


RESEARCH ARTICLE

# Technology overrule: pre-literate Akan orality and the musket

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## Abstract

The history of the human–technology relation points to binary (positive and negative) evaluations of technology’s role. One reason for this binary is the limited view of technology in terms of physical and tangible devices. Another is an extreme global view of the relationship, which neglects global diversity. However, technology includes non-physical devices such as speech. Moreover, people hold different intellectual, historical and philological assumptions as the bases for their rule over technology. This article emphasizes the importance of language and global diversity as crucial dimensions of the human–technology relation. It is through language that humans are able to rule over technology, rather than being dominated by it. Taking language as a focal point, I expose the neglect of pre-literate orality as a way of engaging with technology and I espouse an orality perspective on our rule over technology. This perspective foregrounds human mindfulness as a basis for oral engagement with technology. It is developed based on analysis of historical data on oral language use by pre-literate Akan people of Ghana to rule over the musket. The article characterizes technology overrule according to a four-stage process: image recognition, technology reduction, technology reposition and image reproduction.

## Résumé

L’histoire de la relation entre l’homme et la technologie pointe des évaluations (positives et négatives) binaires du rôle de la technologie. Une raison de ce binaire est la vue limitée de la technologie en termes de dispositifs physiques et tangibles. Une autre raison est une vue globale extrême de la relation, qui néglige la diversité globale. Cependant, la technologie inclut des dispositifs non physiques comme la parole. De plus, les gens basent leur domination de la technologie sur différents axiomes intellectuels, historiques et philologiques. Cet article souligne l’importance du langage et de la diversité globale en tant que dimensions cruciales de la relation entre l’homme et la technologie. C’est à travers le langage que l’homme domine la technologie, au lieu d’être dominé par elle. Prenant comme point central le langage, l’auteur expose l’inattention portée à l’oralité d’avant l’écriture comme moyen d’aborder la technologie, et soutient une perspective d’oralité sur notre domination de la technologie. Cette perspective met en avant la pleine conscience humaine comme base d’approche orale de la technologie. Elle repose sur l’analyse de données historiques sur l’utilisation du langage oral par le peuple akan d’avant l’écriture au Ghana

pour dominer le mousquet. L'article caractérise la domination de la technologie selon un processus en quatre étapes : reconnaissance de l'image, réduction de la technologie, repositionnement de la technologie et reproduction de l'image.

## Resumo

A história da relação entre o homem e a tecnologia aponta para avaliações binárias (positivas e negativas) do papel da tecnologia. Uma das razões para este binarismo é a visão limitada da tecnologia em termos de dispositivos físicos e tangíveis. Outra é uma visão global extrema da relação, que negligencia a diversidade global. No entanto, a tecnologia inclui dispositivos não físicos, como o discurso. Além disso, as pessoas têm diferentes pressupostos intelectuais, históricos e filológicos como base do seu domínio sobre a tecnologia. Este artigo sublinha a importância da linguagem e da diversidade global como dimensões cruciais da relação homem-tecnologia. É através da linguagem que os seres humanos são capazes de dominar a tecnologia, em vez de serem dominados por ela. Tomando a linguagem como ponto focal, exponho a negligência da oralidade pré-alfabetizada como forma de nos envolvermos com a tecnologia e defendo uma perspectiva de oralidade sobre o nosso domínio da tecnologia. Esta perspectiva coloca em primeiro plano a atenção humana como base para o envolvimento oral com a tecnologia. É desenvolvida com base na análise de dados históricos sobre a utilização da linguagem oral pelo povo Akan pré-alfabetizado do Gana para dominar o mosquete. O artigo caracteriza o domínio da tecnologia de acordo com um processo em quatro fases: reconhecimento da imagem, redução da tecnologia, reposicionamento da tecnologia e reprodução da imagem.

Kwasi Boakye was born in 1775 and lived in Kumasi throughout his life. He fought with his musket in the 1818 Asante–Gyaman war and returned home with joy because of Asante's victory and the preservation of his own life. The musket has brought him and Asante peace after the war. Back home, he uses it for hunting at weekends. But as part of his rejoicing, he brandishes it at the least excitement or provocation. His sister, Ama Serwaa, is not pleased about the frequent sight of it, and speaks a proverb to warn him: *'Etuo a yede kɔ ɔko ka dɔm guo no, yemfa nni apiripiriagor.'* (The musket that we go to war with to drive away many, we don't use for injurious games). Boakye hears this and decides to hide the musket in the corner of his bedroom. Although the musket is out of sight and touch most of the time, his mind still reflects on the sound of gunshot during the war and his hunting. He also thinks about the musket's function in terms of peace and food production. The more the musket is kept out of sight and touch, the more his thoughts connect peace and food production to its Twi name *etuo* in the proverb his sister spoke and in discourses with other people. Based on his thoughts, he speaks this proverb to also warn his fellow war veteran, Yaw Poku, who has also been rejoicing likewise. He speaks one more proverb about the gun to Poku to get him to think more about production (through the musket's sound and function) than about seeing and touching it: *'etuo di mfaso.'* (a musket earns a profit). After hearing Boakye's two proverbs, Poku thinks about them, connects his thoughts to food production, and tells Ama Serwaa to thank her brother for teaching him wisdom about profitable ways of using the musket.

In spite of the rich evidence of Akan orality and encounters with the musket in historical records, our understanding of how they ruled over technology is quite poor. To address this limitation, this article analyses how and why oral language is implicated in pre-literate Akan people's rule over the musket as a gun technology. The analysis is situated within the historical and linguistic contexts of the Akan people of Ghana, as well as the technological context of the musket, which they imported from European merchants and used during the eighteenth and nineteenth centuries (Arhin 1967; McCaskie 2008).

Akan society constitutes about 60 per cent of the population of modern Ghana. It was a purely oral society before European colonialization in the nineteenth century. Akan people comprise several groups, including Asante, Akyem, Akuapem, Fantse, Bono, Denkyira, Okwawu, Ahanta, Nzema, Aowin, Sehwi and Akwamu (Asante, Akyem and Fantse are the largest groups who speak the Twi language). They have existed as a society for more than five centuries, according to both oral and written history (Wilks 1993). They all originate from one source, and the differences between them are due to migration and contacts with other cultures. Their historicity, philology and philosophy constitute distinct and significant variables when analysing their rule over technology.

