaming environment itself, it can be clearly linear or fuzzy when tasks do not have a pre-established rigid link between the historical correspondence of space-time.

The first block is the narrative, related computer video games with literature and cinema. But, in the case

of them, unlike computer games, the reader or viewer cannot interactively interfere with the course of the displayed events. Although it should also be noted that, unlike books or films, the narrative nature of some complex games is not always immediately understood, since part of the narrative is often created during the game, since the game contains modeling elements.

As part of the second block, we note that a computer video game contains cycles in which the player can go to another level. That is, during the passage of each cycle, the player leads his character, based on his own subjective factual baggage of knowledge and skills. A player will not be able to go through a cycle if he lacks knowledge and experience. So, for the successful completion of each game cycle, the player must acquire new knowledge and skills. It can be argued in this case that the game is becoming a form of non-formal learning.

As a rule, for school education, developers provide repositories from a set of short-time games that are related to the specific tasks of certain curricula, are developed taking into account the age psychology of schoolchildren, do not require large technical resources and are easily accessible. But this format of games often does not represent the time and opportunity for the player to independently model the situation and analyze their mistakes. That is, the existing effect of memorizing material that they try to convey in such a game form is usually short-lived.

Schematically, this simple interaction between the developer and the player through the game is displayed on figure 3.

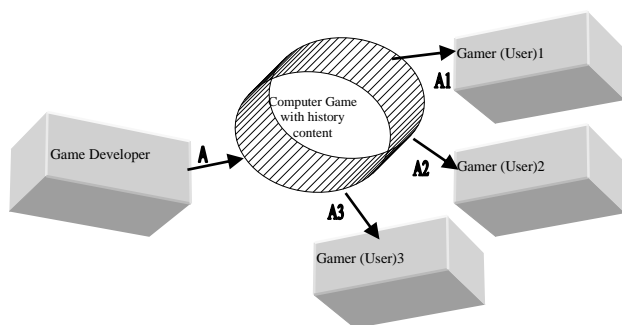


Figure 3. Scheme of a simple game transfer from a developer to users

Dynamic scenarios of computer games make it possible to form a contour of the structure of historical information, within the framework of which each user can have an active influence on the solution of game problems, correlate his presentation with the specifics of the era of the proposed game. The scenario of a historical computer game allows the researcher to understand the meanings of game tasks, determine the degree of correctness of the use of historical data, and identify stereotypes on which game developers rely.

The task of developers of historical projects is to create not just games based on historical events, but a series of historical reconstructions. An equally important component of historical play is the creation of an atmosphere of a historical era. Similar effects are achieved through various graphic designs and models that display a degree of certainty of the reality of time.

In order to accomplish this task in a quality manner, in our opinion, it is important for serious developers of computer games with historical content to involve professional scientific consultants in the era displayed in the game. The scheme of such interaction is presented in the figure 4.

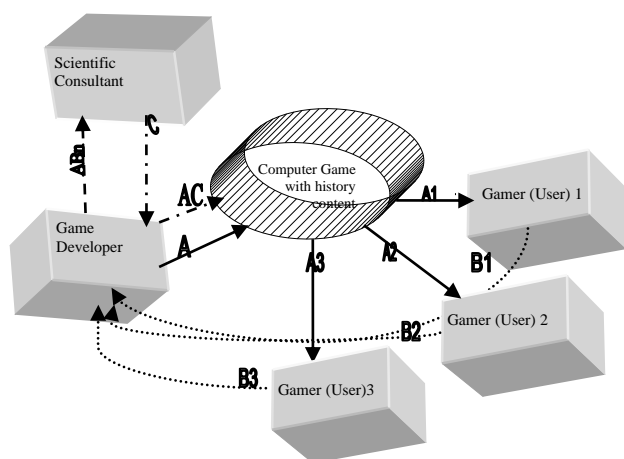


Figure 4. Scheme with a multiuser feedback and work on errors and inaccuracies in narrative content with the involvement of a scientific advisor

A separate problem of the perception of historical material, on which a certain computer video game of the corresponding genre is based, is the difference in mental models due to the cultural divergence of players of different nations. One of the ways to unify the understanding of the historical canvas of the game, in our opinion, is the availability of discussion platforms for players with subsequent analysis and feedback from the developers of the game.

In our opinion, it is also important that computer video games constantly force players to develop new game skills. And the corresponding discussion platforms (figure 5), where each player can ask questions of interest to him and receive answers not only from other players, but also the professional answers of a scientific consultant, can be a positive social experience that creates a common environment for targeted constructive social communication.

