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The acquisition of digital audio knowledge in the studios of Senegalese beatmakers.

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Abstract

A field study carried out in the studios of some fifteen Senegalese beatmakers revealed the omnipresence of discourses linked to self-training to explain the ways in which they acquire the digital audio knowledge on which their creative practices are based. However, most of the time, this self-taught learning corresponds to situations where neither the learners nor the trainers recognize the formative nature of learning situations that actually take place. This article examines these processes in detail, in order to identify the types of learning that take place, and the types of knowledge that are transmitted. The acquisition of digital audio knowledge by Senegalese beatmakers is based on varied, heterogeneous and complementary processes: tutorials viewed on the Internet provide an initial familiarization with concepts and tools, which are then contextualized and incorporated through interaction with more experienced beatmakers, foreign sound engineers, initial professional experience and collaboration with peers. This digital audio knowledge is not only built up independently, but also through contact with concrete situations in studios and home studios. Although beatmakers constantly refer to them, and although their influence is real, globalized hip-hop creation practices are confronted with local constraints, with the specificity of the experiences Senegalese beatmakers have gone through in the course of their professional lives, but also with "tacit knowledge" linked to recording studios more generally. In the absence of institutional training, a body of knowledge adapted to the reality of current Senegalese musical creation is thus transmitted and updated through practices and interactions that bring local scale and globalized circulations into daily dialogue.

KEYWORDS: beatmaking, hip-hop, knowledge, digital, Senegal

Introduction

The traditional structures and organization of Senegalese music, based on the role of the "griots" and an important "musicalization" of everyday life (Niang 2015), have been crossed over the centuries by various influences - Cuban, American, colonial (Shain 2009). Since the introduction of 3G technology in 2010 (Sagna 2012), musical creation in Senegal has been in the throes of change: the multiplication of home-studios, upheaval in modes of broadcasting and distribution, changing practices from the point of view of creation, listening, and storage. These changes are particularly important in the production of hip-hop music, which has been present in Senegal since the late 1980s (Benga 2002), but whose creative processes have evolved rapidly over the ensuing decades. The beatmaker, who composes and produces hip-hop instrumentals, has today become a central figure in Senegalese musical creation, thanks to his mastery of the digital audio production tools that are omnipresent in studios (Péneau 2023).

Over the past thirty years, African hip-hop music and movements have been fairly extensively documented in academic literature by researchers in the humanities and social sciences (Aterianus-Owanga 2017). However, very little work has been devoted to the making of rap and hip-hop music in African studios and home-studios, with the exception of the research program recently undertaken by Emmanuelle Olivier in Mali (Olivier 2017; Pras et al. 2019), and the question of tools and knowledge is addressed only peripherally in the texts that focus on it (Collins 2002; Shipley 2017). Based on interviews and on ethnographic work carried out in Dakar in 2019 as part of my doctoral thesis, I therefore propose to examine here the ways in which the knowledge needed to use digital audio technologies is learned in the studios of Senegalese beatmakers: self-training using tutorials and streaming platforms, mentoring, collaborations, or the presence of sound engineers who pass on to younger people and circulate in West Africa and beyond. How do these different modes of knowledge transmission interact? What kind of knowledge is transmitted, and how? And what values do they convey?

“Galsen” Hip-hop

In Senegal, hip-hop began to spread among middle and high school students in the capital's affluent neighborhoods in 1984 and 1985 (Moulard 2008). The video clips of American rap pioneers were a major influence, but it was the French TV show "H.I.P - H.O.P" that sparked a trend that initially focused on dance. Indeed, most first-generation Senegalese rappers discovered this culture through dance, before starting to rap, in phonetic and often approximate English (Appert, 2012; Senghor, 2015), in imitation of the African-American models represented by groups and collectives such as Grand Master Flash & The Furious Five or Public Enemy. In 1992, Positive Black Soul (PBS) recorded the first locally-produced album, with instrumentals composed and produced in Dakar. The tape Boul Falé was produced by the band members, assisted by two older musicians and sound engineers trained in recording and production in their previous careers. These first albums, recorded in Dakar, allowed their creators to gain recognition and notoriety locally and then internationally, among both the public and music professionals (Péneau 2023).The second half of the 1990s saw an explosion in the number of rap groups in the

