Sheila Petty
Department of Media Production and Studies
University of Regina, Canada

"Transforming Spaces: African Computer-Based Narratives"

The power differential created by western-dominated technology's colonization of global cyberspace raises justified disquiet. Even the evolution of such global conventions as the basic "desktop" interface can have a profoundly chilling effect on the rise of innovative ways of conceiving points of contact with the computer (Johnson 229). Pierre Lévy suggests that some types of representations have "difficulties surviving, or even coming into being, in environments lacking certain intellectual technologies, while they may prosper in other cognitive societies" (126). Thus, in some circles, the computer as intellectual technology is regarded as an instrument of eradication of existing representations of oral traditions or other modes of expression not rooted in western precepts. The rise of a virtual global culture seems inevitable to theorists such as Lévy who acknowledges "the brutality of cultural destabilization," but insists that such negative outcomes should not "prevent us from recognizing the most socially positive forms now emerging" (140). Based on the westocentric assumption that such "advances" necessarily outweigh the losses that might occur, Lévy's position underscores the very real imperialistic potential of computer-based forms.

Such concerns are leading to a polarized debate in which "the reaction to emerging technologies is usually – and simplistically – divided along a horizontal axis of paranoid technophobia versus an enthusiastic endorsement of the 'revolutionary' powers of 'innovation'" (Cassidy in Bey ix). Such anxiety can be attributed to what Michael Heim has referred to as the collision of the "tectonic plates of culture," which occurs when a new and revolutionary technology arises and subsumes old forms within it (44). Added to this is a growing sense that computer-based narratives are inherently westocentric because of the fact that the technology is largely developed in the west, a concern registered by Teshome Gabriel and Fabian Wagmister when they note that the "Third World" will ultimately have no choice but to "adapt technologies produced in decidedly different cultures" in an effort to prevent it from "simply overwhelming or dominating traditional ways" (106).

The temptation exists to regard the emergence of computer-based media and knowledge economies as unprecedented in media evolution. However, for cultures in sub-Saharan Africa, the process of adapting, and ultimately transforming, westocentric technologies to local concerns is well established. In particular, the rise of black African cinema and its distinctively African conventions, has demonstrated that technology is a tool rather than a determinant. The use of African social space and orality as a foundation for

narrative structure has evolved into a unique and evocative filmic style, adapted specifically for local concerns and cultural needs.

Given the success of black African cinema, it may be argued that sub-Saharan African artists will bring a similar approach to computer-based narrative forms despite the westocentric foundation of the technology. Thus, this paper intends to explore the Senegalese web-based narratives, Amika (Ndary Lô, Massamba Mbaye, Moussa Tine and Madické Seck, 1999) and Lait Miraculeux (Séa Diallo, Alpha Sow, Mamadou Fall Dabo and Djibril Sy) as African interactive narrative forms and consider the implications of their aesthetic and narrative presentations on Dakar Web (http://www.isea.qc.ca/africa/dakar/index.html). In particular, I will examine how these narratives use space, time and oral tradition as a means of expressing uniquely African cultures and identities.

As a continental unit, African nations face significant socio-economic challenges "characterized by low growth rates, balance of payment difficulties, the consequences of weak industrial bases and poor infrastructure, heavy international debt burdens and the problems associated with huge public and social expenditure" (UNESCO, August 2001, 1). In addition, continued political and military conflicts create a situation that expends scarce capital and continually disrupts the stability of social structures (1). The social dislocation and economic strife engendered by these circumstances perpetuate an environment that slows Africa's entry into increasingly global and knowledge-based cultures and economies.

The complex and pressured economic demands faced by African nations render the development of personnel, technology and facilities necessary to sustain indigenous new media production, highly problematic. As Jim Pines has suggested, "Under colonization, the basic weapon was the brute force of military technology; modernity combines military technology with communication technology, Western cultural products and instrumental rationality. The 'civilizing' mission gives way to 'progress' and 'modernization' and produces the same effect; cultures are decimated, bulldozed, 'globalized' with barbaric abandon" (253). This underscores a growing concern for the continued survival of African viewpoints in a global communications system that they are barred from participating in by virtue of economic conditions.