First, there are more historical data on pre-literate Akan orality and gun technology than on other people in sub-Saharan Africa. Akan people present better examples of orality-based indigenous confrontations with gun technology than other African peoples. These reasons are especially true of Asante, due to the 200-year history of its empire. According to Hart (1985: 257), for example, '[n]owhere in Africa – perhaps in the world – has a precolonial polity been more thoroughly researched than the kingdom of Asante, political center of Ghana's Akan peoples'. Pre-literate Akan orality offers interesting insights into technology overrule because Akan *historicity* is rich with philosophy, technology, antiquity, drama, heroism and creativity (Gyekye 1995). This richness has been expressed in written, technological and oral history. Asante history, for example, shows that they are notable preservers and promoters of Akan culture. Asante built a large kingdom with very highly developed cultural geography and organization until British imperialism and colonialism forcefully overpowered it in 1901. Still, many of the riches have been and are being preserved and promoted, even after subjugation by British colonialism and the modern Ghanaian state. Research and documents provide a great deal of evidence about the historicity and antiquity of Akan people, and this enables deep and original reflections. They are strong leads in analysing the links between orality and technology overrule.

Second, based on their pre-literate orality, Akan people have maintained and preserved many of their cultural expressions. One major form of expression is the Twi language, signifying that orality is central to their *philology* (Agyekum 2022). Indeed, many of their language-based cultural expressions have survived colonialism, imperialism, literacy and modernity. McCaskie, for instance, refers to Asante people's cherished orality, noting that:

[communicating] by speaking and listening – the edifice of orality – has a significance in the Asante structuring of reality that is so fundamental that its implications go to the heart of cultural practice. To this day Asante people, not

long familiar with the instrumental and other advantages of literacy, persist in the view that writing is somehow inauthentic, a form of communication that transgresses against norms and values. (McCaskie 2000: 236)

Third, Akan people have not only preserved orality in their language and other cultural expressions. This preservation is anchored in and arises from an 'African philosophical thought' (Gyekye 1995), which is a specific conceptual scheme and is expressed in their language, symbols, rituals, technology and institutions. Based on the premise that philosophy is a conceptual response to different human problems at different places and times, Akan people had and have a genuine and distinct *philosophy*:

[It was and still reflects an] African cultural and historical experience . . . the complex of ideas, beliefs, values, outlooks, habits, practices, and institutions that can justifiably be said to have been endogenously created *as well as* those that can be said to have been inherited or appropriated exogenously. (Gyekye 1995: xii–xiii, emphasis in the original)

This philosophy was and is expressed in numerous proverbs that reflect Akan people's distinct knowledge of God, being, causality, humanity, fate, free will, responsibility, morality, logic and social order. The richness of African philosophy renders as false any arguments that it did not exist in pure oral Akan culture just because it was unwritten; or, if it existed at all, then it was unidimensional and uncritical (Gyekye 1995).

On the whole, the orality perspective on technology overrule being proposed here is meant to complement extant theories of technology innovation, appropriation and application (e.g. Arthur 2009; Rosenberg 1994; Law 1962; Latour 2000; Likavčan and Scholz-Wäckerle 2018; Marx and Engels 1976). It proposes that a person rules over technology by thinking and speaking about it as means of generating and revealing new indigenous ideas of production.

### **Assumptions and methods**

This article does not assume that every person in oral Akan society was mindful of technology overrule. Nor does it mean that any person who ruled over technology did so every time and everywhere; nor that the Akan society as a collective unit or subgroup always exercised overrule; nor that every Akan person believed and practised the culture of its pure oral society; nor that oral Akan cultural practices could be found only among them and nowhere else. Yet, there is a reference to Akan as a collective and distinct entity. It is collective because people belonging to the same culture generally share cultural values and experiences. Thus, although there were different gender roles relating to inheritance and leadership among pre-literate Akan people, there was and still is a shared understanding of these roles among them. Likewise, age and class differences in roles and expectations did not and do not erase the sense of a shared Akan culture. Akan is also distinct because its peculiar local, historical and oral realities give rise to peculiar expressions of technology overrule.

The material provided in support of my argument has been gathered from historical surveys of pre-literate Akan people, including those that are more or less concerned with all forms of technology (tangible and intangible) and technology-related actions. The surveys have involved reading and identifying people's own expressions about technology and technology-related actions, as well as commentaries and interpretations made by the authors who wrote them down. It has also involved reading and identifying statements about technology and technology-related actions made by historians based on their own research.

Rather than trace the origin of technology to written records, I trace it to experiential and cultural sources, for, according to Ong (1982), writing is itself a technology that is also traceable to an experiential and cultural phenomenon such as the spoken word. Moreover, as White (1962: v) notes, 'until recent centuries, technology was chiefly the concern of groups which wrote little' – hence, 'the belief that the surviving written records provide us with a reasonably accurate facsimile of past human activity' is an illusion. Thus, the surveys have penetrated the texts of historical documents to focus on technologies as objects (not as texts) and people's handling of them.

Furthermore, knowledge of the relationship between orality and technology overrule is quite underdeveloped. Extracting orality from a culture mixed with orality and literacy may not be helpful in this work because I am not aware of clear and reliable extraction methods. According to Ong (1982), the written word is a technologization of the oral word, implying that orality begets literacy and that literacy is not original but orality is. Yet, literacy influences and shapes orality almost to the extinction of oral purity. Thus, Goody (1977) notes that the mind that comprehends literate material internalizes that material as part of visual memory, leading to the formalization of oral words. Likewise, Strate (2017) argues that the written word is an external technological condition that mediates oral thinking. Since our interest here is in orality, and since there are cultural expressions (technological, geographical, institutional, organizational and unembellished evidence) of orality available in historical records, this research has gathered some of them as data. Hence, orality in modern literate cultures is set aside.

For data interpretation, this research draws on Gadamer's (1976) philosophical hermeneutics, which affirms inclusion of the researcher's historical consciousness. This is because 'the consciousness that is effected by history has its fulfilment in what is linguistic' (*ibid.*: 13). Thus, in interpreting how and why Akan orality is implicated in technology overrule, I have not distanced myself from Akan orality and musket experiences. Rather, my interpretations are informed by my positive prejudice that their experiences are authoritative conditions that still influence me; for, in general, 'we are possessed by something and precisely by means of it we are opened up for the new, the different, the true' (*ibid.*: 9).

