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## The embodied rhythms of learning: From learning across settings to learners crossing settings

Kevin M. Leander<sup>a,\*</sup>, Ty Hollett<sup>b</sup>

<sup>a</sup> Vanderbilt University, 230 Appleton Place, #563, Nashville, TN 37203, USA

<sup>b</sup> The Pennsylvania State University, Department of Learning and Performance Systems, Learning, Design, and Technology, 226 Chambers Building, University Park, PA 16802, USA

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### ABSTRACT

What does it mean to take an embodied temporal approach to learning crossing settings? What role might the analysis of rhythm have in such an approach? We address these issues in this paper by discussion theoretical connections between Ingold's (2011) embodied, emergence perspective and Lefebvre's (2004) rhythm analysis. Next, we move into a sketch of some of the ways in which embodied temporality, and especially rhythm, has been understood and researched thus far in relation to learning, within and across settings. After these discussions of theoretically framing and related literature, we turn to (researched) bodies we have tried to attune to or feel alongside, sharing segments of data and analysis from our own previous research where we have taken up rhythmic approaches. Finally, we move into a synthetic discussion of these data and theory, opening up the discussion to offer new directions in research methodology that may more fully appreciate the functions of rhythm in learning crossing settings.

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## 1. Introduction

While much of the nascent research literature on learning across contexts has emphasized connections or networks of learning, bringing a spatialized perspective to learning, less of it has dealt with what we might term a human "time-geography (cf. Hägerstrand, 1970) of learning." The spatio-temporal dimensions of new learning geographies have been theorized and studied in importantly productive ways; still, a perspective that is underdeveloped in learning across settings is to provide more robust answers to Hägerstrand's (1970) question—"what about the human in [regional] science." What about the human in the spatio-temporal perspectives on learning we presuppose, and even more directly, where is the human body? Currently, while we represent the spatial connections and, to a lesser extent, the actual movements of learners across contexts, the time-space experiences of learners *as they move* are much less considered.

Perhaps the most familiar approach to learning across time-space(s) are variations on the idea of repeated activities of individuals that evidence the development of engagement, identity, and learning. Forms of repetition may offer sociocultural or practice theory alternatives to cognitivist views of transfer, looking not at the repetition and development of mentalists states, but the accrual of practice, the development of interest (e.g., Barron, 2010), or the sedimentation of identity (Wortham, 2006) over time. Temporally, speaking, sedimentation perspectives also allow us to consider the role of

\* Corresponding author.

E-mail addresses: [kevin.leander@vanderbilt.edu](mailto:kevin.leander@vanderbilt.edu) (K.M. Leander), [tyhollett@psu.edu](mailto:tyhollett@psu.edu), [ty.hollett@gmail.com](mailto:ty.hollett@gmail.com) (T. Hollett).

nonhumans as connecting embodied practice across time, also as serving as records of the transformation of practice. Moreover, Lemke (2000) has importantly theorized how nonhuman actors not only traverse time and thereby connect moments of learning and activity; rather, they also function to connect various time scales, from micro to macro. Lemke (2000) helps raise questions about what forms of action, and what material artifacts, make their way through from smaller to larger time scales.

In addition to these developing perspectives on sedimentation, the traversals of humans and nonhumans from practice, sociocultural, and actor network perspectives, and the development of multi-scalar analyses (e.g., Lemke, 2000; Scollon, 2005) as well as critically analyzing space-time scaling practices (Nespor, 2004), in this article we move toward a more fully embodied analysis of time. We hope to challenge our own and others' perspectives of imagining learners, or their tools from some distance off the ground, and conceiving of our analytic goal as "connecting the dots" of their activities that exist in different time-space bubbles. Rather, we strive to begin with the embodied experience of time itself, and ask how understanding this experience, as it moves, might yield insights into the broader theoretical and methodological challenges of understanding learning across settings. To that point, the angle of vision and feeling of the world we develop here may be better described as the "learning body crossing settings" rather than "learning across settings."

What does it mean to take an embodied temporal perspective on learning crossing settings? What is the potential importance of such a perspective, and what are significant ways of describing temporal experience, including (but not limited to) rhythm? How do such perspectives inform research methods and representations in research? What might be some new directions for research and research methodology in these veins? We take up these questions in this paper by first considering relevant theory, within and beyond studies in educational research, and second, by drawing on extended illustrations from our past research.

As a beginning point to evoke a shift toward embodied temporalities (the learning body crossing settings), we draw on Ingold (2007) to evoke an emergence (wayfaring) perspective on human activity, pushing away from static representationalism. We bring Ingold's emergence (and its connections to Deleuzian theory) into contact with Lefebvre's rhythmanalysis—bridging new anthropological work on embodied experience with Lefebvre's larger project on the production of social space (1991) and on spatial practices (1994), which has yet to be fully grasped or appreciated in the educational sciences. Next, we move into a sketch of some of the ways in which embodied temporality, and especially rhythm, has been understood and researched thus far in relation to learning, within and across settings. After these discussions of theoretically framing and related literature, in the main body of the paper we turn to (researched) bodies we have tried to attune to or feel alongside, sharing segments of data and analysis from our own previous research where we have taken up rhythmic and other temporal perspectives. Finally, we move into a synthetic discussion of these data and theory, opening up the discussion to suggest and offer new directions in research methodology.

