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100 Years of palaeo-research and its relevance for transformation and social cohesion in South Africa

Australian-born Raymond Dart arrived in South Africa in 1922 and subsequently gave the name *Australopithecus africanus* to the fossilised juvenile skull discovered by mine workers in Taung, North West Province. After this discovery, and its announcement in 1925, the discipline of palaeoanthropology grew exponentially on the continent. This centennial milestone necessitates reflection on the role of science in society, with a critical look at the relationship between palaeosciences, the theories of human evolution, and the researcher's interaction with southern African Indigenous peoples. Here we examine the palaeoanthropological scientific practice in southern Africa and suggest ways to decolonise science, and its narratives, in the future. To achieve meaningful transformation and social cohesiveness, we discuss measures to counter the wrongs of the past through meaningful and socially responsive practices such as equitable funding schemes, meaningful collaboration, and doing away with 'helicopter research'.

Significance:

Palaeoscience practice and narratives in southern Africa are in need of decolonisation. We call for meaningful transformation and social cohesiveness, through measures to counter the wrongs of the past. To do this, we suggest meaningful and socially responsive practices such as equitable funding schemes, meaningful collaboration, and doing away with 'helicopter research'.

[Abstract in Setswana]

Introduction

Despite Botswana gaining independence from British colonial rule in 1966, Zimbabwe in 1980, and South Africa's apartheid ending 30 years ago, southern African states have yet to develop into nations that are integrated beyond race, ethnicity, and class. Furthermore, the persistence of inequality has fuelled conflict between various groups in southern Africa, including xenophobic attacks, tribalism, ethnic power struggles, and racism. The region's socio-economic challenges have hampered equality and social cohesion, which is a necessary component of inclusive growth.

Palaeo-research in southern Africa plays an important role in the building of new democratic societies and forms the basis of many African countries' postcolonial identities as well as the reclaiming of their prehistorical advancements. Similar to many scientific disciplines, its roots lie in colonial imperatives of domination of European settlers in the colonies, which opened up new areas of research and developed new fields of study. These became the driving force behind colonial science, which was used to aid in colonial imperialist expansion.¹⁻³ The culture of local resource and population exploitation from which colonial science was founded, translated to the view of science in colonies as European achievements.⁴ The regional dominance of South African palaeoscience research, specifically human evolution related disciplines, means that biases that emanate from the practice of palaeosciences in South Africa impact beyond its borders to the culturally linked neighbouring states, even after their independence. The announcement of the Taung juvenile fossil, dubbed the Taung Child, by Raymond Dart in 1925⁵ propelled professionalisation of the palaeosciences in South Africa, the wider region, the continent, and beyond. With it came a change of perspective towards one that reinforced the notion of Africa as the place of origin of humankind, as speculated first by Thomas Henry Huxley⁶ and later reinforced by Charles Darwin (1871)⁷. That change reverberated globally, and, depending on where the news was received, there was either excitement or apathy for this newly affirmed position for the continent.⁸ With this announcement also came the motivation to unearth more remains and to explore what else lay beneath the continent's soil to support or challenge this new position. The trajectory of human evolution studies and associated disciplines changed forever. Despite assuming a centre stage globally, in southern Africa, the discipline's course would be enmeshed in the region's socio-political turmoil of the next century. While this is not the popular narrative associated with the discovery of the Taung Child, the processes associated with the announcement are not devoid of controversy linked to racial attitudes and the practices of the time.

Undoubtedly, the announcement of the Taung Child was influenced by the Union of South Africa through entrenchment of racial segregation and the notion of white superiority, which was ultimately legislated through apartheid in 1948. The discovery also took place against the backdrop of the newly propagated *Natives Act* of 1923⁹, which advocated for the restriction of African migrant workers in town and laid the foundation for the *Group Areas Act*¹⁰ that followed in 1950. This exclusionary and racist legislature led to the erasure of historical facts about the fossil's discovery. For example, the only mention Dart makes of how the fossil landed in his hands is that of a student who brought the cercopithecoid fossil remains to his office and the consulting geologist who later brought additional fossil specimens for his examination.⁵ Central characters and events in this discovery only reference the geologist, the mine manager and academic staff at the University of the Witwatersrand, all of whom were white men. Not a single mention is made in Dart's published works of the black mine workers who could have possibly manually unearthed these fossils.¹¹ This set the tone for the practice of palaeosciences in the region and elsewhere on the continent. Erasure of black characters in the stories of these finds is a trend that persists to date.¹²