Senegalese capital, still under the influence of North American and European productions, but also thanks to the early success of Senegalese hip-hop pioneers PBS, Daara J and PeeFroiss. Although these early groups tackled societal and political issues in their lyrics, the second generation of Dakar rappers took on even more themes of inequality, poverty, corruption and the electoral system, following in the footsteps of groups such as WA BMG 44 and Rap'adio, whose rap was described as "hardcore" and who mostly used Wolof (one of Senegal's official languages, which also serves as the country's lingua franca) in their lyrics.
The first Dakar home-studios, which appeared around 1998, were often those of pre-existing rap groups who, having benefited from initial production and recording experience, were beginning to master these tools and become familiar with the necessary equipment. Internet access, for those who had it or in cyber-centers, enabled them to download amateur software such as Magix Music Maker and learn beat making, even if the capabilities of this software remained limited and it was difficult to integrate the formats produced into professional productions. After these initial trials, some gained access to more advanced digital audio software, such as Cubase, and started to gain experience, enabling them to gradually monetize their services, or pass them on to others in their school, university or neighborhood.
Beyond creation, the move to digital also affected distribution and listening. From the second half of the 2000s, but especially from 2010 onwards, some Senegalese rap artists began to use the first music-centric social networks. The development of mobile telephony and the 3G network in Senegal led to a significant increase in the number of Senegalese with access to the network, which reached almost 1 million people in 2011 (Sagna 2012). In the course of the 2010s, Youtube and Facebook, became the main channels of communication for artists, through which the majority of Senegalese hip-hop music is now consumed. The 2010 decade saw the emergence of a new generation of rappers who, thanks to their mastery of digital tools and social networks, are enjoying notoriety in Senegal that rivals that of mbalax stars such as Youssou Ndour or Wally Seck. Rappers DipDoundouGuiss and Omzo Dollar are followed by millions of fans on Instagram, Facebook and Youtube, and offer music that, while influenced by North American and French rap, strongly asserts its Senegalese roots through the use of Wolof, sabar percussion ensembles and mbalax.Rap has thus become a permanent fixture on the Senegalese media landscape, offering young people a possible future, as the most famous artists showcase their success on social networks, with the financial backing of national or international companies, notably telephone operators.

Context and current situation

At the time of my fieldwork in Dakar, i.e. between March 2019 and January 2020, there were no higher education or vocational courses offering training in sound engineering or computer-assisted music (CAM) in Senegal. From the point of view of continuing education, there were no facilities for technicians, sound engineers, musicians or beatmakers to update their knowledge, which must necessarily evolve and be kept up to date with changes in the technologies used on a daily basis. This is what Lil Bugs, sound engineer at Djidjack studio in Dakar, confirmed to me:

> That's all that's missing here, the guys don't see it as a profession, they don't understand that culturally it's positive, there are lots of young people who love doing it, and there's never been a school. There are rare master-classes, but you can't take everybody in, it's only two weeks from time to time. (Interview with Lil Bugs in Dakar, January 18, 2020).

Given this situation, beatmakers' strategies for learning and acquiring knowledge are necessarily multifaceted. The mastery of the tools and knowledge used in their professional practices, far from being the result of school- or academic-type learning, relates rather to the "arts of doing" and the "everyday production of culture" described and analyzed by Michel de Certeau in “L'invention du quotidien” (Certeau 1980), but also to the "the capacity to re-imagine" (Schwint 2002: 47) that characterizes many other fields of Senegalese social, economic and cultural life (Banégas and Warnier 2001; Diop 2013; Bredeloup 2016). It is therefore only through an analysis based on precise ethnographic work that it becomes possible to understand how young Senegalese appropriate the devices with which they constitute their studios, and how they manage to gradually build a form of expertise on the basis of knowledge they access through heterogeneous processes, and in varied contexts, at all stages of their experience.