## 2. Theory to the fore: following the wayfaring, rhythmic body

Research tends to freeze these texts, and as well as the movements of people in relation to them, in time. Time-space, in this view, becomes figured and perceived as petri-dish like "slices" of connected realities—slices through time. Massey (2005) argues that this kind of cutting away of time from social space is associated with the drive toward representationalism. In this mode, the circulations between realities are collapsed or abstracted into a priori networks. To work out a critique of this tendency to kill lived experience, we turn to Ingold's (2011) conceptions of multiple lines coming together in "meshwork". The critique replaces a static conception of the network with "meshwork," and its attendant focus on process, movement. "Wayfaring" describes the form of this movement and its association to learning, over and against "transport," which empties out or collapses the journeys between people and texts, or texts and texts. This focus on process and movement disrupts the static representationalism that would want to interpret and even meanings off of texts located online in a mode of collecting and organizing perceptions, however rich such meanings may be.

One of the stated goals of Ingold's work over time is to shift anthropology from the fixation on images and objects "toward a better appreciation of the material flows and currents of sensory awareness within which both ideas and things take shape" (2011, p. 10). This movement toward affective relations to texts and objects is also evident in affective, embodied, and more broadly post-structural turns within discourse and virtuality studies. In contrast to static analysis of the image or text, movement is placed at the center of his thought, by which Ingold means not only that texts are on the move, but also that perception is caught up in movement (mobility) as well as being moved (affected). Perception of this kind is not distanced from the object, but is immersed within it, and sensations and meanings that emerge from these movements or disturbances. Mediating on Deleuze, Ingold invokes a strong image: researchers tend to focus their attention on the banks of the river (that which is solid, form and substance) and entirely lose sight of the river (that which is fluid): "To regain the river, we need to shift our perspective from the transverse relation between objects and images to the longitudinal trajectories of materials and resources" (2011, p. 14). In researching learning crossing settings, we might ask ourselves what the rivers or flows are, and, in contrast, what the river banks are that capture our attention (but which would not even exist without the river!)

The term "meshwork" is not unique to Ingold, but is borrowed from Henri Lefebvre (1991), who observes that the movements of both humans and non-humans on the earth produces a kind of inscription on the earth, like a form of writing of lines—a texture: "Practical activity writes on nature in a scrawling hand" (p. 118). Somewhat like Deleuze, but with more focus on perception over affect, Ingold's vision of the interactions one has in the course of wayfaring describes things as

“immersed” in a kind of “force field set up by the currents of the media that surround them” (2011, p. 93). Thus, interactions with media are far from inert—they are pushes and pulls of energy, emergent in the course of action and descriptive of what it means to “act” (and to be alive)—to move and perceive while moving. “Skill” at such movements is wayfaring is described by Ingold as a type of “attunement;” immersed in the flow action, one’s embodied responses become increasingly, subtly refined as the body learns through movement (p. 94). Ingold describes this type of movement as not above action (e.g., like classificatory knowledge) but as a form that is integrated “alongly” (p. 154). While Ingold does not take up rhythm directly, these notions of “attunement,” the body’s refinement through movement, and the idea of integration along the course of activity are highly suggestive of the power and functions of rhythm in moving close into the body’s experience of movement. For a more direct discussion of rhythm, we turn to a theorist Ingold himself is already in conversation with: Henri Lefebvre.

Lefebvre’s (1991) rhythmanalysis describes the study of spatiotemporal rhythms and “time-space ensembles” (p). The world—its objects, places, bodies and events—contains a multiplicity of rhythms (McCormack, 2013, p. 41). For Lefebvre this means that there is “neither separation nor an abyss between so-called material bodies, living bodies, social bodies, and representations, ideologies, traditions, projects, and utopias. They are all composed of (rhythmically influential) rhythms in interaction” (p. 42). Rhythmanalysis, then, facilitates the cultivation of a particular sense of living with a heightened awareness of—a capability to be affected by, or to attune to—the ongoing rhythms of the everyday.

Lefebvre argues that in order to grasp rhythm, one must situate oneself both inside and outside of social life. Unlike the person on the street immersed in the rhythms of daily life, the rhythmanalyst picks up on the noises that distinguish themselves and “rhythms respond to one another” when they reach the balcony or window above the street. Lefebvre describes the rhythms of Parisian street life as perceived from the window:

Towards the right, below, a traffic light. On red, cars as a standstill, the pedestrians cross, feeble murmurings, footsteps, confused voices. One does not chatter while crossing a dangerous junction under the threat of wild cats and elephants ready to charge forward, taxis, buses, lorries, various cars. Hence the relative silence in this crowd. A kind of soft murmuring, sometimes a cry, a call. . . Let’s do it again, with more pedestrians. Two-minute intervals. Amidst the fury of cars, the pedestrians cluster together, a clot here, a lump over there; grey dominates, with multicolored flecks, and these heaps break apart for the race ahead. . . Hard rhythms: alternations of silence and outburst, time both broken and accentuated, striking he who takes to listening from his window, which astonishes him more than the disparate movements of the crowd. . . No ear, no piece of apparatus could grasp this whole, this flux of metallic and carnal bodies. In order to grasp the rhythms, a bit of time, a sort of meditation on time, the city, people is required (2004, pp. 28–29).

Rhythmanalysis expands from an exclusive emphasis on the visual that dominates much of geographical analysis; “it requires equally attentive eyes and ears, a head and a memory and a heart” (2004, p. 36). “The rhythmanalyst calls on all the senses” (Lefebvre, 2004, p. 21).