Discovery of the Taung Child and the birth of palaeosciences in southern Africa

Raymond Dart's announcement of this seminal fossil specimen influenced the direction that palaeoanthropological discoveries and announcements were to take. After the discovery of the Taung Child, subsequent major discoveries,

such as the 1932 discovery of the Florisbad fossil cranium and its possible taxonomic association with early *Homo sapiens*¹³, the 1938 announcement of *Paranthropus* at Kromdraai¹⁴, the 1947 announcement of Mrs Ples (now attributed to *Australopithecus africanus*) at Sterkfontein¹⁵, and the 2013 discovery of *Homo naledi* in the Rising Star Cave system¹⁶ followed the same route in their practice. Not a single article by the ‘discoverers’ or authors acknowledges the manual labourers who likely played a critical role in the discovery. Post discovery and prior to writing manuscripts, the research process relies heavily on support staff to prepare and, at times, preliminarily analyse the specimens. The practice of acknowledging all researchers in the scientific process is almost non-existent and remains largely the same for 100 years, now with the exception of a couple of research teams which have acknowledged and co-authored with technicians involved in the research.^{17,18}

Recognition of Raymond Dart as a pioneer of African palaeoanthropology¹⁹ initiated, and indeed entrenched, the centralisation of certain individuals, even in the face of growing recognition of the multidisciplinary nature of the field. This practice over time has inevitably cultivated a system in which only a single individual is depicted as *the* hero, overshadowing, if not entirely suppressing, the existence of other contributors involved in the process. While the political environment of the time would not have provided an opportunity for black people to lead research, acknowledgement of all contributors would have set a good precedent. These eminent personalities drive the research agenda and, ultimately, the future of research through their training practices. With this idolised recognition also comes easier access to research permits, funding, and other support structures, which further reinforces the influence of these few individuals.

The centre stage placement of a few idealised researchers with colonial influence¹⁹ perpetuates the marginalisation and disenfranchisement of local researchers of African heritage and research on African soil. In other southern African countries such as Botswana and Zimbabwe, the demographics are not as skewed. However, in South Africa, most researchers do not reflect the country’s demographics. Black academics are a minority in academia, while they are the country’s demographic majority. In an acknowledgement of issues like these, and to bring about inclusive change, the UNESCO stakeholder engagement and communications guide of 2017 calls for full and effective participation of Indigenous peoples as stakeholders and rightsholders in the process of managing and presenting heritage, in accordance with a human rights based approach, while acknowledging the evolution’s global legacy.²⁰

Collaboration and diversity of voices for inclusive palaeosciences

In the scientific milieu of the 21st century, cooperation and a diversity of perspectives are unquestionably the way forward in research, particularly when it comes to the study of human evolution and the examination of human remains. Genuine collaborative and inclusive research endeavours promote a sense of belonging and address negative publicity. This was observed in the call to rebury ancestral human remains held in the then South African Museum’s collections. This call to action was provoked by past scientific misconduct, including the collection of and race-based scientific research on individuals of African descent and casting of living San individuals and exhibitions of their likeness.^{21,22} It is evident that including local academics and community members in the research process is crucial for both cultural preservation and site conservation. Certainly, one method to encourage public interest and support for the discipline is to make the process and the content more accessible to the public through innovative and decolonised approaches that could be brought about by structures such as the IKhwa tu San Heritage Centre and the Hunter-Gatherer Archaeological Research Project (HARP).^{23,24}