The lack of economic wherewithal to support Information and Communication Technology (ICT) has created what may be described as a digital divide between Africa and other technologically advanced developed countries. As the members of the New Partnership for Africa's Development (NEPAD) observe, Africa's inadequate ICT infrastructure is made less functional by a shortage of human resources and lack of effective policy and regulatory frameworks (October 2001, 23). This has led to "inadequate access to affordable telephones, broadcasting, computers and the Internet. African teledensity remains below one line per 100 people" (23). In addition, high service and

connection costs place this technology beyond the range of most potential users (23). These conditions result in Africa's continued limited participation and access to information based technologies and economies.

This lack of access and infrastructure potentially has serious repercussions. For example, the absence of effective voice in the area of ICT means that "many decisions that impact on the African continent... are taken in distant capitals and global institutions" without adequate input from these nations (UNESCO August 2001, 11). In addition, the lack of resources results in a brain drain in which Africa's digital leadership will migrate to more developed regions (14). Finally, such obstacles lead to a justified concern with dedicating "scarce funds on new and unfamiliar technologies when the needs for basic services such as fresh water and classrooms are not yet met" (UNESCO, August 2001, 3). This paradoxical struggle between colliding imperatives is underscored by Moudjibath Daouda, who suggests that the development of the Internet in Africa presents conflicting terms: on the one hand, there is Africa the consumer whose dependence on technology produced by the West is a continuance of colonial legacies and on the other hand there exists a real possibility for development of the continent by African regional integration and expansion of African products and services into a global market (6).

This is not to suggest that African nations are not coming together to redress these barriers. NEPAD (an initiative created by African nations to address a wide variety of development issues) recognizes that the integration of Africa into emerging information societies is critical and sees Africa's cultural diversity as a means of leveraging entrance (NEPAD, October 2001, 23). Furthermore, early evidence already demonstrates that Africans not only make innovative use of new information and technology strategies, but are also effectively competing in the global market (UNESCO, August 2001, 2). For example, in West Africa, a women's fishing cooperative is using web site technology to compete in world markets and Namibian secondary school students, many of whom were without previous computer experience, participated in an archive project that preserved one of the largest insect collections in Africa (2). Thus, despite the many social and economic barriers facing African peoples, these examples provide evidence that given access and opportunity, "Africa is able to take advantage of the ICT revolution" (2).

Africa has an established track record in terms of transforming western communication technology to meet local concerns. For example, the rise of sub-Saharan cinema in the late 1950s and 1960s, led to the development of unique cinematic and narrative conventions based on concepts of oral tradition and social space that allowed filmmakers to use this technology meaningfully "as a voice of and for the people" (Ukadike 2). In terms of television, although it may be argued that television is not a product of African countries' normal development, nor does it belong to Africa's histories, sub-Saharan Africans have nevertheless been very successful in creating specialized serial narratives that

combine education and drama (Yaya Karim Drabo 1992, 108). These successes suggest that what is at play here is something beyond the origin of a technology: once the technology has entered into a new context, it is possible to effectively mold it to suit new cultural purposes and means of expression.

An example of such a transformative progression is demonstrated by the website, Dakar Web. Facilitated by the Inter Society for Electronic Art (ISEA), Dakar Web ran from February 1-24, 1999 in Dakar, Senegal as a series of workshops intended to provide African artists drawn from various fields of visual arts, literature and music, with the opportunity to create web fictions based on a collaborative working process. Directed by Montreal artists, Eva Quintas, Michel Lefebvre and Catherine McGovern,[1] the workshops took place at Metissacana, Senegal's first cyber café and culminated in five web fictions including Amika, Cauris, Lait Miraculeux, Petit Pagne and Talibés. [2]

Co-productions based on what has been described as alliances between North/South partners can be potentially problematic given undeniable power differentials between so-called "developed" and "undeveloped" nations. In addition, creative control of the final product and conflicts between culturally different approaches to production can become issues of concern[3]. Yet, such co-operation can also have positive benefits. For example, Iba Ndiaye Djadji suggests that opportunities for networking in Africa are constructive, given the potential for cultural exchanges (11). Certainly, Djadji views initiatives such as Dakar Web as an opportunity for African artists to explore new aesthetic horizons and mutual enrichment between western and African viewpoints by focusing on the intersection between western technology and African cultural traditions as narrative inspiration (11). Furthermore, as Djadji argues, "African artists have used, as a point of departure, classical forms of expression, and created links between them, or blended them in order to create something completely new" (5). This demonstrates that Africans are extremely adept at molding so-called western technology into a means of expression specifically designed to suit African purposes and issues. Ultimately, this reduces the influence of western technology to a more appropriate perspective: it is merely a tool, and not an end in and of itself. In other words, western technology in African hands becomes African technology.