In practical terms, I interpreted pre-literate Akan people's oral language as arising from the assumption that they were mindful, whether consciously or unconsciously. I also interpreted their technology overrule as arising from their oral language, informed by my own historical consciousness. During the surveys and analyses, keywords reflecting their thoughts, words, speeches and actions relating to the musket have been extracted and linked to develop process (instead of event) themes. Examples of keywords are Twi onomatopoeic ideophones of the musket (*to*, *tu*, *etuo*,

*atuo*) as well as speech with direct references to indigenous production ideas (wisdom, safety, morality, food).

Most Akan words, speeches and actions are signs and symbols of Akan history and culture. Therefore, semiotic interpretation was used to understand Akan people's construction of their systems of meaning, the ontology of their culture, and the culture itself as a system of context-generated meanings. Thus, I sought shared codes that explain the structures underpinning Akan cultural thoughts and practices relating to the musket. For example, musket-related Twi proverbs and their figurative meanings were interpreted semiotically to generate their corresponding indigenous production ideas. This included historical and functional analysis of how and why their thoughts, speeches and actions signify technology overrule.

### Technology and orality

Technology is 'a means to fulfill a human purpose' (Arthur 2009: 28) and a mode of bringing-forth or revealing (Heidegger 1977). Means or modes refer to methods, processes or devices, all of which are 'sequences of operations' (Arthur 2009: 30). However, a device need not be a piece of hardware, and a technique need not be a machine. For example, a computer software program is a device that is intangible because it is 'technology without matter' (Kallinikos 2012: 77). Likewise, an unwritten plan agreed upon by two hunters of a pre-agrarian culture to catch game is a device. Sequences of operations (methods, processes and devices) do not pertain to technology's essential domain, but to its functional domain. The essence of technology is an idea, concept or principle (Arthur 2009) that begets a device. Hence, the device embodies the idea. However, a device is distinct from an idea because an idea is a human thought or concept while a device is its bringing-forth. This point underscores this article's view of oral language as a device or technology.

A technology is a craft (or crafting) (Aristotle 2014). The factor that determines whether or not a craft (or crafting) would be, be otherwise or not be at all is people's idea or 'reason concerned with production' (*ibid.*: 20). Humans may produce or may not produce as a matter of choice. Therefore, technology is understood not only as bringing-forth an idea (its essence), but also as mediating between humans and production (McLuhan 1964; Strate 2017). Different types of technology media (e.g. symbolic, mechanical, chemical, electrical and digital) in human history reflect different reasons concerned with production in different societies at different times. This article focuses on the Akan people's indigenous reasons concerned with their production in their pre-literate society. Their language as technology brings forth these reasons or ideas.

Despite our momentous technology innovation and diffusion, humans are mind-making before tool-making and tool-using because most early human inventions are 'ritual, social organization, morals, and language', rather than tools (Mumford 1967: 23). Because these early inventions do not leave substantial tangible and observable remains through time, we mistakenly assume that tools and machines are the highest expression of our intelligence. This is especially true of oral language or speech, which is one of the most advanced technologies. It leaves no material remains even though it may be highly advanced, complex, organized, and amenable to articulation as proverbs, logic, philosophy, ideology, commands, rules and representations of

reality. It is an effective technology that is developed, used and articulated among people from time immemorial. Language is one of the key technologies originating directly from the human ability to make 'something of himself' (*ibid.*: 9). The technology of language (Dove 2018) comes ahead of other early technologies such as ritual, social organization, clothing and stone tools. Indeed, even sign language, which is soundless, is a longstanding technology (Beckmann 2022).

Although orality and literacy both produce speech and text as languages of technology, orality is epistemologically essential while literacy is not. For example, Ong's (1982; 2000) discussion of oral memorization emphasizes the role of the human body and action as integral aspects of speech. Oral words are memorized not just because of mere verbatim repetitions, but because related bodily and situational activities enable the retention of core formulaic and thematic structures. In these structures, recitations of oral words through time show slight variations, even by the same individual, because of memory losses. Nevertheless, significant meaning and memory remain because structures of oral language have bodily and situational references, especially to heroic figures, in oral people's experiences.

Orality, being a language mode, is as material as literacy, even though speech is ephemeral while text is durable. The materiality of a thing is its practical instantiation and significance, which enable or constrain human action (Leonardi *et al.* 2012). A major theoretical and philosophical premise for the materiality of speech is the speech act theory (Austin 1975; Searle 1969). It assumes that spoken words present information and perform action (Simpson 2017): for example, to say that 'I shall fight for you' is not only to speak but also to make a promise. Likewise, 'I declare you guilty' also acts to make you guilty; and 'Your name shall be Comfort' also makes a christening act. Specifically, speech includes locutionary, illocutionary and perlocutionary acts depending on the speaker's intentions.

According to Austin (1975: 109), the locutionary act is 'roughly equivalent to uttering a certain sentence with a certain sense and reference' – for example, the sky is blue; the perlocutionary act is 'what we bring about or achieve by saying something, such as convincing, persuading, deterring, and even, say, surprising or misleading'; and the illocutionary act includes 'informing, ordering, warning, undertaking, &c., that is utterances which have a certain (conventional) force'. The latter is understood as doing something by uttering a declarative, such as 'Your name shall be Comfort'. In this example, the intended action of the speaker actually performs an action of 'bringing out' (Alston 2000) the identity of the person so named. This action of bringing out resonates with the mode of bringing-forth or revealing, which is Heidegger's (1977) definition of technology.

Another understanding of the nature of orality is that it is communal because the sound of speech joins people together. A monologue may be helpful to people to think aloud and establish their individual identities. However, a dialogue among people makes those identities meaningful. It is through speech in the public domain that one's uniqueness as a 'who' (not a 'what') is known by others. It is also through the sound of speech that acting together is actualized. Even though this actualization may not produce any tangible relic, it is nonetheless real. Thus, Arendt (1958: 184) describes this reality as a 'web of human relationships' anywhere people live together.

Ong (1982) arrives at the same conclusion but from the perspective of the interiority of speech. The sound of speech among people is interiorized by each of

them to the extent that no one is an outsider to the other. In contrast, the sight of an interlocutor easily registers her or him as an outsider in the mind of the viewer. The sound of the interlocutor, even without sight, leaves his or her interior (literally, the larynx) and is poured into the interior of the hearer.