There is a growing recognition that multivocality is crucial in the scientific construction of social cohesiveness.²⁵ The central point of multivocality is a participation that encompasses more than just increasing the number of voices, groups, and persons involved – but one that also considers how marginalised groups can participate meaningfully in research and its interpretation by being given a platform to speak and be heard.²⁶ To provide an opportunity to participate actively in research platforms, there is a need for scientific methods that cater to the non-Western voice. As Hodder states, “reflexivity is a process that calls on scientists in

archaeology and palaeosciences to reflect on the scientific practices from research design to field methods, writing, publishing, and presentation of the past”²⁶. By recognising historical and current issues with positionality in human origins disciplines, multivocality has the ability to re-centre science away from egotistical and self-indulgent practices, as has been done in the HARP project.²³

In palaeosciences today, the historically marginalised, silenced and decentred subaltern voices that claim some form of affiliation to archaeological remains have been awakened, engaged, and are currently eager to explore their heritage and identity, and to tell the stories of their past. All researchers are part of the academic community that has the scientific responsibility to protect heritage. Because all heritage is essential to the discipline’s future, neglecting these voices exposes the heritage to a singular, simplistic perspective. This neglect prompts us to consider social cohesion and transformation (or the lack thereof) linked to the legacies of the past as well as the paths that have since been taken to rebuild cooperation and collaboration to create spaces that are encouraging unity. These shifts are necessary for a scientific community that is socially sensitive. It allows the discipline to produce genuinely inclusive research and narratives that may be accepted by the broader scientific community, while also taking into consideration the realities of other stakeholders.

Perspectives towards transforming the discipline

It is impossible to ignore the role of museums and universities in any discussion related to transformation of the discipline of human evolution specifically, and palaeosciences in general. They are the custodians of the region’s heritage and are responsible for enabling access to a variety of objects and specimens. With a history of supporting race-based research, collecting, and extractivism, museums and educational institutions were knowing participants in the often racist foundations of palaeoanthropology and related disciplines.¹² Most colonial- or apartheid-established institutions were a product of their times, meaning they were managed and run in a manner that met the socio-political standing and needs of the government, the scientific community, and the elite or ruling class. For over a century, this system facilitated access to artifacts, fossils, and human tissue (often informally) for select institutions, publics and scholars. These institutions enabled the mishandling of Indigenous people, affording scientists inhumane liberties, objectifying their bodies in the name of racial science.²⁷

Today, institutions try to change these legacies of misusing human remains and objects by restricting access, making sure that research proposals are based on sound science, and ask relevant, discipline-specific questions. Institutions in South Africa that hold archaeological, fossil, and physical anthropological collections, such as Ditsong Museum, Iziko Museums of South Africa, the University of the Witwatersrand, and the University of Cape Town, among others, have access processes linked to ethical guidelines and access application evaluation committees, which safeguard against perpetuating old practices.^{23,24} Many southern African institutions and museums, such as the Marange Community Museum in Zimbabwe²⁸, are encouraging local participation in large-scale, internationally driven, palaeoanthropological and archaeological projects, knowledge exchange, and student opportunities in the hopes of changing the landscape and strengthening the African palaeo-community. Although researchers are not always required to have a local co-principal investigator for museum access, they are, for example, asked to exchange knowledge in return for access to collections.²⁹ This can be in the form of a talk, a workshop, some training, and in some cases, collaboration. But is a talk or workshop sufficient to change colonial legacies? The short answer is no. Although strict policy and access requirements are in place in most museums and institutions in South Africa, and there is intention to drive transformational change, palaeosciences is not seeing a drastic change in palaeoanthropological and archaeological research toward truly collaborative projects that are fully inclusive and demographically representative at all stages of research planning, execution and publication.