One of the clear outcomes of the web fictions of Dakar Web is the fact that African artists are frequently open to cross-disciplinary influences, creating aesthetic hybridity between visual arts, cinema and literature: as Djadji observes, "the links between various forms of artistic expressions is an important characteristic of this artistic Africanness"(5). This is reflected in the dominant role played by orality or oral tradition across artistic genres. Arising out of a post-Independence context in which African artists sought to redress westocentric misrepresentations and recoup cultures disparaged during colonization, oral tradition has played a major role in shaping the worldsense of African identity in narrative forms ranging from literature to film to television (Okpewho 293). The

web fictions of Dakar Web extend oral narrative structure to new media by continuing to contemporize these strategies. For example, although both Lait Miraculeux and Amika are explanatory tales charged with the task of explaining a range of cultural ideas, the former extends the African parable to a new media context while the latter draws strongly on the metaphor and poetic structure of an oral tale (203).

As Djadji observes, one of the most striking aspects of African art is the rhythm of the work: linearity in a tale or a brushstroke in a painting, or form in sculpture are secondary to flashbacks and repetitions and stylized flourishes (4). Lait Miraculeux, for example, demonstrates a combination of narrative images and text that foregrounds the orality of the text. The first screen of the work possesses a black background. Placed on the left side of the screen is a painting featuring the stylized image of African women walking out of a forest with calabashes or bowls of milk balanced on their heads. The image is significant because it illustrates the importance of social space in African narratives: in filmic terms, the image is a long shot in which the women's full physicality is featured against the larger context of the background. This visual emphasis acts as a recoupment of cultures fragmented by Eurocentric misrepresentation of the holistic nature of African cultures, in which society and context are inherent in the expression of identity. Furthermore, it reflects the pedagogical impulse of African expression: because the presentation allows a certain distance from the subject, the viewer is encouraged to develop her or his own interpretation by having a free choice of visual elements on which to focus.

The oral structure of the narrative is indicated by the orange text positioned on the right side of the screen. This introduces the narrative frame of the parable: prophet maidens appear from a mysterious forest bearing calabashes of miraculous milk towards a planetary city. Just below the text is an animated icon of three calabashes. The combination of the text and calabashes on the right balances the image on the left, creating equality of visual importance. This encourages the user to spend equal time examining the image and the text, reinforcing the connection between the image and the words that describe it.

There are two key metaphors advanced by the first screen. The "planetary city" suggests that the parable possesses a transnational theme, which advances a notion of Africa's interconnectedness to global events. This is borne out by a later screen that describes all the cities coming together to create the planetary city, in which man, hostage to his culture of cruelty, becomes his own worst enemy. The second metaphor is embodied in the use of the bowls as the repeating image throughout the screens. Echoing the image of the prophet women carrying the bowls of miraculous milk, this icon connects each of the subsequent story threads together. The repetition of the calabashes, as containers, both valorizes the African knowledge carried within them, but also acts as vessels for sharing that knowledge in a global context.

The calabashes have six live fields, located on the edge of each bowl. Clicking on any one of these live areas leads to one of two new screens, which branch into two different story threads. In the first, a painted image of the prophet maidens arriving in the city is positioned on screen left, while text on screen right announces the arrival of the miracle milk. Stylistically, this new image is drawn from the first one, and the women's bodies are fully depicted against a background of walls, suggesting the city streets. The second branch leads to a different image: here, a mixed media piece involving a rough clay figure of a woman carrying a bowl of milk depicts the arrival of the prophet maid in the city. The figure is surrounded by a maquette of city walls fashioned out of cigarette packages and other consumer packaging with broad brushstrokes of color washed across their familiar iconic images. The text that appears on this screen is exactly the same as that of the alternate choice.