Because in its physical constitution as sound, the spoken word proceeds from the human interior and manifests human beings to one another as conscious interiors, as persons, the spoken word forms human beings into close-knit groups. When a speaker is addressing an audience, the members of that audience normally become a unity, with themselves and with the speaker. (Ong 1982: 73)

Orality is also philosophical because the indigenous wisdom and knowledge of a people have strong correlations with their spoken language. Interestingly, African philosophers such as Hountondji (1997) claim that this is a 'myth', Wiredu (2006) has 'reservations', and Bello (2006) thinks that it has methodological problems. Their basic and common critique is that the pre-literate African did not write down his or her thoughts and that any oral expressions of thought were uncritical. However, the bases of their critiques are epiphenomena such as language itself, informants, calligraphy, anthropology and history, instead of a deeper underlying phenomenon such as human mindfulness. Gyekye (1995), also an African philosopher, discusses strong correlations between Akan people's language (mostly oral) and their philosophical thought. Agyekum (2022: 2–5), an Akan philologist, has also excellently demonstrated the philosophical thrust of *Akan anomsem kasadwini* (Akan mouth woven language), including proverbs, in his book. Benefits of *anomsem kasadwini* include the following:

- *Eye nyansa kasa a emu nsem no pii hia adwenemupie ne nyansa.* (It is wisdom language, a lot of which requires open-mindedness and wisdom.)
- *Adwensusuo mu osuahunu wɔ kasadwini mu.* (The study of thinking is in [it].)
- *Kasadwini biara wɔ nkyereasee ahodoɔ. Se ye fa ebe sei a, yetumi bu ebe baako te se ebia 'wokɔ awaree a, bisa' sei wɔ awaree, adwumahwehwe, worekɔpe baabi foforɔ atena, anaa worekɔtɔ asaase foforɔ mu.* ([It] has multiple meanings. If we take proverbs, for example, we can speak one proverb such as 'if you're going to marry, ask' in a marriage, job search, house search, or new land purchase.)
- *Kasadwini de nhunumu, nimdee ne adwinimupie to dwa; ema ye te nnoɔma bi ase yie.* ([It] declares knowledge, intelligence and open-mindedness; it enables us to understand some things well.)

These benefits align with Hallen's (2000) argument that there are strong correlations between Yoruba oral language and their epistemology, and with Mbembe's (2001: 6) observation that the social ontology of sub-Saharan Africa is constituted by 'socially produced and objectified' parameters including 'discourse and language'. All these reflect the old argument that African philosophy 'can never consist of reducing the African reality to Western systems; that the African philosopher should learn from



the traditions, tales, myths and proverbs of his people ... to bring out the specific categories of African thought' (quoted in Gyekye 1995: 33).<sup>1</sup>

The philosophical, material, communal and essential characters of orality that I have reviewed above provide theoretical foundations for understanding how and why Akan people's thoughts, speeches and actions enabled them to rule over the musket.

### Akan orality and the musket

The musket entered Akan society among the goods traded with Portuguese merchants from the fifteenth century, and later with Danish, Dutch and English merchants. In exchange for gold, Akan people purchased muskets for slave capture and liberation (through war). For example, McCaskie (2008: 439) claims that '[g]uns literally made Asante' and, since then, have been instruments of their power and liberation. Asante also participated in the transatlantic slave trade until the mid-nineteenth century (Adu Boahen 1966). Furthermore, gun technology is Edgerton's (1995) central explanation for the fall of the Asante empire. Thus, among all the physical or tangible devices used by oral Asante people, the gun was, plausibly, the most disruptive technology in their society. And although several Asantehehens instituted gun control measures for safety and security (personal and national), there has been a 'gun culture in Kumasi' (McCaskie 2008).

Due to these roles of the gun, one may interpret its impact on Akan society as technology determinism. At the same time, it is hard to see how users such as the oral Akan people (who did not develop it and had negligible knowledge of its science) ruled over it. The characteristics of the musket in Akan society, as a foreign and disruptive technology, imply that it could be misunderstood, mishandled and misapplied to the extent that people would become overly dependent on it. Or they would use its lethal function to kill fellow human beings at the least provocation.

However, war and conquest were only initial and limited ideas in the entire scope of space and time in oral Asante society. Thus, Edgerton (1995: 37) indicates that, although war had helped build the empire, 'peace was necessary to maintain it'. Because of the empire's generally peaceful state, Asante people engaged significantly in diplomacy, trading, road construction and maintenance, mining, farming, hunting, weaving and smithing. The peace also allowed for collecting tributes, cleaning and village life, which, unlike the somewhat politically charged capital of Kumasi, was 'usually routine and tranquil' (*ibid.*: 41). However, the question of technology overrule remains. From the perspective of orality, it is analysed here in terms of three modes: naming, speaking and acting.

First, Asante people gave the musket the Twi names *etuo*, *akwadamma* and *ananta*. However, *etuo* was more common while *akwadamma* and *ananta* were rarely used. Given that *etuo* was not written but spoken, its sound in any discourse evoked ideas in the mind about activities that are related to production – safety, nutrition, morality and wisdom. The name *etuo* is constituted by onomatopoeic and psychodynamic fragments, implying that it was not just any spoken word in the society. *Etuo* is *nyegee-se-adwen* (literally, 'sound-as-mind'; figuratively, an onomatopoeic

<sup>1</sup> These are the first and second declarations from the second Congress of Negro Writers and Artists held in Rome in 1959.

ideophone). Akan speakers were and are more or less able to trace the things and activities that produced such onomatopoeic ideophones for understanding.

The fragment *to* is a verb that means to throw or shoot. The fragment *eto* also refers to an object that throws or shoots. Another related fragment, *tu*, means to fly, jump or remove. All these refer to the function of *etuo*. Moreover, all instances of *to* (singular) and *atuo* (plural) equally refer to exploding, bursting, cracking or breaking, and all are related to its sound and function. In these auidal and functional terms, *etuo* was a Twi name quite unlike the English word 'musket'. This name engaged Akan people's auidal senses more than their visual senses. It had more direct reference to sound than to sight. Hence, it shifted Akan people's attention from the musket's form and matter to its sound and function.

