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Radical Left Culture and Heritage, the Politics of Preservation and Memorialisation, and the Promise of the Metaverse

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Abstract: Radical left culture and heritage—understood as incarnations of leftist artefacts and praxis both past and present—have taken risks in challenging hegemonic machinations often when it is unpopular to do so. To the ire of hegemons, leftist projects across the globe have marshalled places, spaces, and technologies into sites of empowerment and struggle utilising 'small' and 'big' acts of resistance and critical interventions to champion social justice—sometimes successfully, and at other times, less so. However, the preservation of projects' artefacts, praxis, and memory work has been anything but straightforward, owing primarily to institutional politics and infrastructural and resourcing issues. Taking *The Freedom Archives* (*FA*) as a case study, this article explores how *FA* is preserving the distinctive political education programme that underpinned the iconic liberation struggle in Guinea-Bissau that kickstarted the seismic, global decolonisation project in the late 1950s. The article argues that *FA* could substantially enhance the preservation and memorialisation of that programme in the Metaverse—if this materialises as a fully open, interoperable, and highly immersive space (1) unfettered by hegemonic regulation, and (2) characterised by 'strategic witnessing', 'radical recordkeeping', and user agency. In doing so, *FA* would serve as an exemplar for leftist projects globally.

Keywords: canonisation; dark heritage; living archive; augmented reality (AR); virtual reality (VR); mixed reality (MR); neuro-enhanced reality (NeR); blockchain technologies; immersive experiences; Metaverse

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1. Introduction

This article conceptualises radical left culture and heritage[1] as expressions and embodiments of ways of being, doing, feeling, imagining, knowing, living, seeing, thinking, working, and interacting with others that are in some shape or form impelled by a social justice ethos that may or may not have its roots in the past [1–4]. This culture and heritage are manifest in tangible, intangible, and digital forms that range from artefacts to sites of encounter and production to the adherence to customs, knowledges, motivations, principles, skills, traditions, and values that are conserved, preserved, and passed on from generation to generation of leftists to maintain a sense of identity and continuity [5–7]. However, the preservation and memorialisation of that sense of identity and continuity, and by extension related artefacts and praxis, have been anything but straightforward. A viable and sustainable solution to addressing this circumstance, this article posits, is the Metaverse in its fully developed form—if the latter's current vision as a widely accessible, open, immersive, and interoperable environment as presented later on in this article is realised. In putting this overarching argument forward—and wherever appropriate—the article cross-references and signposts key arguments and recurring ideas and concepts by pinpointing relevant sections, subsections, and endnotes throughout in an effort to help readers connect analysis and discussion as accessibly and effectively as possible.

In making its case, the article proceeds as follows. It discusses the methodological approach underpinning analysis and discussion in Section 2. At the heart of that approach is

the combination of (1) previous ethnographic fieldwork, (2) a meta-analysis of key academic literature and industry expert commentary on and around the opportunities and challenges associated with the Metaverse, and (3) the study of documentary evidence—including archival research. *The Freedom Archives* (*FA*) (https://freedomarchives.org/, accessed on 7 March 2018), which is taken as the case study in this article, is briefly introduced—and the justification for its selection provided. Section 3 discusses how varied leftist cultural interventions and traditions have been framed over time and across the globe—highlighting some of the most central features that have been said to characterise those interventions and traditions. In doing so, carefully selected examples of an artistic (literary, performative, and visual), journalistic, activist, and authorial nature are described at length for illustration. Taken together, the examples are significant because they not only reflect the sheer breadth and variety of leftist cultural traditions and rich praxis but are also bound by the same core recurring theme of challenging hegemony and associated injustice, exploitation, and oppression, albeit drawing on numerous means, instruments, and tools.

Although radical left cultural and heritage projects have undertaken many efficacious and varied interventions—both in the past and present—Section 4 picks up some of the greatest challenges that have stymied the capability of many projects to preserve their artefacts, critical praxis, and associated memory adequately. Crucially, preservation is unpicked to provide a nuanced understanding that captures what is termed as 'passively stored memory' and 'actively circulated memory'—drawing on seminal work at the intersection of the canon, archive, cultural memory, performance, and identity by Aleida Assmann, Jan Assmann, and Diana Taylor. The two terms—'passively stored memory' (the archive) and 'actively circulated memory' (the canon)—are picked up in Section 5 and operationalised in the analysis of how *FA* circumvents institutional politics as well as infrastructural and resourcing challenges. Discussion here brings into focus how *FA* utilises 'strategic witnessing' and 'radical recordkeeping' to reclaim control of, and reaffirm the power to, expression of leftist hi(stories), influence, memory, narratives, and representations. Particular emphasis is placed on the unique political education programme that underpinned the widely acclaimed revolutionary movement in Guinea-Bissau that paved the way for the deconstruction of colonialism in Africa and around the world. The key architects of that programme were (1) Amílcar Cabral, and (2) the liberation movement party he founded under the name of the African Party for the Independence of Guinea and Cape Verde (PAIGC).

Where *FA*'s digital archive currently preserves 'passively stored memory' of PAIGC's political education programme in 2-D formats that are static and sterile and as such, do not allow for artefacts to be animated in ways that enhance users' capabilities to absorb, process, and understand key historical information effectively, Section 6 discusses the distinctive architecture and rich possibilities that existing Metaverse-type environments presently offer, highlighting key opportunities and challenges. This also includes an exploration of what the fully developed Metaverse could offer—if its vision as a readily accessible, empowering, highly immersive, resilient, trustworthy, low-maintenance, sustainable, and interoperable environment materialises. Section 7 explores how *FA* could leverage key 'metaversal' opportunities to considerably elevate its memorialisation work of PAIGC's learning curricular (including both the protagonists featured therein and those absent) through use of 3-D immersive experiences. Such use—which I call 'metaversal memorialisation'—would clearly not be limited to *FA* and leftist cultural projects. Far from it, it would lend itself well to utilisation by any individuals, social formations, entities, and organisations engaged in heritage work widely considered—whose ultimate goal is to keep the past operational in the present. Although there is a high likelihood that many of the serious problems afflicting the mobile Internet could very well be carried over into the development and use of the fully developed Metaverse, this article concludes on a cautiously optimistic note in Section 8. That note positions the Metaverse as an environment that is capable of reconfiguring engagement with *FA*'s preservation and memory work in novel, creative, empathic, personalised and communal, inclusive, and immersive ways. In turn, this would

effectively and meaningfully memorialise connections between the past and present in the continuing struggle for social justice, thereby rendering *FA* a desirable model for leftist projects across the globe.

2. Multi-Pronged Methodological Approach, and Data Analysis

Analysis and discussion in this article are underpinned by the application of a set of interrelated methods comprising (1) previous ethnographic fieldwork conducted by the author, (2) meta-analysis, and (3) the study of documents and artefacts—including archival research. Previous ethnographic fieldwork has involved my immersion as a participant observer in the organisational settings and technological spaces of radical left projects over extended periods of time—dating from 2010 to this day. This has enabled (1) first-hand observation of behaviours, critical interventions, practices, and traditions of leftist settings across various countries, (2) conduct of in-depth semi-structured qualitative interviews to understand behaviours and norms—including associated beliefs, motivations, principles, and values (a) not amenable to observation, and (b) needing clarification, (3) examination of artefacts and documents in various formats about, and relevant to, the leftist settings under study, and (4) production of comprehensive, written accounts of my analysis of overall activity in leftist settings selected as case studies [8–11]. Ethnographic data was complemented by a meta-analysis that summarised and compared (1) working definitions, (2) current features, and (3) touted opportunities and challenges associated with the development and prospective use of the Metaverse. The greatest strength of this technique is that it allowed me to generate thorough reviews of literature and industry expert opinion supplied in a wide range of new academic outputs as well as authoritative and rich non-academic secondary sources in unobtrusive fashion [10,12].

Accessing much of the latest insights currently unavailable widely was further facilitated by the study of documentary evidence which enabled me to cross-reference different (and sometimes conflicting) perspectives on (1) the trajectories of leftist cultural preservation, and (2) the promise of the Metaverse in considerably transforming various areas of human activity. Archival research allowed for the exploration of varied holdings of numerous leftist archives—with a particular focus on *The Freedom Archives* (*FA*) taken as the case study in this article. *FA* is a pioneering, educational, leftist archive based in the US that has prolifically documented and disseminated the social justice work undertaken by numerous national and international progressive movements during the countercultural era[2] [13] and beyond. *FA* was carefully selected as the case study because of its (1) subscription to leftist conventions and praxis since its inception in the mid-to-late 1990s—although its founders have subscribed to left-wing ideology and values since the 1960s as appendages of the countercultural movement, (2) strong and long track record of preserving varied leftist artefacts and culture in a variety of formats, and (3) global influence and reach in terms of iteratively informing and shaping 'strategic witnessing' and 'radical recordkeeping' as key elements of leftist critical and empowering praxis.

Crucially, this methodological approach supported the triangulation of data effectively and helped put them in wider perspective. The approach also considered key issues relating to authenticity, credibility, reflexivity, and meaning during the processes of data collection and data analysis [14]. An inductive approach to the analysis of (1) interview and observational data generated from previous ethnographic fieldwork, (2) meta-analysis review data, and (3) the study of documentary evidence—including archival research was employed. That approach was helpfully informed by grounded theory [15] which I utilised to (1) pull out and categorise key information and themes, (2) make connections among them, (3) pinpoint recurrent connections, (4) make sense of them, and (5) offer explanations through (a) formulating arguments, and (b) building analysis and discussion throughout this article.

3. Conceptualising Radical Left Culture and Heritage

This section theorises expressions, embodiments, and incarnations of artefacts, critical praxis, and traditions that have characterised generations of individual leftists, projects, and the diverse constituencies they have advocated for and served. It provides a selection of mostly artistic (literary, performative, and visual), journalistic, activist, and authorial examples to illustrate the operationalisation of leftist beliefs, ideas, motivations, and principles over time and across different geographies.

3.1. 'Say[ing] the Unsayable, Suggest[ing] the Unsuggestable, Do[ing] the Undoable'

In the early 1900s, the Russian performing artist and clown—Vladimir Leonidowitch Durov—steadily built a reputation in Europe for mocking powerful elites for their indifference to the numerous social and economic ills that afflicted many ordinary people. In 1907 while performing in Germany governed by Emperor Wilhelm II, Durov satirised Wilhelm II in a subtle and skilfully improvised manner—according to a third-person account described by Joel Schechter [16] (p. 2). Durov placed a cap worn by German police officers at the time in the circus ring. Referring to the cap as 'Helm' meaning 'helmet' in English, he prompted his trained pig to retrieve it. Making use of the technique of ventriloquism[3], Durov then conditioned the pig to appear to be saying 'Ich will Helm' translated into English as 'I want the helmet'. But this phrase can also be translated as 'I am Wilhelm'. The audience applauded because they understood the phrase to be a pun equating Emperor Wilhelm II to a pig. Likewise, the German police officers in attendance understood the pun but did not take kindly to it which resulted in Durov's unfortunate arrest and prosecution. His pig was fortunate to escape prosecution. If it had not been for that third-person account, this incident might never have been documented.

Fast forward to the peak of national resistance against European colonial rule in Africa during the 1950s. When discussing the national liberation of African colonies from European powers, the name Amílcar Cabral is very rarely mentioned in public discourses—if at all. Yet, according to Peter Karibe Mendy, Amílcar Cabral has been profiled by the *New York Times* 'as "one of the most prominent leaders of the African struggle against white supremacy"' and by '*The Times of London* [...] as "one of the most extraordinary leaders and thinkers of modern Africa"' [17] (n.p). Mendy notes further that '[i]n February 2020, Cabral was voted second greatest leader of all time (after Maharaja Ranjit Singh of the Sikh Empire) by more than 5000 readers of the *BBC World Histories Magazine*, which commissioned historians to compile a list of 20 great leaders in world history' [17] (n.p). To put this in perspective, Winston Churchill (British Prime Minister between 1940 and 1945, and then again between 1951 and 1955) and Abraham Lincoln (US President between 1861 and 1865) were voted third and fourth greatest leaders of all time respectively[4]. For a person of such international stature, it is baffling why Amílcar Cabral and his key achievements (including as an influential author and writer) are not much more widely known—and commemorated and celebrated accordingly.

Born in Guinea-Bissau (formerly Portuguese Guinea), educated in Portugal as an agronomist, and working in that role as a Portuguese colonial government employee on return to his native country, Amílcar Cabral is said to have been preoccupied with developing political theories and adopting strategies for combating fascist ideology and liberating Guinea-Bissau (and by extension the whole of Africa) from colonial rule. Charles Peterson narrates that after Cabral founded the African Party for the Independence of Guinea and Cape Verde (PAIGC), he and his associates engaged in thoughtfully planned and carefully executed political resistance to colonial rule over years [18] (n.p). Resistance initially took the form of workers' strikes that advocated for better wages and improved working and living conditions. However, vicious and sustained Portuguese reprisal and repression gradually escalated PAIGC's resistance into full-scale, guerrilla-style military warfare that sought nothing less than national independence. Sadly, Amílcar Cabral's fight against colonial repression led to his assassination in early 1973 at the hands of Portuguese machinations. On the bright side, national independence was secured not long

after. Cabral's tireless efforts and call to action from the mid-1950s onwards inspired other African countries to liberate themselves from colonial rule. His legacy inspires many in Africa and beyond to confront 'injustice, deprivation, exploitation, and oppression' and to express 'solidarity "with every just cause"' [17] (n.p). Had Amílcar Cabral not been a prolific writer, valuable accounts of his critical political interventions that set in motion a seismic, historical, and political change project that spanned the globe, would very likely not have seen the light of day.

Around the time Amílcar Cabral was plotting to topple colonial rule in Africa during the late 1950s and early 1960s, Art Kunkin—a pioneering underground journalist, a mover and shaker of the countercultural movement in the US, and founder of the prominent *Los Angeles Free Press* newspaper (LAFP)—was extremely critical of the actions of state authorities and other elites. According to Bruce Fessier, Art Kunkin and *LAFP* enjoyed the reputation of being 'the best, most professionally[-run] underground weekly' in the US that 'help[ed] build opposition to the Vietnam War by publicising the times and places of anti-war protests' and 'touched [protestors and other readers] like Instagram and Twitter [now X]' touch their users today [19] (n.p). Art Kunkin's advocacy and satirical journalism mocked and outraged state authorities to the point that *LAFP* reporters were denied press passes to cover key criminal and political events. This coincided with a time when state authorities had been implicated in a range of criminal activities and unsavoury political dealings [1]. In writing elsewhere [8] (p. 369), I have narrated how—out of utter frustration—Art Kunkin then published a news article with the headline 'There Should Be No Secret Police' in which the names, phone numbers, and addresses of eighty narcotics police officers in California were listed. State authorities prosecuted Art Kunkin and *LAFP* which resulted in the paper's bankruptcy. This subsequently distracted attention from the wrongdoings of state authorities that had been spiralling out of control and which the paper had reported on in the kind of breadth and depth that established papers shied away from [1]. Had other countercultural activists, social movement scholars, and Art Kunkin's family not told this story, there would likely be no record of it today.