Lefebvre has not detailed an analytical method for rhythmanalysis, an issue of frustration for some geographers (e.g., Amin & Thrift, 2002). Rather, this preliminary work—his last work—is more poetic in form, even while Lefebvre is posing the analysis as a new form of transdisciplinary science. However, a few broad principles of rhythmanalysis can be noted at the outset. First, Lefebvre insists on the relativity and plurality of rhythms, which is an extension of his thought on the relativity and plurality of social spaces (Lefebvre, 1991). Rhythms are “only slow or fast in relation to one another” and “every gathering of bodies is consequently polyrhythmic” (Lefebvre, 2004, p. 89).

Along with considering the organization of multiple, simultaneous rhythms, Lefebvre (2004) makes an important distinction between the affective qualities of different rhythms. The rhythmanalyst think-feels both with—and through—her body. Her aim is to “mobilize the body as a set of rhythmic relations through which the spatiotemporal turbulence of everyday life registers as so many intensities of feeling” (McCormack, 2013, p. 32). Thus, in describing how the rhythmanalyst grasps these rhythms, Lefebvre (1991) specifically underscores the rhythmanalyst’s embodied encounters. The rhythmanalyst does not only observe human activities, “he also hears [entend](in the double sense of the word: noticing and understanding) the temporalities in which these activities unfold (p. 87–88). Rhythm is organic; it is multiple, complex, dissonant. Various scales, pulses, and durations of rhythms may ‘clash or harmonize, producing reliable moments of regularity or less consistence variance’ (Edensor & Holloway, 2008, p. 484).

While some rhythms create hope, difference, and newness, others are characterized by mean and lifeless repetition. This distinction is one aspect of seeing Rhythmanalysis (2004) as an extension of Lefebvre’s larger critical project in *The Critique of Everyday Life*. Lefebvre contrasts cyclical rhythms, found in nature, with linear rhythms produced in (capitalist) social life. (Such natural rhythms are primarily what seem to interest Scollon (2005) in his analysis of multiple rhythms.) Cyclical rhythms are innumerable, “from the microscopic to the astronomical,” including ‘processes and movements, undulations, vibrations, returns and rotations’ (p. 76). Such rhythms have a period or frequency (p. 90); Lefebvre sees this beginning again as essentially full of hope, as a kind of repetition with a difference (“advent,” p. 76). The Same is not repeated identically, but is rather subordinated to alterity, difference, the Other (p. 79).

In contrast, linear rhythms indicate times of ‘brutal repetition’ that are monotonous, tedious, and tiring (p. 73). The linear denotes “any series of identical facts separated by long or short periods of time,” including ‘drops of water’, the “noise of an engine,” or ‘blows of a hammer’ (p. 76). Lefebvre critiques the linear as not rhythmic at all, for rhythm needs recurrent strong and weak times and long and short times: “stops, silences, blanks, resurrections and intervals in accordance with regularity, must appear in a movement. (p. 78). For rhythm to occur, time must be differentiated. Importantly, the cyclical and the linear are not isolated from one another in social life; rather, Lefebvre sees the task of the rhythmanalyst as being attentive to how they are tied up with one another and how they enter into conflict in everyday life:

The everyday is simultaneously the site of, the theater for, and what is at stake in a conflict between great indestructible rhythms and the processes imposed by the socio-economic organization of production, consumption, circulation, and habitat (p. 73).

Lefebvre considers the cyclic and the linear to be played out in a struggle of ‘agonistic unity,’ he offers the clock in modern life as a good example of how the cyclical rhythm of the day is tied up with the linearity of measured (and parsed) time (p. 74). Schooled literacy practices, tied up as they are with institutional space-time, are an important site to consider this nexus of rhythmic relations between pleasurable, perhaps more “natural” cycles of difference and brute repetitions. Similarly, digital literacy practices, as they move in and out of school, other institutions, and the state, are associated with concurrent linear and the cyclical rhythms.

### 2.1. Rhythm as embodied temporality within and crossing settings

Educational research has tacitly focused on rhythm through studies of discourse and interaction. Erickson’s (1996) description of turn sharks, for example, underscores the rhythmic attunements by first graders in classroom settings. Their ‘conversational expertise’ enabled them to take “turns” away from the peers, especially when in whole-group conversation with their teacher. Ericsson characterizes these students as “turn sharks” for their ability to “steal turns away from other children who are teacher-designated speakers” (p. 37). Ericsson elaborates on these “turn sharks”:

In the conversational ecology of large-group discussion in this classroom, any speaker of the moment had to on the lookout for other students who were conversational ‘turn sharks.’ They would swim around looking for damaged turns. When they saw one, would attack the speaker who was uttering it and attempt to take the turn away. The turn sharks were on the lookout for blood in the water. To be effective as an interlocutor with the teacher, a student had to know how to deal with the turn sharks of the classroom, and so did the teacher (p. 38).

Here, Erickson hints at a number of rhythmic attunements that the students, and the teacher make, during these interactions. The most explicit form of rhythmic attunement may stem from the “sharks” themselves, the way in which they “swim around looking for damaged turns.” The sharks feel, sense, observe, *entend*, the moments in which they can “take the turn away.” Their peers, however, Erickson hints, had to learn how to handle these sharks. To do so, they, too, had to be attuned to the rhythms, aware of when a shark was “circling,” searching for an entry-point in the conversation. The teacher, too, had to be aware of the ongoing rhythm of interaction, careful not to provide opening for sharks.

Of course, musical performances themselves demand attunement to a number of visual, auditory, embodied, and gestural rhythms. Hospelhorn and Radinsky (2013), for instance explore the “joint creation of an emergent performance” through their analysis of the group gestures among members of a string quartet. Their analysis, however, recognizes the presence of rhythms that are not only visible (i.e. gesture), but also felt. These forms of embodied motion, they write, can help create an “internal pulse.” They refer to this internal pulse as “temporal anchoring,” or the development of a shared pulse. And this shared pulse—a shared rhythm—“is both a goal of musical performance and one of the principal tools with which we make music with each other” (p. 4).