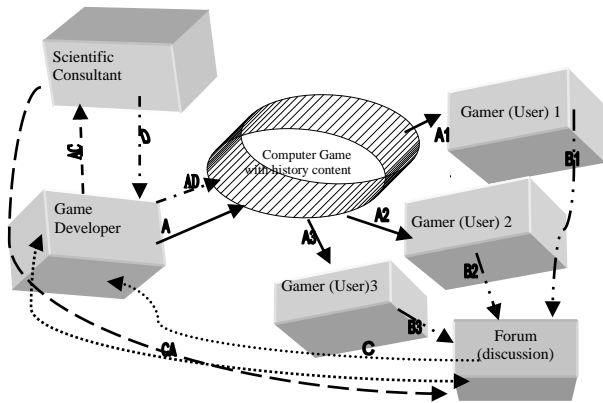


Figure 5. Feedback scheme from thematic platforms and a scientific consultant to discuss players certain aspects of historical computer video games

To determine further areas of research within the framework of the stated topics and obtain the first practical results, we conducted a questionnaire by a limited-time and territory-based online survey among non-professional historians who play computer video games with historical content. Its results are presented in the figures 6-12.

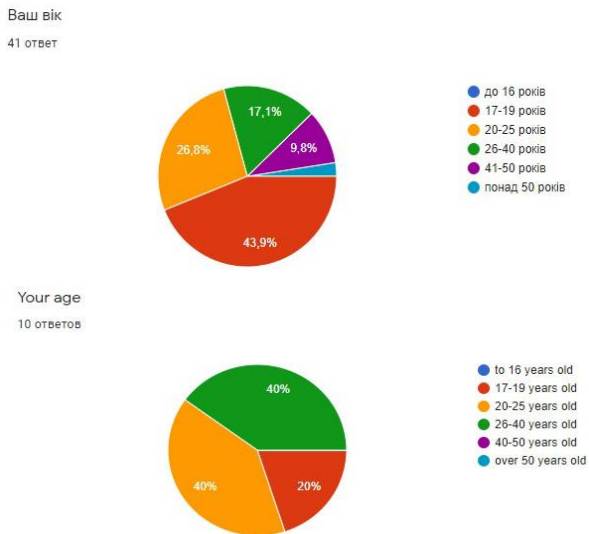
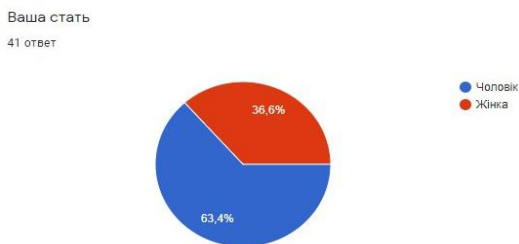


Figure 6. Comparison of survey data by age between Ukrainian-speaking and English-speaking players



Your gender
10 ответов

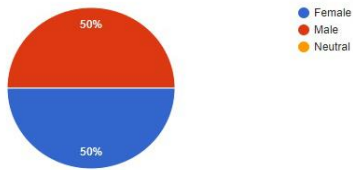
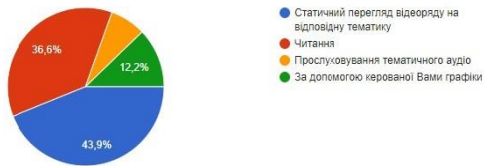


Figure 7. Comparison of gender survey data between Ukrainian-speaking and English-speaking players

Який спосіб отримання історичної інформації для Вас є найбільш прийнятним з точки зору її повного усвідомлення та запам'ятовування?

41 ответ



What method of obtaining historical information for you is the most acceptable in terms of its full awareness and memorization?

10 ответов

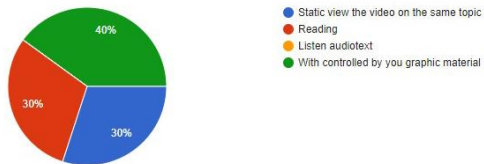


Figure 8. Comparison of survey data on the preferred method of obtaining historical information between Ukrainian-speaking and English-speaking players

Чи можна стверджувати, що у сучасному світі історична комп'ютерна гра є одним із способів дистанційного типу інформування?

41 ответ



Is it possible to argue that in the modern world computer game with historical content is one of the ways of distance-based information?

10 ответов

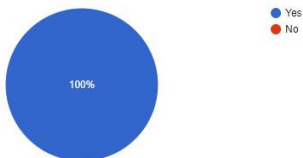
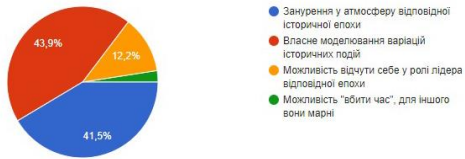


Figure 9. Comparison of the survey data on computer video games with historical content, as one of the methods of remote type of information between Ukrainian-speaking and English-speaking players

Що найбільше приваблює вас у історичних комп'ютерних іграх?