Leap forward to 2014. Following the forceful annexation of Crimea, Russia was criticised internationally for breaching Ukraine's national sovereignty. Opposition to the annexation grew both from within Ukraine and outside [20]. One Crimean native by the name of Oleh Sentsov—a progressive filmmaker and well-known anti-fascist activist—was very critical of, and overly vocal about, Russia's excessive brutal repression and unjust occupation. While most people understandably fled Crimea, he chose to stay to engage in peaceful protest activity. According to a scholarly account by Zakhar Popovych [21] (n.p), Oleh Sentsov came together with 'Crimean democratic socialists and anarchists from the Student Action union' as well as other activists to protest Russian occupation. Although Sentsov did not utilise film for his activist work in this particular instance, he became a symbol for the struggle against Russian imperialism. Sentsov called for justice for all political prisoners in Russia and mocked Russian foreign politics which led to his arrest and subsequent prosecution for conspiracy to commit terrorism [22]. Tom Grater narrates that Oleh Sentsov was 'sentenced to 20 years for "terrorism acts"'—charges that Amnesty International described as 'fabricated'—and while incarcerated, went 'on a hunger strike that lasted 145 days, leaving many believing he would never make it out alive' [23] (n.p). Miraculously, he did, was released in September 2019, and has since resumed making progressive films. If Sentsov's story had not been told and retold by witnesses, fellow activists, sympathetic journalists, and family members, it would probably never have been documented. Perhaps Sentsov would not even be alive today. If anyone thought that Oleh Sentsov's experience of brutal detention in Russia was going to deter him from taking part in efforts to repulse the most recent Russian invasion of Ukraine that started on 24 February 2022, they were mistaken. According to Jay Nordlinger [24] (n.p) who interviewed Sentsov recently, Sentsov is doing 'what conscience has compelled him to do' which is to continue engaging in 'activism' and 'soldiery' in defence of his country.

Wind back to 2016. Los Angeles-based artist Illma Gore made headlines when her painting featuring the then-presumptive nominee of the Republican Party in the US—Donald Trump with a small penis—went viral on social media and the Internet. In the Guardian Newspaper, Gore [25] (n.p) explained that the painting was intended among other things 'to evoke an emotion' and 'to raise questions about how we think about gender'. For instance, if an influential figure like Donald Trump is painted 'with a massive penis', does this signal his powerfulness—imagined or real? And does a small penis equate to effeminacy? If the answer is yes, 'what is wrong with effeminacy to begin with?'—Illma Gore asked. Predictably, Trump and his supporters were outraged. Illma Gore was subjected to online abuse, assault, and serious threats of legal action, grievous bodily harm, and even death. Facebook and other dominant digital platforms banned her work. Amidst intense adversity, Gore [25] (n.p) defended her artistic freedom by 'reach[ing] out to galleries in the hope of exhibiting [her painting]' but 'US galleries were scared to show it—scared of going up against Trump, scared of receiving the same threats [she] did'. A breakthrough was achieved when Maddox Gallery in London put the painting on display. The painting, however, remains inaccessible on some major digital platforms to this day.

These forms of producing, practising, and shaping culture represent a very small selection of innumerable examples of artistic, journalistic, activist, and authorial projects across the globe that I conceptualise as 'radical' in the sense commonly associated with left-wing political ideology and related values. With the exception of Amílcar Cabral and Art Kunkin, I am not sure Vladimir Leonidowitch Durov, Oleh Sentsov, and Illma Gore would perceive themselves as being 'radical'—let alone identify as 'leftist cultural producers or practitioners'. But I argue that their critical interventions are indeed 'radical' projects in the leftist tradition in their very different ways. They are 'radical' in the sense that they advocate 'social reform [and champion] independence of or departure from what is usual or traditional' [2] (p. 1), albeit to varying degrees. To borrow Sharon Lockyer's [26] (p. 767) words, projects that produce, practise, and shape culture in a radical, left-wing way generally:

> say the unsayable, suggest the unsuggestable, do the undoable and express thoughts and desires that are normally suppressed in serious [hegemonic] discourse. [Such projects] facilitate the transgression of social norms and mores, allow the [producer or practitioner] to engage in risk taking and to push at the boundaries of acceptability.

By equating Emperor Wilhelm II to a pig, Vladimir Leonidowitch Durov clearly did 'the undoable' during a time period when the authority of powerful actors in society was neither questioned nor subject to mockery—at least publicly. Likewise, Amílcar Cabral did 'the undoable' by internationally defying colonial oppression—thereby making himself the arch-enemy of the Portuguese colonial government and some of its allied European colonial superpowers. In a similar vein, Art Kunkin did 'the undoable' when his *LAFP* divulged the names, phone numbers, and addresses of eighty Californian police officers. Oleh Sentsov suggested 'the unsuggestable' by referring to the Russian occupation of Crimea as an act of 'cowardice' and publicly calling the pro-Russian government administering the peninsula 'criminals' [22] (n.p). Illma Gore's Trump painting attracted controversy with the intention of stimulating debate and discussion about perceptions of gender and power in society—implications of which are often publicly unspoken but nonetheless thought of, and experienced first-hand, by many on a regular basis. In their different ways, then, these projects took risks and prodded at the boundaries of what is deemed acceptable by established hierarchies.

Projects that produce, practise, and shape culture in radical left ways—many of which involve the making of the arts (literary, performing, and visual), lifestyles, experiences, film, news, digital content, and other ephemera often spanning diverse periods, locations, and topics—have a long and rich tradition of making critical interventions in the cultural, economic, social, and political circumstances of the day [8,27–31]. For Lisa Tessman [32] (p. 4), such critical interventions focus on transforming systems of exploitation, oppression, and

subjugation through fighting against established formalities, hierarchies, and hegemons of different kinds that put social justice out of reach for many people. The range of projects listed in Figure 1 below captures the conceptualisation of interventions impelled by radical culture and heritage and associated left-wing thinking and practices.

Conceptualisation of Radical Culture and Heritage and Associated Left-wing Thinking and Practices	
Theorising Radical Left Culture and Heritage	**Examples**
Advocating sometimes sharp and even violent breaks with received and traditional practices (broadly defined)	Considered the longest-serving entity in the use of artistic and cultural expression for protest and radical interventions, the ***Bread and Puppet Theater*** (BPT) in the US moved from New York City to rural Glover (Vermont) in the 1970s to escape the influences of economics and the mass culture of global capitalism. Ever since, BPT workers have lived off the grid and made huge sacrifices such as eating out of garbage cans to maintain their autonomy and self-sufficiency
Propagating cross-fertilisation of new ideas, strategies and ways of organising to achieve real political immediacy and to create and recreate new socialities responsive to evolving times	Comprising interdisciplinary scholars, artists, progressive public cultural institutions, local leaders, and Indigenous communities, ***Devenir Universidad*** (DU) is a project initiating an Indigenous Biocultural University in the Andean-Amazonian forests of Colombia. Drawing on a wide range of expertise, lived experiences, and resources, the project is tackling structural inequalities resulting from the legacies of the colonial era. DU is harvesting and preserving rapidly declining Indigenous knowledge systems and combining them with modern science and environmental activism to restore heavy biodiversity loss caused by powerful commercial farming interests and to enhance the livelihoods of Indigenous communities on their own terms
Championing work collectively driven by shared agendas and/or affinities	Founded in Turkey but now acting as an international digital media archive of social movement artefacts and collections, ***bak.ma*** is disrupting traditional recordkeeping through de-centralisation and de-territorialisation approaches underpinned by genuinely collective and participatory archiving processes and memorialisation activities using open-source archival software
Critiquing established capitalist relations of production but not being averse to adoption and appropriation of the affordances of capitalist society as shared collective wealth	Working out of Berlin (Germany), the filmmaking collective — ***MATERNAL FANTANSIES*** (comprising seven mothers and eleven children at the time of writing) — champions a 'rotational work/care model' that serves two key purposes. First, to challenge perceived structural discrimination of creative practitioners that juggle motherhood with their creative practice. Second, to resist capitalist logics of linear production through adoption of more perceived collective, humane, just, sociable, and sustainable ways of organising and working. These are afforded and achieved largely through exercising choice, enjoying autonomy, and utilising opportunities to innovate at will for wider benefit
Celebrating improvisation, experimentation, and flexibility	Founded in 1981 in Cape Town (South Africa), ***Handspring Puppet Company*** (HPC) has a strong track record of decade-long experiments and innovations in documenting the distinctive cultural, political, and social history of South Africa using puppetry as a form of politicised intervention. HPC performers let puppets communicate through gesture which renders the use of scripts unnecessary, keeps dialogue to a minimum, and allows for the mockery of people in positions of authority and power in effective ways where a live performer might be less accepted
Pursuing (politicised) interventions (individual and collective alike) aimed at challenging perceived dominant ideas, values, and inequalities	***Grupo Bayano***, a Caribbean performing arts group based in Seattle (US), utilises dance as a cultural praxis to help communities of colour challenge colonial legacies, express both collective and individual sensibilities, and develop a sense of empowerment to confront perceived structural injustices
Arousing critical consciousness of the exploitative and unjust ways in which society is organised — and putting forward alternative visions of how it could be transformed and should look like	Operating under the pseudonym ***'Nut Brother'***, an audacious Chinese performing artist critically engages with pressing environmental and social issues in China through guerilla-style art installations, performances, and protest acts that are recorded and sometimes circulated deftly and widely via Chinese social media platforms — despite the ever-present risk of arrest and state prosecution. When '***Nut Brother***' and his associates circumvent the country's tightly controlled (social) media platforms, they campaign frivolously and humorously (but nonetheless effectively) for a radical reduction in air and water pollution across the country through institution of social change that places the health and wellbeing of ordinary Chinese people before the agendas of very powerful private, commercial, and state-driven capitalist interests
Acting as a means of opposition and resistance (whatever form they might take) as much as a method for participation and consent	The ***Chilean Pobladores*** (Urban Poor) utilise murals as a mode of cultural and politicised intervention to resist state-funded programmes perceived to be disenfranchising, exploitative, and repressive. Those same murals are deployed to signal participation in, and support for, state-led ventures considered to be empowering as well as sympathetic and responsive to the interests and needs of the ***Pobladores***
Communicating unpopular ideas that make the Establishment uneasy	Though now only a shadow of its former self, the ***Al-Akhbar*** daily newspaper in Lebanon is considered the first and only truly radical progressive voice of the Arab left in the Middle East and North Africa (MENA). Between 2006 and 2011, it challenged the political order in Lebanon and MENA at numerous levels. ***Al-Akhbar*** exposed the rampant decadence and corruption of Arab regimes. It championed LGBTQI causes at a time when the Establishment denied they even existed. It critiqued the widespread exploitation of migrant workers, especially female domestic workers from Southeast Asia and Africa subjected routinely to racial and sexual abuse and abysmal labour conditions. ***Al-Akhbar's*** radical interventions happened at a time when it was unpopular to do so and when violent reprisals against cultural, political, and social critics were not uncommon
Aiming to achieve either minor political and social changes or a fundamentally different societal order	Based in the US but constituting a global network of animal rights activists, ***Direct Action Everywhere*** (DxE) undertakes activity that ranges from documenting first-hand evidence of animal abuse using disruptive recordkeeping approaches to exposing the dark side of the animal industry to campaigning for full animal liberation

Figure 1. The theorisation and examples of radical left culture and heritage presented here have been collated and synthesised by the author from the following works: [3–10,26–46].

3.2. Small and Big Acts of Resistance as Critical Interventions in the Leftist Cultural Tradition

Here, it is worth discussing acts, projects, and struggles located on opposite ends of what we could think of as a radical leftist continuum encompassing modes of critical intervention. One end of that continuum accommodates everyday acts and artefacts while revolutionary movement projects and liberation struggles occupy the other end. Some everyday acts and artefacts considered as critical interventions are not necessarily conceived of as 'radical' in the sense explained above at the time of undertaking (or making and sharing), but nonetheless end up 'becom[ing] unexpectedly politicised' as Chuck Kleinhans puts it [6] (p. 25). An example Kleinhans [6] gives is the vicious beating of Rodney King in 1991 in Los Angeles by police officers. On the thirtieth anniversary of this event in March 2021, Sam Levin retold the story of how '[t]here were no smartphones at the time, but [that] a witness filmed the beating from his balcony and gave the footage to a local news station. It was one of the first videos to capture this form of abuse that was so common' [47] (n.p). Although the video itself did not trigger civil disobedience, riots, and mass protests, the subsequent acquittal of the police officers responsible for Rodney King's beating did. 'That is the only way they hear us sometimes', said a citizen—who experienced the mass protests first-hand—of the local authorities in Los Angeles [47] (n.p). Thirty years on and with the ubiquity of smartphones, everyday recordings of police brutality, abuse, and institutional misconduct remain highly politicised both in the US and in many countries across the globe.

Everyday acts guided by the leftist cultural tradition utilise experimentation and struggle, and sometimes involve risk-taking, in bearing witness to, and questioning, conditions of existence dominated by established hierarchies and formalities in society [5,6,48,49]. Making use of varied and continually evolving aesthetics and styles of production, many leftist projects—including many of those presented in Figure 1 above—have exploited everyday acts as critical interventions. Often, those interventions have been 'radically' efficacious in building on progressive, oppositional, countercultural conventions and narratives to challenge and subvert the status quo—sometimes successfully, and at other times, less so. Those interventions have also been adept at proposing alternative, bold, and concrete visions of what perceived, fairer, more widespread, and lasting changes in culture and society might look like [4,7,10,50]. This is reminiscent of what Steve Crawshaw and John Jackson in their widely acclaimed book—*Small Acts of Resistance: How a Bit of Courage, Tenacity and Ingenuity Can Change the World*—refer to as small and innovative acts of resistance undertaken around the world. Those small acts of resistance typically tend to (1) challenge structural inequalities and associated exploitation and subjugation by hegemons at a micro level, and (2) reimagine how this state of affairs could be transformed to achieve as close to comprehensive and sustained social justice as possible for individuals and the varying social formations of which they are a part [34].

In a similar vein, what I call 'big' acts of resistance—as exemplified by revolutionary ventures and liberation struggles—draw on innovation among other things to challenge hegemons, albeit at a macro level. This level encompasses a much broader scope and is typically characterised by much greater intensity than the micro level comprising everyday acts and artefacts. Leftist critical interventions in liberation struggles are manifested through attempts to free people from the tentacles of exploitation, repression, and subjugation [51,52]. The ultimate goal is to attain absolute freedom through (1) dismantling the repressive institutions that overpower the capacity of oppressed people to control their destiny, (2) reclamation of political, economic, cultural, social, environmental, and technological sovereignty, and (3) deployment of a range of tools at different junctures ranging from labour strike action to educational projects to citizen development programmes to cultural resistance to armed struggle [32,53,54]. Amidst the pursuit of these key goals, however, liberation struggles have also involved racialisation, human depravity, extreme suffering, war atrocities, and severe loss of human lives—leaving legacies in places that have been termed 'difficult heritage' or 'dark heritage'[5] [55–57]. Amílcar Cabral's seismic, decolonisation project, which we will return to later, offers a useful illustration of how

liberation struggles can be efficacious as leftist critical interventions—despite operating in extremely hostile circumstances. Cabral called for the doctrines of 'return to the source' and 're-Africanisation' which comprised the pursuit of cultural renewal. That renewal was informed by (1) the readaptation of precolonial African traditions, (2) the embrace of positive contributions from colonial oppressors' cultures, and (3) the cultivation of democracy, good governance as well as socioeconomic and technological development on the terms of Africans [58] (pp. 424–436).