Importantly, Hospelhorn and Radinsky describe their analytic process, particularly their search for a unit of analysis. Musical gestures, they write, do not have discrete starting and stopping points. They are “fluid and continuous, blending into each other.” Specifically, they describe their difficulty in coding gestures made by musicians like the “sway.” In a number of instances, they write, “a violinist would sway from side to side, with the apex of each side-movement corresponding to a musically significant downbeat” (p. 14). The sway exemplifies just one example of moving bodies that cannot necessarily be frozen in time by researchers post-hoc. By tracing musical bodies moving with the score—rather than the clock—they began to recognize how performances developed over “multiple takes, as an evolving organism,” with each enactment of the same piece bringing changes to the group’s “level of cohesion” (p. 27). This level of cohesion, then, was shaped and re-shaped, as musicians fell into—and out of—rhythm with one another, with the score itself, with the metronome, and even dynamic markings.

The notion of entrainment of multiple social actors, through rhythms, is less the concern of Scollon (2005) as is the presence (however silent) of multiple rhythmic cycles within action. Scollon (2005) takes up Blommaert’s concept of “layered simultaneity” of social action, sketching out a brief narrative of laying pine flooring in a bedroom with this brother-in-law. Scollon relates how the rhythmic hammering of their immediately visible action (bam-bam-BAM-(rest)) is entrained to the multiple “pacemakers” of cycles. Scollon first considers anatomical cycles, including the cardiac respiratory cycle (e.g., pulsations of the heart) and the metabolic cycle, (e.g., digestion, pain cycles, drowsiness); then considers geosemiotic cycles, including the circadian cycle (the 24 h day), the lunar cycle (roughly, a month), and the solar cycle (a year); and finally turns to “entropic cycles,” including how materials decay (e.g. wood flooring taking on moisture over time). The periodicity of any given cycle sets constraints on actions that may be taken within that cycle. This principle is a useful explanation, for example of why school projects assume predictable space-time scales, constrained by curricular cycles and associated material school spaces.

Scollon’s point is not to create a taxonomy of cycles or even types of cycles, but rather to argue that action should not be understood as mono-cyclical or mono-rhythmic: we all march to the beats of multiple drummers, so to speak:

To reduce the multiple cycles that circulate through an action to the meaning of just any one of them is to reduce the fundamental complexity of action to unitary meanings. (p. 26)

The entrainment of action to multiple rhythmic cycles adds complexity to the analysis of discourse in action, but it also provides resources for thinking about how any sequence of actions may be connected to other actions—a point significant for thinking about learning crossing contexts, but not developed in Scollon's (2005) piece. For instance, Scollon notes how, in a moment of floor-nailing, that this action is connected to multiple other cycles through planning talk with his brother-in-law. Our analysis of action will be myopic, Scollon suggests, when it only marks the beats that are available in the immediate present.

Just how rhythmic cycles are entrained in embodied activity is not developed in Scollon (2005). The overall method of suggested analysis seems to be a constraints model, where larger rhythmic periods constrain smaller ones (e.g., the circadian cycle, or length of the day, constraining the cycle of working hours). The constraints model echoes the work of many others on time-space and the body, including Hägerstrand's (1970) analysis of various constraints on space-time pathways. An image that Scollon (2005) uses to depict the circulation of multiple rhythmic cycles entrained within a moment of action is that of the gearbox of a vehicle's transmission system. This image is provocative in that it also suggests not just how rhythmic gears connect, tooth to tooth, but how rhythms may drive other rhythms. In other words, the image slips away—perhaps inadvertently—from a structural analysis of time as differently sized scales or objects in contact, and suggests the felt energies of polyrhythmic activity as it emerges in time.

### 3. Rhythms of embodied learning: research illustrations

We draw from two very different studies of learning in and out of school in the following as we explore how forms of rhythm analysis may yield insights into practices of engagement and learning. The first case, from the first author's research, takes a broader view of practice over time and across settings to describe how embodied, rhythmic practices may traverse settings. The second case, from the second author's research, pulls in more closely to practices among multiple participants to offer a finer-grained rhythm analysis.

#### 3.1. Case of Mia: blogging rhythms

The following case study, which has been reported more fully on elsewhere (Leander & Aplin, 2014) was part of a larger research project that traced how youth use new information and communication technologies at home and in school, and how technology uses were related to face-to-face interactions. The goal of the larger study was to examine the relations of diverse literacy practices, social space, and identity, across contexts. The key informant in these data was Mia, a 9th grader who attended a private school for girls in grades 5–12, a school that had installed a wireless network for the entire school and required students to carry laptops.

Data collection for this study followed varied ethnographic practices, including participant observation at home and in school, interviewing, fieldnotes, the screen capture of online interaction, and the collection of written artifacts from school. Data collection was also informed by emerging perspectives advocating an analysis of online activity not as isolated from material, embodied activity, but as interpolated in complex ways with local, material geographies (Hine, 2000). Methodologically, rather than focusing on innovative data collection, we focus rather on how data from the different contexts of the study may be interpreted rhythmically, and what differences such an interpretation may yield.

Mia's digital literacy practices were continuous across home and school situations, and served to build and maintain a robust literacy-based social network. Mia constructed a traveling public social space. Her key digital literacy practice was to keep a blog, in an early hosting site for blogs, "Xanga.com." (Data were collected from 2002 to 2004). We first give a sense of a bigger picture of Mia's blog and its rhythms. Next, we move into examples that illustrate, first, socially connected rhythms of writing, living, and responding, and secondly, concurrent rhythms in Mia's social/literacy life in both home and school settings.

