ARTIGO

THE IMPACT OF MUSEUM EDUCATION POST COVID-19: AN INTEGRATION OF 4TH IR AND TIME TRAVEL METHOD AS TEACHING TOOLS

O IMPACTO DA EDUCAÇÃO EM MUSEUS PÓS COVID-19: UMA INTEGRAÇÃO DA QUARTA REVOLUÇÃO INDUSTRIAL E MÉTODO DE VIAGEM NO TEMPO COMO FERRAMENTAS DE ENSINO

PAPER

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The Impact of Museum Education post Covid-19: an integration of 4th IR and Time Travel Method as teaching tools

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Abstract:

Museum Education has been and continue to be a great support system for the school curriculum. It has a way of connecting with the classroom education even when school curriculum experiences curriculum changes due to seasonal, environmental and political changes. This paper therefore, investigates how museum education is affected by changes of the classroom education visa vee the school curriculum. The main focus of these changes will be around the integration of 4th Industrial Revolution (4IR) post the covid-19 in museum education as a response to the school curriculum. The school subject interest that probes between museum education and the school curriculum is around the History and subsequently the Archaeology subjects. The specific school curriculum mention for this paper is based on the South African Department of Education's (DBE) 2018 Report of the History Ministerial Task Team in particular to the section of including Archaeology as a subject. The rationale behind the interest in this report is that it not only affects the teaching of History in the school classroom but also affects the teaching of History in the relevant South African museums.

Resumo:

A Educação em Museus foi e continua a ser um grande sistema de apoio ao currículo escolar. Tendo uma forma de se conectar com a educação em sala de aula, mesmo quando o currículo escolar passa por mudanças curriculares devido a mudanças sazonais, ambientais e políticas. Este artigo, portanto, investiga como a educação em museus é afetada por mudanças no vis-à-vis da educação em sala de aula e no currículo escolar. O foco principal dessas mudanças será em torno da integração da 4ª Revolução Industrial pós covid-19 na educação em museus como uma resposta ao currículo escolar. O interesse pela disciplina escolar que explora temas entre a educação museológica e o currículo escolar gira em torno das disciplinas de História e posteriormente de Arqueologia. A menção do currículo escolar específico para este artigo é baseada no Relatório do Departamento de Educação da África do Sul (DBE) 2018 da Equipe de Tarefa Ministerial de História, em particular para a seção de incluir Arqueologia como um assunto. A justificativa por trás do interesse neste relatório é que ele não afeta apenas o ensino de História na sala de aula escolar, mas também afeta o ensino de História em relevantes museus sul-africanos.

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INTRODUCTION

This research paper is fully inspired by the report that has been produced by the Department of Basic Education History Ministerial Task Team. The report was developed to advice on whether history as a subject should be compulsory or not. Furthermore, to review the history curriculum's contexts on whether it is properly aligned from Intermediate Phase all the way to General and Training Education. Their results had to include history offerings from other African countries as well as other International countries offering the envisaged history curriculum. Consequently, the reporting influenced a full section in their report titled "*Archaeology as History*" (Department of Basis Education 2018:64). The title of this section already pre-empts that the South African school curriculum in history is already questionable and therefore suggests further probing into the report. The following are the aims of the discussed report:

- ‣ "To conduct a feasibility study of making History compulsory in the FET phase,"
- ‣ "To identify where History should be located in the curriculum (for example, should it be incorporated into Life Orientation or not);"
- ‣ "To review the content and pedagogy of the History curriculum with a view to strengthening History in the curriculum; and"
- ‣ "To investigate the implications (for teaching, classrooms, textbooks, etc.) of making History a compulsory subject" (Department of Basis Education 2018:8).

The DBE report's aims and contents inspire inquiries on a bigger scale that questions the Education Policy makers and Education Specialists on the importance of teaching History in schools. It is for this reason that museum education cannot be divorced from the mainstream school curriculum. Museum education becomes an island without the mention of the mainstream school curriculum. In the South African context, museum education becomes the strength for the mainstream school curriculum as schools are obliged by government to take learners to museums. This paper focuses specifically on museum education that is aligned to the curriculum offerings of Social Sciences and in particular History that is infused with Archaeology. Consequently, the reader will be taken through the South African school curriculum with a specific focus area on the DBE report paper on the History curriculum. Therefore, this paper attempts to further investigate around subject discipline of Archaeology as offered in the DBE curriculum. The investigation results hopes to find a constructive way to understanding museum education with an integration of 4IR post covid-19. Interestingly, the current History subject at Intermediate and Senior Phase falls within the cluster of Social Sciences in CAPS. The rationale of the subject to be categorized as such, according to CAPS it is stated that, the importance of learners to study History is that they should be able to ask questions like "Who? Where? What? Why? When? How? Should? Could? Is/Are?" (CAPS – Social Science 2011:7; Black 2001). These questions become prudent in ensuring whether within identity and cultural heritage,