In doing so, Cabral boldly expressed thoughts and desires that were routinely suppressed during the peak of colonial rule. At the same time, he articulated what impactful and successful acts of resistance undertaken by leftist projects have done across history. Around the climax of European colonial rule in Africa in the early-to-mid 1950s, Amílcar Cabral communicated accessibly how horrible and violent colonial life was—and how much worse it was destined to get. He also conveyed persuasively what a better life would look like outside the confines of colonial domination—and what he saw as the most realistic paths towards colonial destruction [52]. By offering this explanation of, and motivation for, the commitment to overthrow the colonial system of oppression across Africa, Cabral laid the foundation for its demise. It is worth adding that the critical interventions impelled by small and big acts of resistance are characterised by three key common drivers among many other features. First, leftist interventions are driven by anger which helps projects to maintain a hard resolve against the perceived adversary. Second, they exhibit courage which helps projects to take risks, to make sacrifices, and to accept loss. Third, they require loyalty whereby actors within projects demonstrate unequivocal feelings of support for, and allegiance to, the cause(s) of resistance [25,34,54,59,60]. However, whether it is everyday acts and artefacts of defiance at a micro level or big acts of resistance at a macro level, the preservation of corresponding critical interventions and associated cultural traditions and heritage has not been straightforward.

4. 'Benign Neglect', Structural Discrimination, Resourcing Issues, and the Politics of Preservation

Many projects producing, practising, and shaping culture in the radical left-wing tradition have either had their work preserved inadequately or not preserved altogether. Preservation here is commonly understood to encompass work that is collected and conserved by public cultural organisations such as established museums and archives on the one hand, and on the other, work that is preserved by the projects themselves—if they have the requisite resources at their disposal. Elsewhere, I have drawn on the seminal work by Aleida Assmann, Jan Assmann, and Diana Taylor [61–63] at the intersection of the canon, archive, cultural memory, performance, and identity to illuminate a critical and more refined understanding of preservation in a two-fold sense. Preservation can take either a passive or an active form. In its passive form, preservation captures cultural artefacts that are no longer needed because their immediate use is not known and, thus, stored away in archives awaiting possible new use(s). For Aleida Assman, such artefacts embody passively stored memory that can be called upon at a later point [61] (pp. 9–10). In the later sections of this article, I refer to this as passive memorialisation.

In its active form, preservation renders the past come alive in the present—often utilising passively stored memory as base material. Here, information, messages, and symbols embedded in cultural artefacts such as works of art, customs, traditions, texts, and symbolic sites actively circulate memory through repeated appreciation, re-reading, recitation, performance, review, reinterpretation, and re-enactment. To Aleida Assmann, this results from 'canonisation'—a complex process which involves (1) a political *selection* of artefacts, (2) ascription of *value* to those artefacts, and (3) rendering those artefacts continually relevant [61] (p. 9, *emphasis* in original). In this scenario which I allude to as active memorialisation later on in this article, the ensuing 'canon' does not remain fixed but rather is kept alive in active circulation through iterative reinterpretation and re-enactment by successive generations [64]. It is worth noting that canonised artefacts are susceptible to

being locked away in archives at some point if not in use in the same way that archived artefacts become base material for the canon when needed [61,65]. Please see Figure 2 below for a graphical (re)presentation of the concepts of passively stored memory (the archive) and actively circulated memory (the canon).

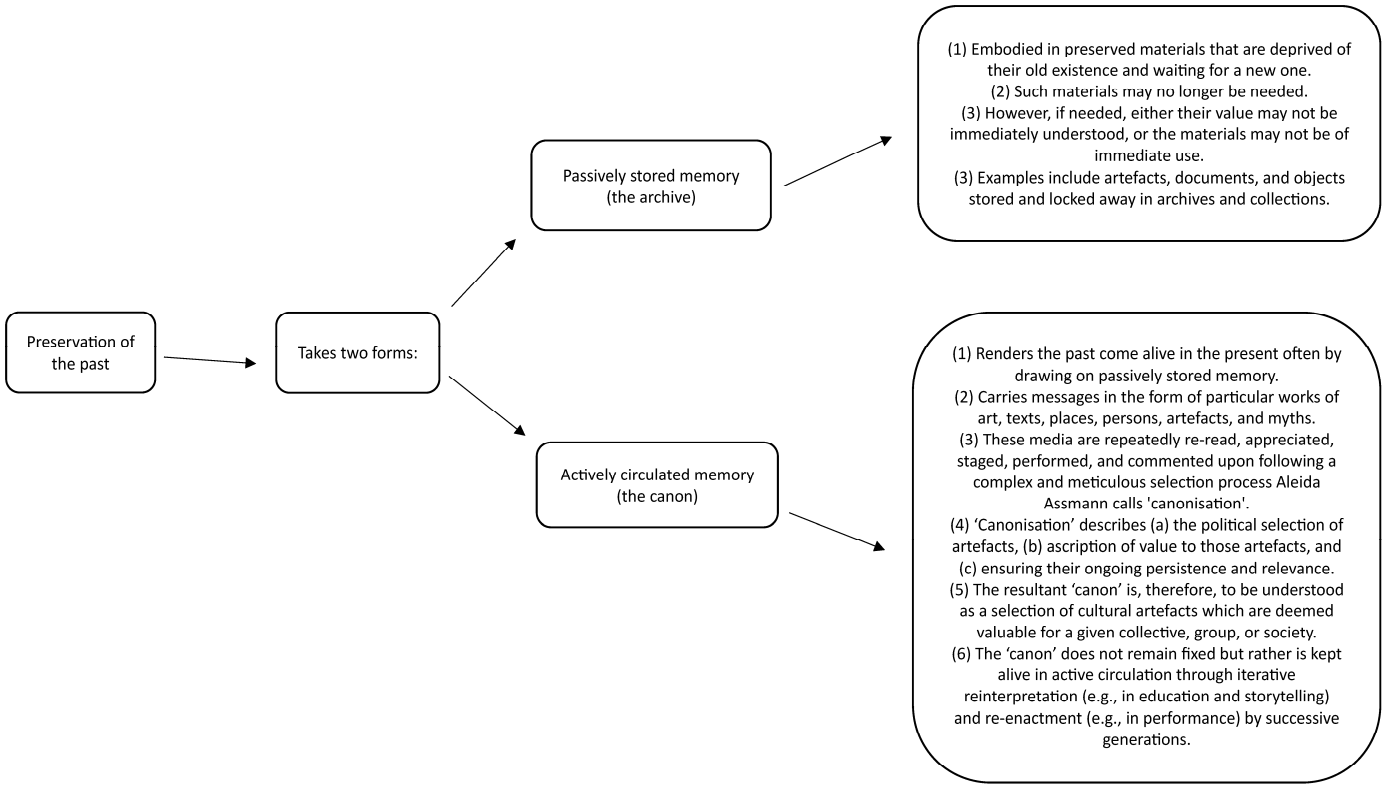

Figure 2. This diagrammatic (re)presentation of passive stored memory and actively circulated memory has been assembled by the author drawing on the following works: [49,61–65].

More often than not, projects have not been able to conserve and preserve their work as a result of very limited means. In other instances, (1) a lack of time (owing to the pressure to move on swiftly from one intervention to the next) and (2) negative perceptions (seeing some interventions as not having been as efficacious and successful as hoped for) have been the causes for not preserving work [6,66]. Where traditional museums and archives have collected radical left artefacts, projects have had to cede control and contend with dominant representations which have proven problematic [49,65,67–70]. In other instances, projects have had their resources viewed and treated by dominant institutions as mere 'collectibles, "salvage" projects, or tools for institutional diversification' [71] (p. 203) in efforts to boast compliance with equality, diversity, and inclusion (EDI) agendas and to tout community engagement track records [72]. In yet other instances—particularly in the Global South, leftist collections housed in public cultural institutions have been destroyed during turbulent events. For instance, Sonia Vaz Borges has narrated that the archives holding the vital collections of Amílcar Cabral and his African Party for the Independence of Guinea and Cape Verde (PAIGC) were destroyed and lost during the civil war that engulfed Guinea-Bissau between 1998 and 1999 [51] (p. 19).

It is fair to say that the artefacts of many projects have not been preserved by mainstream museums and archives for two main reasons. First, the tendency of projects to overly criticise, satirise, and taunt dominant hierarchies means the 'centuries old', 'predominantly singular and authoritative' taxonomic order used by those hegemons to 'collect, identify, describe and document artefacts' [72] (pp. 110–111) invariably discriminates against such projects in favour of 'the important and powerful people [in] society' [2] (p. 2). For Katherine Jarvie and colleagues, this reflects 'benign neglect' that not only fails to recognise and

appraise projects engaging with radical left culture as 'significant' and worthwhile, but also denies them the opportunity to contribute to 'societal memory' [73] (p. 354). Second, the projects' predominant coverage of arts and cultural activity on the fringes of society, dissident politics, minority concerns, alternative lifestyles, and even revolutionary movements has been perceived to be siloed inside subcultures viewed as peripheral and unimportant [4,74–76]. This view is routinely taken by hegemonic structures rooted in 'an ideology that is fundamentally oppressive in nature' [2] (p. 3) and 'privilege[s] the perspective of the status quo' [73] (p. 357).

For instance, it is not straightforward that the projects introduced earlier by Vladimir Leonidowitch Durov, Amílcar Cabral, Art Kunkin, Oleh Sentsov, and Illma Gore are eligible for preservation as legitimate records of 'societal memory'—in part due to their fiery and unapologetic attacks on the institutional structures run by the status quo[6]. In the specific context of the distinctive, global, decolonisation project spearheaded by Amílcar Cabral and PAIGC, Sonia Vaz Borges reports on how the Portuguese National Archives Office maintains a record of Cabral and the PAIGC that is extremely adversarial. Borges recounts that PAIGC's heritage on record is 'built with the intention of defending [the] Portuguese colonial government and thus present[ing] an unfavourable picture of PAIGC and [its] achievements' [51] (p. 19). In a similar vein, Miguel Cardina and Inês Nascimento Rodrigues direct attention to how successive Portuguese governments have appropriated and exploited power relations and moral hierarchies to undermine the goals achieved by Amílcar Cabral and PAIGC through the deployment of antagonistic and prejudiced narratives, myths, and symbologies [53,54].

As briefly mentioned earlier, many projects have not been able to preserve their own work. Some have left their past behind unpreserved [1,10,59]. Others have simply 'sold out' and crafted a new identity for themselves in a bid to move with the times [3,66,77,78]. Yet others have simply not had access to adequate infrastructure and associated resources in the form of manpower, technical expertise, and funding to preserve their work on their own terms. In a recently published edited collection titled *Radical Film, Art and Digital Media for Societies in Turmoil*, for example, Jacob Geuder [79] and John Akomfrah and colleagues [80] draw attention to the infrastructural challenges of preserving radical left culture and heritage—particularly issues of technology, funding, and accessibility—faced by the 'Mídia Independente Coletiva' in Brazil and the former Black Audio Film Collective in the UK, respectively. That said, the tide has been steadily turning. In particular, as the cost of (digital) technologies has considerably and continually fallen, so have opportunities opened up for leftist projects to proactively preserve their artefacts in different ways.

5. 'Strategic Witnessing', 'Radical Recordkeeping', and Complementary Modes of Memorialisation

Emerging discourses and scholarship are reporting on projects that collect, compile, and passively and actively memorialise radical left culture and heritage mostly on their own terms [38,68,72,73][7]. Utilising the opportunities and tools afforded by the ubiquity of digital platforms as a result of continually decreasing technology costs, projects are creating, administering, and interpreting their work and wider activist ephemera for much broader publics on an increasingly networked basis as Özge Çelikaslan's map drawing of archival alliances across the globe effectively demonstrates [38]. In doing so, projects are not only 'using [passive and active memorialisation] in radical ways' to render left-wing culture and heritage alive, but also achieving 'unprecedented reach and immediacy of impact' through engaging in 'a form of "strategic witnessing"' [73] (p. 353). Projects bear witness by asking critical 'questions of [one-sided, hegemonic] truth[s] and experience[s], presence[s] and absence[s], death[s] and pain, seeing and saying[s], and trustworthiness of perception' [59] (p. 1034). Projects utilise such 'witnessing' to involve individuals, diverse publics, and social movements in the processes of collaboratively documenting and commemorating activist and radical left ephemera across various personal and collective offline and virtual contexts. In turn, those contexts transcend cultural, political, economic, social, geographical, and

technological boundaries. In what follows, we look at the concepts of 'strategic witnessing', 'radical recordkeeping', and memorialisation in action at *The Freedom Archives (FA)* which is taken as the case study in this article.

5.1. Decolonising and Giving Voice to Marginalised Leftist Pasts at the Freedom Archives (FA)

The Freedom Archives—henceforth abbreviated to *FA* throughout the rest of this article—is a non-profit educational archive located in San Francisco in the US. Since its inception in the late 1990s, *FA* has been committed to the preservation and dissemination of historical audio, video, and print materials documenting progressive movements and culture from the 1960s onwards. According to *FA*'s current co-directors, Nathaniel Moore and Claude Marks [81] (n.p), artefacts spanning 'anti-colonial struggles [. . .] in-depth interviews and reports on social and cultural issues; activist voices from a number of social justice movements; and original and recorded music, poetry, and sound collages' have been preserved. These artefacts were produced by a broad range of left-leaning cultural producers and workers who intervened in, and covered, issues and themes ranging from anti-imperialism to human rights to internationalism to liberation struggles. In doing so, those producers and workers gave marginalised groups and movements a voice—one that was typically 'unheard in, or distorted by, the establishment media' [81] (n.p). Over the years, *FA* has continued to restore and catalogue artefacts stored on carrier technologies of different kinds, thereby 'saving them from further deterioration and loss, and making their historical value and lessons accessible to future generations' [81] (n.p).

The archival research I conducted revealed that *FA* preserves its artefacts in a variety of formats including VHS and radio cassette tapes, CD-ROMS, DVDs, still photographs, photo displays, pamphlets, journals, website, blog posts, in-house documentaries, and publications of different kinds. Proceeding this way, according to Moore and Marks, ensures that the histories and cultures of resistance are rendered accessible at a different time for current and future generations [81] (n.p). To use Rebecca Schneider's words, provision of broad access in this way happens 'across multiple registers [and] in multiple media' [33] (p. 7). This approach supports 'strategic witnessing' in serving a three-fold, critical objective at *FA*. First, it challenges conventional archival and preservation systems. Second, it counters dominant narratives about societal events, (hi)stories, and memories. Third, it affords wider publics 'opportunities to piece together fragmented historical narratives drawing on new and multiple accounts' based on those publics' experiential knowledge [72] (p. 119; see also [76]). Clearly, this considerably helps *FA* to circumvent the existing institutional politics discussed under Section 4 that stymie the conservation and memorialisation of, and ongoing engagement with, radical left culture and heritage. *FA* further operationalises 'strategic witnessing' through a wider portfolio of activities and offerings.