Over the course of two years and four and a half months (9-15-02 to 9-4-05) Mia has written 307 posts (164 printed pages) to her blog. These posts have received 860 comments from others and 1051 "eprops" (a simple "prop" or show of support for a post). These posts came at a more frequent tempo at the outset: her first 50 entries were written in one and one half months, while her last 50 were written in four months. Even at a slower tempo, though, what emerges in looking at her blog's history is the sense of a steady, constant rhythm of living and blogging, or rather, blogging as an integral part of the rhythm of life. While in late 2004 Mia had three gaps in posting of longer than four days (the longest being 12 days before Christmas), typically she posted in regular rhythm every two or three days, and often at around the same times of day (noon, 1:45 p.m., 3:00 p.m., 7:45–9:00 p.m., 9:30–10:30 p.m.). This rhythm of writing/living has changed over time; 2 years earlier, Mia would frequently also post around 9:30 a.m. The patterning of Mia's posting suggests how her writing/living rhythms, as an embodied practice, are implicit, habitual, and co-generative. While it would be possible to read the blog as simply a diary-like "response" to a life that Mia is "reflecting upon," in so doing we would make the practices and rhythms of literacy distinct from the practices and rhythms of living. Here, there is a subtle but important difference in that Mia lives a patterned life of affect *with* her blog rather than merely *representing* herself in it. The blog is a kind of speech act—a performance of affect and identity that interacts with Mia's life, and the lives of her readers, in a patterned and rhythmic way.

Mia continued her blogging rhythms during the course of school days. While one reading of Mia's blogging was being subversive or interrupting schooling, an alternate interpretation is that the linear literacy rhythms of school practices were interrupting Mia's living/blogging activity. Mia addressed this interruption by distributing herself across simultaneous activity, polyrhythmically. The following excerpt from field notes suggests how an 'antagonistic unity' (Lefebvre, 2004, p. 74)

developed between linear school rhythms and her cyclical blogging-life rhythms. These field notes were taken in Mia's English class, rewritten in narrative style, with inferences and gaps clarified or imaginatively filled in.

### 3.1.1. May 9, 2002. Mia in English

The students are preparing for the final. Ms. Schoenfeld starts with "Girls, we need to take a hard look at these poems." Mia has forgotten her poetry book today. She writes the list of poems on back cover of her French workbook. The class gets going, and Mia logs in on her laptop.

Ms. Schoenfeld "You need to know each one of these titles and who wrote it, and any questions about it."

Mia asks if all of their stuff needs to be in a folder or binder for the poetry project coming up due, and Ms. Schoenfeld responds that they can do it however they want. The teacher then goes over how to produce a "works cited" page. Mia reads a Xanga entry on someone else's Xanga. The title of the entry is "Thank God I'm an atheist." She laughs at what is written.

Ms. Schoenfeld Let us take a look—the other class is a little bit ahead of you. Six girls in the classroom have their laptops open. "Is there anybody who doesn't understand imagery?" Ms. Schoenfeld walks very close to Mia, who clicks to her home page, and then to a Word document.

Mia types in word "imagery" in Word document. Mia then shifts back to Xanga, and is now reading another Xanga posting by another author.

Ms. Schoenfeld "Who can describe an image from 'After Apple Picking' by Robert Frost?"

Mia looks at Dana's book and gives first answer of the day: "In the first four lines you get an image of an apple in an apple tree."

Ms. Schoenfeld moves closer to Mia, and Mia is still on Xanga. "Good, very realistic one. Read those lines again because they are interesting lines."

The lines in front of Mia on her computer are "There is nothing more foul than dissecting a fetal pig." Mia looks over at Dana's book and reads the lines again from the Frost poem.

Ms. Schoenfeld "Frost especially likes to use the seasons of the year."

Mia has moved on to another Xanga site and then goes back to her own Xanga site. Typing something in and occasionally glances at Ms. Schoenfeld. Most of the other girls are looking in their books.

At 9:22, while the teacher continues the discussion of Frost, Mia posts the following Xanga entry:

*strange how different kisses leave you. some leave you nervous and high strung, some leave you amazed and wondering, and then there are those that leave you when you wish they wouldn't.*

Ms. Schoenfeld "What he is doing—is he looking in the mirror? Frozen water—again he tries to strengthen that image, of being old, tired, winter, freezing cold." Ms. Schoenfeld gets no response to her question and has Dana read the first five lines of the poem, followed by asking Mia to read the next few lines.

Ms. Schoenfeld "Is there symbolic value to it?"

Mia "I was going to say that it stands for him but I think it stands for something bigger."

Ms. Schoenfeld "Good intuition."

To summarize the last segment of the class, Ms. Schoenfeld calls on Mia at least twice more, continuing to relate back to Mia's former response ("I think it stands for something bigger") and Mia offers her interpretation that the apple picking stands for death. Mia is still typing a comment in someone else's Xanga. She reads the following response that had just that moment been posted in response to her "kiss" entry, from someone else in the school but not in this classroom:

ahhh a profound post!

melancholy if you must . . .