Three key elements jointly account for how and why the name *etuo* influenced Akan people's generation of ideas. The first is that the sounds *to*, *eto*, and *etuo* were present in Akan people's verbal communication in Twi but absent from its English version, musket. The second is that the strength of oral cultures lies more in the auidal sense than the visual (McLuhan 1964; Ong 2000). Thus, speaking and hearing the sound *etuo* in speech had a greater influence on the mind than seeing and using the musket. The third is that indigenous needs for nutrition, wisdom, morality and safety were so pressing and dominant in Akan society that they had already induced ideas, speech and actions before the acquisition of the musket.

Upon the entry of *etuo* into the society, its sound and function were extracted and applied to satisfy these indigenous needs. Based on the three factors, *etuo* had become an indigenous sound and function that was spoken as proverbs and enacted in hunting, moralizing, philosophizing and securing. These actions correspond respectively to the production ideas of nutrition, morality, wisdom and safety. Hence, Akan people had developed these ideas and their expressions more from *etuo* than from the musket's incipient ideas of war and slave capture. Moreover, the three factors developed the Twi language as a technology to complement and even overshadow the musket in Akan society. To Akan people, *etuo* as a language technology was a fabrication that revealed or brought forth indigenous production ideas. These ideas were quite different from those revealed by the musket's form and matter.

The name *etuo* and its onomatopoeic and psychodynamic references also epitomize Ong's (1982: 31) dictum of 'sounded words as power and action'. At the level of a single word such as *etuo* (compared with the level of verbal discourse, sentence or proverb), the ideas it would evoke among Akan people may be only seminal and limited. However, those seminal ideas were powerful because the word is an indigenous name bearing indigenous production concerns that were related to the musket technology.

Second, Akan people were speaking about *etuo*. How these verbal communications reflected specific and relevant production ideas manifested not only in isolated words or sounds, but also in verbal sentences. Hence, the naming was a critical seed of the people's generation of verbal conversations among themselves in order to deepen reflection and strengthen the link between *etuo* and 'reasons concerned with production' (Aristotle 2014: 20). Substantial evidence of this deepening and linking are shown in the various proverbs they made and spoke in which *etuo* plays the role of subject. Appiah and colleagues (Appiah *et al.* 2007) have listed nineteen such proverbs

(numbered 6389–407), all with different predicates pointing to various deep reflections and indigenous production ideas among Akan people (Table 1).<sup>2</sup>

These proverbs are not really expressions of war ideas, even though some make literal and direct references to war. Proverb #6389, which literally and directly refers to war in both the Twi and English versions, is meant to evoke production ideas of care and reward for those who serve well. Proverb #6406, which refers to multiple *etuo* and with its English translation referring to strength, does not necessarily relate to war. It is literally about one's *asem* (palaver, argument, case, talk, matter) or strength, and figuratively about the person's resources and success. Together, they evoke a production idea. Proverb #6405, where Appiah and colleagues' English translation directly refers to battle, is not really about war even though it includes a war image. As their figurative translation shows, it is about alternative modes of striving for the common good, which is a production idea. The English translation of proverb #6396 includes the word 'warlike', but, as the word itself indicates, it is a resemblance, not actual war. Hence, the proverb is largely about boldness and courage based on personalization of *etuo*. For #6393, which refers to killing in both the literal Twi and the English versions, the object is an animal, not a human. In short, all the predicates of these proverbs that have *etuo* as subject lead away from war to production ideas, and from conceiving *etuo* as a life technology instead of a work technology.

On the subject of the pervasiveness of proverb-making and -speaking in Akan society, Christaller (1879: 50) wrote:

In the [Twi], the prevalent language of the countries lying on the Gold Coast between the rivers Assinie and Volta and inland, there is an extraordinary exuberance of these pithy sayings. The language of the Negroes of the Gold Coast on the whole is highly figurative. As many ideas are expressed by a homely image, so facts or themes of discussions are usually compared with, elucidated by, or judged after certain precedents or self-evident truths substantiated by proverbs.

Akan people interiorized production ideas about *etuo* more from its indigenous sound and function ('concerned with production') than from its form and matter. Each of the nineteen proverbs listed by Appiah and colleagues shows the people's amplification of the sound and function of *etuo* by combining them with the existing production ideas in their minds. The combination in turn led to a sophistication of these production ideas in the mind and their bringing-forth or revealing through the technology of these proverbs. This indicates a further departure from the musket's form and matter out of which the sound and function of *etuo* were extracted. Thus, with time, there was an increasingly loose coupling between the musket (as a physical technology) and *etuo*'s spoken and acted proverbs.

Consider, for example, proverb #6398: *Etuo pae ka ɔɔfoɔ a, yemmisa dee ɔdii ɔɔfoɔ nam* (literal translation: if the musket bursts and wounds the hunter, you don't ask him who has eaten the meat he has shot; figurative translation: don't add insult to

<sup>2</sup> This is a collection of 7,015 proverbs, including those collected and written down by Johannes Gottlieb Christaller (1827–95) (Christaller 1879).

Table 1. Twi proverbs in which *etuo* is the subject

#	Twi proverb	Literal English translation	Figurative English meaning	Indigenous production idea
6389	<i>Etuo a yede ka oko ka dom guo no, yemfa nni apiripiriagorɔ</i>	The musket that we go to war with to drive away many, we don't use for injurious games	You take care of those who serve you well and treat them carefully	Morality
6390	<i>Etuo di mfasoɔ</i>	A musket earns a profit	A good helper enables you to get on in life	Wisdom
6391	<i>Etuo di asia na woantɔ no asia a, woye ho adee ma no boro asia</i>	If a musket is worth a weight of gold dust and you don't give a weight of gold dust for it, you will in the end pay more than a weight of gold dust	You can't get good things cheap; if you do, it will cost you more in the end	Morality
6392	<i>Etuo kantamma nni baakofoɔ so</i>	The cock of a musket is not meant for one man alone	Life and death are for all	Wisdom
6393	<i>Etuo a ekum ɔbɔɔpɔn pan bankye-akore</i>	The musket which kills a great animal breaks the fork of the cassava plant	The falling animal breaks the plant; hence, you are responsible for the subsidiary results of your actions	Food, wisdom
6394	<i>Etuo mu ye sum (etuo mu'o sum)</i>	There is darkness in the musket	It is difficult to know the mind of a treacherous person	Wisdom, safety
6395	<i>Etuo nya okutafoɔ a, na ebɔ</i>	If the musket gets a holder, it fires	With encouragement you perform well	Wisdom, production
6396	<i>Etuo nya tiafoɔ a, na ɔdi mmarmasem</i>	When a musket is adequately prepared, it performs warlike deeds	When you have a good leader and prepare well, you perform well	Wisdom, production
6397	<i>Etuo (pae)/(ben) a, esi ɔbarima bo</i>	If a musket (bursts)/(is shot), it is still on a man's chest	A man is obliged to cope with the situation, however bad it is	Wisdom
6398	<i>Etuo pae ka ɔbɔfoɔ a, yemmisa dee ɔdii ɔbɔfoɔ nam</i>	If the musket bursts and wounds the hunter, you don't ask him who has eaten the meat he has shot	Don't add insult to injury	Food, safety

