Pursuing the Pedagogical Potential of the Pillars of Hip-hop through Sciencemindedness

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Abstract

Despite the recent popularity of hip-hop based education, and the increasing diversity of academics who consume, critique, and create artifacts produced by hip-hop culture, there is a general superficiality in the relationship between hip-hop and education. I argue that this is the case because of the societal fascination with the most visible and commercially promoted aspects of the culture, and the misperception that these small strands of hip-hop are representative of the complexities of the culture. Using science teaching and learning as an example, this paper develops a more robust approach to hip-hop based pedagogy. This work describes the often forgotten four pillars that underlie hip-hop, and demonstrates how focusing on these core elements allows researchers, teachers, and students to delve beyond superficialities and find common ground from which to improve our nation's educational system.

The dialogue surrounding much of hip-hop education is overwhelmingly focused on rap music and its validation as an academic tool. This paper draws from the same tradition of such work (in that it acknowledges and sees the academic potential of rap), but concurrently moves beyond it. This movement be-

yond existent research in hip-hop education requires that school and hip-hop be conceptualized as unique cultures. Research then is aimed at uncovering areas of convergence and developing means of linking the two together. In science, the goal is to challenge the Western notion that science is out of the intellectual reach of populations like urban youth of color who are immersed in hip-hop (Zumeta & Raveling, 2003). By positioning hip-hop and the youth who are immersed in the culture as scientific, it opens up a space for the validation of hip-hop pedagogy for not only science, but for all academic disciplines.

THE CULTURE OF HIP-HOP SCIENCE

Both science and hip-hop are cultural phenomena that are steeped in tradition, have distinct practices unique to those who are embedded in the culture, are guided by complex rules of engagement, and require unique ways of looking at the world (Emdin, 2010). Science is founded on the quest for questions and answers about the world and how it works (Shonkoff, 2000), and hip-hop is the means through which those who are locked into certain physical and symbolic spaces express their own questions and answers about their lifeworlds. This simple connection between hip-hop and science highlights their complementary relationship and underscores the need for a deep exploration of the lessons for teaching science that may come from hip-hop, and the lessons for teaching with hip-hop that can come from science. This connection between hip-hop and science has tremendous implications for teaching and learning in urban classrooms because of the underexplored yet powerful link that emerges between scientists and hip-hop youth when one goes beyond the content of rap and the everyday work of scientists, and instead delves into the skills, dispositions, and ways of knowing of both hip-hop youth and scientists. For example, the most prolific scientists embrace making keen observations, asking deep questions, using analytical skills, exhibiting curiosity, and providing evidence (which are the components of sciencemindedness). These same traits are found in rappers, deejays, graffiti artists and b-boys within hip-hop.

   In the science education literature the expression of sciencemindedness (a combination of scientific habits of mind or inquiry science skills) is a goal for all classrooms. Ideally, these habits and skills are introduced in all the basic science subjects and taught in secondary school (physical and life science, earth science, biology, chemistry, and physics) so that youth are prepared for more advanced study in the sciences (Aveni, 1994; Margolis, 1993). Unbeknownst to many academics, sciencemindedness is also expressed within the pillars of hip-hop. Unfortunately, in urban schools populated by youth who are deeply immersed in hip-hop, misperceptions of the complexity of the culture merges with a pedagogy of poverty that focuses on managing students' behavior rather than exploring

the knowledge they bring to the classroom (Haberman, 1991). This leads to an overlooking of the brilliance within hip-hop, and the establishment of a narrow view of the urban youth who are immersed in it. These youth are seen as real-life versions of the corporate created anti-intellectual caricatures found in popular rap rather than scienceminded youth who engage in hip-hop.

In order to break from the existent rap driven narrative about hip-hop youth, I suggest that hip-hop educators move beyond the overly saturated and hyper defensive argument for rap in the classroom, and into a more active push for positioning hip-hop as a valid culture with positive attributes that can be built upon to make authentic connections to school. I argue that the work of defending rap becomes so time consuming that the effort to transform pedagogy with hip-hop culture has been lacking.