Research and human capital support

In South Africa, government funding bodies such as the National Research Foundation (NRF), and the continent’s most prominent private

funder, the Palaeontological Scientific Trust (PAST), direct funds towards supporting decolonisation initiatives. The question remains: who are the recipients of this purported research and training support? Our research demonstrates that the trend of funding support is still in favour of projects led by white male researchers over black and female researchers.³⁰ Various student funding programmes exist that have generated at least 157 000 master's and PhD graduates between 2010 and 2020.³¹ When we look at the standard measure of research productivity, bibliometric analysis³² of research productivity in palaeosciences – as well as the broader sciences, the results point to a non-transformed picture. Analysis of research outputs of permanent staff at ten universities and six museums in South Africa shows a bias towards white male productivity, with below average outputs by black people, irrespective of gender. In 2023, there were 66 permanent palaeoscience positions across these 16 institutions in South Africa.³⁰ Data indicate that the beneficiaries of this support are the same eminent personalities who continue to dominate positions in research, suggesting that most of the graduates will not be absorbed into permanent work.

Establishing a platform for multivocality and unifying global narratives, requires levelling the playing field through access to funding opportunities for all scientists, regardless of their gender, colour, nationality, or other characteristics. Researchers need to commit to creating outputs that reflect a new narrative while simultaneously training more scholars of colour to change the palaeoanthropological scientific landscape. Should the current situation continue, there will be a lack of know-how in the understanding of the region's human past and a reliance on stories narrated by Westerners without the involvement of local scientists. This will create an information divide in Indigenous perspectives within the discipline. A higher level of representation and engagement is made possible through engaging and training local and Indigenous participants. Regardless of their nationality, gender, or socio-economic status, we can ensure the development of different voices and increase the number of research collaborators and ties between scientists in the region by training local-based archaeologists.

Science education and awareness

It is primarily the duty of palaeoscientists to disseminate their findings to interested parties and establish a connection between the public and their research. Schools, colleges, universities, museums, and historical places are spaces for this education to take place. These are the main venues for the public to interact with exhibitions and archaeology. However, the discipline in southern Africa is impacted by the legacy of colonialism.³³ As a result, current practices in museums and heritage management in post-colonial southern Africa persistently reflect the influence of colonial legacies, leading to the gradual erosion of Indigenous knowledge linked to our heritage.³⁴ Masiteng³⁵ demonstrates Ditsong National Museum of Cultural History's practices that still mirror colonial methodologies in policies relating to the acquisition of human remains, and that allow inadequate and often racialised handling of human remains.

These issues can be traced back to the history of education in South Africa. The notion of 'evolution', whether it pertains to human development or microbiology, was not included in any of the curricula developed under the previous Christian National Education (CNE) system in South Africa.³⁶ In order to prepare white and black children for their respective superior and inferior roles in South African social and economic life, the Christian National Policy stipulated, among other things, that all education should be founded on Christian National principles and that white children should receive a separate education to black children.³⁷ The Christian National curriculum eliminated "anti-biblical" ideas such as evolution, and students were indoctrinated into the Christian National Principles' worldview. This curriculum, according to Dean and Sieborger³⁸, presented a version of history that "omitted, distorted, or vilified the role of blacks, 'coloureds', and Asians in the country's past". Subsequently, hominid evolution was included in the interim History syllabus of the New Qualification Framework (NQF) for the first time in 1995, post-apartheid.³⁸

A lack of human evolution education is not unique to South Africa. Botswana also inherited socio-political structures that benefitted from the devaluation of Africa and its history. The school curriculum in Botswana, one that appears to be an integral component of the white

supremacist culture in South Africa, is deemed dangerous by prominent social activist Sandy Grant.³⁹ There is a lack of palaeosciences specialists who study and teach hominid evolution in Botswana; the country is, therefore, dependent on specialists from neighbouring countries and the West. Similar to Botswana, there is a paucity of human evolution research and sub-disciplines of palaeosciences in Zimbabwe. This is largely attributed to post-colonial economic and political issues that have pushed researchers out of Zimbabwe in favour of relocating to South Africa. Consequently, much of the curriculum on human evolution taught in universities, especially on Zimbabwe's Stone Age archaeology, relies on work conducted during the colonial period in the 1960s and 1970s by white male archaeologists, many of whom interpret Zimbabwe's archaeology through colonial mindsets.⁴⁰

In her study of relationships between science and society, Dawson⁴¹ concludes that scientific practices are shaped by structural inequalities, and, as a result, are far from public. She drew data from low-income, minority ethnic groups to map their participation (or non-participation) in science communication and how they perceived their inclusion or exclusion. Dawson's⁴¹ research demonstrates that scientific practices construct a narrow public view that reflects or is biased towards the shape, values and practices of dominant groups. This finding suggests that participation in science communication operates in similar ways to Bourdieu's⁴² theory of social reproduction via arts, education and cultural participation. It states that restricted access preserves cultural capital for dominant groups through exclusion of the marginalised.