During my interviews and studio sessions, I noticed the pervasiveness of a discourse in which beatmakers insist that they learned to master their digital audio tools "on their own". All begin by explaining that they didn't need anyone's help to approach and improve their practice. So, at first glance, their learning could be described as self-taught. Beatmaker Sidy "Diss" Talla, for example, insists on his autonomy when it comes to computers, and highlights his curiosity to explain how he came to familiarize himself with the workings of FL Studio digital audio software: "I managed because I was curious about computers" (interview with Sidy "Diss" Talla in Dakar, September 20, 2019). Similarly, beatmaker KarismatikDiksa recounts how he came to master his favored studio instrument, the AKAI MPC production station: "I taught myself. I started fiddling around, and then I did some research on the net. But in hip hop here, we learn by ourselves" (Interview with Diksa in Dakar, November 5, 2019). When I asked singer and beatmaker NoFace about his learning process, he also subscribes to the paradigm of self-taught, insisting on his high standards with regard to his own work: "I only programmed, I made my own beats, if I'm not satisfied I delete straight away. And I'd do it again" (interview with NoFace in Dakar, September 17, 2019).

But although self-taught people often define their learning path as solitary, they never learn completely alone. They may rely on the advice or recommendations of elders, or "masters" (Fossé-Poliak 1992), with whom they have no formal relationship, but who are nevertheless involved in the process of acquiring knowledge. Learning can also take place within a network, a social group or a community, in which everyone is simultaneously learner and trainer, depending on their level and the types of knowledge transmitted (Baudelot et al. 1999). Rémi Deslyper defines self-taught learning as "learning in which one is not conscious of learning" (Deslyper 2009: 2). It is therefore essential to examine these processes in detail, in order to identify which types of learning are implemented, and which types of knowledge are then transmitted. Indeed, the beatmakers I interviewed seem to have difficulty identifying learning times, or "teachers" along the way. However,

analysis of their accounts reveals events and periods of training, even though they are not named as such in their discourse.

Tutorials and online training

A common thread running through the discourses of all the beatmakers I spoke to in Dakar were the tutorials offered on Youtube. All of them told me they had spent many hours watching Youtube channels specializing in explaining how the FL Studio digital audio software platform works, as well as recording, mixing and mastering. Beatmaker Damdam recounts how he used to spend his evenings watching this type of content: "That's how I learned a lot more secrets, that's what helped me learn faster" (Interview with Adama "DamdamBeatz" in Dakar, January 21, 2020). This is also what NoFace explained to me: "I learned by watching tutorials" (interview with NoFace, op. cit.), or beatmaker Lex Primost: "It's Youtube, and nothing else" (interview with Lex Primost in Dakar, January 14, 2020). But these tutorials also continue to be used throughout professional life to perfect one's skills, as singer and beatmaker Brill tells me, for example:

> I'm on YouTube all the time. I watch what's special that I didn't know about. There are lots of tricks I've learned from YouTube tutorials. I've even downloaded entire training courses, I put that in my laptop, when I have time and I'm not doing anything I open them, I learn. (Interview with Djibril "Brill" Fall in Dakar, May 6, 2019).

When I tried to find out more about the type of content beatmakers watched, the name of one Youtube channel came up regularly, and seemed to set the standard for many of them. The channel in question is Busy Works Beats (BWB) (1), which has been active since 2009 and in 2020 had almost 800,000 subscribers and over 115 million views. It is one of the most visible beatmaking tutorial channels on Youtube, which no doubt explains why many Senegalese beatmakers refer to it, even though the content is all in English. Beatmaker Jeuuss, for example, confirmed (but he's not the only one) that it was his main source of information for everything to do with the digital audio software he used, and that it was where he found his "tricks", i.e. specific tips or techniques linked to a particular software parameter: "On YouTube, there's Busy Works Beats. It's a YouTube channel. All the beatmakers here, they know this channel" (interview with Jeuuss in Dakar, December 18, 2019). The main contributor to these videos is Game, an American beatmaker who specializes in training and tutorials. BWB offers several thousand videos, ranging in length from fifteen minutes to two hours. But each video offers its own autonomous information content. The progression from one video to the next is therefore a dynamic process that is specific to each user, according to his or her needs, and within the framework of an itinerary that he or she determines.