The current focus in educational research on defending rap has moved the field of hip-hop education astray from its initial intention of painting a more accurate picture of urban youth and a more complex picture of hip-hop (Emdin, 2011). To now move beyond this defensive stance requires a reimagining of the possibilities of the use of hip-hop, and a repositioning of hip-hop as being on par with the disciplines society holds in highest esteem. This is why there needs to be a focus on the sciencemindedness inherent in hip-hop, and an expansion of the aspects of hip-hop that we consider when teaching urban youth embedded in the culture.

SCIENCEMINDEDNESS

Sciencemindedness is an amalgamation of scientifically aligned thinking, behaviors, and understandings that all human beings posses, and then express both inside and outside of the science classroom. This term, although not explicitly used in the literature, grounds many of the contemporary goals of science education like scientific literacy and the application of science to everyday situations (DeBoer, 2000; Roth, 2011). For example, terms like "scientific mindedness" and the "spirit of science" have been used in the fields of education, sociology and psychology as a measure of the extent to which people possess/express skills/attributes that support success in science. These skills/attributes include forming hypotheses and making informed decisions free from dogma, rhetoric, and memorized facts/information (Noll, 1933; Rao, 2003).

I use the term sciencemindedness to call forth the tradition set forth by existent research on the spirit of science (Jenkins, 1989; Weiss, 2006) and scientific habits of mind (Aveni, 1994; Margolis, 1993). However, I focus less on the assumption that there is a certain mindedness or way of knowing that is a function of science or being in science, and more on the fact that there is a way of knowing that one possesses just by being in the world that organically supports science and

that can be strengthened to support youth in seeing themselves as scientists. I argue that sciencemindedness exists even without any formal training in science, or understanding of what it means to be scientific, and is enhanced through engagement in hip-hop. I also argue that youth sciencemindedness can be identified by teachers within classrooms when expressed by youth (even in nonacademic tasks), publicly acknowledged, positively rewarded, and validated as part of what it is required to be scientific. This process requires classroom structures that mirror social spaces within hip-hop where youth readily express their sciencemindedness and an understanding of how those spaces differ from traditional classrooms where hip-hop culture is either not expressed or not acknowledged.

CORPORATE AND COMMUNAL STRUCTURES IN URBAN SCIENCE TEACHING AND LEARNING

To move beyond the current stagnation in hip-hop education, one must recognize the differences between the hip-hop spaces where youth express their sciencemindedness and traditional urban classrooms where they do not. Also required is an understanding of the corporate structures of urban schooling and the more communal structure of hip-hop. The fact that many traditional urban classrooms propagate notions of success and achievement that are tied to unyielding benchmarks and assessments of teachers based on the extent to which they maintain a hyper structured classroom environment speaks to the corporate structure of urban schooling. In urban education, we carry a corporate history through our collective ancestry from "[l]arge impersonal factory-model schools with rigid tracking systems to teach rudimentary skills and unwavering compliance to the children of the poor" and have become embodied by such practices in our current educational state (Darling-Hammond, 1997, p. 17). Educators ingrained in corporate ideologies teach students of low socioeconomic backgrounds how to be compliant to school rules, and in the case of science, how to memorize science laws rather than investigate and challenge them. Conversely, hip-hop requires young people to work collaboratively to overcome the challenges fielded their way as a result of their being positioned as outside the societal norm. Across the pillars of hip-hop, moving as a unit, organizing by geographic location, and operating communally in "crews" are fundamental components of being a part of the culture. Graffiti crews work together to create their art and avoid being arrested just as B-boys work together to learn new dance moves and elevate their craft. For these young people, expressing themselves through the pillars of hip-hop brings them together in ways that transcend race and ethnicity and embrace their collective connections to the culture. These connections in communal spaces allow for the expressions of sciencemindedness. In other words, the creation of hip-hop communal spaces fosters the expression of sciencemindedness and the lack of such expressions in

urban classrooms is a function of the inability of the corporate classroom to create structures that support urban students' sciencemindedness and not a function of hip-hop youths' inability to connect to science or think scientifically.