(Continued)

Table 1. (Continued)

#	Twi proverb	Literal English translation	Figurative English meaning	Indigenous production idea
6399	<i>Etuo mpae wɔ aburokyire mmeka nnipa wɔ abibirem</i>	A musket does not burst in Europe to wound a man in Africa	The cause of trouble can usually be found nearby	Safety
6400	<i>Etuo tim ka wo a, na wo nso wotim n'akantamma</i>	If a musket conquers you, you too can conquer its hammer	Everyone has something they can master	Wisdom
6401	<i>Etuo to a, na adeɛ abɔ</i>	When a musket fires, trouble has come	There is no smoke without fire	Wisdom
6402	<i>Etuo to a, ennim sɛ yeam-pɔpa mu</i>	If a musket will fire, it does not matter if we clean it or not	If something is destined to work, it will work	Wisdom
6403	<i>Etuo nto aboa bi nnyae nkɔhyehye aboa bi</i>	A musket is not fired at one animal for another to receive the shot	You don't attack one man for another to suffer	Morality, safety
6404	<i>Etuo yento no breɛ oo</i>	You cannot shoot a musket without noise	You cannot hide violence	Safety
6405	<i>Etuo yera nifa mu na ekɔfiri adɔnten mu a, na enkɔɔ baabiara</i>	When the musket is missing from the right flank of the battle and appears in the forefront, it did not go astray	Provided a man is striving for the common good, he may do it in more ways and places than one	Wisdom
6406	<i>W'atuo sua a, na w'asem sua</i>	If your muskets are few, then your strength is small	Unless you have the necessary resources, you will not succeed	Wisdom
6407	<i>Etuo-tantia wotia a, esi deɛ esie</i>	If you press the cap of a musket, it keeps its position	A strong man holds his place	Safety

injury). It combines *etuo* and *ɔɔfoɔ*; *ɔɔfoɔ* literally means hunter, but when it combines with *etuo*, it also denotes hunting actions such as striking, shooting and catching game. The sound and function of *etuo* met *ɔɔfoɔ*, which already existed in oral Akan society. The sound and actions of *ɔɔfoɔ* were already reflections and communications among Akan people.

Akan people reflected on both the literal meaning and the denotative sound and actions of *ɔɔfoɔ* as an indigenous food production idea. If hunting is a technique, then it is a technology type that is a revealing or bringing-forth of this food production idea. The name *ɔɔfoɔ* served as the main instrument for linking the food idea to the hunting action. The sound of *ɔɔfoɔ*, whether there was a hunting action going on or not, evoked the thought or idea of food. Then, when the sound and function of *etuo* also evoked the idea of conquest, the person would combine them. Thus, the combined ideas become more sophisticated than each of them on its own. There is further sophistication when the combined idea is in turn combined with the action-related problem of the musket bursting and wounding the hunter accidentally. Akan people expressed the resulting composite idea as *etuo pae ka ɔɔfoɔ a ...* (if the musket bursts and wounds the hunter ...). This is a food production problem conceptualization that is modelled after the entry of *etuo* into the society.

One solution to this problem is the expression *yemmissa deɛ ɔdii ɔɔfoɔ nam* (you don't ask him who has eaten the meat [the hunter] has shot). This does not refer to *etuo* but to *ɔɔfoɔ*, implying a further departure from the musket. When the hunter is injured in this action, the solution is not *etuo*. It is not even the indigenous idea of food production. Rather, in order not to add insult to injury, the solution is to avoid asking any question that refers to *etuo* and food. Anyone who asked such a question was likely to incite the injured hunter's anger and perhaps also suffer injury from the hunter's gunshot or other attack. This could lead to a fight. However, the second part of the proverb is spoken to avert a fight. It is an expression of the idea of safety. Hence, like the first part, which models a problem, its second part models a solution. The more this proverb was spoken in Akan society, the more it was articulated and diffused through ubiquitous reference and application by people across space and time. The articulation and diffusion of this language technology dominated or overshadowed the form and matter of the musket in society.

Hence, this proverb was a typical example of a technology innovated by Akan people through the combination discussed. Although it is an ancient innovation, the combination of ideas and speech shown here still exemplifies Arthur's (2009) recent theory of technology innovation. The production ideas that were combined and made more sophisticated in people's thought, and further articulated and diffused through speech, attest to Akan people's exercise of their mindfulness and overrule.

Third, Akan people were acting in relation to *etuo* as well as speaking about it. Action entails speaking; it is the capacity to begin, create or recreate, and hence it is the re-enactment of being born, because birth represents a new beginning (Arendt 1958). This idea resonates with Ong's (1982: 41–2) observation that:

oral cultures do not lack originality of their own kind. Narrative originality lodges not in making up new stories but in managing a particular interaction with this audience at this time – at every telling the story has to be introduced

uniquely into a unique situation, for in oral cultures an audience must be brought to respond, often vigorously.

Upon the naming of *etuo* and the further articulation and diffusion of its production ideas through spoken proverbs, it induced among Akan people the capacity to begin new actions about *etuo*. Concerning Asante people, for example, before they acquired *etuo*, they were performing actions based on peace production ideas and speeches. The predominant or overarching actions were state policy development and implementation. In time, these actions had become expected in the society, as exemplified by trading with Europeans on the coast, collecting tributes and taxes, policing trade routes, warring with enemies, planting and harvesting crops, and celebrating the *odwira* festival.