Moore and Marks [81] (n.p) report that *FA* (1) 'regularly produce[s] original documentaries and educational media [based on its archival collections] for use within schools and as tools for community building', (2) 'maintain[s] an active youth development program that encourages engagement with historical materials', (3) 'provides media production training as well as fostering a love for progressive history', and (4) runs 'strong, cooperative, and effective partnerships and project-based connections with a number of youth organizations, local high schools, community colleges, and 4-year colleges and universities'. Indeed, *FA*'s impact appears remarkable. 'Since 2003', Moore and Marks note, 'hundreds of young people have passed through the archives as a result of [*FA*'s] program' [81] (n.p). Beyond youth development, the co-directors observe that *FA* 'has [not only] become a national and international source of media of great interest to young people and students, but also to teachers, diverse community organizations, media outlets, filmmakers, activists, historians, artists and researchers [81] (n.p). In Moore and Marks' words, *FA*'s wide-ranging work as discussed thus far facilitates passive and active memorialisation of leftist heritage through 'assist[ing] [people] in unearthing lessons of the recent past and lifting up voices intentionally removed from the dominant views of history [thereby] creating deeper understandings

and decolonizing the past' [81] (n.p). To this end, *FA* deploys 'radical recordkeeping' as a praxis of critical intervention. It is to this praxis that the discussion now turns.

5.2. 'Radical Recordkeeping' and the Potential of Interactive and Immersive Memorialisation

'Radical recordkeeping' is understood as the radical departure from traditional institutional acquisition and disposal policies and associated documentation, storage, and preservation conventions. It describes disruptive systems that subvert perceived conventional, rigid, and inflexible schema of classification used to arrange, organise, conserve, and present artefacts, collections, and records of various kinds [69,70,73,82]. Those disruptive systems tend to be typically employed by cultural, political, and social formations involving activist and politicised communities, entities, and groups that take the initiative to document their (hi)stories on their own terms. As one such entity, *FA* takes the concept of 'radical recordkeeping' further to capture 'relationships and use from all aspects of creation, capture, organisation and pluralisation' [82] (p. 173). 'Pluralisation' in particular evokes approaches to preservation that are akin to 'leaderless and anti-hierarchical [...] decentralised "anarchives" [that] offer a framework in which everyone can define their history'—one that 'is made by ordinary individuals coming together to conduct acts in groups' [83] (pp. 262–264; see also Monika Rodriguez and Michael Pierce [84]). Through taking a decentralised approach to preservation, *FA* demonstrates facilitation of acts of critical intervention undertaken in groups.

FA foregrounds participatory approaches to the passive and active memorialisation of the culture and heritage of left-wing, progressive movements through 'radical recordkeeping' as a praxis reflective of struggle and empowerment. For Moore and Marks, that empowerment begins with 'a digital search engine that allows for increased access to [*FA*'s] holdings through a less academic and more user-friendly exploration of materials' [81] (n.p). Through archival research, I found that *FA* maintains a very rich online archival resource that features fourteen major collections presented in alphabetical order—with each subdivided into numerous subcollections. The subcollection of most relevance for my purposes in this article is titled 'African Liberation Movements' within the 'International Liberation Struggles' collection. Materials on Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde can be accessed under a further subcollection titled 'Angola, Guinea-Bissau and Mozambique'. As the title suggests, this subcollection also contains materials from liberation struggles in Angola led by The People's Movement for the Liberation of Angola (MPLA) and in Mozambique led by the Mozambique Liberation Front (FRELIMO). According to *FA*, the subcollection 'contains primary accounts, personal narratives and a graphic novel from the various wars of liberation'—the majority of which were produced by the respective liberation movements themselves [85] (n.p). The interface of *FA*'s archival website makes the materials accessible using a range of filters including (1) media type, (2) source format, (3) year of origin, (4) title, (5) subject, (6) author, and (7) keywords.

Altogether, the subcollection contains twelve items broken down into eleven documents in PDF format and one audio file as the media types. The materials originate from six richly illustrated monographs, three transcripts of interviews and speeches, two pamphlets, and one MP3 audio file, and date back to the period between 1971 and 1986. Although the materials are variously titled, they are closely intertwined with the following overarching subject areas typically tackled by leftist projects at micro and macro levels, albeit taking various approaches to intervention: (1) Africa, (2) national liberation, (3) anti-imperialism, (4) Marxism, (5) black liberation, (6) colonialism, (7) education, and (8) women. Later in this article, Section 7 will home in on the subject area of education—exploring how *FA* could use Metaverse-type environments and the fully developed Metaverse to animate the political education programme that Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde deftly instrumentalised in the struggle against colonial domination. Interestingly, the *FA* website interface lists forty-two further materials that are 'hidden' and designated with the notification 'no digital version is available'. This is because those materials have not yet been digitised—very likely as a result of some of the infrastructural and resourcing

challenges discussed under Section 4. Limited staffing capacity and issues of access and technology are cases in point. Archival research revealed that the non-digitised materials include radio news programmes on VHS cassette tapes, music and poems on radio cassette tapes, speeches on CD-ROMS as well as various analyses and statements written up in articles, monographs, pamphlets, periodicals, and publicity materials. Most of these artefacts were generated between the late 1950s and 1980s.

By providing access to materials documenting some of the key activities underpinning the learning curricular devised and delivered by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde in this way, *FA* contributes vitally to the preservation of the passively stored memory of (1) 'the hard work of those who [have] more generally advocated for societal improvements [including tackling widespread illiteracy through provision of accessible education]' [2] (p. 1), and (2) their commitment to 'disrupting the dominance of [the racialising, colonial education system] and mitigat[ing] actively against [the] silenced voices [of the colonised Guinean and Cape Verdean people]' [86] (p. 73). However, the contention of this article is that memorialisation could be taken to an even greater level to achieve much wider efficacy. *FA*'s virtual archival collection is currently mostly static and even sterile but could benefit from animation and enhanced interactivity. A number of commentators have discussed possibilities offered by Web 2.0 to deliver interactive content in ways that allow users to interact with materials through immersion. Because interactive and immersive environments are highly complex and distinctly specialised and, therefore, very costly to construct and maintain despite the cost of technology gradually falling, it is mostly dominant digital platforms that have afforded them. One such digital platform is 'Second Life' [57,87]. For example, in his fascinating work that promotes social justice through preserving selected 'dark heritage' of Black US Americans dating back to the 1920s, the anthropologist Edward González-Tennant has drawn inspiration from heritage projects that have used interactive and immersive capabilities offered by 'Second Life' [57]. Although this would sound appealing to *FA*, other commentators have called for caution.

Andrew Prescott, for instance, draws on a digital humanities perspective[8] [88] to suggest that avoiding the use of dominant digital platforms and tools in favour of adopting more autonomous and decentralised solutions offers a more hopeful and promising way forward [83]. The banning of Illma Gore's Trump painting on Facebook and other popular digital platforms, as we saw earlier under Section 3.1, clearly shows that such platforms can be hostile to leftist critical interventions through seeking to exclude and silence critical voices and alternative perspectives. In their own recent research on this topic, Katherine Jarvie and colleagues substantiate this by arguing that dominant digital platforms 'are a place for activism but also a place for censorship of radical voices' [73] (p. 365). With the support and resources of a higher education institution and a number of foundations, Edward González-Tennant created an independent website that offers interactive and immersive capabilities that enable users to interact closely with leftist heritage outside the purview of established digital platforms—with a particular focus on a venture called the Rosewood Heritage and VR project [89]. Whilst *FA* operates its own archival website on its own terms, and those of its users, it does not appear to enjoy the same level of support and resources—despite maintaining partnerships with various entities. The same can be said for many leftist cultural projects as well as individuals, entities, and organisations undertaking heritage work widely considered. That said, the growing number of Metaverse-type environments and huge promise of the Metaverse as we are going to see under Sections 6 and 7 below, may make a considerable difference.

In two recent, informative pieces of work on and around how activism, critical creative praxis, and consumer/user engagement could thrive through use of immersive technologies, Yee et al. [90] and Dwivedi et al. [91] point to the Metaverse that is currently under construction by engineers and creatives—one in which emancipatory technologies and spaces can be imagined, designed, and built both for individual and collective experiences and practices. These authors express optimism that if the Metaverse materialises in the foreseeable future, it 'will be more immersive, open, accessible, and interactive than previous

[digital] technologies' [91] (p. 758). This could potentially take *FA*'s 'strategic witnessing' and 'radical recordkeeping' approaches to passive and active memorialisation of leftist, progressive struggles to a much higher level. In what follows based on what is currently known about the Metaverse, the discussion unpacks what it is, explores the opportunities and challenges that have been said to characterise it, and analyses how *FA* and other leftist projects could employ it for more interactive and immersive memorialisation.

6. The Metaverse: Context, History, and Definitional Issues

At the time of writing, what the Metaverse actually is remains unclear. Rory Greener observes that '[d]espite the popularity of the Metaverse, the concept is still unclear to many' [92] (n.p). Following Yee et al. [90] and Dwivedi et al. [91], virtually all commentators put the lack of an explicit definition to the fact that the Metaverse is still being built and as such, embodies an unknown quantity. My meta-analysis of industry expert commentary and emerging scholarly research on this topic revealed a clear pattern. Many contributions approach discussion of the Metaverse from a predominantly commerce-oriented perspective—highlighting opportunities for business growth, sales enhancement, workforce efficiency and productivity, and profit maximisation predominantly in the realms of advertising, branding, construction, engineering, entertainment, fashion, finance, manufacturing, marketing, retail, service provision, and tourism.

Accounts do exist of how the Metaverse and associated infrastructures and technologies are being leveraged to address some major challenges afflicting social justice including (1) disparities in universal access to public services such as education and healthcare, (2) widespread poverty, and (3) social exclusion. For example, Metaverse Seoul—a pioneering, smart city government authority initiative in South Korea—offers 'various public services while focusing on "freedom", "inclusion", and "connection"' [93] (n.p). In Japan, cross-sectoral partnerships involving local government authorities and activists operating under the entity called 'Whole Earth Foundation' (WEF) collaborate on the administration and upkeep of infrastructures and associated public services using blockchain technologies (see Section 6.1) in the context of participatory governance [94].

On the whole, however, accounts of how the Metaverse could be used to champion social justice causes appear to be few and far between at the time of writing. That said, I assert that there is much that can be learnt from, and said about, the opportunities touted for business and enterprise in the Metaverse. Those opportunities are transferrable to the passive and active memorialisation of radical left culture and heritage more generally.

Two fervent champions of business opportunities in the Metaverse, in my view, have been McKinsey & Company and Deloitte by far. Drawing on new, extensive industry research, McKinsey & Company note that '[t]he [M]etaverse seems to be whatever people's imaginations dream it to be [which renders it] difficult to define, even though the term has been in circulation for decades' [95] (p. 10). Beyond varied and vivid imaginations—and the issues of definition they engender—the authors add that 'the [M]etaverse is real, potentially revolutionary, and has the makings of a significant opportunity' [95] (p. 10). Below, I argue how that 'significant opportunity' might meaningfully, effectively, and significantly enhance the passive and active memorialisation of *FA*'s subcollection on PAIGC's learning programmes that underpinned the revolutionary movement in Guinea-Bissau and Cape Verde and ultimately contributed substantially to the demise of colonialism on the African continent. But before doing so, it is worth discussing what the Metaverse is shaping up to become. In doing so, it is helpful to place a particular focus on what the recent history of new media technologies might reveal about how the Metaverse might end up developing.

6.1. The Metaverse and Its 'New Building Blocks'

In an attempt to show how the Metaverse will become reality sooner rather than later despite still being an unknown quantity, a number of commentators offer an interesting analogy premised on the understanding that the Metaverse will be the successor of the mobile Internet [94–97]. Blau et al. at Deloitte remark that because the Metaverse is

still currently under construction, 'trying to describe what it will be is like trying to describe to someone in 1990 what the Internet would become' [98] (p. 3). In a similar vein, Eric Ravencraft observes that just as the Internet existed in the 1970s with no indication whatsoever of what it would eventually turn out to become fifty years later, so too is the Metaverse [96]. '[I]t's too new to define what it means', adds Ravencraft, but 'there are *some* new building blocks in place' [96] (n.p, *emphasis* in original). To understand these 'new building blocks' and the significance they hold, it is fruitful first to take a look at a brief historical overview of recent new media technologies. Doing so is instructive because it points to patterns of development that might be indicative of how the Metaverse could develop. It is worth taking the Internet as a prime example.

The Internet is not considered a singular technology but a series of new media technological innovations that have been gradually designed, tested, iterated, and applied as 'building blocks' to support connectivity, communication, processing, storage, and uptake at scale [99–103]. 'Building blocks' here have encompassed conventions; technical standards; compatibility considerations; communication protocols (that enable remote computers to connect to each other and to communicate); operating systems; regulatory frameworks; interfaces; the convergence of software and hardware; adoption and diffusion schemes; and more recently the shift from the World Wide Web (WWW) to digital platforms such as apps that use the Internet for access but not the browser for display [102–107].

Newer 'building blocks' can be added to this mix: Augmented Reality (AR); Virtual Reality (VR); Mixed Reality (MR); Neuro-enhanced Reality (NeR); blockchain technologies; networks and connectivity (e.g., 5G); computing power (e.g., cloud, edge); and Web 3.0 or Web3. AR describes a set of technologies that superimposes digital data, images, and other content on physical spaces—mostly via mobile devices such as smartphones, but increasingly via wearables including head-mounted displays (HMDs) and smart glasses [108,109]. VR depicts a set of technologies that immerses users in artificially constructed virtual environments in which users' sense of presence is heightened—akin to the feeling of being submerged in those environments [110,111]. MR is said to combine VR and AR among other technologies through use of a series of cameras, sensors, and often Artificial Intelligence (AI)-enhanced technology to process data about a physical space and to use that information to create digitally-enhanced experiences that feel as immersive and realistic as possible [112,113]. MR does this by tracking object surfaces and boundaries as well as the positioning and movement of human beings in that environment [113,114]. NeR draws on methods of neurostimulation to enable users to smell certain types of scent via brain-computer/machine interfaces integrated in users' HMDs [91]. NeR is said to offer greater technological embodiment due to its ability to bypass other intermediate stages of sensory perception by stimulating relevant brain regions directly [115].

Blockchain technologies describe infrastructures comprising decentralised databases that (1) are considered to be secure, (2) allow for the permanent, immutable, and transparent recording of data and related activities (e.g., cryptocurrency transactions), and (3) facilitate the sharing of information across networks with no hierarchies [94,116]. Effective information-sharing here hinges on very fast networks with low latency—understood as the time between instructing a wireless device to perform an action and that action being completed—to enable (1) simultaneous connectivity of a large number of devices at any one given time, and (2) the processing and transfer of vast volumes of data [95,97,98]. One such technology that connects networks at much greater speed is 5G with far greater capacity, and at considerably reduced latency[9]. All the 'building blocks' described thus far, commentators observe, will be able to function in an interoperable fashion—if considerable technological advances in computing power are made to enable the running of the Metaverse.