THE PILLARS

Many within hip-hop consider emceeing, dee-jaying, b-boying/breaking, and graffiti to be the four pillars of the culture (Chang, 2005). These subfields of hip-hop stand as the anchors of the culture much in the same way that biology, chemistry, and physics stand as the pillars of science. As in science, there are constant arguments to validate other aspects of the culture as major strands. For example, knowledge of self is often described as a pillar of hip-hop (and is integral to being hip-hop) even though it is more of something one has or develops and not something that one does. Despite the value of knowledge of self, the agreed upon basic four pillars remain as the chief means through which people engage in hip-hop. Consequently, a hip-hop pedagogy that connects youth to science requires using these pillars to create communal structures in urban science classrooms that can facilitate the expression of sciencemindedness. The focus on hip-hop pedagogy through/for urban science education by no means limits the use of the pillars of hip-hop to science classrooms. Rather, it suggests that if hip-hop is used in a complex way that engages the four pillars within science classrooms, it has immense potential for impacting other classrooms as well.

Rap

Rap music is the most visible and commercially exported and exploited component of hip-hop. It involves using words with a specific cadence and rhyme pattern to convey or share thoughts and ideas. Despite the beauty of rap, and its utility in providing voice for urban youth, it by no means encompasses the complexities of the hip-hop experience, nor does it capture the potential of a hip-hop based pedagogy that considers the all four pillars. While rap music has its roots in aspects of the Black oral tradition, hip-hop is a reflection of a broader culture, and a coagulation of centuries of practices, rules and traditions that rap may draw from, but that predate rap (Ramsey, 2003).

Since, "Black music has always been a primary means of cultural expression for African Americans, particularly during especially difficult social periods and traditions" (Rose, 1994, p. 184), the music alone has been made to stand as the representative of the culture. This societal positioning of Black music amplifies rap's significance and renders the more complex aspects of the culture to be invisible. This has been particularly challenging because of the increasing corporate interest in rap and the consequent glorification of thin slices of hip-hop that have themes that may glorify violence, misogyny, or support the creation of an antischool iden-

tity despite the fact that more robust and complex themes exist within the culture, and more complex identities exist among hip-hop youth.

In response to the issues with commercial rap discussed above, hip-hop educators have attempted to reclaim rap music by identifying its literary value (Morell & Duncan-Andrade, 2002). In disciplines like English education, the viewing of rap text as literature allows hip-hop educators to associate rap lyrics with the chronotypic nature of certain literary texts and in so doing, claim an "intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature" (Bakhtin, 1981 p. 84). With this in mind, rap music becomes viewed as the literature of marginalized people whose backgrounds are rooted in oral traditions. Unfortunately, working towards a validation of rap as literature; whether through having youth create rap, analyzing rap lyrics, comparing rap to "classic" literature, leaves hip-hop educators fighting for validation within a narrow area. I argue that much more can be done by expanding beyond English and social studies and into science.

Science of Rap

Within rap, there is a distinction between the rapper and the emcee. Both create raps, and usually perform for audiences, but the emcee is focused more on physically and emotionally moving an audience or moving the crowd (the acronym MC), and the rapper is focused more on the writing and performance of a rap. I argue that sciencemindedeness skills are required in order to be considered as an emcee, and that being one requires the ability to concurrently deal with complex ideas, weave narratives, utilize metaphor, and create analogies in a way that is relevant to the lives of a wide audience. These same skills are found in the most brilliant scientists of our time, and are described by Einstein when he worked to simplify the generalization of gravitation theory by simplifying derivations and field equations for the purpose of providing more transparency to the layperson (Einstein, 1945). In addition, emcees provide detailed descriptions of natural phenomena in their surroundings. Rap lyrics which detail vivid and accurate descriptions of urban lives through lyrics engage in the same practices revered among biologists who skillfully cross the lab-field border as they conduct groundbreaking research (Kohler, 2002).

It would be impossible to describe all the connections between emceeing and science within this article. However, realizing the sciencemindedness expressed within the examples provided above opens up the space for a consideration of how these aspects of rap can be used in science classrooms.

B-boying

B-boying or what is more popularly known as break dancing is the aspect of hip-hop that involves movement and verve. DJ-Kool Herc, who used the term to de-

scribe hip-hop youth who would dance during the "break" part of records, coined the term B-boyB-boy. Over time the term was extended to include all those who are a part of hip-hop and are truly devoted to any one of the four elements. The complex dual use of the term speaks to the integral role that the art of dance and movement has in hip-hop, and speaks to the shared understandings across the subcultures of hip-hop. Being a b-boy, while closely aligned with intricate dance moves that involve contortions of one's physical frame and movement to complex rhythms, is also closely related to the b-boy stance, which is a pose where one simply folds his/her arms across one's chest. The complexity of the b-boy stance stands in juxtaposition with the simplicity of the b-boy pose, and provides deep insight into the nature of hip-hop itself. As some b-boys are revered for their talents as dancers, others, who may not be great dancers, are still valued and respected for their appreciation of the culture.