The importance of the role Africa had in the evolution of life is countered by the widespread racist colonial rhetoric of Africa as the 'dark continent' with 'primitive natives', as captured in Henry Stanley's soliloquy⁴³, which creates a negative legacy for the continent. It is undeniable that those perceptions that are still entrenched in the public's mind have created a barrier to understanding human evolution.

In addition, the legacy of creationism, and in the case of South Africa, religion and radical politics (seen in Afrikaner nationalism shaped by Hendrik Verwoerd when he designed apartheid)⁴⁴, have impacted race relations as a formal part of the South African school curriculum. This has filtered into the general public's reality through continued creationism beliefs, and contributes to the contention between evolution and religion which continues today.⁴⁵

Chisango and colleagues⁴⁶ report on racial misconceptions of the theory of evolution in Zimbabwe, and demonstrate that there is opposition to evolution among university students. In their study, they established that misconceptions of biological anthropology negatively correlate with acceptance of both the theory of evolution and science. The point of departure being the study of biology in high school, which correlates with the students' tolerance of evolution science. This study, and a similar one⁴⁷, demonstrate the dangers of the absence of, or minimal meaningful public awareness and engagement with, the youth who are likely to be present and future key agents of change. We echo Sutherland and L'Abbe's⁴⁸ emphasis on the importance of the understanding of human evolution science, considering the region's growing decolonisation and palaeosciences contribution to the appreciation of the diversity and heterogeneous nature of our society.

Practical solutions to drive effective transformation and social cohesion

Towards a socially responsive discipline

Museums in southern Africa provide archaeologists with a platform to communicate their research outcomes to the public; however, based on economic stability, their capacity varies across the region. While a few South African museums opened exhibits on human evolution in the 1990s, most archaeological sites and museums in the subregion continue to cater primarily for a Eurocentric audience.⁴⁹ Furthermore, local communities may not always be able to afford the admission or entry fees. Consequently, access to museums and public interpretation centres remains a challenge in the subcontinent. For museums that are accessible to local visitors, the display readings, even in most community museums, are too often solely in English and at a reading level that non-native English speakers may not easily understand. The Taung Skull

World Heritage Site Management Authority has recently built a museum with an underground vault. This new development was expedited with the locals' hope for the return of the original skull specimen to Buxton and the subsequent flow of tourists who want to see the original skull. Irrespective of the socio-politics associated with this endeavour, the current museum's interpretation of Africa's palaeosciences should be accessible to the local community of Taung and its surroundings.

To address some of these issues in southern Africa, specifically in South Africa, efforts have been made to include members of marginalised communities in the planning and design of exhibitions. One example of this effort is the recently opened "Humanity" exhibition at the Iziko South Africa Museum, Cape Town, which reimagines the story of human evolution by focusing on the diversity of modern humans and how we came to be this way.⁵⁰ It centres on the rich history of people in Africa and South Africa. By doing this, it retells the story of our beginnings as one of intelligence, inventiveness, and perseverance across ages.⁵⁰

The Botswana National Museum implemented a travelling exhibition in the 1980s known as 'Zebra on the wheels' that operated across the nation, sharing artefacts and narratives. The mobile museum is complemented by the radio programme *Museum oo tshelang* (translated 'Living Museum') and the Zebra's voice magazine.⁵¹ This initiative not only broadens museum services and public engagement in the museum spaces but also contributes to the improvement of local museums. The radio programme, magazine and mobile museum, complete with artefacts, visit schools in the country, aiming to pique the public's interest through intellectual stimulation through museum services about the history and cultures of the people of Botswana.