Edge computing in particular is singled out because it 'enables data to be captured, stored, and processed locally across smart devices and local networks rather than in the cloud, [something that] helps solve problems of limited bandwidth and latency—critical for an immersive, high-fidelity experience' [95] (p. 23). Web 3.0 or Web3—described as

the third generation of the web—is being constructed to offer a decentralised architecture characterised by (1) no central authority, (2) a high degree of interoperability across different applications, data sources, networks, and technologies (such as the 'building blocks' depicted until this point), (3) greater accountability and security, and (4) considerable user empowerment [90,95,117,118]. In what follows next, it is worth looking at how the 'building blocks' described so far are already shaping the contours of what the Metaverse could become—including supplying useful working definitions, identifying areas for opportunities, and pointing towards key challenges.

6.2. 'Metaverse Moments': Opportunities and Challenges

The 'building blocks' described above tell us a great deal about the remarkable and rapid progress of new media technological advancements in recent years. In the particular context of the Metaverse, those technologies are not to be merely thought of as stand-alone and self-contained. To Blau et al., it is more helpful to think of them as a 'convergence of several separate technologies [that] can create the experience of **an immersive, three-dimensional environment in which users interact with their surroundings and other users** as if they are in a shared space' [98] (p. 3, **emphasis** in original). Beyond merely being a virtual space, the authors add, the Metaverse will include both the physical and digital/virtual worlds in the user's experience. To Ed Greig, '[t]he more these components intertwine, the closer we get to a fuller version of the [M]etaverse' [99] (n.p). In a podcast series titled *At the Edge* run by McKinsey & Company [100,119,120], a renowned futurist, consultant, and author on the Metaverse by the name of Cathy Hackl provides her working definition of the Metaverse. That definition, which follows below, underlines the centrality of the notion of convergence, and by extension, pulls the discussion of the 'new building blocks' of the Metaverse described up to this point neatly together:

> I believe it's a convergence of our physical and digital lives. It's our digital lifestyles, which we've been living on phones or computers, slowly catching up to our physical lives in some way, so that full convergence. It is enabled by many different technologies, like AR and VR, which are the ones that most people tend to think about. But they're not the only entry points. There's also blockchain, which is a big component, there's 5G, there's edge computing, and many, many other technologies. To me, the [M]etaverse is also about our identity and digital ownership. It's about a new extension of human creativity in some ways. But it's not going to be like one day we're going to wake up and exclaim, 'The metaverse is here!' It's going to be an evolution [120] (n.p).

McKinsey & Company helpfully summarise the working definitions of the Metaverse presented above in two categories (i.e., basic and advanced)—with each comprising three key tenets. 'At its most basic, the [M]etaverse will have three features: (1) a sense of immersion, (2) real-time interactivity, and (3) user agency' [95] (p. 11). In its fully advanced form, it will include: '(1) interoperability across platforms and devices, (2) concurrency with thousands of people interacting simultaneously, and (3) use cases spanning [many areas of] human activity' [95] (p. 11). Emerging scholarly work and industry commentary (including my own research) on and around developments in Metaverse-type environments reveal that some of these features—basic and advanced alike—are already being witnessed, and associated technologies being applied, in primarily business, enterprise, entertainment, and manufacturing realms (though not exclusively as we shall see shortly). For example, 'interoperability across platforms and devices' is already occurring where MR (i.e., an environment in which both physical and virtual worlds co-exist) is being applied to enhance engagement and interaction with variously packaged offerings intended to educate, entertain, and provide memorable (immersive and non-immersive) experiences in the hospitality and tourism industries [91,109,114,121].

Likewise, 'use cases spanning many areas of human activity' are continually being identified. For instance, the German automobile brand—BMW—has recently completed the design and launch of its latest digital twin[10] [95,98,108,122]. plant which will house

the production of all the brand's electric vehicles in due course [119]. Capitalising on the interoperability of the 'building blocks' depicted above—including the convergence of physical and virtual worlds, BMW is enabling its work teams spread across its thirty or so manufacturing sites worldwide to collaborate in real-time on holograms[11] of vehicle prototypes [122]. Work teams can access the life-size holograms from any angle to work on design details without having to build expensive physical prototypes. Furthermore, those teams do not have to travel to a particular manufacturing site to carry out that work. A key lesson here is that a fully developed Metaverse would offer a great, efficient, and productive space to experiment and explore first at low cost and at great length before designing and producing for the real world. This would apply to both commercial and non-commercial contexts. In the latter context as we shall see in Section 7.3, one can vision *FA*'s Metaverse users accessing and working on the materials documenting the learning programmes designed and delivered by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde during the liberation struggle in ways that (1) question absences and silences, (2) challenge and reinterpret existing knowledge, (3) correct taken-for-granted insights and truths, and (4) produce wholly new knowledge and deeper understandings based on multi-vocal accounts.

Earlier under Section 6, I briefly mentioned the 'Whole Earth Foundation' (WEF) and its distinctive work which is activist and non-commercial in nature. WEF utilises blockchain technologies driven by a Web3 platform called 'Tekkon' to champion 'social good by empowering users (citizens) to help fix their local community's infrastructure' [123] (n.p). According to a recent news account [124], Tekkon crowdsources information about the condition of public utilities such as power lines and water networks in a number of countries, particularly in Southeast Asia. Crowdsourcing participants are remunerated through payment in cryptocurrency which can be exchanged in physical currency. The information collected is sold to utility companies not to make profit but to support (1) the remuneration of crowdsourcing participants, and (2) the sustenance of WEF's activist operational needs. The overarching rationale for this, from the perspective of WEF, is two-fold. First, to help lower the cost of maintenance by flagging up urgent utility cases that need to be prioritised. This is extremely important considering that persistent austerity is limiting the ability of government authorities to provide comprehensive maintenance. Second, to stimulate a sense of civic engagement amongst local communities as part of efforts to strengthen decentralised governance models whose ultimate aim is to foster accountability, transparency, and sustainability [94,124]—all of which are central goals typically pursued by leftist projects.

I argue that the knowledge and learning from these use case examples—including the opportunities they present—are not only transferable and valuable to other areas of human activity, but also reflect glimpses of the Metaverse that Cathy Hackl calls 'Metaverse Moments' [120]. In Section 7, we are going to look at what those 'moments' might mean in terms of considerably enhancing the passive and active memorialisation of *FA*'s subcollection on the political education programme that impelled the liberation struggle led by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde. For now, it is worth turning our attention to some of the key aspects that could pose serious challenges to those 'moments'. In the words of Ed Greig, while [m]any of the [M]etaverse ingredients are with us now' [99] (n.p) and have largely elicited feelings of anticipation, other commentators have observed mixed reactions [97,101,108,119]. Hadi et al., for example, note 'sentiments ranging from excitement, fascination, and hope, to confusion, skepticism, and even fear' [125] (p. 1). The less positive sentiments, it might be argued, are grounded in key historical precedents that give cause to temper that 'excitement' and 'hope' with realism. McKinsey & Company capture this brilliantly when contextualising the widely perceived transformative potential of the Metaverse:

> Such generational changes rarely happen overnight. They tend to take years and are the result of an accumulation of incremental advances, driven by an ethos of experimentation on platforms that allow creativity to flourish. And because they

> ultimately result in fundamental changes to our lives, they may also present risks for individuals and society [95] (p. 57).

Whereas some risks are known, others are not[12] [126]. Again, taking the recent history of the Internet as an illustrative example here is helpful. A crucial lesson is that investing a lot of thought and work in learning from mistakes made in the context of developing the mobile Internet would substantially benefit the construction of the Metaverse as a truly accessible and transformative environment. For a range of reasons, the design of the Internet has turned out not to provide a user experience that is accessible to all [64,127–129]. If the Metaverse is designed and constructed with the (dis)abilities, neurodiverse conditions, and needs of all users in mind, then it would be a genuinely accessible environment. Issues of privacy and trust on the Internet, in relation to the indiscriminate collection and exploitative use of user data, continue to pose a recurrent challenge [128–130]. Many of the 'building blocks' discussed under Section 6.1—to use the words of Richard Ward in his capacity as an expert technologist—'record and gather an incredible amount of personal data [meaning] the full [M]etaverse experience [will] go to the next level of data collection' [119] (n.p). If user data are collected and used responsibly—including secure storage, then the Metaverse would be a more trusted environment.

Time after time, Internet users (and their property) have been harmed through acts that have ranged from various kinds of abuse to deception to hacking to harassment to misinformation [100,104,107]. If the codes of conduct set up to regulate behaviour and engagement with content are fair and non-exploitative—and enforced justly, the Metaverse would be a well-governed environment. Putting in place stronger safeguards to block harmful acts would not only improve good governance, but also render the Metaverse a much safer environment. Speaking of governance, giant global tech corporations have been reported to have amassed and concentrated enormous control and power of Web 2.0 and related digital platforms for their sole business interests [48,106,116,128,131,132]. According to Dal Yong Jin, this consolidation of dominance has manifested itself through (1) engendering 'asymmetrical information flows and discrimination [in the design and use of digital platforms]', and (2) 'establishing norms and attitudes about [platform] uses, standards, and practices of systemic colonisation' [129] (p. 13). The ever-present tension between intellectual property rights (IPR) on the one hand, and sharing and re-use on the other, is a case in point. Clearly, this militates against the vision of the Metaverse as a fair, open, and interoperable environment that is not at the mercy of hegemons. Sadly, those hegemons are already jostling and positioning themselves as best as they can to exploit the Metaverse for their own corporate ends [101]. No wonder 'confusion', 'scepticism, and 'fear' abound in relation to what the Metaverse might end up looking like.

When working separately at scale, the 'building blocks' depicted earlier are widely considered not to be environmentally friendly at all. In a fully developed Metaverse, this could potentially be exacerbated. For instance, one account predicts that 'the massive amount of computing power (and energy) required to process blockchain transactions [could possibly] create about 2000 pounds of carbon emissions over five years' [95] (p. 52). Perhaps unsurprisingly, there are no easy solutions—but there is the expectation that the Metaverse will need to be resource-efficient to contribute usefully to combatting climate change. Indeed, some policymaking and regulatory stakeholders at international and supranational levels are calling for a faster transition to clean energy as the most viable solution to rendering the Metaverse as sustainable as possible [133,134]. At the national level, local and regional government authorities in a number of countries are instituting serious measures to address environmental sustainability as a matter of urgency. In the UK, for instance, over 300 city, county, and district councils have declared a climate emergency meaning they are actively combatting the negative impacts of climate change in their jurisdictions through enacting urgent policies to deliver net zero carbon by 2050[13] [134]. While it is still too early to tell, it may well be that government authorities at local and regional levels in the UK context and further afield—in close partnership with relevant stakeholders—could play a vitally important role in bridging the gap in environmental

sustainability action at a faster pace at national, international, and supranational levels. If successful, this would naturally bode well for the Metaverse.

To the list of challenges afflicting the Internet can be added what Blau et al. call 'encoded bias'—a term the authors use to describe the ways in which social inequalities of an economic, gender, and racial nature (among others) are inherent in applications and infrastructures [98] (p. 12). McKinsey & Company advocate for the elimination of 'bias in [M]etaverse-driven decisions [to] promote diversity and inclusion' [95] (p. 52). The evidence on which this effort is based is startling. 'Today, fewer than a third of creators of interactive experiences are women, which affects the types of experiences being created; also, women are three times more likely to experience VR nausea' [95] (p. 52). Clearly, serious attention needs to be directed at these issues. The discussion now shifts focus to how the opportunities and challenges surrounding the 'Metaverse moments' described above might considerably enhance the passive and active memorialisation of *FA*'s subcollection on PAIGC's liberation struggle in a fully developed Metaverse. In this scenario that I call 'metaversal memorialisation', the emphasis is placed on the political education programme devised and delivered by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde. That programme, as we shall see, considerably advanced the overarching objectives of PAIGC's revolutionary movement which was driven by a combination of small and big acts of resistance that embodied distinctive critical interventions in the leftist cultural tradition.

7. 'Metaversal Memorialisation' of PAIGC's Political Education Programme

We have seen that passively stored memory—or passive memorialisation—encompasses materials locked away in storage because they either may no longer be needed or, if needed, their immediate use may not be known. Drawing on Jan Assmann's work, I have argued elsewhere that historical materials do not have a memory of their own but can trigger our memory when an interaction takes place between a remembering mind and a reminding object [11] (p. 15). Actively circulated memory—or active memorialisation—often moves such passive memorialisation from a state of dormancy, inactivity, and even sterility to one in which it often acts as base material in the process of keeping the past alive through iterative re-reading and reinterpretation [11,61]. In this section, I discuss what this conceptualisation might mean for the preservation and 'metaversal memorialisation' of political education as an integral part of the liberation struggle led by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde. The choice to focus on political education is informed by the great importance that Amílcar Cabral attached to it in relation to advancing the fight against colonial domination. To Cabral, political education 'served as the fundamental basis that underpins the work of emancipation of every human being and the conscientisation of mankind' [52] (p. 5). In this capacity, political education was a vital driving force of the PAIGC liberation struggle as a major critical intervention in the radical left cultural tradition.

The 'metaversal memorialisation' of PAIGC's learning curricular as presented throughout this section would greatly enhance how *FA*'s diverse range of global users could engage and interact with those learning programmes. From young people, students, and teachers to diverse community organisations to media outlets, filmmakers, and activists to historians, artists, and researchers to potentially countless new audiences to even surviving victims of the Guinean liberation war, these constituencies could be supported by *FA*'s immersive Metaverse offerings to interact effectively and meaningfully with Guinean and Cape Verdean liberation movement heritage. As we are going to see below, one way to do this would be to help connect micro community and regional stories to macro national and international narratives of colonial struggle. Doing so would provide the named constituencies with vital knowledge of the Guinean and Cape Verdean liberation struggle and its productive ties with allied and progressive actors at international level. This, in turn, could helpfully inform and strengthen the current strategies for the struggle for social justice undertaken by some of the specified constituencies. That knowledge could also act as a corrective to the one-sided hegemonic narratives of colonial domination and

rule which (1) discredit and/or suppress alternative (hi)stories, (2) question the validity of those (hi)stories, and in some instances, (3) outright deny their existence. Corrective action could involve bringing to life the (hi)stories of individual and collective acts of resistance (small and big alike) to colonial domination and oppression in novel interactive and immersive ways.

Furthermore, using the said knowledge as corrective action could help shine a light on the lived experiences and realities of colonised people in ways that humanise those people and proactively militate against a potential reoccurrence of the kinds of brutal and savage acts that characterised European colonialism in Africa. All this would be of some value to diverse publics, entities, social formations, and organisations that engage with heritage work more broadly—regardless of whether or not they subscribe to leftist values and social justice orientations.