Of all of the elements of hip-hop, b-boying is the one that is most closely tied to working in a group or in a crew. Historically, different neighborhoods would form a number of b-boy crews that would engage in "battles" with each other through dance for bragging rights as the chief representatives of the neighborhood (Veran, 1999). Within these crews, there are a number of teaching and learning events that are a piece of the subculture of b-boying, and that are built into the art of b-boying. These events are organized by the members of the group, and are designed to develop/enhance the b-boy skills of each member of the crew and prepare them for battles where they get to showcase all the work that they have put into preparing for the event. When these b-boy battles are in full swing, they may easily evolve into a celebration of the culture or the community they are all from. On many occasions, they evolve into a celebration of sorts called a cypher.

The cypher is a gathering where participants in hip-hop gather in a circle, and have some type of communal exchange with each other. During these celebrations, a "tag em in" process where b-boys invite a peripheral participant to actively participate occurs regularly. In these scenarios there is another teaching and learning process that occurs where the novice b-boy (the peripheral participant) is being trained by the expert through the enactment of a set of practices that involve one person performing, and another person observing, emulating, and then being coached on what was previously performed. At the end of this type of event, all participants end up deeply engaged in the process, and the gathering becomes a surreal experience where all who are involved seem to temporarily escape reality as they commune under hip-hop.

Science of B-boying

The description of B-boying in the section above highlights its collaborative aspects, and the fact that there are complex rules for engagement. These two aspects of b-boying indicate a connection to sciencemindedness and the nature of science.

In regards to sciencemindedness, collaboration is an aspect of research science that has grown exponentially in recent decades. Much has been written about the increased collaborations across institutions, and increased number of coauthored scientific papers, and even policy initiatives that support the coconstruction of knowledge within the scientific community (Katz & Martin, 1997; Melin & Persson, 1996). This co-construction of knowledge and co-development of practice is perceived as inherently scientific, and valued as such within the scientific community. However, in urban classrooms, the extent to which these types of collaborations occur is limited. Students may be seated in groups of four, positioned in a way that forces them to face each other, but true collaboration in the pursuit of solving a problem together or co-creating a product to be assessed is rare. Within b-boying the nature of collaboration mirrors what exists in science. For example, there is basic baseline content knowledge that one must have in order to develop as a scientist just as it is necessary to know what b-boys call a basic move like the 3-step, 6-step or freeze. Like science, there has to be training in different aspects of b-boying in an apprenticeship model that mirrors the induction of new graduate students into a research lab.

Dee-jaying

Dee-jaying, is the last of the four elements, and is the practice of playing/manipulating records to provide the musical backdrop to a variety of hip-hop experiences (Gustavson, 2002). Over time, it has evolved to include manipulating prerecorded music, and other audio equipment to meet the same goal. It originates from the desire of the initial participants in hip-hop to have a long stretch of music without singing to perform raps or to break dance. The practice, which was arguably more powerful in the beginning of hip-hop than any of the other three elements, has been the one to evolve most while retaining its original intent and respect within hip-hop. Dee-jaying, which in itself has birthed the subcultures of turntablism and sampling has evolved because of its close reliance on, and concurrent impact on advancements in technology. It began with the practice of taking two record players and a mixer, and switching back and forth between the segment of the same record to elongate certain pieces of music, and evolved into the turntable becoming a musical instrument that was "played" or that hip-hop musicians would perform on as one would an instrument like a violin or drum (Clay, 2009). Just as rapping became an alternate use of the singing voice in hip-hop music, scratching of a record by the dee-jay has become the hip-hop version of playing an instrument (turntablism). The evolution of the dee-jay, and the growth of scratching in dee-jaying, has propelled the prominence of this element of hip-hop (Snapper, 2004).