41 ответ



What attracts you most in computer video games with real historical content?

10 ответов

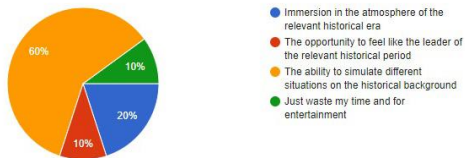
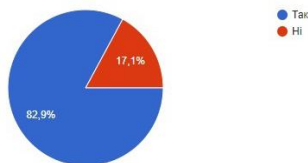


Figure 10. Comparison of survey data on factors of interest in computer video games with historical content between Ukrainian-speaking and English-speaking players

Чи заохотила Вас зацікавленість комп'ютерною грою дізнатися більше про відповідний період в історії?

41 ответ



Did you encourage interest in computer videogames with real historical content to learn more about the relevant period in history?

10 ответов

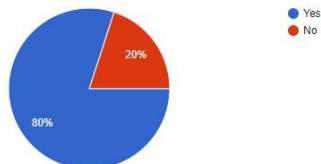
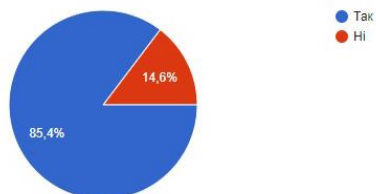


Figure 11. Comparison of the survey data on further interest in the corresponding periods in history, which are displayed in a computer video game with historical content between Ukrainian-speaking and English-speaking players

Деякі фактологічні знання з історії Ви отримали саме з комп'ютерних ігор?

41 ответ



Some factual knowledge about history you got from computer games?

10 ответов

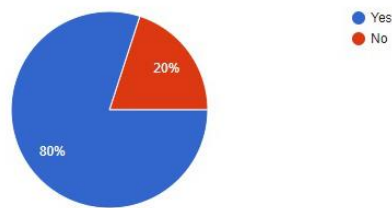


Figure 12. Comparison of the survey data on obtaining some factual knowledge of history from a computer video game with historical content between Ukrainian-speaking and English-speaking players

The data from an online survey conducted using Google forms cannot be completely satisfactory due to the different number of Ukrainian-speaking and English-speaking players surveyed and the relatively small number of users surveyed in general for a relatively short period of time. But it is informative as a first step towards a larger study.

As we pointed out in our previous studies [16], the features of computer strategic games can be used in history lessons in secondary and high school, because teenagers, as an age group, have their own psychological characteristics of communication with a teacher and their own psychological characteristics of perception and assimilation of information. Often the «dry» factual material that history books offer to students seems uninteresting to them. Accordingly, that which is not interesting is not remembered, and vice versa.

Historical computer games can directly affect the self-educational component of players. Scenarios of historical games largely support mass historical stereotypes, contribute to their consolidation and distribution. At the same time, in some countries, developers do not adhere to historical reliability, but within political expediency, which leads to a distortion in the perception of historical information by some social groups of the population of these countries, especially young people.

Conclusions.

The formation of the historical background in video games is provided by spatial narratives. In recent years, they are more and more amenable to adjustments in the direction of maximally exact correspondence to socio-economic, political, cultural, domestic, geographical, climatic and so on elements of the chronotope game localized by the scenario of the game. This may indicate another qualitative transformation of video games as a socio-technical and socio-cultural phenomenon, as well as about the positive cultural and intellectual dynamics of the modern “consumer society”.

The phenomenon of historical-format video games is that since their appearance in the 70s of the 20th century, the players are of the “first wave”, who, due to the psychological characteristics of adolescence, when

choosing a game, the very fact of novelty and entertainment was initially important, as they matured, they became more demanding on the accuracy of historical correspondences, since a detailed reconstructed historical basis is a platform and a key point for a diverse aspect of successful modeling of situations by the player himself, provided his understanding of the cause-and-effect relationships of the occurred complex of events.

At the same time, it can be argued that such a situational game modeling of the outcome of historical events by the player himself is an effective indirect tool for personal self-education, which stimulates the development of logical and historical thinking and the increase in the knowledge of historical factology.

Video games with the most accurate historical content as well as “alternative” historical content can become highly effective additional pedagogical tools for obtaining basic and in-depth knowledge of history both for self-education and in academic institutions.