7.1. Visioning 3-D Renderings Animating the Learning Context and Experience in the Jungles

We have seen that *FA* has created a strand on political education within the subcollection documenting the iconic liberation struggle led by Amílcar Cabral and PAIGC in Guinea-Bissau and Cape Verde. In doing so, *FA* has preserved associated artefacts, experiences, events, knowledges, practices, and traces that have passed but may or may not be operative in the present. Despite the financial, organisational, practical, structural, and technological challenges to preservation discussed under Section 4, *FA* has bucked the trend by digitising the materials on political education that have been expressed in written, performative, filmic, and oral forms. Crucially, those materials are now available in *FA*'s freely accessible digital archive as passively stored memory waiting to be called upon when needed. We have also seen that many more materials are awaiting digitisation meaning they are currently unavailable to users. Viewed in a broader perspective—and in the context of the structural challenges to preservation discussed, this appears to allow for long-term conservation, albeit in an inanimate and static state. The position of this article is that *FA*'s materials on PAIGC's political education programme could be brought to life and potentially memorialised much more effectively in two interrelated ways. First, *FA* could start by utilising the existing Metaverse-type environments discussed earlier to animate PAIGC's learning programmes and related rich context. Second, *FA* could then build on those environments or 'Metaverse Moments'—to use the term coined by Cathy Hackl as presented under Section 6.2 [120]—to scale up the level of animation and vitality in the fully developed Metaverse.

Similar to emerging, innovative leftist cultural projects such as *Direct Action Everywhere* (DxE)—the global network of animal rights activists introduced in Figure 1 [46] (n.p), *FA* could add AR to its repertoire of critical interventionist tools. Drawing on current applications of AR in a wide range of Metaverse-type environments in business, enterprise, entertainment, and manufacturing realms [100,112,113,121,125], *FA* could superimpose relevant digital information on the static artefacts relating to PAIGC's political education programme between the early 1960s and early 1970s. That superimposition could be presented in three-dimensional formats. For instance, images of civilians (children and adults alike) and PAIGC combatants attending learning classes in makeshift school structures built with leaves and tree leaves and sheltered from the elements by dense, grass-thatched rooftops could be overlaid with the following information to speed up users' ability to absorb and act on it. Those structures were built deep in the forests of the areas liberated by PAIGC's guerilla warfare and were intended to remain hidden from the military aircraft operated by the Portuguese colonial administration. Here, the geography of Guinea-Bissau offered a critical, strategic, military advantage to PAIGC while presenting an extremely hostile and unfavourable ecology for colonial Portuguese forces to navigate. More importantly, this circumstance gave PAIGC valuable time and space in the jungles and elsewhere to deploy political education to (1) generate knowledge foregrounding the subjugated lived experiences and realities of ordinary Guineans at the hands of Portuguese colonialism, (2) mobilise support for colonial resistance at every level of society, (3) cultivate loyalty,

boost morale, and maintain momentum over a period of 11 years (1963–1974), (4) diffuse learning from colonial struggles elsewhere in relation to what worked and what did not work, and (5) shape broader imagination and thinking around what defeating colonial rule and establishing an independent national state could look like.

Currently, the 2-D images in *FA*'s subcollection on their own neither capture this useful context nor tell this distinctive story. But the use of AR could further accessibly convey the significance and power of education to fulfil the broader goals of the liberation struggle. The political education programme (1) built schools and learning centres for youth, adults, and combatants not only in the dense forests of the liberated regions in Guinea-Bissau, but also in neighbouring, newly independent states such as Senegal which provided safe havens, and (2) established and maintained international networks for educational support [51,52]. The programme was 'decolonised' by dispensing with what was perceived to be biased, hierarchical, and oppressive Portuguese education which was replaced by anti-colonial and African-centred learning. Instruction was in the Portuguese language which was used predominantly in formal settings. Although this may seem counterintuitive at first, it can be viewed as a shrewd move that considered the different ethnic backgrounds and associated cultural and linguistic differences that characterise Guinea-Bissau and Cape Verde [135,136]. In designing 'decolonised' learning programmes that (1) centred on crafting responses to colonial oppression and suffering, and (2) were delivered in places where civilian populations lived and worked, Amílcar Cabral and PAIGC acknowledged the vitally important role political education played in facilitating a much wider, collective reimagining of a new and different future.

To this end, key resistance events became entrenched in learning programmes as vivid reminders of unrelenting dehumanisation, exploitation, and subjugation at their very worst. Cases in point included two landmark labour disputes that led to the Batepá massacre in 1953 in neighbouring São Tomé and Príncipe [137] and the Pidgiguiti massacre in 1959 in Guinea-Bissau. More on the latter follows under Section 7.2 below. The ferocious reprisals by the Portuguese colonial regime that followed only exacerbated the growing anti-colonial sentiment. European socialist ideas and other concepts of self-criticism and revolutionary democracy among others were taught and adapted to the lived experiences of people in Guinea-Bissau and Cape Verde, thereby informing both small and big acts of resistance as critical interventions. For example, the Brazilian social historian—Priscilla Marques Campos—illustrates PAIGC's self-critical nature by pointing to the regularity with which Amílcar Cabral and his compatriots openly debated and discussed their evolving political plans, evaluated their military successes and failures in ways that were easy to understand for civilians, assessed the impact of their work in building foreign relations and maintaining a supportive network of international allies in candid fashion, and invited broad perspectives to contribute to the development of a participatory governance model on which Guinean and Cape Verdean territories were governed [138].

FA's AR-powered 3-D portrayals could also offer further digital information conveying how the political education programme was strongly supported by international allies. Countries such as the Soviet Union, the United States, Czechoslovakia, the German Democratic Republic, China, Cuba, and Sweden supported PAIGC's political education programme in various ways—in addition to providing military, technical, and financial aid. Learning materials were printed abroad, selected teachers and learners were offered scholarships to study and train overseas, and Guineans exiled in the countries of international allies provided valuable intelligence that informed school curricula and learning programmes in relation to key geopolitical developments during the volatile Cold War era. Those curricula and programmes also prominently featured the grassroots infrastructure that formed the foundation of PAIGC's healthcare and political participation projects which, in turn, were strongly supported by allied international states and non-governmental organisations. Here, the interplay of political education, basic healthcare, and the right to participate in political events in the liberated territories (including voting in elections) acted as agents of change that cultivated in learners a strong sense of belonging, loyalty, and a

willingness to sacrifice their existence and lives for the common cause of liberation and potential full, national independence in the future.

Further vital, contextual, and experiential information in digital format could allow *FA* users to process und understand 3-D content easily and effectively. That 3-D content could relay how by the late 1960s and early 1970s, 20,000 children had enrolled in 200 primary schools or thereabouts and had been taught by a staff force of around 270 teachers. Widely viewed as effective, pioneering, and hugely successful, PAIGC's political education programme saw a further 495 people either enrolled in high school and/or studying abroad in universities in allied countries [138] (pp. 163–164). By contrast, the picture looked starkly different during the peak of Portuguese colonial rule in the early-to-mid 1950s. According to Amílcar Cabral [52] (p. 9), there were (1) only 45 schools—all of which were Catholic missionary schools that reinforced colonial domination and hegemony by default, (2) 11 formal schools for the children of local elites serving in the Portuguese colonial government, (3) no secondary schools in Guinea-Bissau until 1959, and (4) just only 2000 children across the country with access to any education. To Cabral, this state of affairs was 'a deliberate decision to prevent the development of [Guineans and Cape Verdeans]' [52] (p. 9). Through learning in makeshift school structures deep in the jungles and elsewhere, political education became a crucial means to combat widespread illiteracy and to reclaim the power to develop and progress the Guinean and Cape Verdean liberated territories on their own terms. Portraying this critical information in 3-D renderings would not only place this distinctive past in context for diverse publics and users of *FA*'s archival materials, but also reduce the mental effort of those publics and users of processing, understanding, and applying that historical information quickly in the present.

The understanding here is that this 'eliminates dependence on out-of-context and hard-to-process 2-D information on pages and screens while greatly improving our ability to understand and apply information in the real world' [108] (p. 49). One such application could be embedding that information and learning in current struggles for social justice—as and when might be appropriate. This is akin to how the 'living archive' has been conceptualised—a term that I return to shortly in the ensuing paragraph. Driven by edge computing that will power processing and storage across smart devices and local networks to prevent latency in the Metaverse, *FA*'s 3-D renderings would bring to life PAIGC's political education programme in two main ways. First, by making the programme dynamic through provision of appealing and effective contextualisation which, in turn, would facilitate easier absorption and understanding. Second—and following on from the first point—easier understanding would open up the materials documenting the programme for interaction and engagement by *FA*'s users and other diverse constituencies in different ways for different purposes on an ongoing basis. I return to this point below under Section 7.3. This dynamic state is reminiscent of what has been termed the 'living archive' whereby historical artefacts and narratives are documented and preserved in ways that allow for contemporary, multi-vocal sentiment to be presented alongside historical resources in creative, inclusive, and meaningful fashion outside the purview of dominant hierarchies [60,139]. As noted earlier under Section 6.2, inclusiveness in the widest sense of the word would be critical to ensuring that the design, construction, and presentation of information seriously address issues surrounding inaccessibility, bias, and discrimination by catering to the (dis)abilities, neurodiverse conditions, and needs of all Metaverse users. If this happened—and did so at scale, all users would benefit from the efficacy of actively circulated memory that I introduced earlier—drawing on Aleida Assmann's seminal work. It is to this process of active memorialisation—and how *FA* could operationalise it in Metaverse-type environments and the fully developed Metaverse to further decolonise as well as bear witness and give voice to lesser-known but important experiences and lived realities of colonial violence—that the discussion now turns.

7.2. The 'Canonisation' and Memorialisation of Guinean Dark Heritage in Sensory-Rich, Immersive Environments

We have seen that active memorialisation involves selecting as well as giving meaning and value to resources from the past in a way that brings them to life in the present. In this scenario, those resources act as base material for the 'canon' in a process termed 'canonisation' that we looked at in the discussion under Section 4. Over and above creating 3-D renderings that (1) overlay images relating to PAIGC's political education programme with contextual digital information, and (2) enable easier understanding of, and engagement with, PAIGC's learning curricula, *FA* could use the renderings as base material for active memorialisation in novel ways in a fully developed, interoperable, open, and widely accessible Metaverse. Porter and Heppelmann, for instance, argue that 'combining AR and VR will allow users to transcend distance (by simulating faraway locations), transcend time (by reproducing historical contexts or simulating possible future situations), and transcend scale (by allowing users to engage with environments that are either too small or too big to experience directly)' [108] (p. 52). One such environment that is both 'too big to experience directly' and dangerous as well is the Pidgiguiti massacre introduced above. This event was at the centre of PAIGC's learning programmes because of the way it effectively anchored everyday life occurrences in political education. Combining AR and VR to generate MR, *FA* could simulate an immersive, 3-D environment in which users across the globe would be able to interact with the event and other users in a shared space in the same way that BMW automobile workers dispersed across the globe currently interact with life-size holograms in real-time as discussed under Section 6.2. The simulation would offer the experience of what it felt like for the colonised people of Guinea-Bissau and Cape Verde to endure oppressive colonial rule.

To begin with, users would be immersed in the vital context that lays out the day-to-day subjugation methods formalised by colonial decrees and heavily critiqued by PAIGC's learning programmes. Similar to other European colonialists elsewhere in Africa during colonial rule, the Portuguese colonial administration instituted racial discrimination against Africans by conferring alleged inferior social status on them and subjecting them to processes of perceived civilisation. Part of this involved obliging Africans to supply forced labour for public and private purposes that served the colonial economy and the interests and needs of the colonisers [137,140]. Typically, forced labour was mercilessly exploited in the erection of public infrastructure to support the administration of colonial business, the building of transport routes to facilitate trade, the upkeep of agricultural work to support food provision, and the execution of domestic work for colonialists' households. Because this system was clearly designed to serve the interests of the colonial economy at the expense of the benefit and wellbeing of ordinary Africans, a litany of grievances continually grew to the point that open resentment—though extremely risky—gradually festered. Often, the triad of poor working conditions, low wages, and perceived unfair taxes were the cause of anger and discontent. In Guinea-Bissau, this state of affairs culminated in a labour strike on 3 August 1959 during which seafarers and workers at the docks of Pidgiguiti—situated at the Port of Bissau which is the chief port of the country—demanded improvements. It is worth noting that this particular industrial action represented the general anti-colonial sentiment towards, and disillusionment with, the Portuguese colonial regime at the time.

The response from the Portuguese colonial administration was immediate, brutal, and ferocious. Alongside reproducing this context for users in the Metaverse, *FA* could further submerge those users into how the violent reprisal unfolded that day—killing about 50 people and severely injuring around 100 others. Survivors were arrested and tortured [136,141,142]. In the aftermath, the anger and shock not only reverberated throughout Guinea-Bissau, Cape Verde, and the entire region, but also across the whole of Africa. There is a consensus that this event marked the turning point in the history of resistance to Portuguese colonial oppression. From then on, PAIGC's mobilisation campaigns, and later political education, consistently instrumentalised the event for the aims of the liberation

movement throughout. For *FA*, immersing users into this event would serve not only to facilitate remembrance, but also to illustrate defiance of discrimination, exploitation, oppression, and subjugation in the radical left tradition [2,3,142]. *FA* could further simulate for publics and users the horrendous and precarious conditions under which Guineans and Cape Verdeans lived and worked—prior to the event itself. In what became one of PAIGC's overarching doctrines taught in all learning programmes across the liberated territories, the dead, the wounded, and the tortured at the Pidgiguiti docks were seen to have sacrificed their lives so that their families, local communities, and fellow Guineans and Cape Verdeans could accrue key material benefits that were widely considered to be deserved. Such benefits included securing fair working conditions and pay, living better, dignified, and peaceful lives, and having a say in carving out a secure existence for themselves and a future for their territories.

Here, I appropriate Crawshaw and Jackson's [34] overarching argument to contend that immersing users in an MR-driven 3-D environment of the Pidgiguiti event—particularly as it was conveyed to learners in PAIGC's learning programmes—would actively, effectively, and meaningfully memorialise the numerous victims of Portuguese colonial violence. That memorialisation would also extend to what those victims stood for and championed—including their audacity and selflessness in sacrificing their own lives for what they strongly believed to be for the greater good. In their different ways, the victims individually and collectively undertook a combination of small and big acts of resistance that constituted vital critical interventions as discussed under Section 3.2. In doing so, the victims exhibited a sense of their own humanity against the Portuguese colonial government that denied it. More importantly, by undertaking industrial action which was known to be a risky move at the time—the victims signalled that changes to their cultural, economic, political, and social circumstances (1) could be achieved if they believed long enough, (2) were worth taking risks for even if the outcome may have been far from certain, and (3) replicate the audacious efforts of those who dared to take risks (small or big) in the past so that the victims themselves and future generations of Guineans, Cape Verdeans, neighbouring states, and the African continent as a whole could fare better.