In addition to scratching, there are other aspects of dee-jaying that has positioned the dee-jay as the music producer or the crowd motivator during a perfor-

mance. As producer, the Dee-jay extends the classic hip-hop role, and takes the skills developed from dee-jaying to create original music. As this advancement of dee-jaying has occurred, it has still maintained its connections to the purest and most basic hip-hop modes of communication like setting the mood/environment for a hip-hop gathering, and guiding the events within said gathering by playing hip-hop music that signifies the type of practices those in attendance should be engaged in. Dee-jays, through the music they play, introduce people who walk into the space, begin b-boy battles, produce solidarity among all participants, and wind down and/or close a hip-hop gathering.

Science of Dee-Jaying

The connections between dee-jaying and science are extensive and include the integral role that technology plays in both science and hip-hop, the skills necessary to appropriately manipulate technology tools that can create paradigm shifting ideas which is part of both dee-jaying and science, and the role that context/environment plays in knowledge production in both science and dee-jaying. In regards to sciencemindedness, the connection between hip-hop and science focuses on the need for focused play. By focused play, I refer to an attribute of scientists described by informal science educators and scientists who suggest that interaction with objects/resources and explorations of possibilities during this "play" are the seedbed to understanding science and creating it (Hanson, 1958; Lucas, McManus, & Thomas, 1986). In essence, the ability to take an existing tool, break it down, and then find new purposes for it reflects a certain type of sciencemindedness that is displayed through the work of the dee-jay. When dee-jays fashioned new purposes for record players and mixers in the early days of hip-hop, forced electronics companies to create new tools to reflect the needs of the hip-hop generation, and adopted new technology tools in the present day to change the landscape of hip-hop they reflect the zenith of sciencemindedness.

Graffiti

Graffiti is a complex mode of written and/or artistic communication popularized by urban youth in the late 1960's and early 1970's. It is a means of cultural expression, a way to generate attention to one's social and political plight, a way to signify one's close ties to a specific location, and a way to gain fame and attention in a world where one is denied an opportunity to be seen (Ferrell, 1996). While it is most associated with urban youth of color and with their aerosol painted work across urban landscapes, graffiti has some of its roots in the 1960's movements towards pushing against established social and political norms and became a platform for antiwar efforts. In much of the same way that it is today, it was a way for the youth in that era to find voice in sharing opposition to established culturally oppressive norms. While the graffiti that was created in the 1960's was simple in

terms of symbols, and styles used, it was openly political and had deeper meaning (Ganz, 2004). This political tradition of graffiti was inherited by hip-hop, and became an anchor of the hip-hop movement in the late 1970's and 1980's when urban youth invaded New York City and redesigned the urban spaces by placing their stamp across the landscape. Unbeknownst to those who blindly critique graffiti, or only see it as a form of vandalism, the art of writing or "tagging" was, and still is, a cry for attention to the plight of the marginalized (Creswell, 1992). While rap helped their oppression to be heard, graffiti allowed it to be seen.

Within this pillar of hip-hop, there are complex rules of engagement for be-coming/being a graffiti artist that are clearly understood and adhered to by those who are a part of the culture. Graffiti artists may perform/display their work individually or in groups and have established rules for working together. They collectively search for platforms that provide visibility for their work and have a protocol for who lays claim to that space, and choose to either use or not use certain backdrops for their work depending on respect for the property owner or whether or not another artist has previously laid claim to a space. Furthermore, the type of graffiti that is placed somewhere varies based on the time one has to create the piece, the size of the space, whether the work is worked on individually or collaboratively, and the message that the artist intends to send to the audience.

In the larger field of hip-hop, graffiti artists are revered because they accentu-ate the visual backdrop to the rap performance (Ganz, 2004). The nuances of the practices of graffiti artists are understood by those who are deeply immersed in hip-hop, and are based on a shared understanding that the act of creating graffiti is a form of critical social practice (Latham & Conradson, 2003). By this, I mean that graffiti is an intentional act that consistently defines/redefines itself, and the extent to which it is subversive, is based on what the artist needs to convey. It is born out of an attempt to fulfill a particular mission at a particular time and its varied forms (whether it is colorful and intricate or quick and random) is a product of profound thought, and an attempt to call forth the shared cultural understandings of all those who are part of the graffiti subculture, and the culture of hip-hop.