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learners will be able to ask them from Foundation phase up to the General Education and Training (GET) phase. "One of the most important ways in which history and archaeology are different, however, lies in the types of second-tier questions each field can answer. That is particularly because of the varieties of data available to scholars in the two fields and the perspectives from which they analyze such data" (Black 2001:103). This paper thus includes the employ a Swedish method called the Time Travel Method as a methodology in recommending it to be included in the teaching of the History curriculum entailing archaeological lessons. The Time Travel method applies archaeological and ethnography attributes which also show how the two disciplines are able to strengthen the school curriculum, in particular the History content offerings. Ultimately, this paper takes a reader to several processes before reaching the final attempted results. The process starts by identifying the subject at hand which is school curriculum and museum education, secondly identifying the type of the school curriculum and highlight an interest in a school subject most relevant to a museum education, thirdly identifying a presentation method that can be applied when introducing a full-scale 4IR presentation. These process will be better understood through the case studies that will be demonstrated in the paper.

CURRICULUM BACKGROUND

Overview of the South African School Curriculum

The South African school curriculum has experienced a turbulence of reviews since the end of the apartheid regime (e.g. Department of Basic Education, 2018. Report of the History Ministerial Task Team; Department of Education, Report of History/Archaeology Panel to the Ministry of Education 2000). The political influence and discourses is reflected in what inspired the curriculum being inclusive of all races. The inclusivity is reflected within the presentation of language, rearrangement of the most pertinent subjects such as the History subject, as it took a radical paradigm shift from a colonial focus to pre-colonial focus. It is prudent to learn the history of the South African curriculum and seeing how it has changed through the different political administrations to understand how the changes of the History curriculum led to how it is offered. The changes and reviews of the curriculum through time will also establish the influences which contributed in the reshaping of what is currently offered as the History subject. For the benefit of this paper, it is important to note that the mention of Archaeology is less than the subject of the History curriculum as archaeology is offered under History/Social Sciences subject. The current debates of where and how will Archaeology be placed in the current curriculum began during what was known as the Curriculum2005 where there was also a special report to the former Minister of Education Kader Asmal with the report titled '*Report of the History/Archaeology Panel* (DoE 2000; Chisholm 2005:199). However, the Curriculum2005 was also influenced by the transition of the apartheid government to the democratic state of administration. According to Linda Chisholm (2003: 268) "negotiations between the apartheid government and civil society in the National Education and Training Forum in 1993 was followed by a process of curriculum

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'cleansing' immediately after the first Minister of Education of a democratic South Africa took office". The most fundamental element of these transformations is that archaeology was already seen as somewhat instrumental to adding value in the History subject. Chisholm also mentions that the Curriculum2005 was implemented in 1997 which was already four years into democracy (Chisholm 2003:268). The investigations should also further gauge in whether archaeology was drawn in as an elementary theory to enhance national identity in learners or edifying to pre-colonial data for teachers. It is also public knowledge that the education system before the democratic change had a series of limitations as it demonstrated to racial inferiority leading to economic disadvantages (Giliomee 2012: 69).

EFFECTS OF CURRICULUM CHANGES IN THE MUSEUM

It is without a doubt that museums have for centuries coexisted in the community for different kinds of reasons. However, the main progressive reason for a museum's fundamental function is education. Museum Education is done in many forms which is through exhibitions and museum education that goes through vigorous research processes. The curatorial and research repositories is also dependent on central themes that are directly from the government or just independent themes. However, the same facts to develop curriculum themes will relatively be the same facts that inform the museum exhibition themes and or museum education themes. It is for this reason that in the introduction, it was mentioned that museum education cannot be divorced from the mainstream school curriculum and that it also serves as a strong support system. Consequently, when changes in the school curriculum occur, they tend to have adverse effects on the museum education. The effects in this regards are 'how' the museum education is presented and 'what' is presented in the museum education. Therefore, this paper will demonstrated partly on the 'how' part of the museum education as a response to curriculum changes and other seasonal changes such as the covid-19 pandemic. The first part of this paper was to understand more of the 'what' element of the museum education and the second part is the 'how' element hence the slight introduction of a seasonal effect such as a pandemic unlike curriculum changes.

