



Assimilating history with digital technology through Virtual archeology tools – New dimensions

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Abstract

This paper explores key significance of virtual archaeology and its role in supporting historical research. Virtual archaeology is a modern branch of historical inquiry process. Virtual archaeology is a merge of History with science as it is an instrument of collaborative study of archeological excavations through scientific narration. In other words virtual archeology is recreation of historical events with modern digital technology. Virtual archeology is a indispensable tool in conceptualizing new perspectives in the domain of historical data analysis , historical knowledge sharing , historical context making and dissemination of cultural values. India is a multi cultural country and history of Indian sub continent has countless evidences of dynastic rule, innumerable archeological artifacts and objects of human civilization which needs to be reinterpreted through virtual archeology. The digital application of virtual archeology supports to promote modern historical research. The higher education sector can play a vital role in the dissemination of this digitalized Historical knowledge by promoting virtual archeology as a new tool of historical research in higher educational institutions. But this has several challenges as well. .

Keywords: Virtual archeology, historical research higher education sector, dimensions

Introduction: Virtual archeology is an emerging concept in historical literature and research. Indian higher education sector can be more comprehensive with the inclusion of virtual archeology as an innovative concept in creating digital historical knowledge and at the same time promotion of historical research.

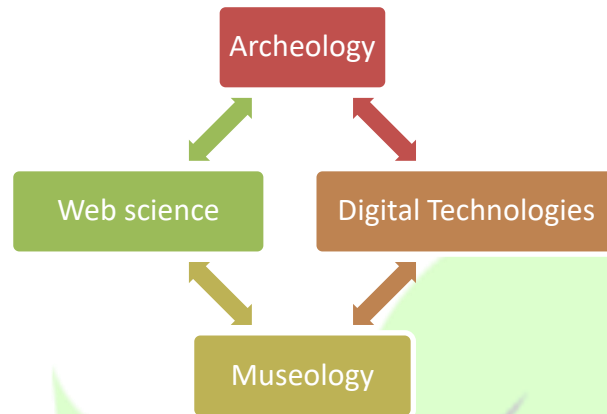
Objectives of study

1. to study about virtual archeology tools
2. to analyze the application of digital tools for historical study
3. to bring out the benefits of virtual archeology in higher education
4. to focus on challenges

The Concept of Virtual Archaeology- Virtual Archaeology is an emerging term in historical enquiry. It is the collaborative study of archeological excavations with the simulation of digital science. It was introduced by archeologist com computer scientist Paul Reilly in 1990s. This concept has been evolved as an offshoot of archeological study and today it has acquired a multi dimensional reading. Virtual archeology is a process where multi dimensional historical data sets are analyzed , investigated , reconstructed and reinterpreted. It is also

applied in unearthing archeological sites, furthering investigations with the aid of computer analytics. This digital process supplements archeological excavations which are visualized using this virtual archeology technology.

Virtual archeology and multi disciplinary links- There is an increasing focus on inter linking relationships between



The importance of these archeological factors & their role in the redefinition of the history as communication engine is very significant in Historical education. The interaction between real historical the empirical perception of materials culture the digital representations. The creation of innovative perspectives in domain of data analysis, sharing and context making are best supplemented by virtual archeology modules. Creation of a historical environment is possible by implementation of **Virtual archeology** modules.

Benefits of application of virtual archeology to historical researchers- The benefits of virtual archeology are numerous, to list a few ,

1.	Supports historical Reinterpretation
2.	Supports historical knowledge dissemination
3.	Supports scientific investigation of historical events
4.	Supports replication of archaeological landscapes
5.	Supports furthering historical research

- Supports historical Reinterpretation** -Virtual archeology supports researchers to reinterpret history. These visual technologies offer newer opportunities towards cultural communication dissemination of historical knowledge and awareness creation. Virtual archeology creates possibilities of communicating effectively about historical places, objects, and historical settings.
- Supports dissemination of historical knowledge**- Virtual archeology provides historical knowledge to a non history learner or a common man. Virtual archeology creates virtual the environment of life, war, culture, expansions and expedition. Based on accurate Virtual archeology models of current archaeological landscapes and site scenes,
- Supports scientific investigation** - Virtual archeology becomes possible to scientifically investigate the events that led to the current situation as well as to explore the underlying past archaeological structures and architecture, whose traces have been recorded by the non-invasive prospection methods or unearthed during traditional archaeological excavations.

4. **Supports replication of archaeological landscapes** -Virtual archeology supports replication of archaeological landscapes through time becomes feasible and attractive within the virtual archeology radius.
5. **Supports furthering historical research** - Virtual archeology also supports historical research prospects. Scholars across historical landscapes are motivated to undertake historical research with the support of digital tools and also re discover historical analysis.