By providing immersive, real-time experiences of, and first-hand perspectives on, what the brutalisation of, and violence against, the Pidgiguiti victims must have felt like, *FA* would evoke empathy in light of the dehumanisation that victims were subjected to—in precisely the same way that Amílcar Cabral and the PAIGC learning programmes elicited compassion and a call to action from learners. From the perspective of 'strategic witnessing' discussed under Section 5, I make use of Sarah Ristovska's helpful ideas to stress that the heinous acts of violence mentioned above are a further reminder of (1) what it means to be human and the rights that protect people (human rights), and (2) how the violation of those rights obliges us to take necessary action [59] (p. 1039). To ensure efficacy through generating a truly strong sense of immersion and presence in the Pidgiguiti event, *FA* could proceed as follows. It could lower language barriers in communication and interaction by deploying real-time speech translators to 'provide Metaverse users with instant, AI-powered translation of widely spoken languages' [125] (p. 16). This would be particularly helpful considering that today—just as was the case back in 1959—regional languages and dialects in Guinea-Bissau and Cape Verde are typically spoken in everyday life contexts while Portuguese is used primarily in official circles. Many of the 'new building blocks' of the Metaverse described under Section 6.1 would facilitate the production of rich simulations through multiple sensory stimuli, namely (1) vision, (2) hearing, (3) touch, (4) smell, and (5) taste. It is worth noting that at the time of writing, I am unaware of any technologies under development to enable stimulating the sense of taste in the Metaverse. But with the fast pace of technological advances, it is reasonable to assume that it may be only a matter of time until such technologies emerge.

The rest of the senses, however, have been, and continue to be, effectively theorised [88,91,96,98,101,108–111,113–115,117,118,121,125,143,144]. The sense of vision in the Metaverse will enhance immersion through stereoscopy—understood as the enhancement

of the depth of visuals, including whether vision is rendered panoramic or narrow. Users will have either a first-person view or a third-person one. One might argue that if *FA*'s reproduction of the Pidgiguiti event in this environment offered users a first-person view, this would help those users to (1) see, experience, process, and understand how the events of 3 August 1959 unfolded in real-time, and (2) potentially apply that understanding to circumstances in the present. The simulation would lay bare (1) the grievances aired by the seafarers and dock workers concerning the unfavourable working conditions and low pay they were subjected to, (2) the indifference and disregard with which workers' grievances were met by the Portuguese colonial administration, (3) the resolve shown by the workers in disrupting operations at the Port of Bissau in an effort to effect systemic change, and (4) the brutalisation and killing that met workers during the course of industrial action. For users, being submerged in scenes of violence and death would not only embody an act of witnessing, but also provoke an emotional response as a result of the interaction with what is being witnessed.

Admittedly—and as indicated in the description of dark heritage earlier under Section 3.2 (see also endnote 5 below)—people deal with, and respond to, dark heritage in different ways, meaning the simulation of the cruelty and inhumanity that characterised the Pidgiguiti event may not be something that some people might understandably want to take part in or interact with at all. For *FA* users and others who choose to participate, however, I have argued elsewhere that 'when this interaction takes place either on the terms of an individual or those of a community or even region, this not only helps to animate memory meaningfully, but it manifests and consolidates both a personal and collective sense of identity' [11] (p. 15). That 'sense of identity' can manifest itself in various ways that are reminiscent of the ethos of leftist cultural traditions as discussed under Section 3: (1) standing up for what people perceive to be the right thing; (2) following a call to action to help effect change broadly considered; and (3) cultivating a deep emotional engagement with the history of a place—including remembering narratives of sacrifice and loss as well as the protagonists therein. Indeed, observations in existing Metaverse-type environments have shown that this experience would not only help connect users to one another in the fully developed Metaverse, but also to 'the pain and suffering of [others in a way that] is difficult to describe in words [but effectively elicits real emotions]' [57] (p. 72). I argue further that metaversal interaction with '[t]he painful and problematic aspects [of the Pidgiguiti event would not only appeal to those whose immediate families suffered devastating loss, but also *FA* users and other constituencies who] wish to reconcile emotionally with [the event perhaps as descendants of Portuguese colonialists or those that merely have] a general fascination with the macabre that [was perpetrated by European colonialism on the African continent but continues to be hidden and/or silenced in hegemonic historical records]' [56] (p. 164).

Immersion in the Pidgiguiti event points to how vision (and/or witnessing) plays a critical role in connecting dark heritage with social justice following the conventions of radical left culture and heritage. From an auditory perspective, Metaverse users will be able not only to hear background sound—including their own self-made sound and that of other users, but also pinpoint where that sound is originating. For instance, *FA* could simulate the sounds that would have been emitted when workers (1) disrupted operations, (2) barricaded themselves in the port facilities following realisation that colonial armed forces were preparing an assault, and (3) were attacked, killed, arrested, and tortured. The sense of touch in the Metaverse will enhance the feeling of presence through haptic feedback—a form of technology that generates motions, sensations, and vibrations to simulate tactile experiences. At present, smartphones and video game controllers are typically used to generate haptic feedback, but a range of other peripheral devices—including haptic sneakers, gloves, and vests—are increasingly being designed to do the same. Users submerged in the Pidgiguiti massacre could use any of these items to experience what it would have felt like to be treated in a savage and violent way. Under Section 6.1, I discussed how the deployment of brain-computer/machine interfaces and associated stimulations will

allow users to smell in the Metaverse. The scent of gunpowder—coupled with the odour of human blood spatter and other bodily matter as well as burnt flesh emitted from the bodies of the Pidgiguiti victims—would give *FA*'s Metaverse users a real sense of what the carnage smelt like that day at the docks. To add to these sensory stimuli, users will be represented and readily identifiable by avatars whose gestures and movements will relay users' real-time bodily actions—including emotions and sensations.

To be able to achieve all of the above, it is going to be extremely important that the design and construction of the new media technologies powering the described sensory stimuli are not controlled by the exploitative and profit-oriented motivations of, and 'practices of systemic colonisation' [129] (p. 13) by, hegemons. Likewise, the current astronomical levels of dataveillance and the absurdly unfair distribution of the monetary benefits accrued from that exercise [130] (p. 177) will need to be addressed with a sense of urgency as would issues on and around safety and security. As discussed under Section 6.2, doing so would ensure that the development and use of the Metaverse as a fair, open, and interoperable environment would materialise for much wider benefit. If unfettered by hegemonic control—and informed by the equality, diversity, and inclusion agenda that is increasingly gaining traction in national and international policymaking circles as well as within the technology industries themselves [145,146], there are grounds to believe that genuine inclusiveness in the design and construction of the multi-sensory technologies discussed above would go a long way to reduce the prevalent bias, discrimination, and inequalities inherent in technological applications and infrastructures more generally. In this scenario, the experience resulting from the interplay of the emotions and sensations mentioned earlier would be best captured by the ideas of B. Joseph Pine II and James H. Gilmore developed in their classic work on and around what they termed the 'experience economy'. The authors argue that experiences—such as those triggered by the sensory stimuli described above—are imbued with rich sensations which 'actually occur within any individual who has been engaged on an emotional, physical, intellectual, or even spiritual level' [147] (p. 12). *FA* Metaverse users would experience those 'rich sensations' without having to navigate and live through risky and extremely dangerous, physical environments [97,108,112,148] as the Pidgiguiti massacre was in real life.

In doing so, *FA* would innovatively advance its advocacy for social justice and memorialisation work through vision, sound, touch, and smell in the Metaverse—in a similar fashion to how Amílcar Cabral and the PAIGC learning programmes championed justice and liberation, albeit through physical small and big acts of resistance, including guerilla warfare. By proceeding this way, *FA* would submerge diverse publics and users in realistic, sensory-rich environments that would render the past come alive in the present much more effectively than has hitherto been the case. To Sanat Rao, because this 'experience is inseparable from the human being who is going through it', it employs a combination of 'empathy, engagement, personalisation and "immersive-ness"' that generates knowledge about events with much greater efficacy [126] (n.p). This, I contend, is reminiscent of the key work by Diana Taylor, Paul Connerton, and John Urry that explores the ways in which knowledge of the past is conveyed and sustained through ritualistic performances—including bodily activity which involves sensory stimuli [49,63,65]. Following this logic, sensory stimuli facilitate 'what is passed on' and that transmission occurs only as a result of co-location [65] (p. 49). In what follows, the discussion engages with how *FA* could empower users and diverse constituencies to contribute to processes of remembrance, memory transmission, and knowledge production on their own terms through immersive experiences. There are key lessons here for heritage work more generally.

7.3. 'Active Agents', Memorialisation Processes, and Knowledge Production in Immersive Spaces

Drawing on Alan Radley's work revolving around the triad of artefacts, memory, and the past, John Urry has argued that 'the sensory richness of relationships people enjoy through [memorialisation on their own terms often triggers memories] in forms which are unpredictable and disruptive' [65] (p. 50). Where forms of institutional commemoration

control, discriminate against, silence, and seek to erase alternative memories by turning history into heritage that is 'safe, sterile, and shorn of danger, subversion, and seduction' [65] (p. 52), radical left cultural traditions and progressive publics and users have taken a multi-vocal and 'strategic witnessing' approach to telling different narratives—taking their own memories as a point of departure. In the context of PAIGC's struggle against Portuguese colonial rule, Amílcar Cabral and his comrades designed their political education programme with a view to correcting a three-fold, key imbalance. First, collective Guinean and Cape Verdean experiences and memories of the liberation struggle were relegated to the margins by dominant public narratives and representations of the conflict crafted by the Portuguese colonial regime. Second, these Eurocentric discourses generally rendered colonial violence and forms of African colonial resistance invisible. Third, although PAIGC had worked very hard to embed as many marginalised and subordinated lived accounts of civilians as possible in liberation movement discourses, the reality was that the experiences, (hi)stories, and memories of the people in PAIGC's hierarchy and leadership circles invariably took centre stage. My review of PAIGC's learning curricular showed that no notable ground appears to have been made up on this last point.

Using 3-D immersive environments supported by blockchain technologies and Web3, *FA* could contribute to filling this gap in PAIGC's learning curricular in a way that adds great value. *FA* could facilitate agency by inviting numerous voices and perspectives of ordinary Guineans and Cape Verdeans to counter Eurocentric accounts by foregrounding lived realities as they were experienced by civilians during the liberation struggle. This would be reminiscent of the concept of the 'living archive' which reflects the animation and enrichment of the past in inclusive ways. The 'living archive' has been framed in terms of (1) taking ownership of cultural and historical discourses and resources in which ordinary people and marginalised communities are represented, (2) combining those discourses and resources with the media of ordinary people and subjugated populations (e.g., film, photographs, and other ephemera), and (3) utilising that media to give voice to ordinary and marginalised (hi)stories and perspectives, and (4) contributing actively to memorialising shared 'subaltern' pasts and identities—outside the purview of dominant hierarchies [11,36,38,42,45,60,70,71,76,139,140]. What John Urry has observed about the ways in which progressive individuals and entities take ownership of personal and communal memorialisation practices informed by artefacts placed in simulated environments at physical heritage sites, I say the same for immersive experiences in the Metaverse that would be simulated by *FA* for, and with, diverse constituencies in a spirit of co-creation:

> [Memorialisation] can be personal (what one might have done, if only . . .) or focused around the neighbourhood or locality where one was born or grew up; or focused on a broader collective interest, such as class, gender, generation, [and] ethnic grouping. Seeing certain scenes or artefacts functions to reawaken repressed desires and thereby to connect past and present. It is also to remember how some collective dreams have failed or have faded from memory—while others have at least been partly realised . . . To reminisce is to open up possibilities of what might have been, of how events or relationships or careers, could have turned out differently [as well as what they might tell us about what could happen in the future] [65] (p. 55).

An illustrative example of a personal and family memory that is symptomatic of the severe suffering and loss that many Guineans experienced during the liberation struggle concerns a man named Martinho Mendes and his family. The story is helpfully told by Bruno Sena Martins [140] (pp. 199–201). Like countless other personal and family memories, Mendes' story has not only been rarely shared outside his family, but is also not represented in Guinean public memory, let alone national Portuguese colonial history. The Mendes family was displaced by the colonial war in 1967 and forced to flee deep into the forest like thousands of other Guinean families. On a morning in 1969, the family—which consisted of Martinho's father, stepmother, two brothers, and two sisters—was under its 'straw-roofed' dwelling when Portuguese military aircraft suddenly attacked. Martinho was shot in the

leg. His father and one of his brothers were also shot. Both died instantly. Martinho was rescued by PAIGC guerillas and taken to the closest barracks for first-aid treatment—before being taken on a covert and long journey to a PAIGC base in neighbouring Senegal. On arrival after a fortnight of night travel only, his leg was amputated. He was only 9 years old at the time. Not only had Martinho witnessed violence against members of his family at such a young age, but he also had to cope with the trauma of his own devastating disability and associated pain in its emotional, mental, and physical forms. Many civilians must have found themselves in a similar position during the eleven-year revolutionary war. Following recovery, Martinho was sent by PAIGC to study in Cuba in 1972 where he remained for 15 years. He returned to Guinea-Bissau in 1987, was given a position in the civil service, and founded the Guinea-Bissau Association of Disabled Veterans of the National Liberation Struggle in 1996. Here, the story of the Mendes family is told, but countless others—including those of other children and young people, women, the disabled, and the elderly—have never been told. Not only is there a possibility those stories may never be told, but the protagonists in them may never be remembered beyond the memories of their immediate families. *FA* could change this in the Metaverse.

As described under Section 6.1, *FA* could employ blockchain technologies to (1) champion consensus and greater user agency in relation to recordkeeping, (2) eliminate the risk of collusion, and (3) authentically record peoples' experiences, transactions, and interactions outside the confines, control, and direction of any authority [130] (pp. 179–180). In doing so, *FA* would circumvent the 'problems associated with trust, fragility and resourcing' [130] (p. 182). Some of those problems stem from the fact that the successive Portuguese governments—just like those of all former European colonial powers—have sought to suppress and silence discourses on the inglorious acts of violence perpetrated against colonised people in their name, thereby engaging in a politics of denial and silence [32,57,138,140]. Blockchain technologies would 'present a low barrier to entry for [*FA*, other leftist cultural projects, and] many types of communities, requiring little human capital for maintenance and no centralised infrastructure' [130] (p. 185). If the fully developed Metaverse develops this way, this would provide *FA* with an affordable, sustainable, and viable solution to facilitate the memorialisation of personal and family (hi)stories in ways that empower the people represented in, and involved with, them. Here, Web3 would complement blockchain technologies well. 'Tekkon'—the Web3 platform deployed by the Whole Earth Foundation (WEF) that we saw earlier in Section 6—has shown how this could work. WEF uses 'Tekkon' to make and keep records of infrastructure maintenance in the context of participatory and/or decentralised governance for purposes of accountability, transparency, and sustainability. 'Tekkon' does this by offering an intuitive, low-cost, and sustainable solution to addressing the kinds of infrastructural and resourcing issues discussed under Sections 4 and 5 that plague *FA* and other leftist projects.