As part of the study of academic history, whole historical digital laboratories can be created that study both the multivariance of history and bring “alternative realities” into the linear real history of the development of human civilization. But, it should be noted that the success of using video games with historical content for the needs of academic history is high only if the teacher understands not only historical but also technical terms, knows the features of developmental psychology, knows the scenario and features of the video game proposed for modeling, and can develop its own teaching methods based on an interdisciplinary approach.

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Сапицкая Е.М. Роль видеоигр в получении и распространении исторических знаний

Формирование исторического фона в видеоиграх обеспечивается пространственными нарративами. В последние годы они все больше поддаются корректировкам в сторону максимально точного соответствия социально-экономическим, политическим, культурным, бытовым, географическим, климатическим и так далее элементам локализованного сценарием игры хронотопа. Это может свидетельствовать про очередную качественную трансформацию видеоигр, как социально-технического и социально-культурного феномена, а также про положительную культурно-интеллектуальную динамику современного «общества потребления».

Видеоигры, как часть цифровой, образовательной и развлекательной индустрии в целом, находятся в состоянии постоянной высокоскоростной динамической трансформации в контексте глобальной цифровизации всех аспектов жизнедеятельности общества и большой конкуренции в области видеоигр в частности.

На основе аналитики результатов прямых опросов, статистических и фактологических данных предпринята попытка оценки использования видеоигр как инструмента неформального образования для ретрансляции и закрепления исторических знаний для разных возрастных и социальных групп потребителей игровой продукции, а также целесообразность их использования в классической образовательной системе на разных уровнях.

Видеоигры как с максимально точным историческим контентом, так и «альтернативным» историческим контентом могут стать высокоэффективным дополнительным педагогическим инструментарием для получения базовых и углубленных знаний по истории как для самообразования, так и в академических институтах.

В рамках изучения академической истории могут создаваться целые исторические цифровые лаборатории, изучающие как многовариантность истории, так и приводящие «альтернативные реальности» в линейную реальную историю развития человеческой цивилизации. Успешность использования видеоигр с историческим контентом для нужд академической истории высока только при условии, что преподаватель разбирается не только в исторических, но и в технических терминах, знает особенности возрастной психологии, знает сценарий и особенности предлагаемой для моделирования видеоигры и может разрабатывать собственные методики обучения, основанные на междисциплинарном подходе.

Ключевые слова: видеоигра, геймер, историческая справка, ретрансляция исторических фактов, историческое моделирование, внешкольное обучение, неформальное обучение

Сапицька О.М. Роль відеоігор у набутті та розповсюдженні історичних знань

Формування історичного бекграунду у відеоіграх забезпечується просторовими нарративами. В останні

роки вони все більше корегуються в бік максимально точної відповідності соціально-економічним, політичним, культурним, побутовим, географічним, кліматичним тощо елементам локалізованого сценарієм гри хронотопу. Це може свідчити про чергову якісну трансформацію відеоігор, як соціально-технічного і соціально-культурного феномену, а також про позитивну культурно-інтелектуальну динаміку сучасного «суспільства споживання».

Відеоігри, як частина цифрової, освітньої та розважальної галузей загалом, перебувають у стані постійної швидкісної динамічної трансформації в контексті глобальної діджиталізації всіх аспектів життєдіяльності суспільства та великої конкуренції у сфері відеоігор зокрема.

На основі аналітики результатів прямих опитувань, статистичних та фактологічних даних зроблена спроба оцінки використання відеоігор для ретрансляції та закріплення історичних знань як інструменту неформальної освіти для різних вікових і соціальних груп споживачів ігрової продукції, а також доцільність використання відеоігор з історичним контентом в класичній освітній системі на різних рівнях.

Відеоігри як з максимально точним історичним контентом, так і «альтернативним» історичним контентом можуть стати високоефективним додатковим педагогічним інструментарієм для отримання базових і поглиблених знань з історії як для самоосвіти, так і в академічних інституціях.

В рамках вивчення академічної історії можуть створюватися цілі історичні цифрові лабораторії, що вивчають як багатоваріантність історії, так і призводять «альтернативні реальності» в лінійну реальну історію розвитку людської цивілізації. Успішність використання відеоігор з історичним контентом для потреб академічної історії висока тільки за умови, що викладач розбирається не тільки в історичних, а й в технічних термінах, знає особливості вікової психології, знає сценарій і особливості запропонованої для моделювання відеоігри і може розробляти власні методики навчання, засновані на міждисциплінарному підході.

Ключові слова: відеогра, геймер, історична довідка, ретрансляція історичних фактів, історичне моделювання, позашкільне навчання, неформальне навчання

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Стаття подана