Support coordination offered by virtual archeology applications - Topics of the virtual archaeology included

1.	Visualizing archaeology and heritage in 3D form ,
2.	Virtual museums ,
3.	Virtual, augmented & mixed reality applications,
4.	Serious amusement,
5.	Virtual curator vision centers ,
6.	Narrative and Virtual Storytelling,
7.	Social Networking in cultural heritage,
8.	Interactive installations in museums and heritage sites,
9.	Data mining and digital archives,
10.	Digital Cultural Tourism ,
11.	Digital preservation of historical & traditional practices,
12.	Virtual Educational approaches and much more.

Virtual archaeology helps following disciplines - Virtual archaeology is needed by

1.	Archaeologists,
2.	Cultural organization managers
3.	Curators
4.	Heritage organization professionals,
5.	Engineers,
6.	Ethnologists,
7.	Historians,
8.	IT specialists
9.	Museum curators
10.	Public and private museums curators
11.	Research Scholars,
12.	History Students,

Virtual archaeology and higher education sector- - Virtual archaeology is a new and emerging concept in historical studies and higher education sector can aptly include Virtual archaeology in curriculum. **There is increasing focus on** virtual archaeology towards **inter linking disciplines such as museums , artifacts , digital technologies and the web and their role in the redefinition of the museum itself as communication engine.** The interaction between real ontology the empirical perception of materials culture through digital

representations is the essence of Virtual archaeology. Recent advances in 3D technology have led to increasing use of virtual methods of data collection in archaeology this helps understanding history and past events in an objective way. Virtual archaeology is a bridge between the archaeology & digital experts to bridge analytical skills.

Virtual archaeology as an inter disciplinary subject

Virtual archaeology is an inter disciplinary space where computer science and cultural heritage blend inter changeably as they work towards a common goal. Virtual archeology is a visual art. It is a wonderful realm of photography, laser scanners, 3D modeling, augmented reality systems, and most recently, 3D printing. Virtual archaeology is a way of replicating reality to preserve a record so that a site or artifact can be more efficiently and widely studied as a digital version or, with 3D printing, an actual copy of itself. The use of Virtual archaeology tools such as Adobe digit serve Adobe editor , Adobe flash , Adobe , xml editor , Xml extensible, application X tml, language , X tml markup language, is very popular.

Branches of archeology supported by virtual science - Besides there are several branches of archeology which are supportive to assimilating historical studies in

1.	Bio archeology
2.	Zoo archeology
3.	Funerary archeology
4.	Field archeology
5.	Material culture archeology
6.	Mesolithic archeology
7.	Conservation archeology
8.	Building archeology

Challenges for integration into higher education sector : virtual archeology even though is a popular medium in higher learning also suffers from certain challenges.

Cost aspect	Application of digital tools of archeology through virtual archeology process is very expensive and sometimes the expenditure for purchasing digital tools costs the entire budget of the institution. higher education sector need to reserve funds for introducing virtual archeology applications to at least selected higher education institutions.
Management of 3D data	Virtual archeology comes with challenges of management of 3 D data which is very complex and intricate. Higher education sector need to make arrangements for management of 3D data , conservation of digital tools , 3D operation technique operators of digital tools needs to be trained.
Lack of technical expertise / personnel	Virtual archeology is challenged by poor technical expertise. The technical personnel required for management of virtual reality data is a bigger challenge
Problems of misinterpretation	Virtual archeology suffers from problems of mis-interpretation and mis-apprehension They are chances of moving away from exact original history . History can be misinterpreted by juggling historical facts. India is replete with dynastic confrontations , communal conflicts ,

Standard setting	Virtual archeology suffers from a setting a standard. There are no average guidelines for 3 D standard management for Virtual archeology application in higher education. There is a need to include guidelines for framing a standard procedure. There are chances of higher education institutions combating for a set standard.
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Need for assimilating digital tools to archeological studies

Archeological survey of India cannot conserve all the monuments or collect all archeological artifacts. Besides the conservation process followed by the Archeological survey of India is very primitive and out dated. It has failed to match rapid speed of global standards. Institutional link ups in higher education sector are also very inadequate. Scholastic collaborative efforts cannot be established as it needs memorandum of understanding (MoUs) at institutional level. This calls for supportive academic furnishing also . But all higher education institutions have very preparedness.

Conclusion

Thus, virtual archeology plays a key role in data visualization and digital resurrection of historical data. High definition photos videos laser scans converts the historical facts to virtual reality experience Three dimensional representation of heritage sites helps researchers and common man to augments his historical knowledge sources. Technology savvy organizations are interlinking new and innovative technologies supporting historical research. Corporate Companies are developing and managing content and knowledge management web portals hence higher education sector can think of collaborative linkages towards virtual archeology. Several countries have adopted the concepts of Virtual archaeology for visualization threads of past history effectively and these models can be adopted into Indian context. Higher educational research can link providing the use of conceptual search engines towards understanding history.

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