The difference between the images linked by common text signals the splitting of the narrative along two different ideological lines. The first narrative thread, identified by the use of painted images focusing on social context, suggests a view of culture based on a perception and appreciation of society as an expression of communal interests. Furthermore, the painted images have a traditional feel, foregrounding linkage to culture imperatives that are inherently African and are unspoiled by colonial corruption. The mixed media work, on the other hand, reflects a culture that has become mired in the pursuit of materialism and individual advancement at the expense of common social goals intended to better society collectively.

These branches converge on a single screen featuring three images of the prophet maid. Image one is a series of still digital photographs located in the center of the screen. These images are taken from various angles and animated through editing. Images two and three are medium shots of the clay figure and are located on the left and right of the screen, respectively. The text is interspersed around and between the images, creating a series of shifting and interlocking triangles through the visual interplay between text and image. Thus, the user must engage each element individually, a strategy which encourages a contemplative rhythm as the user considers the ideological relationship between text and image. This concept of space and time is similar to that employed in sub-Saharan African cinema, in which the time the narrative subtends creates "a vision of the world registered in movement" (Barlet 173). Thus, the above example demonstrates a slower, more deliberate unfolding narrative in which the emphasis is placed on taking time to appreciate the interrelationships between image and word.

The text in this sequence indicates that the arrival of the miraculous milk initiates a final judgment in which color, race and creed will not provide a bar to the delivery of justice. Clicking on the calabash icon once again splits the narrative into two strands: the first depicts the arrival into the city of a man called Ngor, and the second, marks the arrival of a woman named Rama. As the

narrative progresses, Ngor is ultimately associated with the materialist ideological thrust and Rama with recoupment. A western reading of this structure might foreground the gender aspect of the narrative, and read it as an indictment of patriarchal society. However, gender as a determinant of social status is undercut by the use of the same visual layout for both branches depicting Rama and Ngor drinking the milk. Each screen features a long shot of a structure from the maquette, placed on the left side of the frame. Next to it the text informs the user that this is the day, hour and place of last judgment. Below the image and the pronouncement is another line of text explaining that in order to discover their final judgment, everyone must drink the milk. This is followed by a center image comprised of a series of medium shots, animated by editing, of Rama/Ngor picking up the calabash and drinking from it. To the right, gender-neutral text proclaims that those who continue to struggle to survive will be blessed and those who are puffed up in pride and lose their way will be woeful. Hence, emphasis is placed on individual choices and personal responsibility for action, rather than on the gender of the participant.

The depiction of Ngor and Rama's final judgments are given distinctly different visual treatments. Two branches indicate Rama's fate. In the first, the screen is black and divided by a series of thin blue bars. Superimposed on the bars are elongated full-length multiples of Rama that rise diagonally to the top right of the screen. The city appears on the far left of the screen in a photo of the maquette over which Rama is superimposed. Taken together, the sequence suggests her successful ascension into paradise. The second branch features a similar background. In this case, multiples of Rama's elongated figure run across the center of the screen, virtually filling the space, metaphorically suggesting prosperity.

The result of Ngor's final judgment is depicted quite differently. The first branch is visually connected to Rama's judgment by the repetition of the blue bars on a black background. Ngor appears in the center of the frame and a succession of still images, animated through editing, depicts his body ballooning until it explodes into concentric circles, suggesting the end of his existence. In the second branch, a painting depicts the demise of the city. Surrealist in tone, the human figures are overwhelmed by the destruction that surrounds them. This image is accompanied by text that states that some will ascend to paradise and others will be consigned to the smoking ruins of the city.

The above description suggests that the narrative unfolds in a linear fashion. However, the narrative segments do proceed in a random fashion, depending on where the user clicks on the calabash icon. This has three effects: first, the user is engaged in deciphering the parable, creating participatory interactivity. Once again, it takes time to fully understand the full breadth of the story, giving the narrative an African sense of rhythm. Second, elements of Ngor and Rama's threads are frequently combined, once again de-emphasizing gender positioning. Finally, the repetition of text functions as an oral tradition

device providing emphasis on specific ideological concepts, as well as reflecting a distinctly African stylistic approach (Okpewho 1992, 71).