But as discussed in Section 6.2, the environmental footprint of the Metaverse 'building blocks' when working together at scale is predicted to be monumental—if environmental sustainability efforts are not considerably stepped up to accelerate the transition to clean and/or renewable energy to try and offer some kind of counterbalance. In this fast-paced environment, there are currently two mitigating factors that offer grounds for some hope. First—and as discussed under Section 6.2 (see also endnote 13 below)—concrete actions aligned with net zero agendas and associated decarbonisation measures championed by the United Nations Sustainable Development Goals (UN SDGs) are being instituted around the world. At the centre of this critical transformation, commentators have claimed, '[t]he application of blockchain holds many positive opportunities for clean energy and [for] addressing climate change' [149] (p. 18). And although the resource-intensive nature of blockchain technologies remains a major cause for concern at the time of writing, the fast pace of technological innovation is claimed to be generating potentially viable solutions to this problem. For instance, '[t[o reduce the energy consumption in blockchain transactions, "green mining"[14] is among the solutions [being developed] since it builds on the use of renewable energy sources in mining operations; meanwhile, mining hardware developers

are developing more energy efficient equipment' [149] (p. 17). Second—and following on from the first factor (see also endnote 12 below)—prominent industry and scholarly accounts claim further that the Metaverse could very well be powered by wholly new immersive technologies that will be iteratively developed and improved as new media technologies mature [100,101,117,126]. Based on some of the evidence observed in existing Metaverse-type environments, it is reasonable to speculate that those novel immersive technologies could utilise more energy efficient equipment in compliance with the UN SDGs and associative decarbonisation approaches.

If all this materialised, it would provide strong justification for the development and use of the Metaverse as an accessible, open, fair, interoperable, and highly immersive environment for a wide range of innovative human activity. For *FA* and other radical left cultural projects, applying blockchain technologies and Web3 in the Metaverse would help draw diverse publics and users into the processes of 'strategic witnessing' and 'radical recordkeeping' on and around memory work. For *FA* in particular, a two-fold, critical remit would be fulfilled. First, *FA* would considerably enhance its genuinely bottom-up approach to memory work by animating the experiences, memories, and work of civilians like Martinho Mendes whose existence and lived realities have either been undermined, outright dismissed, or denied altogether in public discourses by hegemons. Second—and working in close collaboration with diverse publics—*FA* would establish and maintain 'strong and defensible systems for making and keeping trustworthy records of the actions and decisions of powerful people and organisations' [130] (p. 177). This would enable *FA* to place user agency in preservation and memorialisation processes at the core of its immersive experiences, thereby bringing absent but vital (hi)stories and experiences to life in ways that 'help us to understand and appreciate [the lived realities of Guineans and Cape Verdeans during the liberation struggle]' [99] (n.p). This could extend to broader engagement with how the racialised legacies left behind by the Portuguese may or may not continue to be perpetrated in the present by the Guinean and Cape Verdean structures that assumed governance following the demise of the colonial administration.

In addition to simulating Martinho Mendes' story as told above in an immersive environment, *FA* could invite him to reminisce about how differently his life might have turned out—had his father and one of his brothers not been killed and had one of his legs not been shot at and eventually amputated while at a PAIGC hospital base in Senegal. Furthermore, it would be interesting to know whether the serious injury sustained on that fateful morning in 1969 reawakens Martinho's pain and suffering in a way that constantly connects his past to the present? Equally interesting would be to learn about how the bond between the Mendes family members might have evolved over time in Martinho's perception—had the family not been suddenly and horrifyingly separated by the terrible circumstances? *FA* could also invite other survivors to make records of (1) how they have coped with the impact of witnessing violence against their family members? (2) how their experiential knowledge may or may not tally with the portrayal of the liberation struggle in PAIGC's learning curricular? (3) what their views are on the failure to achieve the collective, national dream of merging Guinea-Bissau and Cape Verde to create a joint state in the aftermath of the liberation struggle? (4) what their perceptions are of the failure of Guinea-Bissau to become an exemplar of a new emerging state that many international allies firmly believed it was going to become in the 1970s? and (5) what they believe the future of Guineans and their country could have turned out to be under the governance of Amílcar Cabral—had he not been assassinated?

FA could ensure that these records would be made, kept, and interacted with in 'a uniquely social, immersive, temporal and emotive ludic space [that would engender] new possibilities for remembrance'—a space in which Guineans, Cape Verdeans, and other stakeholders would engage in 'sophisticated digital encounters that don't shy away from ambiguity in their examination and negotiation of the past' [144] (p. 55). Those stakeholders could be 'considered "active agents" in the process[es] of [memorialisation]', something that 'enables a new kind of experience or knowledge to emerge' [144] (p. 56). Elsewhere, I

have discussed how that knowledge can encompass (1) postulating non-hegemonic views, (2) proposing alternative understandings, and (3) making new records and related meanings in ways that challenge dominant versions of the past and associated grand narratives [11] (p. 18). Edward González-Tennant[15] substantiates this approach to knowledge production by arguing that there is a duty to relay marginalised (hi)stories and alternative narratives in ways that enable meaningful engagement and avoid the temptation of depoliticisation [57]. This, González-Tennant persuasively argues further, helps to 'speak to communal and generational concerns stretching beyond a location's immediate geography' [57] (p. 64). Here, I specifically think of the countless leftist cultural projects around the world that have committed their existence to bearing witness and giving voice to hidden, silenced, and undermined radical left pasts and traditions. I also think of individuals, entities, and organisations pursuing heritage work more generally. All these stakeholders—along with *FA*—would benefit from bringing the past to life in the present in innovative, novel, and immersive ways using the Metaverse. This article contends that the Metaverse as discussed throughout holds great promise to help achieve this but only if it is 'not regulated by gatekeepers and tradition [under the control and influence of hegemons], although certainly in dialogue with them' [57] (p. 86).

8. Conclusions

This article has discussed how leftist projects championing social justice have undertaken critical interventions that have countered dominant narratives and hegemonic practices. Projects have defied hegemons of different kinds by centring their interventions on the causes, interests, needs, and welfare of ordinary people and marginalised publics—sometimes with success, and at other times, less so. However, the preservation of radical left artefacts and traditions has not been straightforward—with institutional politics and infrastructural and resourcing issues presenting the greatest challenges. Where projects have preserved their collections on conventional new media platforms, the experience has been one where such platforms have proven to be 'a place for activism' in very much the same way that they have constituted 'a place for censorship of radical voices' [73] (p. 365). For Matthew Ball, those platforms 'have spent the past decade . . . stymying (if not outright blocking) [stakeholders] and even open standards which might threaten their hegemony', something that has meant that '[u]sers have little ownership of their online identity, data, or entitlements' [101] (p. 19). *FA*—the case study employed for analysis—has circumvented this by creating a freely accessible digital archive characterised by 'strategic witnessing' and 'radical recordkeeping'. In doing so, *FA* is (1) facilitating the recording, recovery, uncovering, re-integration, transmission of, and engagement with, critical leftist archival materials, and (2) supporting intergenerational knowledge production, learning, and sharing in a genuinely leftist tradition. This, though, could benefit from animation and vitality through more interactivity and immersive experiences to enhance deeper understandings of, and engagement with, archival resources.

The article has argued that *FA* could considerably enhance its preservation and memory work if it employed Metaverse-type environments and the fully developed Metaverse. The latter is currently under development and is being touted as an interoperable, open, and widely accessible space. The caveat, however, is that it is not known at this point in time what precisely the Metaverse will turn out to be—if it materialises. More importantly, there is a real danger that the catalogue of innumerable, major problems afflicting the mobile Internet could be carried over into the development and eventual use of the Metaverse: (1) inaccessibility, (2) dataveillance and related exploitation as well as the suppression of, and violent assault on, critical voices, (3) insecurity and safety issues, (4) concentration of control and power in the hands of a few dominant, global tech corporations, (5) resource-intensive architecture and infrastructure of the mobile Internet, and (6) bias and discrimination. Indeed, prominent commentators on the Metaverse have acknowledged this danger, but at the same time, also given optimistic accounts. For instance, Matthew Ball has provided reassurance to the effect that:

> it's essential that we—users, developers, consumers, and voters—understand that we have agency over our future and the ability to reset the status quo. Yes, the Metaverse can seem daunting and scary, but it also offers a chance to bring people closer together, to transform [areas of human creativity] that have long resisted disruption and that must evolve, and to build a more equal global [world] [101] (p. 19).

If *FA* deployed MR-powered 3-D immersive environments supported by a range of AI-driven technologies including blockchain, Web3, and edge computing in an environmentally friendly manner to preserve and memorialise PAIGC's learning curricular in the Metaverse, this would be truly transformative. To paraphrase Katherine Quinn's comments, while this would not solve all *FA*'s problems overnight, it would move *FA*'s memorialisation work significantly closer to reconstitution [86] (p. 75). The same would apply to the countless leftist cultural and heritage projects around the world as well as stakeholders within the wider heritage sector that would be inspired by the rich opportunities and possibilities that the Metaverse promises. From *FA*'s perspective, part of that reconstitution would involve (1) claiming the Metaverse as a 'space for radical change', (2) using the Metaverse as a conduit for the animation of, and engagement with PAIGC's pivotal learning curricular and other leftist pasts in empathic, both personal and collective, and immersive ways in the present, and (3) 'usher[ing] in and espous[ing] a future layered with new inscriptions of social justice' [75] (n.p). But as González-Tennant has aptly noted, '[o]nly time will tell if this optimistic viewpoint will produce transformative fruit or if mass standardisation will assert itself and crush individual [and communal] creativity and expression' [57] (p. 86) in the Metaverse.

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Notes

1 Radical left culture and heritage encompass areas of leftist activity that are extremely broad and complex in orientation. This is not surprising considering the distinctly multi-faceted nature of the numerous histories, traditions, beliefs, values, and trajectories commonly and variously associated with left-wing ideology, thinking, and critical praxis. Leftist actors and activity range from practitioners and artefacts that foreground absolutist worldviews (e.g., full animal liberation or the abolition of capitalism) to those that hold moderate perspectives on the opposite end of the spectrum (e.g., advocacy for smaller-scale, more humane animal farming or appropriating capitalism for the benefit of politicised social formations). There are also practitioners and activity that lie in-between the two extreme ends of the spectrum such as those innumerable ones who may be conflicted about specific issues at different junctures across different contexts. The in-between category also encompasses what I term 'everyday' or small acts of resistance that are explored in Section 3.2. Figure 1 features mostly leftists and associated traditions and practices that lie in-between absolutist and moderate categories of the spectrum. The case study taken for analysis focuses on what I call big acts of resistance. The focus here is placed on a national and regional liberation struggle that became a landmark event in the demise of European colonialism across the globe.

2 The countercultural era is understood as the period between the late 1950s through to the mid-to-late 1970s during which a range of cultural, economic, political, and social struggles across the world championed a reimagining of conditions of existence through transforming established hierarchies and formalities dominating societal relations. For a comprehensive treatment of some of these major struggles, see Jeremi Suri [13].

3 Ventriloquism—sometimes also referred to as ventriloquy—refers to the ability to speak without moving one's lips so that one's voice appears to be coming from someone or something else such as an animal. It is usually employed in theatrical settings for entertainment purposes.

4 For more information, please access https://www.thetimes.co.uk/article/sikh-warrior-maharaja-ranjit-singh-voted-the-greatest-leader-of-all-time-2v8b9f86c (accessed on 24 August 2020).

5 Scholars have argued that dark heritage has 'different meanings for different groups or communities depending, for instance, upon their role in the conflict, temporal distance from the events, and hierarchies of power' [55] (n.p). As such, people deal with, and respond to, dark heritage in different ways. From a touristic point of view, some people travel to sites of dark heritage (or engage extensively with pasts of such sites virtually) out of pure fascination with the acts of barbarity and savagery that are known to have been perpetrated there [56]. Others engage with dark heritage out of an urge to find out as much as possible about the extent of the pain and suffering that victims are known to have felt and endured [57]. Yet others are understandably put off by the sheer scale of human brutality and violence to the point that engagement is not an option at all.

6 Whilst this is largely true, recent developments and public discourses on and around the urgent need to address perceived dominant and singular accounts of the past across the globe are challenging state governments and public cultural institutions to rethink their interpretation of, and modes of engagement with, grand narratives and associated ideologies, practices, and symbols. No event has amplified this most effectively than the toppling of symbols of domination, exploitation, and oppression such as colonialism and slavery among others. To Rickford [74] (n.p), the event 'signifies not the abandonment of history, but rather the rejection of a narrative of modernity created by the heirs of global plunder'. Seen this way, the event is clearly breaking with old repressive traditions and reclaiming public spaces in ways that—according to Paul M. Farber [75] (n.p)—rid communities of colour from 'the trauma of the past'. See also https://www.politico.eu/article/why-we-topple-statues-bristol-edward-colston-antwerp-leopold-ii-black-lives-matter/ (accessed on 12 January 2021); https://www.reuters.com/article/us-minneapolis-police-protests-britain-s-idUSKBN23F2FD (accessed on 12 January 2021); and https://www.theguardian.com/uk-news/2021/jan/29/the-reckoning-the-toppling-of-monuments-to-slavery-in-the-uk (accessed on 30 January 2021).

7 Also of particular interest are prominent projects like 'Interference Archive' (https://interferencearchive.org/, accessed on 9 March 2022) and 'Documenting the Now' (https://www.docnow.io/, accessed on 14 April 2022) that critically and intellectually connect cultural production, activism, and radical ideology.

8 The term 'digital humanities' describes an academic field of study broadly concerned with the application of computational tools and methods to traditional humanities disciplines such as literature, history, music, and philosophy. Those tools and methods can be used to construct scholarly databases, automate data analysis, and render three-dimensional models [64,83,88]. Increasingly, however, it has incorporated other disciplines ranging from languages to engineering.

9 At the time of writing, industry expert opinion on mobile network technologies suggests that 6G will surpass 5G by around 2030—if current technological advances in this space keep pace. See, for example, https://www.euronews.com/next/2023/02/28/how-will-6g-change-the-world-this-is-what-experts-at-mobile-world-congress-think (accessed on 13 July 2023); https://www.chinadaily.com.cn/a/202308/07/WS64d02ad6a31035260b81a929.html (accessed on 13 July 2023); and https://www.sheffield.ac.uk/news/uks-first-national-6g-research-facility-be-opened-university-sheffield (accessed on 13 July 2023).

10 A digital twin is a digital representation of a physical object, person, or process that is used to simulate real situations and their outcomes to inform planning and decision-making [95,98,108,122].

11 In this context, a hologram refers to a three-dimensional image of an object.

12 In addition to the 'new building blocks' described under Section 6.1, a number of commentators have noted that the Metaverse could very well require a further wholly new set of technologies to run—technologies that have not yet been invented at this time [100,101,117,126]. This clearly points to an unknown risk in terms of (a) the uncertainty regarding whether or not those technologies would be realised—and if so, when that might happen, and (b) the inability to anticipate the challenges that those technologies might pose.

13 The understanding is that a set of actions and associated policies are being devised to help strike a balance between the greenhouse gases emitted to the atmosphere and the greenhouse gases that are being removed. See, for example, a recent UK Government declaration via https://www.gov.uk/government/speeches/adaptation-and-net-zero-beating-the-climate-emergency-and-building-a-better-world (accessed 27 September 2023). If this materialises, the 'building blocks' powering the Metaverse will need to be as resource-efficient as possible to be fit for purpose.

14 'Green mining' is a concept that describes low-energy, sustainable techniques that are being developed to extract metals from the ground. More information can be accessed via https://www.earth.ox.ac.uk/2021/06/green-mining-could-pave-the-way-to-net-zero/ (accessed 08 January 2024). Please see also [150].

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