BACKGROUND: THE TIME TRAVEL METHOD

The method that inspired this research methodology is called the Time Travel method, which is loosely defined as an applied heritage method that uses local heritage in interpreting contemporary issues (Westergren 2018:6). However, it is also defined as "as an embodied experience and social practice in the present that brings to life a past or future reality" (Holtorf 2017:1). The Time Travel method was developed in Sweden around 1980 as an inspiration from the Swedish school curriculum reform (Westergren 2017:90). The rationale was to involve learners with their local heritage which at the time mostly focused on archaeological sites such as the Stone Age in order for learners to have a feel of the Stone Age period (Westergren 2017:90). The method has throughout the implementation years explored with the different sets of subject offerings from History to Mathematics. The vigorous

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presentations of the Time Travel method led to the method being offered to schools through museums such as the leading Swedish museum called Kalmar lans Museum (Westergren 2017:90). Kalmar lans Museum took the method abroad through a network of museum professionals that resulted in the establishment of the Bridging Ages International network (Westergren 2017:90). The Bridging Ages network in all participating countries was established to encourage participating countries to apply their method according to their country's needs from the school curriculum to social cohesion issues (Westergren 2018:5). However, the strength of the method has been found in applying it for school curriculum purposes.

CASE STUDIES: SCHOOL CURRICULUM AND THE TIME TRAVEL METHOD

The History Curriculum before democracy

In order to be able to reach the rationale why archaeology in the school curriculum has been considered for presentation, it is prudent to understand the type of the History subject that has been offered in schools before CAPS. The CAPS predecessor was formed by the then Department of Education in 1997 and referred to as Curriculum2005 (Chisholm 2005:193). Curriculum2005 also undergone through a reform that is relative to the current curriculum. The curriculum reformation of Curriculum2005 led to the development of the '*Report of the History/Archaeology Panel* (DoE 2000; Chisholm 2005: 199). The interesting contestation about Curriculum2005 was that History was also having destructive political criticism as alluded earlier. The transition to History offered in the National Curriculum Statement (NCS) and the Revised National Curriculum Statement (RNCS) still had some elements of Bantu Education which required modifications through the interim curriculum called the "Interim Core Syllabus" (ICS) (Bertram 2006:34). According to the curricula critiques, "History teaching was symbolic of apartheid; reinstating history was, and is, for these critics, like reinstating apartheid" (Chisholm 2005: 199). However, the central focus was always conversant with the objective of presenting the subject of History which amongst others is about "source interpretation, influences on interpretation, and representation of the past" (Chisholm 2005: 201). Chisholm section presents how the report on history and archaeology was supposed to have contributed in the making of the c2005 History curriculum, but unfortunately speaks of contestations around the history curriculum. Consequent to Chisholm's article, the report itself should have provided a guideline on how archaeology was planned to be a part of the Curriculum2005. The 2002 Archaeology and History Report of the Department of Education is extremely concerning, as archaeology has been included as an add-on to just add volume and value to the teaching of History. According to the report "while archaeology as a discipline has not yet been recognized by education authorities as an integral learning component of the Human and Social Sciences, research has shown its material potential to make classroom history more tangible, while the relative looseness of curriculum2005 has provided space for it to begin to make an innovative intervention in the quality of history at schools" (Department of Education Archaeology and History Report 2002). The report deduces

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on the core functionality of archaeology as a discipline that learners and teachers will be able to engage "history" from a more tangible view, but the methodology for presentation is still lacking methods (Department of Education Archaeology and History Report 2002). Chisholm (2005:202) also provides a very intriguing reality of implementation of the curriculum2005 that the desired curriculum had to consider geographical differences of schools due to their historical depressions. Furthermore, schools in the most rural areas would have considered the methodological changes of the curriculum if there were resources to support those changes, resources would have also extended archaeological knowledge to history teachers in the rural schools. This reveals that the inclusion of archaeology even before CAPS was never an easy process nor to be given the priority of presentation due to lack of thorough interpretations of methodology in the former ministerial reports. There is also another rhetorical discourse on why Archaeology was never really afforded a fair chance to probably compete with the pedagogies of History in the curriculum2005. The discourse was around 'human evolution' as there are other religions which strongly believe against such theories (Chisholm 2003:8). However, the former Department of Education also mentions without noticing the implementable failure of the report regarding resources and capacity that "this report looked at ways of strengthening the teaching of history and archaeology in schools" (Department of Education Annual Report: 2000/2001: 2). The appearance of teaching archaeology in what is now known in the current curriculum as GET & FET phases also appeared during the apartheid regime syllabus formerly known as the 'Bantu Education' (Bantu Education Act no 47 of 1953). "No textbooks in the period since 1972 have responded, in a significant way to allegations of bias and inaccuracies in the treatment of the origins of South Africa's Black population in the teaching of history in South African schools, nor to the results of archaeological research" (Mazel & Stewart 1987:167). These curriculum historical accounts of the attempts to include archaeology in the school curriculum shows that the curriculum was on the right track, the challenges were the lack of presentation methods of archaeology and archaeology experts to contribute to curriculum changes