The influence of oral tradition on African narrative structures creates a profoundly unique worldsense based on ontologies in which "the world consists of interacting forces of cosmological scale and significance rather than of discrete secularized concrete objects." (Tomaselli et al. 45). This is evident in the narrative structure of Amika as mythical, symbolic forces play a major role in the dissemination of the web fiction. Structured as a hypertext fiction, Amika differs from Miraculous Milk in that the written word dominates, and is supported by still images composed of sculptural elements in real environments. The front page offers the user the choice of narrative branches in the form of three oval icons arranged in a triangle against a gray textured background. The icon at the top of the screen features a sculptural image of Amika, a female figure created from scrap metal and ragged cloth. To the left, against an ocean backdrop, is the icon for the Lanternautes, fantastical figures comprised of lanterns on legs, and to the right, the Witnesses' icon reveals an abstract human stick figure fashioned from thin metal bars and clad in African cloth. The text on this page invites the user into the story by offering the following ambiguous fragments: "Amika … of the lights. Like a paragon… and the witnesses go by." The ambiguity of these words is emphasized by the repeated image of a question mark that runs vertically down the center of the screen, thus engaging the user immediately by encouraging her/him to join in the process of assembling the narrative.

Amika's icon branches to a screen divided into two regions. The top half features text on the left and a rectangular digital photograph on the right. The digital image reveals Amika, a young woman who lives in a poor squatters' area amid garbage and other castoffs from a material society. Placed against a real background of sandy earth and distant trees, the figure of Amika foregrounds the fictional structure of the narrative while connecting it to real places and time. The text that accompanies this image describes Amika as waking early and pondering the fleeting and treacherous morning light. It goes on to portray Amika as an individual who has not, until this point, allowed things to weigh too heavily on her mind. In the lower section of the screen is another image of Amika, this time on the left and standing in the center of railway tracks that disappear in the distance behind her. The text opposite the image emphasizes her infectious, happy smile, that some of the "gentlemen of the Plateau" take as flirtatious. These sections underscore Amika's innocence by foreshadowing the unending poverty, which will later drive her to despair. Finally, the icons from the front-page repeat in the last section of the screen, allowing the user to move through the three narrative threads in the order she/he chooses. Although accessing all three is critical to understanding the full context of Amika's struggle, both the Lanternautes and the Witnesses are ultimately subordinate to Amika's story since it is their story strands that cross and impact hers, leading to the work's ultimate conclusion.

Ambiguity and metaphor are major contributors to the shape of the narrative. As the narrative branches out, the social environment through which Amika navigates is implied by a description of three metaphorical zones: the Plateau and its poverty-stricken inhabitants are caught between the Mountain, where the wealthy live, and the Center, where the wealthy make their money. The extent of Amika's exclusion from privilege is implied by the revelation that people of her status are only allowed to travel to the Mountain in order to sell the flowers that grow on the garbage heaps in the Plateau. Another indication of marginalization occurs in an incident where Amika rips her skirt to expose her knees to fit in with the fashionable young women of the Center who wear short skirts. There is no direct statement that Amika fails to achieve the desired acceptance: rather, this is indirectly alluded to by the fact that her exposed knees reveal that she does not have the opportunity to wash often, indicating a lack of access to water and hence, poverty. By using indirect statements, Amika's narrative structure creates a discursive space which encourages the user to contemplate the statement and arrive at her/his own decision about its meaning.

Like the prophet maids in Lait Miraculeux, Amika has supernatural elements that intervene in every day life. However, in this case, there is considerable ambiguity in their deployment. For example, despite their human-like figures, the Witnesses are not clearly human or purely mystical, but rather occupy an interesting middle ground between the two. Dedicated to gossip and their own amusement, the Witnesses take joy in the spectacle of witnessing other people's pleasure or pain without intervening, thus making them a metaphorical representation of uncaring society.