Zimbabwe has also introduced community museums as alternative forms of cultural displays and active decolonial strategies, fostering transformation.⁵² The BaTonga, Marange, and Nambya Community Museums engaged local communities by promoting their cultures and languages⁵², presenting the traditions, scientific knowledge, beliefs, and ingenuity of local communities. They exemplify an ongoing social and cultural transformation led by Indigenous people, involving the creation, adaptation, and revision of Western museological frameworks that persist within national museums in Zimbabwe.⁵³ In Mozambique, the Nwadjahane National Heritage Site and open museum, which is a site memory of the first president of Frelimo, Eduardo Mondlane, is a community-based and -owned heritage site where locals create and own the interpretation of the site.⁵⁴

Apart from these challenges faced by museums, most countries in southern Africa grapple with the challenge of community estrangement stemming from historical trauma. One instance of how local inhabitants were uprooted and denied access to their ancestral lands is when the government repossessed land through the World Heritage inscription. This situation is evident in places such as Matobo Hills and Domboshava in Zimbabwe and Tsodilo Hills in Botswana.⁵⁵⁻⁵⁷ People lose their land rights when a location is designated as a protected national or international monument, creating a conflict of interest between local inhabitants and tourist access. On the other hand, these problems can be addressed through active community involvement and site custodianship. Collaboration between researchers, local scholars, and communities is a viable solution to end the exclusion of the public from the study process.⁵⁸

Sustainable infrastructure development

Scientific colonialism and the current practice of scientific exclusion and misrepresentation of local scientists from the Global South are driven by financial and infrastructure resource domination by the West. The local government's policy, South African Strategy for the Palaeosciences, identifies various limitations associated with lack of infrastructure that supports core and applied research in the country.⁵⁸ This has a direct impact on scientific narratives developed about the region. An example is when Chan et al.⁵⁹ published a paper titled 'Human origins in a southern African palaeo-wetland and first migrations' in *Nature*. This publication made its way to major media outlets and local media in Botswana and surrounding regions. According to the authors, "anatomically modern humans" originated approximately 200 000 years ago in the

Makgadikgadi-Okavango palaeo-wetland of southern Africa, which was then a vast network of palaeolakes and the hub of fertile lands. These findings locate this "homeland" in southern Africa by using mitochondrial DNA data as a stand-in for population data. These assertions are challenged by fossil evidence which demonstrates the presence of *Homo sapiens* traits predating 200 000 years ago across other regions of the continent.⁶⁰ In general, current research indicates that the evolution of *Homo sapiens* has been marked by a multitude of distinct derived and primitive traits throughout time and space, and these findings do not point to a single point of origin. Chan et al.'s⁵⁹ study generated dubious conclusions that misrepresent the science surrounding human origins in Africa, yet it was able to obtain widespread media coverage, wide distribution of data, and the involvement of a wide range of interest groups. In a subcontinent that suffers from high levels of illiteracy, misinformation about science is likely to lead to irreparable damage, generating mistrust of scientific facts and the scientific process, which may lead to increased ignorance.

Intensive and systematic research infrastructure development must be targeted by the government, through funding institutions, to strengthen local institutions and researchers' ability to conduct independent research. Removing the global power imbalance that persists in palaeontology, with researchers in the Global North having a monopoly on research data⁶¹, would create an environment conducive for local research growth.

Transforming a sustained human capital

Within the region and the continent, funding and support for the whole human capital development work chain is critical to avoid gaps in support. The current model of providing equitable funding to students but less for research jobs has proved ineffective for the support of permanent staff. Engagement between government departments such as the South African Department of Sports, Arts and Culture and the Department of Science, Technology and Innovation, private funding agencies and stakeholders, should be explored to support new vacancies for graduates as well as in-job training of emerging researchers to fully participate in research.