In contrast to the notions of "planetary brain" or "thinking network" (Rosnay 1995) often associated with the Internet as part of reflections on the relationship between knowledge and digital technologies, and which sometimes rightly emphasize interconnection (Guevel 1999), the system described here seems to correspond more to unidirectional communication. Subscribers to the BWB channel are never in a position to interact with the creator of the tutorials during viewing. The

postulate that communication technologies necessarily contribute to improving interaction, and thus positively influence the quality of learning (Tricot and Rouet 1998; Papadoudi-Ros 2004) therefore seems to have to be qualified here, since the situation described is actually closer to a television program than to learning built around social interaction. Indeed, the tutorials offered are not really organized in the form of a progression that would explore notions one after the other, in an order determined by their level of complexity and the relationships between the notions they address. This lack of organization is reminiscent of Canadian sociologist Sheldon Ungar's description of the Internet as "the most disorganized library in history" (Ungar 2008: 343). And even if Senegalese beatmakers make choices that correspond to their needs at a specific point in their learning path, they are nonetheless confronted with a plethora of poorly structured resources. Drawing on Robert E. Lane's (1966) work on knowledge societies, Ungar extends the analysis by proposing to distinguish between information, which corresponds to "bundles of facts", and knowledge, which requires contextualization, organization and integration of the raw facts. For him, the accumulation of information or facts is not enough to constitute a "knowledge society", which requires the organization of this data into a "coherent and reusable set of ideas" (Ungar 2008: 337). All these tutorials provide Damdam, Jeuuss and Brill with information rather than knowledge. The videos offered by BWB, for example, enable them to "compose melodies extremely fast" using the Gross Beat plug-in (an additional software package for timbral and tonal processing), or to learn how to use a saturation effect with the Decapitator plug-in (an additional software package for signal saturation). But these different operations do not follow a set logic, where we would first learn the fundamentals of digital audio software, then the use of samples, sound synthesis or the various signal processing effects. Insofar as consulting tutorials is not the only means available to them to familiarize themselves with digital audio technologies, we can postulate that it is the other forms of learning to which they have access that enable them to contextualize this information and integrate it into their practices in the form of knowledge.

Beyond the information they offer, BWB tutorials are also part of a specific context. Going into the details of how this information is made, conceived and thought about, while examining the social and musical representations it conveys, could be the subject of a thesis in its own right, and would therefore take up too much space in this article. However, a glance at their titles reveals that these videos are part of a paradigm that systematically corresponds to that of North American popular music and rap in the 2010s. Indeed, all the elements used to construct rap instrumentals made in the USA are detailed here, whether they be New York-style, with strings and arpeggios inspired by Korg Triton or Trinity synthesizers and used by beatmaker Swizz Beats on tracks by BustaRhymes or Jay Z. Also featured are the production techniques of Pharell Williams (Cruz 2019), right through to the Roland TR808 drum machine sounds used by Lex Luger or Southside, the beatmakers behind the trap style (Hasnain 2017). While offering information on how to use a particular processing effect, or how to set up a particular software plug-in, Busy Works Beats also disseminates typically North American ways of producing rap music. We are thus witnessing the transfer of knowledge from the United States to a country in the South, and we need to understand the processes through which Senegalese beatmakers are led to appropriate it.

Remaking: learning by copying

From Gregorian chants to Afghan or Arab-Andalusian music, learning by copying is a learning modality widely documented by ethnomusicologists (Baily and Doubleday1988; Loopuyt 1988; Schippers 1988; Viret 1988). Many of the beatmakers interviewed mention "remaking" as an essential part of their learning process. This involves reproducing an instrumental from a piece of rap music they particularly like, and which they think will enable them to better understand tools or ways of doing things they haven't yet mastered very well. Lil Bugs told me how he was able to access the knowledge he uses today thanks to remaking: "Every time I heard something, I tried to remake the gimmick and adapt myself" (interview with Lil Bugs, op. cit.). It's a practice also described to me by beatmaker Passa: "I used to do remakes, (...) that's how I got to know PCs" (interview with Passa in Dakar, April 28, 2019). Remaking thus enables beatmakers to approach ways of doing things, tools, and to familiarize themselves with musical concepts they had not mastered before, trying to understand and analyze the construction of instrumentals from tracks by popular rap artists such as Drake or Diplo.