Posted 5/9/2003 at 9:29 AM by MissOhara

Relative to the rhythms of interaction in school, including those of classroom discussion and writing assignments, the rhythms of Mia's web log are cyclical, periodic. Her blogging space-time was practiced as an embodied rhythm that was quite regular, continually accessible at school through a wireless network, and that ebbs and flows with events in her social world (e.g., kisses) and her feelings about them. The blog rhythm was cyclical, a form of repetition but with new "advents," new 'dawns' (Lefebvre, 2004). As part of detailing literacy (or other) practice as social, rhythms signal how it is not only individual texts, but entire (social) literate practices that individuals become affectively engaged in—embodied rhythms. Practices that become cyclically rhythmic, like Mia's web log, appear especially powerful for social life and literacy learning as cycles build upon past cycles and do not depend upon artificial external structuring.

### 3.2. The case of Metro: Building Blocks

In this second case, we focus particularly on rhythmic engagement within one setting, following movement across digital and physical spaces. To do so, we describe the rhythmic play of teen participants in a game-based program housed at a public library. The program, Metro: Building Blocks (MBB), employed the video game Minecraft to turn teen participants into urban planners as they sought to design, build, and imagine new possibilities for their home city of Metro (Fig. 1). Using the local civic design center's "Plan for Metro" as guide for in-game activity and development, the program emphasized authentic, local issues facing Metro's planners. In-game activity drew attention to, for instance, planning and design with "respect for the natural and built environment," "reestablishing the streets as the principle public space of community and connectivity,"

and “strengthening the unique identity of neighborhoods (Kreyling & Center, 2005). While building the city, and its neighborhoods, was the primary goal for the group, we also ensured to take part in authentic Minecraft play, which often meant trying to battle, and survive, zombie attacks. Some of this kind of play is featured in the following case.

In total, we met as a group twenty-seven times, encompassing over 100 h of gameplay together. Data collected included in-room video capture as well as video screen-capture from each participants’ computer. Thus, throughout data collection, there was equal emphasis on participatory rhythms emerging among participants both in-room and in-game, and especially on how those rhythms mutually affected one another.

As a unit of analysis, we sought out felt focal-moments (Hollett & Ehret, 2014): moments of interruption that are felt upon bodies and that cause those bodies to move unexpectedly. Such moments arise when the body becomes a site of ‘intensity through which feelings, textures, and resonances emerge’ (Dawney, 2013, p. 635). Felt focal moments are felt—by both participant and researcher—in variegated ways, however, thus we made multiple passes through analytical hot spots (targeted from the initial experience in situ). In the first pass, we experienced the data visually, noting sudden bodily interruptions—leans forward, swings backward, jumps from the seat. In the second pass, we turned off the visual track, listening only to the audio, following both spikes and lulls, orienting attuning ourselves to more than the discourse surrounding activity, or even shouts and silences by participants, but also to chairs scratching the floor from movement, crescendos in-game music, or as sometimes happens in Minecraft, the sudden guttural growls of nearby zombies.

### 3.2.1. Martin and Jeremy’s rhythmic production of a non-player character

At our third meeting, Martin and Jeremy worked next to one another in-room, but far apart from one another in-game. Martin directed his avatar toward the Columbia riverfront; Jeremy’s maneuvered his avatar to the B. Dewitt Dam. Martin then guided his avatar to the capitol building and began exploring the creation of non-player characters (NPCs). NPCs are in-game characters with whom human players can interact. In a role-playing game, for instance, an NPC might send a player on a quest, or give her a healing potion. In MBB, participants used a modification to Minecraft called “Custom NPCs,” which allowed players to create and insert their own NPCs into the game. In designing his NPC, Martin took his time, testing out the different possibilities for an NPC—trading with it; giving it a bow, a sword; enabling it to move quickly, slowly. Eventually, Martin created a skeleton, making it a guard that would protect Martin if other zombies came and attacked him.

Martin’s playful trials taught him that he could make an automatic “spawner”—a block that would infrequently spawn, or create, additional skeleton guards. This awareness led him to shout out, “Ohhhh . . . oh God!...Oh jeez!” as he realized what he had just stumbled upon. Textually, it is difficult to represent feeling, the ways in which Martin’s engagement began to transform at this moment and how it adhered to Jeremy. Audibly, this moment sounded like this Fig. 2:

Rhythmically, the tempo of activity picks up at this moment; an intensity emerges. This sudden spike of enthusiasm re-oriented both Martin and Jeremy’s participation as Jeremy, seeing what Martin had just created, beseeched: “You gotta show me how to do that . . .”

Initially, Martin took the lead, giving Jeremy an overview of possibilities for the creation of an NPC: the kinds of NPCs available, their capabilities, their aesthetics, and more. But Martin was still learning how to work with the NPCs himself: His skeleton guard would not actually guard him; rather, it would simply walk toward enemies without shooting arrows. Jeremy was unimpressed, asking: “So, it just leaps at him?” The rhythm that the pair had fallen into began to briefly wane. Martin,

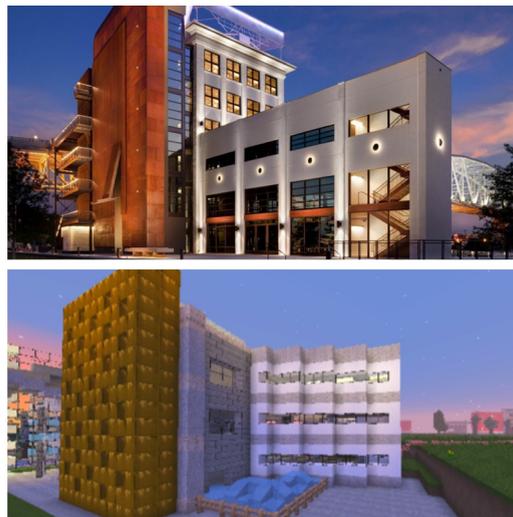


Fig. 1. One participant’s Minecraft replica (bottom) of authentic, Metro building (top).

working to maintain their joint-rhythm, had to quickly figure out how to fix his supposed guard: he tweaked the “Advanced” settings, assigning the skeleton the role of “Guard.” Upon Martin’s return to the game from the settings interface, his skeleton had now attacked a nearby zombie, turning the zombie into a slab of rotten meat (as so happens in Minecraft). Martin then spawned a number of zombies for his guard to practice on.