Science of Graffiti

Like rap, graffiti has a poor reputation among those unfamiliar with hip-hop culture. Consequently, it is often misperceived as vandalism and marking of gang territory (Ley & Cybriwski, 1974). While some graffiti has been used by gangs, true graffiti artists are far from vandals and gang members who randomly deface property, and take much care in selecting backdrops to their art, work collabora-tively to create their pieces, and use it as an expression of self and a form of cul-tural expression. In creating graffiti, much scientific knowledge is used, and there are an unlimited number of instances where the expression of sciencemindedness

is necessary. In regards to scientific knowledge, artists must scout and prepare the surfaces where the graffiti will be painted, know the materials that the surface is made of, predict how the surface will react to the aerosol paints the artist will use, understand how different colors mix to create other ones, know the different types of nozzles that can be placed on spray cans to create a certain effect or flow of paint, be able to calculate how a sketch in the "graffiti black book" (a notebook carried by graffiti artists displaying their pieces before they become murals) can fit on a wall with specific dimensions, and know the effects of the fluorocarbons in the spray paints being used. These processes require the sciencemindedness skills of keen observation, detailed research, and working collaboratively, but also mathematical skills like ratio/proportions (in drawing graffiti to scale from the black book to the wall) and science content knowledge in physics (like the inverse square laws used in knowing from which distance one should spray paint to cover a certain surface area).

Through an understanding of the science connections between graffiti and science, and with a teacher who is willing to explore these connections, the space to utilize hip-hop in more innovative ways is opened.

THE PEDAGOGICAL STRUCTURES OF THE PILLARS

As alluded to earlier, the ways that participants in hip-hop communicate with each other are a significant piece of how educators engage with youth who are from the hip-hip generation. In the broad overview of the pillars of hip-hop in the previous section, I hope to have made clear that each pillar is positioned equally within the culture. In fact, whether one is talking about a gathering of emcees, a b-boy performance, the creation of a graffiti piece, or a dee-jay performance, the actors in the performance and the outside participants or audience are just as much a component of the performance or presentation as the performer or presenter. Therefore, hip-hop can be said to be a social field where a sort of cosmopolitan ideal is consistently strived for, and often achieved. Each person within a particular hip-hop scene is always actively participating in hip-hop, even if they are engaged in different activities.

Because the communication among participants in hip-hop begins from the point where everyone has an opportunity to express themselves through one of the four pillars, opportunities for empowerment and support run rampant in the culture. For example, the attributes of a good deejay or hype man are not only admired, but are revered by those within the other subcultures within hip-hop. The ability to move a crowd and make an audience move in unison as they hang on every word of a prolific emcee is perceived as the ultimate form of expression by every participant in hip-hop culture even if they would rather write graffiti or b-boy. The depth, painstaking accuracy, and fluidity of movement of a graffiti art-

ist or break-dancer (b-boy) are perceived as iconic by both rappers and deejays. In many ways, hip-hop becomes the ultimate expression of the act of accepting multiple subcultures and valuing all participants.

Within hip-hop, participants from varying racial and ethnic backgrounds function with a desire to better the culture as they show the unique skills that they have within the particular part of the culture they are most involved in. In a hip-hop event, participants from each part of the culture have a role to play. In fact certain hip-hop social engagements do not function properly unless rappers, deejays, graffiti artists, and b-boys are all fully engaged. The provision of agency to express capital is integral to the functioning of hip-hop, and is one of the reasons why the culture has developed the ability to constantly reinvent itself with new participants.

Conversely, in the traditional urban science classroom, all youth are not given the opportunity to fully engage in the teaching and learning process. This is the case because of the communal structure of hip-hop, the more corporate structure of traditional classrooms, and the incongruence between the two.

LESSONS FROM THE PILLARS OF HIP-HOP

The pillars of hip-hop and the components of teaching

Beyond this abstract notion of the coming together of subcultures that can be learned from hip-hop, the fact that each of the elements are representative of different ways of teaching provides a powerful example for teachers. Each element of hip-hop lends itself to a particular component of teaching that is necessary for any classroom. In many ways the existence of the pillars outlines the need for an expansion of what is required for the ideal classroom. This is the case because hip-hop, through the elements, outlines the ideal teaching and learning structure. At the very least, it ensures that educators who draw inspiration from hip-hop consider that their teaching and learning must include at least four dimensions and aspects of teaching and learning that are identified by hip-hop. Emceeing or rap underscores the importance of having a space for voice and performance. B-boying shows the educator that every class should have some space for movement. Graffiti emphasizes the need for showcasing student work and allowing a space for art. Dee-jaying shows us that it is necessary to allow youth to have access to engage with and manipulate technology. While this may appear to be a superficial rendering of how the elements of hip-hop affect teaching and learning, it opens up an initial interstitial space in the dense narrative of what urban schooling should look like. The consideration of an alternative model for teaching that introduces and validates the culture of marginalized youth (however simplistic it initially appears) stands in direct opposition to the pedagogy of poverty that drives