Hunting, moralizing, philosophizing and confronting were new actions that flowed directly and respectively from Akan people's nutrition, morality, wisdom and safety production ideas and speech. Undoubtedly, these actions do not and did not necessarily have to flow directly from *etuo*-related peace ideas and speeches. By diffusing alternative and multiple peace technologies in society within the state machinery, oral Akan people were acting out their understanding of this absence of necessity. For example, among Asante people, trapping animals with hand-made snares and pits was a dominant hunting action. Shaming criminals in public and executing some – capital punishment occurred regularly – were means of moralizing people. Singing, dancing, storytelling, symbolizing and gesturing provided frequent evidence of philosophizing alongside the speaking of proverbs. And signing and enforcing peace treaties, plus engaging diplomatically with them along the coast, were peaceful means of confronting Europeans.

Through these speeches and actions, the problem of dependency on *etuo* was decreasing, the freedom to choose or bypass it in acting out peace was being emphasized, and its evaluation in relation to the diffused alternatives was being promoted in Akan society. Furthermore, by speaking and acting out their understanding of the unnecessary role of *etuo* in producing peace, oral Akan people were underscoring their mindfulness ahead of their tool-making.

Although *etuo*, like today's smartphone, was aesthetically and economically appealing, fashionable and mobile, with strong potential to dominate humans, Akan people's speeches and actions proved that their mindfulness was more dominant than using tools. In spite of the potential for *etuo* to be thought of in terms of subduing others, Akan people's mindfulness of peace production made them consider such subduing as unnecessary. Hence, *etuo* was thought about in terms of increasing and multiplying humanity, just as the many ideas, organizations and conferences about nuclear arms control are acted out around the world today for the production of peace (Goldblat 2020).

### **Technology overrule**

The processes of oralizing technology analysed in the previous section include specific constructs that are still quite obscure, since the focus of the analysis was on interpretation. These constructs – image recognition, technology reduction,

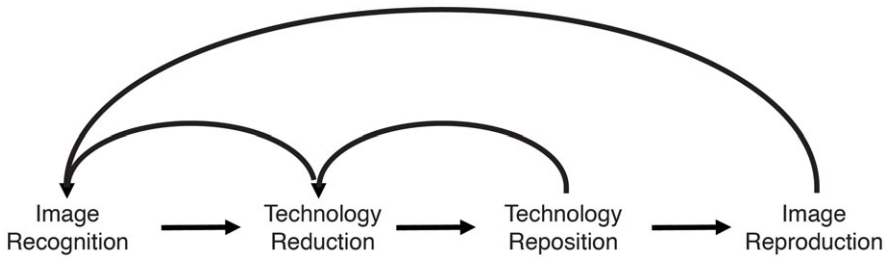


Figure 1. Stages of technology overrule.

technology reposition and image reproduction – and their relationships underscore the understanding of technology overrule (Figure 1).

### **Image recognition**

The first stage of technology overrule is image recognition, where users or consumers who encounter technology recognize that it is after all an extension of man, who is bringing-forth or revealing ideas based on mindfulness. Image recognition exists despite the fact that the technology is foreign, developed by another person, impressed with that person's image, and appears very strange to the consumer or user. It is an extension of a person who may have different ideas, yet they will still have ideas in common with the user. Common ideas are inevitable and pervasive across people and societies throughout the world's history because they are founded on our common humanity, and hence our mindfulness (Mumford 1967).

With regard to the musket, for example, the common ideas of nutrition and safety point to a human image that can be recognized – and was indeed recognized by oral Akan people. Image recognition took their thinking beyond the form and matter of the musket, which are the most obvious parts to the user, towards ideas behind its design. Relevant questions are therefore: is it designed for safety, war, food, wisdom, morality or another idea? How can it support my life? Do I recognize myself in that technology?

Thinking about the idea behind a technology's design includes imagining what Arthur (2009: 46) calls the 'effect that it uses'. The effects may be heat, speed, sound, peace, food, information, sharpness, force, power or cold. They may be effects caused by natural or artificial phenomena, and they may be obvious or obscure. Some are themselves the causes or effects of others, and therefore they can be classified as primary or secondary. The primary effects may be more obvious and people may be more conscious of them compared with the secondary effects. And all may be found in one technology. Thus, sound, safety, nutrition, force and speed were effects in the musket, both found and imagined by oral Akan people. Among these effects, sound was primary while safety was secondary, because the indigenous idea of safety was derived from the *etuo* sound. However, image recognition need not include any of the effects that were imagined by oral Akan people. This is because different technologies produce many other effects that people can imagine.



Imagining a technology's natural effects is key to image recognition. This is because those natural effects are likely to coincide with the effects of users' own humanity, since they are also mindful beings. For example, information can be the natural effect of the human mind. Heat, speed, force and power can be natural effects of the human body. And sharpness can be a natural effect of teeth, fingernails and toenails. When technology's natural effects and the user's effects coincide, then image recognition in the technology by the consumer or user has succeeded. Such image recognition, even in the most eccentric or esoteric technology, is the first step to demystifying it, and eventually ruling over it.

In image recognition, a person can learn any quantity or quality of a technology's effect(s) without full knowledge of its science. Imagining its natural effects does not require knowledge of its science, even though that may be important. This point resonates with Rosenberg's (1994) argument that technology innovation does not necessarily follow scientific theory. Therefore, people who want to acquire a technology can achieve image recognition through audition, observation and/or experience. What is critical to technology overrule is that their process of imagining is fed by indigenous or specific reasons concerned with production. This enables them to filter, manage and/or limit the quantity or quality of effects to be imagined. They can imagine so many effects that they can become overwhelmed, and imagining can therefore become counterproductive. However, by feeding the process of imagining with indigenous reasons concerned with production, a productive choice, use and overrule of technology can be achieved.

Although scientific knowledge of a technology's science is not necessary, the depth and breadth of people's imagining matter in their quest for overrule. Image recognition is a qualitative construct that suggests that a high or low quality of imagining effects has consequences for high or low effectiveness of technology overrule. Therefore, the reasons concerned with production that feed image recognition should be analysed and understood by the technology's consumer or user. The main causes of poor understanding of those reasons are one's self and one's environment. And poor understanding in turn leads to low-quality image recognition.