> The basics and all that, really, is the remake. Because when you remake something, you discover new things. How many bars in a verse, how do you introduce a chorus, you know exactly, in fact. It's like recreating the beat as you go along. There's a gap where the guys are rapping. Then I learned over time, we call them bars, after the BPM. It's by doing remakes that you understand. The guys here, Drake, all that, Diplo, I listen to the sound. (Interview with Lex Primost, op. cit.).

The creation of remakes also enables them to start making a name for themselves on social networks, and particularly on Soundcloud, where these remakes are commented on and listened to by their peers as well as the public (Senegalese and international), which can bring them the beginnings of online notoriety and a first form of "visibility" (Heinich 2012): "One thing leading to another (...) I realized that people listen to this. A Drake remake there, for example. I'd do it again, just like that. Recently I saw a Drake remake, 196,000 plays" (Ibid.).

Situational learning, mentoring and collaboration

In interviews, beatmakers initially talk about aspects of their learning that do not involve interaction, but when asked about their background, they all recount situations in which they were in contact with beatmakers more advanced in their practice, who were able to pass on knowledge, skills or constructive criticism. Many of them also recount having acquired some of their knowledge during periods of apprenticeship or employment, in contact with other musicians and sound engineers. Finally, they have all collaborated on the production of a track or an album. All these interactive situations also constitute learning situations, although they are not spontaneously identified as such in the discourse.

The first category of interaction found in the beatmakers' accounts corresponds to various forms of mentoring, where an already experienced beatmaker shares his knowledge with a young person, who thus benefits from a form of knowledge

transfer, but also from an outside viewpoint that can sometimes seem like an assessment. This type of relationship can be found among music makers and guarachero DJs in Mexico (Clayton 2015), Balkan Roma music (Silverman 2010), classical music orchestras in France (Lehmann 2005), and "griots" in Mali (Durán 2007). In Dakar, for example, this is what Passa described when he told me about his first steps into the practice:

> I got close to a few artists, local guys. Boss Beatz, (...) and there was another guy, Weezyade. Weezyade, I'd do something and send it to him. He'd tell me whether it was going well or not. Sometimes he'd say: "Today's fine", or "No, you can do better". That's how I started (Interview with Passa, op. cit.).

Here, Weezyade did not seem to be involved in the transmission of knowledge, but rather in validating Passa's skills and "level". In other cases, such as that of beatmaker Primus, the mentoring relationship takes place at a distance, and remains more focused on digital audio knowledge:

> When you're just starting out, you make really crappy beats. I sent them to several people in the U.S., and one guy wrote back to me. He said: "You're doing a great job". I was older than the guy, but he taught me a few things, mixing and all (...) After that, he taught me, and some of the things I knew were thanks to him. (Interview with Primus in Dakar on October 8, 2019).

For other beatmakers, certain situations of interaction with sound professionals seem to go beyond advice, or the transmission of a few "tricks". These experiences seem closer to those observed, for example, among the Compagnons du Tour de France (Adell-Gombert 2008), or among Wolof blacksmiths in West Africa, albeit in a different way, since they are often endogamous, which is not necessarily the case with beatmakers (Romainville 2013). Looking back at these experiences, we can see that Brill and Lil Bugs were able, thanks to an encounter with a more experienced professional, to put the knowledge and ways of doing things they had previously acquired through Youtube tutorials into context, and to better understand the different ways in which this knowledge and these ways of doing things could be articulated. Brill recounts how his encounter with an American sound engineer allowed him to learn the various stages of mixing tracks for which he had himself composed and produced the instrumentals:

> In 2012, I worked with a sound engineer who came from the United States to mix an album by a Senegalese artist. When he came here, he taught me a lot about mixing, and in addition to everything I learned from the tutorials, that's how I learned to mix. He mixed the project I recorded myself. (...) When he was mixing, I was there all the time, everything he was doing I saw, I wrote down, you know. (Interview with Brill, op. cit.).