urban education. This pedagogy of poverty, which relies heavily on the teacher as the person who delivers information, and the student as the docile recipient of this information does not provide the space for youth to engage whether through movement, use of technology, or the arts. This remains the case even with the employment of rap pedagogy when it is used to ensure that youth simply memorize information, but still remain with no voice. In fact, the use of rap pedagogy is just as harmful to hip-hop youth because it may give the appearance that it is culturally relevant when in reality it reinforces the oppressive pedagogy that youth are forced to endure. I argue that the urban educator who is unaware of hip-hop requires an entry point into hip-hop education through a consideration of basic ways to engage in the classroom while developing a hip-hop sensibility.Informed hip-hop pedagogues consider the basic ways to engage with the pillars mentioned earlier, but through an appreciation for, and consistent exploration of, the pillars of hip-hop, identifies unique practices of their own.

Beyond the script: Improvisation, Pedagogy and the Pillars of Hip-hop

As the informed pedagogue begins to explore the aspects of hip-hop that have gone unacknowledged, the threads that connect the pillars of hip-hop to each other begin to emerge. Of these, the collective ability of hip-hop to foster and support improvisation is most prominent. The ability to freestyle rap (creating raps on the spot), which requires engaging an audience by focusing on what both a performer and audience have in common at a specific space in time, shows how rap has an ability to be malleable and embrace all from "a gentle child like rapper to…roughneck MC's" (George, 1999, p. 154). In much the same way, the b-boys perform in the moment and present to and for their audience in response to the energy that the crowd gives them, graffiti artists create their art in response to the social issues that are present in the community, and dee-jays create the appropriate musical backdrop to any given social setting based on the responses of their audience.

For the pedagogue, one of the chief things that hip-hop shows is how and why it is important to improvise. It shows them that the educator, despite having to have a clearly planned lesson, must always be prepared to veer from the script in response to where the students are physically and emotionally positioned. This is a direct challenge to the notion of a scripted curriculum, and support for more progressive approaches to teaching in subjects like science where inquiry instruction drives the ideal classroom and matches the true nature of the discipline.

Language/Word use across the Pillars of Hip-hop

For students who are a part of hip-hop culture, one of the most significant misunderstandings about their culture is that hip-hop is something that they have the choice to either participate in or not. I argue that even when students listen to other genres of music, or physically look like they embrace a non-hip-hop aes-

thetic, it is necessary for them to embrace a hip-hop identity in order to communicate in an effective manner within urban settings. Hip-hop has infiltrated every aspect of the urban experience and created an urban context where it is impossible to successfully interact in spaces where minoritized populations dwell without having some type of hip-hop sensibility. In the context of the pillars of hip-hop and hip-hop education, the same language that is used across the pillars must be used in classrooms in order to blur the divides between the communal out-of-school space and the corporate classroom. This does not mean that the language of science or of any other discipline is abandoned in favor of "hip-hop language." However, it does mean that there is a space in the classroom for a hybridized discourse where words that carry weight within hip-hop are allowed in the classroom when the students use them, and brought into the classroom as accepted language by the teacher. This type of practice stands as a first step for educators who are learning to incorporate hip-hop in the classroom, and serves as an opportunity for seeing how the language of hip-hop opens up the doors for making sense of the relationship between hip-hop and science. For example, in the pillar of emceeing, a recording studio is called a lab. In this lab, rappers either experiment or perfect their projects much in the same way that scientists do. Therefore, in the science classroom, the laboratory can be refereed to as the studio and conversations could be had with young people about the connections between the rap and science labs. In hip-hop, an emcee that performs a lyrically complex rap (using metaphor, analogy, making connections between seemingly disparate ideas) is described as "droppin' science." This may be happening even as that person is literally "dropping science" in school by failing or not attending classes (Emdin, 2012). In order to connect science to hip-hop, the exhibition of the skills of droppin' science by hip-hop youth within the science classroom can be identified as scientific, and named as droppin science even within the classroom.