The South African context

The value of teaching history is an interdisciplinary subject hence the attempts of including Archaeology vividly, is also futuristic through learning of past methods. According to Shepherd (2005:124) "University archaeology curricula provide a sense, not only of changing intellectual currents and developments within the discipline, but also of its responsiveness to changing social and political circumstances". Legassick (1998: 6) states that "we believe that history is a distinctive, well-established and internationally respected discipline with its own methods and discourses, and with a well-organized research and teaching establishment". The value of teaching History in preparation of Higher Institutions of Learning is seen through the drop of learner enrolment percentages. Furthermore, the questions should be charged on an international scale on checking what the values and priorities in other international and best curriculums are. However, Kallaway (1992:15) provides three values within the South African context to be adopted in understanding

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why history should be valued as a subject:

- ✔   "An alternative history curriculum could allow for the redress of the past wrongs in the interpretation of History and could restore the History of the oppressed people as part of the common heritage. Rather than being an exercise in the avoidance of past conflicts and disagreements, this could be an important aspect of the construction of a new set of common values and identities."

- ✔   "History teachers' valuable skills such as the analysis and comparison of sources and the ability to conceive of different interpretations of the past. Thus, it provides the basis for working with both commonality and diversity."

- ✔   "The development of historical insights into the way things are and the way they have been in both South Africa and the rest of the world is an important dimension of general education and also offers a perspective on the changing world of work" (Kallaway 1992:15).

Ultimately, the members of the Curriculum2005 review committee also emphasized on the value of history during their 2000 report to the former minister of Education, Professor Kader Asmal. They noted that history should form part of the core of the curriculum by arguing that "the values of a society striving towards social justice, equity and development through the development of creative, critical and problem-solving individuals lie at the heart of this curriculum" (Department of Education 2000). In their executive report, the History Ministerial Task team reported that "in light of the importance of ancient, 'precolonial' and colonial African History, the HMTT feel it is crucial that Archaeology be included in the curriculum as a way of deepening the understanding of African History" (DBE 2018: 3).

The African context

The most common factor with the African root cause of contested curriculum is the colonization it has faced and political instabilities which came thereafter. However, one must also interrogate why the most pertinent curricula subjects that shape citizenship, human values and rights are even now heavily contested. To prove that some of these African governments apart from unsettling politics, they are still experiencing colonial effects of denying value of historical accounts to learners that should be able to appreciate their past. As one of the major elements of colonial strategies for social control through the curriculum "both of these aspects of social control, limited access and limited provision on the one hand and attempts to impose an 'adapted' curriculum on the other, can be seen to be related to previous colonial experience and to the increasing manifestation of social problems of various kinds among educated school leavers in the African colonies" (Ball 1983:245). The dialogue of offering history in this context therefore becomes limiting as the definition of history does not reflect 'historical archaeology and or precolonial history' in the school curriculum. This task is the simplest tasks of avoiding the elements of colonial denial which was impost into the school curriculum for certain colonial benefits. Ball (1983:245) further notes that "to some extent, educational policy in the colonies in the early years of this century is representative of the dilemma faced by the colonial administration: on one side the demands for educated personnel in the rapidly

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expanding areas of government bureaucracy, trade and industry together with the demands of the Africans themselves for formal education, and on the other side the political, and social disturbance created by the unemployed or dissatisfied among the educated Africans". The colonial curricula case is also not a stranger to the Zimbabwean case as it has went from changing the colonial curriculum into Independence curriculum. "Is it any wonder, therefore, that the product of education systems in Africa, particularly in former colonies, Zimbabwe being a case in point, still continues to look down upon his/her own history; his/her own language; his/her own culture as a whole? The curriculum, therefore, even twenty-five years after independence in the case of Zimbabwe, is seen as having barely addressed African needs and has not been quite related to African experiences and background." (Mavhunga 2006: 448-9). Greaney (2006:48) speaks of the History curriculum having the potential of fostering social cohesion which is deemed as the highest societal value in a diverse and democratic country. Greaney states that "Although most textbook content does *not* promote material that fosters inappropriate views of others, some materials, especially history textbooks, promote versions of history and views that have the potential to undermine social cohesion" (Greaney 2006: 48). "Any attempts by a former colonial state to take full control over these facets of life (social, economic and political control) attract a variety of retributal measures…that way, any reforms (including educational) considered unsuitable by the former colonial powers have tended to be kept under check" (Mavhunga 2006:447). Consequent to former colonial African countries, Kenya also experienced the same phase of the lack of inadequate History teaching in schools. "History is a panorama of character in action in every conceivable situation, because it widens indefinitely the circle of our acquaintances, provides abundant material for the analysis of motives and gives opportunity for cultivating restraint, tolerance and charity in the judgment of unpleasant ones… therefore, this paper states an extremely strong case for the study of history in Kenyan secondary schools, and if possible, makes it a compulsory subject" (Chang'ach 2011:690). The Time Travel method was also introduced in Kenya in 2011 and focused on several school subjects but History that embraced Kenyan ethnography contributed in Time Travel scenario writings (Westergren 2018: 5). Uganda also adopted the Time Travel in partnership with Kalmar but the main focus with the method was to develop the municipalities as mentioned by the Entebbe Municipality Mayor (Entebbe Time Travels 2015:3).