In the narrative segment in which they encounter Amika, the screen is divided into three sections. The Witnesses appear at the top of the screen in a digital image on the left and are accompanied by a text in orange on the right, indicating that they are out looking for a spectacle to enjoy. Amika, who has become increasingly despondent over the course of the narrative as she finds herself going in circles, a metaphor for her entrapment in poverty, is depicted on screen right in a digital image. The text, now in red, describes her as being at the end of her energy, on her knees and screaming violently. The last section visually illustrates this despair in an image placed on screen left which reveals Amika on the ground. The last paragraph portrays her as a screaming, hurling body, a portrait that scares no one. Although there is no direct reference to the Witnesses encountering Amika and participating in her humiliation as onlookers, the proximity of their image to those illustrating her travail suggests that this is the case. The absence of an explicit statement of relationship between the sections involves the user in the process of interpreting the events, creating interactivity in the process of reading as well as in the movement between narrative segments.

In contrast to the ambiguous Witnesses, the Lanternautes are clearly supernatural forces. The first segment of their narrative thread is also divided into three sections, demarked by text and digital photographs. The text at the top of the screen identifies the Lanternautes as the children of Yémanja, goddess of the sea. As bearers of light, the Lanternautes illuminate the depths of the ocean, but leave their marine world for the land if they hear a genuine distress call. The digital photographs of the Lanternautes emphasize a particular relationship with Yémanja. Portrayed in long shot, the art pieces are depicted in the foreground on a sandy beach with blue water in the middle ground and luminous sky in the background. The metaphorical presence of the goddess, indicated by the water and brilliant sky ground the Lanternautes in nature, giving them an ethereal, otherworldly visual force.

The intervention of the Lanternautes is key in the climax of the narrative action. In the final branch of the narrative, screen space is broken into three sections. In the top third, a digital photograph on the right depicts the Lanternautes gathering around Amika's prostrate form. The text, located left of the image, declares that they have heard Amika's cries and have come with the light she needs. Below the text is another photograph, this time of a single Lanternaute striding across the rocky ground. To the right, the text states they build a bonfire if they find the person they are searching for. The last section is dominated by two phrases. The first asserts that the Lanternautes return Amika's smile. The last, in a larger font, declares that it is a genuine smile. It is significant that the narrative climaxes ambiguously in text for two reasons. First, the strategy foregrounds the word as the most important aesthetic in the work, as it connects the web fiction to the continuing evolution of African oral history. Second, it serves to give dominance to the supernatural forces that rescue Amika and creates an open ending. For example, the light given to Amika has many possible explanations: for example, it could indicate an affirmation of African spirituality as a reservoir of strength or be the self-knowledge attained through a difficult journey. Hence, the absence of a definitive resolution creates a kind of narrative persistence that continues debate beyond the conclusion of the story as the user seeks to interpret the true meaning of the ending. Ultimately, by engaging the user's imagination, Amika generates both debate and interactivity.

Although the question of access to technology remains contentious in Africa, the success of Lait Miraculeux and Amika lies in their ability to communicate African narrative form and aesthetics to a global platform. As Ousmane Sembène remarks, "Whatever its form, subject or content, artistic expression stems from a lived and shared social reality…. If you know how to see, you can easily locate those African signs and symbols where the ethnic roots offer as much to the continent as to the outside world" (184). This new technology complements existing means of artistic expression for, as artist Moussa Tine observes, "we will never abandon our paintbrushes because they are irreplaceable: however, they allow us to push the limits of chromatic research" (Dakarweb, 47). Thus, by leveraging digital technology and adapting it

to African aims through an African approach, it is evident that the intersection of African oral and artistic traditions with outside influences is leading to the development of a unique African new media aesthetic as a continuation of long-standing artistic traditions.

Acknowledgements:

Special thanks to Michel Lefebvre for providing access to the Dakar Web projects. Thanks also go to Santichart Kusakulsomsak and D.L. McGregor.

Endnotes:

1. Eva Quintas is a photographer and initiated the workshops for ISEA. Michel Lefebvre is a writer and multimedia producer. Catherine McGovern is a web art producer.