Although Martin instigated the implementation of NPCs, Jeremy quickly caught up—the tempo of activity once again increasing—testing out new capacities for the NPCs on his own. Jeremy partially narrated his progress, asking questions to Martin along the way (Fig. 3).

Jeremy queried the settings interface that enabled him to create an NPC. He began by asking for Martin’s help, although Martin was caught up in his own NPC creation. As Jeremy cycled through different options for his NPC, he encountered an issue with which Martin also just overcome: the rate at which his NPC would fire a weapon. This piqued Martin’s attention—he knew how to solve this issue—and he leaned toward Jeremy, clarifying that a fire rate of one would be slow.

With the issue of fire rate solved, Jeremy tested out his NPC—but nothing happened. His NPC would not retaliate against nearby enemies. Jeremy was frustrated; he kept tweaking options—narrating them out loud— but nothing seemed to work. Jeremy again posed his question out loud: “Why won’t he shoot?” His frustration, and desire to figure out what was wrong, was evident in his rapid talk as he again sought an answer in the NPC interface, hovering his mouse over options: “Stats · · AI.” When nothing in the interface clarified the issue, he called out to Martin: “Can you please help me?” Martin guided Jeremy to the “Advanced” tab; from there, Jeremy chose the kinds of monsters he wanted his NPC to attack, clicked save, and returned to the game to find that his NPC had attacked and killed a nearby zombie.

Martin and Jeremy learned how to develop NPCs alongside one another, rapidly prototyping, failing, re-adjusting and, finally, succeeding. But this learning progression emerged from more than their dialogic interaction between one another, or the spatial configuration of their bodies. Rather, it emerged from a rhythmic tempo of acceleration, deceleration, and re-acceleration. Their collaborative learning was facilitated by the enthusiastic, responsive, push-pull between Jeremy and Martin.

Jeremy’s engagement, initiated by Martin’s shouts, waxed and waned as he sought to create his own skeleton-guard. He was first captivated by Martin’s overt excitement, lured in by those shouts and the fact that Martin could now, conceivably, spawn as many zombie-guards as he wanted. But Jeremy’s engagement faded as the skeleton-guard failed to do its job: it only leapt at its target; it would not shoot the zombie. Martin felt, and responded to the attenuation of Jeremy’s enthusiasm, rapidly trying to figure out what was causing this failure. Martin’s so-called “success,” then, was not only apparent in his guard’s crushing defeat of a horde of zombies, but also in Jeremy’s renewed excitement toward learning how to create his own skeleton-guard. “Please, show me how to do that,” Jeremy requested again.

Fig. 4 illustrates this rhythmic back-and-forth that emerged among Martin, Jeremy, and even the in-game “bodies” throughout their joint-production of NPCs. It re-visits pivotal moments above for the previous narrative (Fig. 4).

There were a number of rhythms operating throughout MBB on a daily basis, however, just as there are a number of rhythms regularly operating with any setting i.e., walkers, joggers, flaneurs, street dancers, etc. As described here, though, Martin and Jeremy actively felt and sensed spikes in engagement, moments when the pace of activity seemed to pick up, accelerate. Still, this rhythm did not die out, although its death is depicted here through a successful end product: the killing of a zombie by an NPC. Rhythms continue to reverberate; they slow down and pick up pace, only to rise again, with a different amplitude, a different intensity, luring others toward new forms of collaboration and engagement.

#### 4. Discussion: new rhythmic measures for researching learning crossing settings

In this paper we have begun to sketch out something that is entirely commonplace for dancers, for hammering construction workers, for waiters, for lovers, for drummers, and for poets: life cannot be imagined very well without rhythms that fire it up, drive it along, shift it, intensify it. Such rhythms are sometimes quite explicit to particular social practices (e.g., spinning classes) and yet much more implicitly present in others (e.g., reading). Part of what makes rhythm difficult to make use of in social science research is that while it is traditional to freeze life in order to examine it, rhythms are about movement and embodied sensation. Rhythms elude easy representation (although a more full examination of the possibilities and limits of rhythmic representation is warranted, see Hollett, 2015).

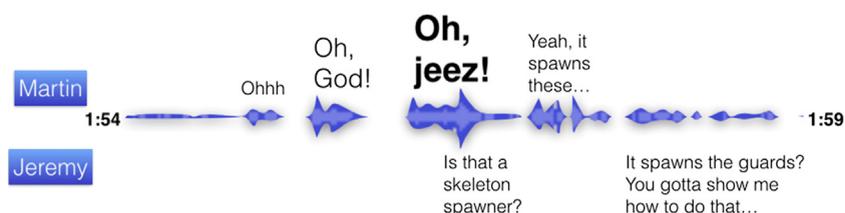


Fig. 2. Audio visualization of the rise of Martin's excitement and Jeremy's initial orientation toward it.



Fig. 3. Jeremy seeks Martin's guidance as he develops his own NPC.