The image of Brill observing the American sound engineer with whom he collaborates echoes the nickname "science catcher" given to nineteenth-century typographer apprentices, to whom master craftsmen do not pass on skills formally, but who acquire mastery of their art through observation (Steffens 2001). Lil Bugs'

encounter with an Italian sound engineer on a visit to Dakar also brought about a profound change in his way of working:

> I met a sound engineer, and he turned my vision of CAM upside down. In my bedroom, I'd made an album for a reggae man (...) He'd taken the CD and sent it around for people to listen to, and he bumped into the engineer. The guy listened to the track and asked him: "Where did you do that, it's pretty cool! He said: "It's a friend of mine, he's in his room". He couldn't believe it was a kid in his room, but then one day I see this little white guy with the reggae artist. He says, "How did you do that? I opened the software, showed him the projects, he listened, and said: "Tomorrow I'll come back and we'll sit down. He came back the next day and started on the theory. He got me back on track with what I was doing. We remixed the album with him using his method. He showed me how to do things (...) With his method, we started with the instrument, recording the guitar (...) We checked the levels. Then you move on to drums and sampling. He really guided me in that direction. I was no longer satisfied with what I had, I wanted to go after the details. (...) Every year, he'd come back and start sessions. I'd come with him to studios, (...) I'd learn new tricks, how to record, how to do things, all that stuff. (Interview with Lil Bugs, op. cit.).

From the accounts of Lil Bugs and Brill, we understand that it is not a question of familiarizing themselves with digital audio tools they already know. By the time they meet these foreign sound engineers, they have mastered many of the functions of the software they use on a daily basis. Plug-ins, mixing, equalization, processing effects and dynamic compression are already part of their vocabulary, and correspond to notions they know, even if it is only partially. What is passed on, therefore, corresponds to an empirical method through which these different tools are implemented, in a more organized way. Whereas they had previously played it by ear, using comparisons with titles already on the market, these exchanges gave them access to a shaping of processes already known, but mobilized "haphazardly". These learning situations contextualized the information beatmakers had previously accessed through YouTube tutorials, and integrated it into their practices in the form of knowledge. These two examples nevertheless raise the question of the origin and type of knowledge transmitted, insofar as the sound engineers referred to by Brill and Bugs are not originally from Senegal. As I have only fragmentary information on their backgrounds and professional practices prior to the situations described, it is difficult to make precise assumptions about the types of knowledge they pass on to the young beatmakers I met in Dakar. But I can nevertheless hypothesize trajectories rooted in the tradition of European and North American analog studios, as described in the work of Susan Schmidt Horning (Horning 2004). Although embedded in an environment marked by the use of often complex technologies, the knowledge incorporated and put into practice is largely based on a set of "tacit skills", the modalities of which seem to correspond to those of the knowledge transmitted to Brill and Bugs in the examples cited here.

In a third category of situations, Senegalese beatmakers and sound engineers may gain access to digital audio knowledge through an internship or a first job in a studio. In the first phase, they are merely observers, as they have to prove themselves: Damdam recounts how he could spend whole afternoons in the home

studio of an older beatmaker he met through his cousin: "I'd go to his place four or five times a week, and I'd watch him do it" (Interview with Damdam, op. cit.). In fact, you do not entrust the computer or console to an inexperienced youngster, as Assane Masson's account of his early years at Studio Sankara, founded by Senegalese rapper Didier Awadi of the group PBS, attests: "It took me five years before I really got to grips with a musical project. When it's time to mix, you just sit back and watch. Go and get me some coffee, bring me some cigarettes, that sort of thing" (Interview with Assane Masson, op. cit.). Then, gradually, you can start handling the equipment, but only when the work is finished. This is what Diksa tells me, for example, when I ask him about his first experiences in the studio:

> At first, I'd drop in from time to time, then I'd spend my days and nights. But it was a learning period, you got to look around a bit and familiarize yourself with the equipment. It belonged to two friends, not far from my home in the Parcelles district. It was their home studio for their band. I had to wait until three in the morning to get access to the machine (Interview with Diksa, op. cit.).