2. Amika (Ndary Lô, Massamba Mbaye, Moussa Tine, Madické Seck); Cauris (Serigne Mbaye Camara, Viye Diba, Frères Guissé); Lait Miraculeux (Mamadou Fall Dabo, Séa Diallo, Alpha Sow); Petit Pagne (Rackie Diankha, Pape Teigne Diouf, Assane Gning, Vieux Mac Faye); Talibés (Anta Germaine Gaye, Fatou Sow Ndiaye, Djibril Sy)

3. The question of "authentic" African authorship in European/African co-production situations is the subject of much debate in African indigenous media production. For further discussion see Clément Tapsoba. 1995. "The Influence of Aid on the Creativeness of Filmmakers," in Ecrans d'Afrique No. 13-14, 3rd-4th quarter: 86-93 and Teresa Hoefert de Turegano, "FESPACO 1999: The Cultural Politics of Production and Francophone West African Cinema" in Black Renaissance/Renaissance Noire, Fall 2000, vol. 3, p. 145-167.

References:

Barlet, Olivier. African Cinemas: Decolonizing the Gaze. Trans. Chris Turner. London and New York: Zed Books, 2000.

Bey, Hakim. "The Information War." In Virtual Futures: Cyberotics, Technology and Post-Human Pragmatism. Eds. Joan Broadhurst Dixon and Eric J. Cassidy. London and New York: Routledge, 1998.

"Dakarweb." Africultures. No. 23 (décembre 1999): 47.

Daouda, Moudjibath. "Les enjeux d'Internet en Afrique," Africultures No. 23 (décembre 1999): 5-8.

Diadji, Iba Ndiaye. "L'Africanité Artistique Face aux Défis des Nouvelles Technologies," Colloque: Art Africain et Nouvelles Technologies," le 23 avril 1999, Montréal, Vues d'Afrique. http://www.isea.qc.ca/africa/colloque/bio_fr/iba_conf.html.

Drabo, Yaya Karim. 1992. "Le paradoxe africain de la télévision: l'alternative par la contrainte." In Petits écrans et démocratie: Vidéo légère et télévision alternative au service du développement, eds. Nancy Thède and Alain Ambrosi. Paris: Syros-Alternatives, Vidéo Tiers Monde and Vidéazimut, 1992. 107-112.

Gabriel, Teshome H. and Wagmister, Fabian. 1997. "Notes on Weavin' Digital: T(h)inkers at the Loom." Suitcase Vol. 2, No. 1 & 2 (1997): 104-115.

Heim, Michael. "The Cyberspace Dialectic." In The Digital Dialectic: New Essays on New Media. Ed. Peter Lunenfeld. Cambridge, Mass; London, England: The MIT Press, 1999.

Johnson, Steven. Interface Culture: How New Technology Transforms the Way We Create and Communicate. New York: Harper Collins, 1997.

Lévy, Pierre. Becoming Virtual Reality in the Digital Age. (trans. Robert Bononno), New York and London: Plenum Trade, 1998.

NEPAD (New Partnership for Africa's Development), http://www.africanrecovery.org/Documents/AA0010101.pdf (October 2001), accessed, April 4, 2002.

Okpewho, Isidore. African Oral Literature: Backgrounds, Culture and Continuity. Bloomington and Indianapolis: Indiana University Press, 1992.

Pines, Jim. "Information Technology, Power, Cinema and Television in Africa." In Symbolic Narratives/African Cinema: Audiences, Theory and the Moving Image. Ed. June Givanni. London: British Film Institute, 2000. 153-157.

Sembène, Ousmane. "Information Technology, Power, Cinema and Television in Africa." Symbolic Narratives/African Cinema: Audiences, Theory and the Moving Image. Ed. June Givanni. London: British Film Institute, 2000. 185–186.

Tomaselli, Shepperson and Eke. "Towards a Theory of Orality in African Cinema." In African Cinema: Post-Colonial and Feminist Readings. Ed. Kenneth W. Harrow. Trenton, NJ: Africa World Press, Inc., 1999. 45-87.

Ukadike, Nwachukwu Frank. Black African Cinema. Berkeley: University of California Press, 1994.

UNESCO, “A Strategy to Accelerate African Development Through the Increased Use of Information and Communication Technologies,” http://www.uneca.org/eca_resources/Conference_Reports_and_Other_Documents/disd/codi/docs/doc20EN.pdf (July 23, 2001), accessed April 4, 2002.

UNESCO, “Information and Communication Technology Policies and Strategies,” http://www.uneca.org/eca_resources/Conference_Reports_and_Other_Documents/disd/codi/docs/doc22EN.pdf (August 7, 2001), accessed April 4, 2002.