The Schengen context: Sweden

This section is to also determine how international countries and particularly the Schengen countries value the teaching of history in their curriculum. The previous sections have identified that Archaeology within the senior and FET phases is not offered as an independent subject but in South Africa it is partly offered in the Intermediate phase. This section will also determine whether the Schengen countries are offering History or have placed it together with Archaeology and for what purpose. It should be highlighted that some of these Schengen countries such as the Netherlands, France, and Portugal were also historical colonizers of the third world countries, countries (Broberg

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2011; Angelescu 2008). A school history curriculum establishment from Britain states that "the claim history has for inclusion among compulsory subjects in schools today must be its unique ability to provide pupils with the wherewithal for a sense of national identity that offers them good cause to be proud of being British" (Conway 2005:8). However, the interest of the Schengen countries is be within Sweden and Netherlands. The focus is whether these countries are teaching History as a patriotism practice and or reasons of social cohesion by including attributes of archaeology.

The teaching of History in the Netherlands is purported to "prepare students for the task of using the past responsibly for future purposes and historical consciousness would be the cognitive state of mind that allows students to realize their own particularity in time, as players in a continuous process of historical meaning making" (Klein 2010:615). The entrenchment of school history in the Netherlands was also about promoting patriotism as it is mentioned that "If one of the aims of history in schools is to influence young people's ideas about identity and history, it would be helpful to have an understanding of the ideas which young people already hold about such issues" (Grever et al 2008:4). According to the Swedish curriculum adjustments "Previous studies of UNESCO's and the Council of Europe's view of history teaching have described how the subject was seen as important for peace, cultural identity, and cultural exchange" (Nygren 2011:330). However, "more recent research has remarked, moreover, that students' comprehension of history varies a great deal and is influenced by a complex interplay between school, society, and personal experience" (Nygren 2011: 332). This proves the great deal of influence that a school curriculum has on both learners and the society at large. When subjects are appropriated well inside the curriculum within the context of Social Sciences wherein archaeology does not struggle to feature before history, there would not be a space for such curriculum debates and 'students comprehension on history'.

Sweden, as part of the Nordic countries, has a much more active number of learner concentration in the subject of history ranging from primary, secondary and university phases. "In the Nordic countries, educational history is a highly diverse, interdisciplinary field" (Lindmark 2015:19). Furthermore, in the Swedish secondary schooling curriculum they have strictly highlighted as one of the goals that "it is the responsibility of the school that all individual students have knowledge about the culture, language, religion and history of the national minorities (Jews, Romanies, indigenous Samis, Swedish and Tornedal Finns)" (Skolverket 2013: 8). To show that Sweden, through the teaching of history education, advocates for social cohesion in such that another goal within their curriculum is that the "goal of the school is that all students individually can interact with other people based on respect for differences in living conditions, culture, language, religion and history," (Skolverket 2013: 8).

An interesting aim of the Swedish History curriculum states that "teaching in history should aim at pupils developing not only their knowledge of historical contexts, but also their development and historical consciousness. This involves an insight that the past affects our view of the present, and thus our perception of the future" (Skolverket 2018:208). It is extremely interesting how they have incorporated archaeology in their compulsory history education.

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MUSEUM EDUCATION INTEGRATED WITH 4IR