Learning comes down to "stealing with your eyes" (Minard 2001: 128), and entry into practice requires "patience and dissimulation" (Buob 2010: 7). Following Gilles Moreau, we can distinguish several moments in this type of apprenticeship situation: initially, the apprentice is entrusted with auxiliary work, "on the fringes of the trade", such as cleaning or coffee preparation; then in a second phase, he or she can access "peripheral production work", even if only in the absence of the "masters", and only once the work has been completed (Moreau 2016: 127).

A first salaried job in a studio can then be an opportunity to acquire new skills. Passa describes how he was able to get familiar with a new digital audio platform when he was hired as a sound engineer in the recording studio of a Senegalese label (Sen Lyrics). The studio's equipment remained minimalist (sound card, computer, speakers and microphone), but it was an opportunity to gain practical experience, especially in recording on the Cubase digital audio platform, a program he was unfamiliar with and on which he was therefore learning in real time. These first jobs also very often correspond to situations close to exploitation, as is still often the case in apprenticeship contexts, in Africa as in Europe (Marguerat1994; Pelpel and Troger 1997; Guessous 2002). Diksa explains how he was able to accept a job in a recording studio for a modest salary, as it was an opportunity for him to gain experience and develop his professional network:

> There was a guy who had a studio (...). He was doing takes, mostly for mbalax, and he had people coming in to ask him to do hip hop takes and beats, so he hired me to do that. I was being exploited, but you make a name for yourself, people get to know you, and then you get experience. And then the guys come straight to you. (Interview with Diksa, op. cit.).

Finally, a fourth learning modality corresponds to situations where beatmakers collaborate on the production of an instrumental, a track, or an album. Passa and 1Da have composed some instrumentals together, such as the track You Know, featured on rapper Dose's latest album (2020). 1Da's album What a Year is also the product of collaboration with Sidy "Diss" Talla, who mixed all the tracks and

recorded the vocal parts (2020). Each of these experiences is the occasion for exchanges, sometimes anecdotal or difficult to identify, but that constitute moments of transmission of digital audio and musical knowledge. Jeuuss explains that Passa's "technique" is one of his references, and that the tracks on which they collaborated were opportunities for him to perfect his skills, for example in sample manipulation. These transfers of knowledge can also be controversial. For example, one of the beatmakers explained to me in an interview that another had "stolen" his "mastering settings" while he was finalizing a project in a studio they shared, questioning the alleged thief's professionalism and explaining that his skills were not as extensive as he would like people to believe (I have deliberately anonymized the two beatmakers involved in these anecdotes). Some knowledge is not necessarily transferable, or at least not to everyone. After all, it is a competitive environment, where a beatmaker's "value" is measured by the extent of his skills (real or supposed), particularly in mixing and mastering.

Conclusion

The accounts gathered through interviews and field observation thus enable us to describe how the acquisition of digital audio knowledge by Senegalese beatmakers is based on varied, heterogeneous and complementary learning processes: tutorials provide an initial familiarization with concepts, tools and processes, which are then contextualized and incorporated in situations of interaction with more experienced beatmakers, foreign sound engineers, during first professional experiences, or during collaborations with peers in co-creation situations. The digital audio knowledge applied by Senegalese beatmakers is therefore not only built up with reference to globalized hip-hop creation practices, but also develops through contact with concrete situations encountered on a day-to-day basis, in Senegalese studios and home-studios. Although beatmakers constantly refer to them, if only through the use of a specific English-speaking vocabulary, and although their influence is real, the tools and ways of doing things disseminated by American beatmaking tutorials are confronted with local constraints, the specificity of the experiences undergone by Senegalese beatmakers in the course of their professional lives, but also with "tacit knowledge" linked to recording studios more generally, and conveyed by international sound engineers. In the absence of institutional training, a body of knowledge adapted to the reality of current Senegalese musical creation is thus transmitted through practices and interactions that bring local scale and globalized circulation into daily dialogue.

End notes

(1) See: https://www.youtube.com/user/busyworksbeats (consulted January 9, 2022)

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