Cyphers and Battles in the Pillars as Pedagogy

Across the pillars of hip-hop, the cypher and the battle emerge as one of the most significant parts of the culture. The cypher, which is a practice where people stand in a circle and those who want to rap or b-boy take turns doing so until all people who are present get an opportunity to participate, provides much for the educator to learn from in terms of how youth should be positioned in the classroom to facilitate optimal exchanges (standing in a circle equidistant from each other), what rules of engagement exist within these spaces to foster dialogue (giving nonverbal cues before taking the helm of the discussion, and building from the last sentence the last person made), how to teach in a way that is engaging (using hand gestures, head nods, and eye contact to convey and emphasize ideas), how to structure who takes turns at talking (having one person share at once while others are engaging in different alternate practices that give the presenter positive reinforcement), and

how to give feedback to students in a way that validates their thoughts but still allows them to continue sharing. This social sphere within hip-hop provides many lessons for educators who are willing to look beyond traditional rap-based hip-hop pedagogy and expand into the exploration of the pillars.

In much the same way as the cyphers give teachers insight into how to structure their classrooms, the art of battle, which is found in all four of the pillars provides an example for educators about how to facilitate heated exchanges about the content being taught in a structured manner that calls forth the traditions of the battle in hip-hop. In the traditional battle, in any of the pillars, there is a consistent back and forth exchange between two individuals who represent an entire group. In these battles, the supporters of the battler position themselves on the same side of the space as this person, they constantly give positive reinforcement without interrupting the person, they may finish the emcees sentence for them to provide emphasis, and they are given a specific amount of time to make their argument. These structures, which in many ways mimic the debate, provide another arena for hip-hop educators to explore.

CONCLUSIONS

In many ways, hip-hop is built upon the relationships between urban youth of color and their schools. The first officially recorded hip-hop gatherings were organized by DJ Kool Herc in order to get money for clothes for school. Many participants in the culture honed their skills at emceeing, b-boying, and graffiti in the hallways and back staircases of New York City public schools. In many instances, their frustrations with the world at large began with the negative experiences they had with teachers that denied them the opportunity to have a space where they could truly engage with each other and adults who understood their lives. Therefore, much of what we see in hip-hop is the purposeful enactment of a version of education that youth would like to see in schools. Whether it is in emceeing, b-boying, graffiti, or dee-jaying, the artistry is embedded in the effort of an individual or group to provide descriptions of the artist's experiences. In each of these artifacts, the artist tells a tale either through words, movement, picture or sound, and provides descriptions of the teacher, the school, the neighborhood, and the world, and then gives each of those groups insight into how to be better. The student who is immersed in hip-hop is an artist that provides everything from a collage of beautiful pictures about what is working well within schools to a piercing reflection of the dysfunction within the education system. However, what is most powerful about this fact is that the pictures that hip-hop provides are valuable resources for teachers because of the breadth of information they provide on how the teacher teaches, how the student learns, and how hege-

mony, politics, misogyny, racism, and oppression play out in the students' worlds, and in the classroom.

Teachers and researchers cannot make sense or meaning of hip-hop, and the interactions of participants in hip-hop using the finite and positivistic ways that we previously have. By this, I mean that we cannot be effective hip-hop educators if we are so guided by scripts for the class that we cannot move beyond them, so confined to standards for teaching content that we cannot question them, and so tied to models for teaching and learning that position students as empty vessels to be filled that we cannot see that they come to the classroom as cultured beings with more knowledge by virtue of being hip-hop than can be contained in the textbooks they are forced to memorize.

We cannot position ourselves as progressive educators and only select thin slices of a complex culture to satisfy our need to be culturally relevant. We cannot use rap lyrics in the classroom without understanding that hip-hop is bigger than rap, and hip-hop education is bigger than literacy, social studies, and the analysis of text in classrooms. What I intend to provide through this piece is the idea that hip-hop education is still in its infancy. Consequently, the descriptions and analysis I provide here are neither exhaustive nor overly detailed. However, they do provide a glimpse into new areas for exploration, and a beginning point for moving beyond rap text. The purpose of the work is not to give a recipe or to stake a claim to any particular brand of hip-hop education. It is to open up lines of communication amongst stakeholders in education, and to provide a pathway to new possibilities.

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