Museum Education before covid-19

Museum education before covid-19 have been offered through gradual stabilised methods but at the same time through improved methods after the previous world pandemics. Perhaps understanding the history of museum education becomes pivotal in learning on how museum education survived through the previous world pandemics. In his paper, Hein states what has been previously mentioned in this paper that "Museum education was subject to the same constraints that limited the formal education sector: there was little historical background and limited theory to guide any institution that attempted to educate a large segment of the population" (Hein 2006:341). An argument can then be made that an all-encompassed museum education that relatively included exhibitions and research was spearheaded by the International Council for Museums (ICOMs) due to the effects of world wars. It is prudent to note that ICOM was developed in 1946-1947 where besides the atrocities of warfare and looting of cultural heritage sites, there were already pandemics that had been around before and even after 1947. It would then be a prerogative of the organisation to have some kind of guidelines on how museums should continue to educate the public without self-destructing. This paper arguably agrees that formal museum education was recognised after the development ICOM as the code of ethics became specific regarding museum education (ICOM code of ethics 2017). However, Prottas argues differently and highlights that museum education was in existence way before 1947 and started around the period of the Louvre museum in Paris that was established in 1793 (Prottas 2019:337). Consequent to Prottas argument, this paper can only attempt to atleast identify the 10 world oldest museums of which five of them existed in the period of the late 1700s and after the late 1940 period. These museums will show us how they have survived pandemics during their historical existence and how they have been better prepared for the current pandemic. The following table will reflect the last 10 deadly pandemics that are parallel in both the period around the late 1700s and period after the late 1940 museums.

Table 1 Historical recorded pandemics vs oldest surviving museums

Historical Recorded deadly Pandemics	Oldest museums parallel to the pandemics Five oldest museums before and during 1800s
I, Yellow Fever – 1800s II, 1918 Flu	Hermitage museum in Russia (1852), Kunstkamera Museum in Russia (1727), Louvre Museum in Paris (1793), Belverde Palace in Austria (1781), Indian Museum in India (1814), KwaZulu-Natal Museum
III, Asian Flu – 1957-1958 IV, Hong Kong Flu – 1968-1970 V, HIV/AIDS – 1981 to current VI, SARS 2002-2003 VII, Swine Flu - 2009 VIII, Ebola - 2014 IX, MERS - 2015 X, Covid-19 - 2020	**Five oldest museums after 1940** South African National Museum of Military History in South Africa (1947), Livingstone Museum in Zambia (1934-1964), Philadelphia Museum of Art (an extra wing opened in 1940), Drohobych Museum in Ukraine (1940), The Museum, Archaeological Institute of Kashihara, Nara Prefecture in Japan (1940).

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This table is evident that museums have been in existence during deadly pandemics and survived thereafter. However, the critical question is the state of readiness of museums post deadly pandemics and how the museum managing bodies have been better prepared to advice for progressive museum education post deadly pandemics. It is also pertinent to state that the 4th Industrial Revolution dialogue would not have sufficed as technology of the 19th century is far different to that of the 20th century. The 20th century museum education becomes standard in using technology for accessibility purposes rather than teaching purposes. The major difference of the two periods is that the World Wide Web was introduced in the 19th century and wherein the different kinds of educational software and applications are then seen more in the 20th century. All these museums listed in the above table are to show that you can access some kind of educational information about them on the internet and not necessarily their website.

CASE STUDY: A SOUTH AFRICAN MUSEUMS COMPARATIVE ANALYSIS OF INFUSING TECHNOLOGY FOR MUSEUM EDUCATION ACCESSIBILITY

The current museums in South Africa have a twist of using technology in their offerings and what makes it interesting is that most of these museums use it for schools and individuals to be able to access their museum offerings. In this chapter we will identify the current uses of technology in the museum space by going through different case scenarios. The first part of this chapter is identifying accessibility of the current museum education offerings in different museums and the second part is identifying the kinds of implementations that uses technology which have adjusted according to the covid-19 changes in doing things. Furthermore, in the above section, there is a mention of museum regulatory bodies and South Africa is also not stranger to such regulatory bodies. The South African Museum Association (SAMA) is the highest regulatory body for a very high percentage of South African museum. The mention of this regulatory body is pertinent as it has played a crucial role in the writing of this paper as a form of collecting relatable data for this paper. In conclusion to this section, we identity similarities of some of the museums mentioned in the above table to the South Africa museums in order to understand the adjusting technological growth by the South African museums, parallel to the international museums. It is important to note that all the data collected on all the below museums was collected just by opening their websites and browsing availability of their museum education.

SOUTH AFRICAN MUSEUMS OFFERING HISTORY AS PART OF THEIR MUSEUM EDUCATION

1.   *Freedom Park Heritage Site & Museum*

A museum based in the capital centre and the epitome of historical content offerings, offers a surge of museum education programmes. A quick way of being exposed to their museum education offerings is seeing them through their website. The have a special feature which is the education unit and under that feature is their list of education programmes. This gives schools a quick understanding

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of Freedom Park is about with regards to the school curriculum. They also offer a guideline on some of these education programmes on how they are offered. At the centre of these offerings, is one of the education programmes being discussed in this paper which is the Time Travel method. Tracing whether their website offers any virtual education programme in response to the current pandemic is of no luck as they still offer the same education programmes as previously offered before the corona virus pandemic.