While it could be easy to dismiss rhythm analysis as irrational, not providing enough information about content learned across settings, such a critique would still need to explain why rhythm and rhythmic variation appears to be such a central quality of experiences that stretch across time-spaces. The rhythmic, cyclic nature of Mia's blogging, we have argued, provides an important force or engine of ongoing practice. Engagement, over time, cannot merely be described as intentional cognitive frames, themes, or internal states that are somehow reignited in new contexts. Rather, engagement is (also) the repeated and differentiated beats of the felt body in habituated activities, social and individual activities that respond to one others' rhythms.

Both research cases also illustrate how multiple rhythms can play off of one another and serve to be co-supportive. This insight helps us see, for instance, Mia's blogging in school as not mere resistance to school, but as a pleasurable polyrhythm to schooled rhythms, beat and counter-beat. Schooled rhythms, more akin to what Lefebvre describes as "linear rhythms," ("identical facts separated by short or long periods of time," 2004, p. 73), are played off of the cyclical rhythms of blogging-living. For rhythm to occur, time must be differentiated. Lefebvre sees the task of the rhythm analyst as being attentive to how cyclical and linear rhythms are tied up with one another and how they enter into conflict in everyday life:

The everyday is simultaneously the site of, the theater for, and what is at stake in a conflict between great indestructible rhythms and the processes imposed by the socio-economic organization of production, consumption, circulation, and habitat (p. 73).

Lefebvre's description of linear and cyclical rhythms resonates well with [Deleuze and Guattari's \(1987\)](#) discussion of the interweaving of "lines of segmentarity" and "lines of flight" in social life, the former indicating regulated, predictable and

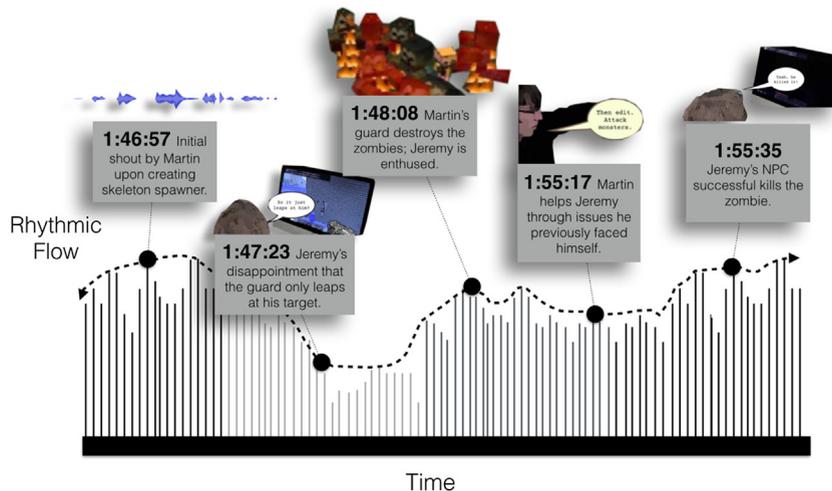


Fig. 4. Rhythmic flow throughout the production of NPCs by Martin and Jeremy.

institutional action, and the latter indicating unexpected departures, escape. Importantly, like Lefebvre, Deleuze and Guattari (1987) see regulation and escape as entangled with one another. These beats and counter-beats are perhaps more productive movements to find “school” and “out of school,” rather than in fixed locales.

In the case of the MBB case, multiple rhythms become a measure of how individual engagement intensifies as well as of how individuals align themselves to common engagement. Transitions of individual activity coordinated with group activity—as emergent phenomena—can be rhythmically felt as attunements in more nuanced ways than they might be measured, for instance, through explicit thematic coordinations or other. Hence, polyrhythms serve to help us understand an individual’s engagements *crossing* settings as well as the multiple *forms of crossing* that construct and coordinate social formations within (as part of) settings.

Methodologically, the MBB case also highlights how rhythmic analysis, in a more developed sensibility, can reach well beyond a post-hoc addition to ethnographic data collection and develop new methods for sensing rhythms. Empathetic connections to movements, these data and this project shows, require embodied forms of feeling alongside. Such multi-sensory engagements mark departures from highly visual and representational modalities, drawing on different forms of feeling, and fundamentally different ways of “being” in terms of drawing on the body’s sensory “equipment” to construct empathetic accounts of emergent engagement in learning activities. Such a shift may seem completely counter-intuitive to what research across settings, as it scales from local to more distal data, may be inclined toward. That is, the crush of gigs of data collected across settings may press researchers to gain even more distance from bodies and from felt experience in order to get the big picture. Yet, if big picture questions involve issues of energy and affective engagement, pulling back in such manner can draw all of the living, breathing air out of the dance of learning that excited us, and others, in the first place.

Finally, further research on learning crossing settings that takes up rhythm might productively examine the multiple functions that rhythm has in social activity, and not limit functions to those we have begun to consider. Functions suggested in these cases involve pleasure, ongoing engagement, institutional/non-institutional response, and coordination or entrainment. Another function worthy of consideration is that of initiation. If you observe a drum ensemble, for instance, they often beat sticks together in the air, along with nodding out the rhythm prior to starting the piece, with its own rhythm and melody.

Setting the beat sets action into place—like laying down a track for music to fold over, a way of saying “this tempo, this kind of movement, and start moving now.” What are beat setters in social action? Moreover, to the degree that social life and music can co-illuminate, soft rhythms accompany stronger melody, giving melodic lines primacy. What are social melodies, and their genres? Rhythm rarely functions without melody—even simple percussion instruments have melodic tones and properties, melodic shifts. More pronounced rhythms move the body, call upon the body to move—the rhythmic aspects of the music take precedence over the melodic. Brazilian samba or rock music lifts people out of their seats, stands them up, when the forces of the rhythms refuse to let us stay in our seats.

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