### ***Technology reduction***

Image recognition, as a mental exercise, leads to technology reduction, which I define as using indigenous language to reduce any technology to indigenous ideas and functions. Technology reduction implies emphasizing these ideas and functions while overlooking the form and matter of the technology. Thus, technology reduction is a language exercise arising from the mental practice of image recognition. Indigenous languages, especially oral languages, are critical to understanding people's selves and environments because they lie at the heart of revealing and sharing indigenous production ideas among those people.

However, as more foreign technology devices come to dominate many societies around the world through acquisition and imposition, they are increasing the propensity for people to undervalue orality. In Africa, for example, integration of foreign technology devices will continue to leave tangible and visible relics, while the sound of indigenous language or speech may be relegated to the background. The consequence of this relegation would be a low level of understanding of the indigenous reasons concerned

with production. However, as the analysis of Akan people's technology overrule shows, their oral language contributed significantly to the understanding and articulation of these reasons through proverb-making and -speaking. This is because orality provides people with a unique capability to recognize their images even in foreign technologies.

The main speech act to take place during technology reduction is to give the technology an indigenous name; this shifts users' attention from its form and matter to its ideas and functions. The assumption is that image recognition has already informed the decision to choose or acquire the technology, but it does not end there. As the technology is being integrated into the society after acquisition, image recognition continues to inform its naming; this may take place before or during use. Once the initial condition of image recognition has occurred, indigenous naming of the technology should evoke indigenous production ideas in its users' minds as well as indigenous production functions in their language. Consequently, the name should at least be psychodynamic, if not also onomatopoeic. Psychodynamism means that the name carries historical references that have shaped the users' indigenous reasons concerned with production.

The psychodynamic and indigenous name of the technology constitutes a technology reduction because the name, the language, is itself a technology. This means that technology reduction is an innovation of a language technology. Hence, this language technology is a bringing-forth of those indigenous production ideas that have been found during image recognition. At the same time, this also means that the acquired technology is reduced to a language technology, but its indigenous production ideas and functions are maintained in the indigenous and psychodynamic name. These ideas and functions are also disseminated among users of the technology in the society whenever the name is mentioned. Through continuous and pervasive speech that proclaims this name, a people's language technology overshadows the acquired technology. Moreover, they learn, remember and apply the name to direct and control its use.

### **Technology reposition**

Technology reduction leads to a repositioning of its locus from exogenous production to indigenous production using the indigenous name. Here, the indigenous name is used to generate further production ideas within the user's mind, and those ideas are externalized through speaking. The name enables a combination of the indigenous name with other production ideas within the mind, resulting in new production ideas. This is a mental technology innovation that can be externalized through verbal discourse, leading to the innovation of a device that brings forth or reveals those production ideas. For example, when Akan people were speaking about or verbally discussing *etuo* through proverbs, they were externalizing their new *etuo*-based ideas generated in their minds.

The indigenous name of the technology is critical in its technology reposition and in the resultant innovation of technology. This is because the production ideas in the name more easily combine with other existing or emerging production ideas. Whether the users are contemplating or speaking that name, it enables them to easily relate it to other reasons concerned with production. Since speaking is a part of thinking, technology reposition does not occur in a simple or single step from its

preceding technology reduction. Rather, multiple cycles between speaking and thinking inform the generation of new production ideas.

### ***Image reproduction***

Users' technology reposition of an acquired technology leads to new technology (language or physical devices) that is made in their image. This reality is known as image reproduction by the user or consumer – technology is made to look like the user rather than the reverse. It is first brought forth or revealed through verbal language, such as an unwritten plan to perform an action agreed upon by two people. For this reason, the performance of indigenous speech acts by people in a society lies at the heart of high-quality image reproduction, which constitutes their innovation of language technology. What this new language technology is bringing forth or revealing during verbal discourse are multiple leads to the further innovation of physical devices that align with reasons concerned with production.

Therefore, image reproduction is not necessarily the bringing-forth of another copy of the acquired technology (mostly a physical device); rather, it must be the bringing-forth of a newly improved version of the acquired technology. Whichever form it takes, it would be known as 'our own technology', imbued with self-generated ideas, revealed during verbal discourse as language, and also revealed during use. This means that the acquired technology's form and matter may not change. However, the thoughts and speeches about it change in the direction of the users' reasons concerned with production.

At the stage of image production, users may still not fully know the science of the acquired technology. However, having come through the stages of image recognition, technology reduction and technology reposition, they know the science of the new or repurposed technology (language or device) well enough according to their image. They are capable of comparing their own images reproduced therein with the earlier images of themselves and of the developers that they recognized at the outset. Thus, they can evaluate the reproduced image and decide whether it constitutes a progression or retrogression of their lives.

They can begin a new cycle through the stages to lead them to reproduce better images of themselves in new speeches and devices. They can also esteem highly their knowledge of the new technology's science above any knowledge of the acquired technology's science. This is in spite of the fact that their technology and its science may be less sophisticated than those acquired. The acquired technology and science may be fashionable, ubiquitous, efficient and even imposed on them, but they still consider their own as more authentic than the acquired one.

### **Conclusion: orality and technology overrule in contemporary Africa**

In sum, based on human mindfulness and through orality, I propose that a person rules over technology by thinking and speaking about it as means of generating and revealing new indigenous ideas of production. Practically, this implies that most indigenous vocabularies about technology should evoke indigenous production ideas in users' minds. For example, what Twi name should be given to the digital technology that bears the English name computer? To answer, we should first consider Akan

people's indigenous productions and the reasons related to them. Two clear and current indigenous productions pertaining to Akan people are indigenous identity and economic independence. The reasons related to these productions are increasing loss of identity and the remaining yoke of neo-colonialism. What computational actions are related to indigenous identity and economic independence? Two respective actions are listening to Akan people's origins, history and evolution on YouTube and reading online literature.

Now, what Twi name should be given to the computer so that it evokes ideas about listening and reading in the minds of Akan users? I suggest *akyereadee*. In Akan, *kyere* means teach (reference to speech), but it also means show (reference to text or book). *Adee* means thing or object. Both references indicate an inseparable combination of the computer's aural and visual functions. The literal translation of *akyereadee* into English is 'teachthing', which does not seem to make sense to an English speaker, at least not immediately. However, the Twi name makes sense immediately to an Akan person or any Twi speaker based on the indigenous productions and related activities. If adopted, it becomes the seed for speaking, as in the opening vignette, in order to deepen reflection and strengthen the link between *akyereadee* and indigenous reasons concerned with production.

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