2.   Voortrekker Monument

The Voortrekker Monument is a museum which is adjacent to the Freedom Park museum. The museum has been in existence longer that most of the South African museums an also offers educational programmes. According to the Voortrekker Monument website they state that "the programmes present are outcomes based and target the Human and Social Sciences, Technology, Natural Science and Arts and Culture". The further state that they offer their education programmes in the Funda Discovery Centre which is situated within the Voortrekker Monument. It is easy for learners to access their website and identify education programmes that are relevant to their curriculum needs.

3.   Apartheid museums

The Apartheid museum is a controversial museum that exhibits the historical atrocities of South Africa. The museum is based in Johannesburg next to one of the South African biggest theme parks named the Gold Reef City. The museum offers Educational Programmes which are also placed on their website. They are accessible in a form of a PDF for learners to easily download. Their education programmes are not meant for all grades but are specific for certain grades that are linked to their specific curriculum needs.

4.   Ditsong Museums of South Africa

Ditsong museums is almost an all encompassed body of museums that has different kinds of exhibitions ranging from history, nature and social sciences. Their museums are always packed with school buses in the centre of the Capital City to experience their different kinds of educational programmes. They offer their comprehensive education programmes on site but have also found creative ways to use their social media platform to continue offering educational activities. They were able to run an educational activity for Mandela day on their Facebook page which also appeared on their website. The education programme was interactive and ensured maximum participation of learners as learners had to submit their entries.

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5. *Iziko Museums*

Iziko Museums are an embodiment of interesting South African museums. The Iziko museums just like the Ditsong Museums of South Africa has a long list of museums under their umbrella that individuals can see on their website. They are based in the Western Cape and offer exciting education programmes which according to their website are available on site.

6. *Summative of the list above*

The abovementioned museums have been selected randomly and according to their popularity in South Africa. However, they also appear first in the internet search engine. It is prudent to provide clarity that this paper is by no means setting a measuring mechanisms of the best South African museum but simply selecting museums suitable for this paper. In the process of identifying these museums and writing this paper, Covid-19 has still been a global problematic pandemic and continue to challenge world economies. The South African tourism sector which encompasses the heritage sector has been the one strongest hit. The sector opened in level 2 and yet in level 1 it is still finding its feet with very little people visiting the museums. This technicality then becomes a driving force behind the rigorous internet use in providing museum services online and in particular online educational programmes. The paper has mentioned that international and national policy makers should play a pivotal role in accommodating changes brought up by pandemics. Seemingly, this particular pandemic has taught us that industries cannot work in silos as the opening of the paper talks about the history curriculum which is being support by museum education programmes. The pandemic has forced regulations that put up limitations especially in the operations that mainly deal with targets or figures. South African schools finalized the full-force of going back to school in August 2020 and still applied the going to school on a rotational basis. This meant that schools have been under pressure to cover the 2020 schooling year by adhering to covid-19 regulations. The pertinent regulations for schools is for learners to be at school and not visit educational sites and no one should also visit the schools. This also meant that schools will strictly focus on the school curriculum and thus automatically meaning that museums also risk the chance of being redundant. Museums like Ditsong, Voortrekker and Freedom Park also started opening their doors around the very same period the schools had to be finally go back. Consequently making most of these museums to fully depend on the technological platforms in maximizing their products and services. South Africa also became fortunate with its museum regulatory body SAMA being transparent of its strategies around covid-19 and also in the forefront of sharing on their Facebook page educational activities happening in the South African museums. It was able to keep the museum fraternity alive online even during the hardest time in lockdown. Their activeness in the technological arena also encouraged museum workers to think outside the box and show possibilities of adapting in the new normal.

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SIMILARITIES OF THE SOUTH AFRICAN MUSEUMS USING TECHNOLOGY COMPARED TO OLDEST INTERNATIONAL MUSEUMS

The following is a similarity table of what all these mentioned museums are using as an integration of 4IR in museum education. The difference then becomes opportunities that the international and national museum bodies can use as a starting guideline in strengthening museum education and ensuring progressive museum education programmes. The focus of their museum educational programmes is specific to both primary and high school learners which in South African academic language means from Grade 0 to Grade 12 (Foundation phase, Intermediate phase, Senior Phase and FET Phase). The table response is in a form of a yes or no and not clear. The rationale for a "Not Clear" response is due to their website not being immediately clear of their education programme online resource material.