We propose structural and ideological transformation of the discipline to facilitate decolonisation of palaeosciences human capital as well as knowledge production and dissemination. Active and meaningful transformative processes that transcend existing boundaries built by theory and practice carry the ability to transform societal practice.⁶² As suggested by some authors^{63,64}, we propose a reflexive dialogue as the basis for generating impactful change. A successful example of this is when the South African Strategy for the Palaeosciences was developed in 2012.⁵⁸ During this period, under the tutelage of the now Department of Science, Technology and Innovation (DSTI) and the National Research Foundation (NRF), various sectors of the discipline were engaged in determining pillars essential for the development of the disciplines. This strategy calls for a demographic and developmentally transformed discipline that focuses on all pillars of the field, empowering museums, supporting universities, creating awareness and making South Africa a tourism destination.

At the core of this proposed transformation is a complete rethinking of the research status quo, which requires the urgent attention of policy implementers, as well as funding agencies. The practice of developing and archiving perceptually good policies, such as the Palaeosciences Strategy, without their full implementation, is at the backdrop of some of the major issues faced by many African governments. Schlemmer⁶⁵ asserts that the lack of policy implementation in South Africa is a factor of authorship, which mostly lies with paid consultants who hold no accountability nor likelihood of implementation and renders these statutes ineffective. He proposes that policy should be accompanied by a likelihood of implementation rating and be written by senior public officials who will be accountable for its application.

Awareness, education and leadership for change

The solution lies in structures and processes that facilitate a paradigm shift towards a socially responsive discipline. The foundation of this fundamental change lies in investment and transformational pedagogy (inquiry and learner dialogue-based learning), which starts at existing structures, such as human and ideological resources transmitted by the discipline.⁶⁶

The crux of this unlearning is employing leaders as agents for change. The impact of transformational leadership on organisational culture is a fully fledged discipline.⁶⁷ Studies demonstrate that transformational leadership's regulatory role in organisational climates has a huge impact as change agents. Up to now, the status quo in palaeosciences has remained for reasons not yet scientifically explored. However, it is very likely that the leadership's apathy towards the post-colonial regime affects the discipline's status quo, which is out of touch with the region's socio-economic realities and contributes to the slow pace of transformation.

Central to this engagement of leadership, some authors^{68–70} advocate for transformative learning in the context of unlearning deep class, racial and gender inequalities entrenched by the region's colonial past. Relearning and revision of stereotypes and attitudes is likely to lead to revised perspectives and behaviours required for change. Mezirow's⁷¹ position is that of disorienting dilemmas which trigger reflections, and introspection of entrenched paradigms that guide meaningful change, i.e. transformative learning. This creates a new reality in which transformative learning is created.⁷² Another layer to this structured approach lies with responsive educational practices on disciplinary foundational principles and is required to engage in decolonial thought that may have a snowball effect on public engagements on the subject.

Into a transformed and socially cohesive future

While some strides have been made towards a transformed palaeosciences for social cohesion, with institutions such as Iziko Museums of South Africa and the University of Cape Town's collaboration in the development of the Humanity exhibition, among others, adopting a transformative and inclusive approach to research, group representation, and knowledge sharing, a great deal must be done by the discipline. In this paper, we have demonstrated the need for a decolonised and inclusive approach towards change that involves all stakeholders to accelerate the century-long overdue change. Dart's pioneering spirit brought Africa the impetus to develop palaeoanthropology during a time when inclusivity was a far-fetched thought, and illegal. As the field celebrates the centenary of the discovery and announcement of the Taung Child, we should pause to ask the tough question: what lessons do we carry from our forebears into the future? The answer lies in looking into the future and developing genuine and meaningful interventions to create the desired state of the discipline.

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Data availability

The data supporting the results of this study are available upon request to the corresponding author.

Declarations

We have no competing interests to declare. We have no AI or LLM use to declare.

Authors' contributions

D.W.K.: Conceptualisation, methodology, data collection, data analysis, validation, data curation, writing – the initial draft, writing – revisions, project leadership, project management. S.B.: Data collection, data analysis, validation, writing – revisions. W.B.: Data collection, data analysis, validation, writing – revisions. P.C.-M.: Validation, writing – revisions. All authors read and approved the final manuscript.

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