Table 2 Museums offering education programmes and offers alternative methods during covid-19

Name of Museum	Open during covid-19	Offers curriculum linked museum education programmes	Accessible on the internet/website	Offers alternative interactive online education programmes
Kalmar lans museum – Sweden	Yes	Yes	Yes	Not clear
Hermitage museum – Russia	Yes	Yes	Yes	Not clear
Kunstkamera Museum – Russia	Yes	Yes	Yes	No
Louvre Museum – Paris	Yes	Yes (but for teachers)	Yes	No
Belverde Palace – Austria	Yes	Not clear	Yes	Not clear
Indian Museum – India	No	No	Yes	No
South African National Museum of Military History/Ditsong Museums	No	Yes	Yes	No
Livingstone Museum – Zambia	Yes	Yes	Yes	No
Philadelphia Museum of the Art – USA	No	Yes	Yes	Yes
Drohobych Museum – Ukraine	Not clear	Not clear	Not clear	Not clear
The Museum, Archaeological Institute of Kashihara, Nara Prefecture – Japan	No	Not clear	Yes	Not clear
Freedom Park – South Africa	No	Yes	Yes	No
Voortrekker Monument – South Africa	No	Yes	Yes	No
Apartheid Museum – South Africa	No	Yes	Yes	Yes
Iziko Museums	No	Yes	Yes	Not clear
KwaZulu-Natal Museum	No	Yes	Yes	Yes

The above table proves that South Africa is on a competitive level with other international museums that are using technology. South Africa is better equipped with accessibility of technology in offering online museum education programmes. This is as a result that the country competes with museums that have long survived historical deadly pandemics and are still operating such that they also

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find alternatives to continue with progressive museum education. Seemingly, there is a common thread within the table of both strengths and weaknesses. These strengths and weaknesses therefore becomes opportunities for successful museum education programmes post the covid-19 pandemic. This paper has forced one to stay in touch with online museum activities, and KwaZulu-Natal Museum during the writing of the paper came out strongly with how they have strategically adapted in the new norm by maximising their technological resources. They were able to still present history related educational programmes such that their activities dominated the South African Museum Association Facebook pages.

OPPORTUNITIES FOR THE BETTERMENT OF MUSEUM EDUCATION POST COVID-19

The following is a list of opportunities that are identified for the betterment of offering museum education post covid-19.

- ICOMs to have a revised code of ethics relating to museums and deadly pandemics

- Local museum bodies such as the South African Museum Association to also revise their policy documents that will include managing education programmes during deadly pandemics.

- Museums to be accessed on online platforms by using language and applications/software that children and students can understand.

- Museums to revise their education policy documents to include online teaching resources.

- Museums to have online interactive learning material.

- Museums to accommodate the physically disabled communities and schools by having a sign language interpreter on their online platforms for the deaf community.

- Museums that have been using braille also have an opportunity to develop an application or device that will translate the museum education programmes.

POSSIBLE CHALLENGES IN THE READJUSTMENT OF MUSEUM EDUCATION DURING AND POST COVID-19

The challenges also put in bulletin points to summarise them according to what was identified during the draft of this paper.

- Challenges that can delay the opportunities can come from museum personnel who are not open to change.

- Museum personnel who are not well trained in using technology to its maximised potential for education programmes.

- Funding for better technology to maximise museum education.

- Learners who are from impoverished communities and have not access to internet and or cellphone that can show museum applications.

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The museums opportunities and challenges were learnt during the drafting of this paper. It is evident that even today museums are still struggling to attract numbers in the museum and mostly are not at fault for such. The school curriculum year has been shrunk such that schools are pressured to only focus on certain curriculum aspects. Museums like Freedom Park has also just finalised the working arrangements in seeing how workers come to the office on a rotational basis just now in November. This also means that other workers will still continue working from home due to being affected by comorbidities. Thus meaning that even when necessary technological training can be offered for museum personnel to maximise educational programmes, other personnel will not benefit from it. However, Freedom Park has attempted offering a history related education programme by including a personnel with comorbidities who had to be linked through skype in the museum, while the other personnel was offering part of the same programme in person inside the museum. Seemingly, the evidence brought forward provided beyond the paper's objective as investigations provided opportunities, challenges and actual achievements through the covid-19. The challenges which have not been noted in the last section are beyond the parameters of the museum sector. The paper had appropriately introduced how the school curriculum plays a huge role in the museum education. However, the very same curriculum and school processes also experienced their very own distinct challenges which has advert effects in museums. It shows that some of the challenges will not necessarily be curbed in the first year of the pandemic but will require different sectors to play their role in order for all sectors to achieve. The year 2020 for most is now being used as year brainstorming and dry run year in testing all the possible strategic plans viable for museums and schools. This pandemic has actually proved that humans when pushed into a corner, are capable of producing extraordinarily. This pandemic has also forced Freedom Park to also change its perception of how it offered online education programmes by changing them to be more interactive. One of their edited education programmes has been posted on their internet which shifts from the ordinary PDF worksheets to a more interactive resource. It has in fact, applied some of the noted opportunities stated above.

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