This is an Accepted Manuscript of an article published by Taylor & Francis Group in Educational Philosophy and Theory on 10/04/2020, available online:

https://www.tandfonline.com/doi/full/10.1080/00131857.2020.1744131

'Why aren't you taking any notes?' On note-taking as a collective gesture

Lavinia Marin (Delft University of Technology) and Sean Sturm (University of Auckland)

Abstract

The practice of taking hand-written notes in lectures has been rediscovered recently because of several studies on its learning efficacy in the mainstream media. Students are enjoined to ditch their laptops and return to pen and paper. Such arguments presuppose that notes are taken in order to be revisited after the lecture. Learning is seen to happen only after the event. We argue instead that student's note-taking is an educational practice worthy in itself as a way to relate to the live event of the lecture. We adopt a phenomenological approach inspired by Vilém Flusser's phenomenology of gestures, which assumes that a gesture like note-taking is always an event of thinking with media in which a certain freedom is expressed. But Flusser's description of note-taking focusses on the individual note-taker. What about students' note-taking in a lecture hall as a collective gesture? Nietzsche considered note-taking 'mechanical,' as if students were automatons who mindlessly transcribed a verbal flow, while Benjamin considered it an inaesthetic gesture: at best, boring; at worst, 'painful to watch.' In contrast, we argue that the educational potentiality of note-taking—or better, note-making—can be grasped only if we account for its mediaticity (as writing that displaces the voice), together with but distinct from its political potentiality as a collective mediality (as a 'means without end'). Note-taking enables us to see how collective thinking emerges in the lecture, a kind of thinking that belongs neither to the lecturer nor the student, but emerges in the relation of attention established between the lecturer, students and their object of thought.

Keywords

Flusser, Nietzsche, Agamben, note-making, phenomenology of gesture, potentiality

Introduction: The lecture as scriptorium

> One speaking mouth plus many ears and half as many writing hands: that is the academic system as seen from the outside—the educational machinery of the university in action. (Nietzsche, 2016, p. 75)

On entering a lecture theatre during a class, the majority of students can usually be seen assiduously taking notes as the lecturer addresses the topic at hand. And the theatre is designed to this end, with rows of desks that have plenty of space for notebooks, analogue or digital. Compare this to a church, with its pews with slots for prayer books or hymnals that signal that worshippers are expected instead to listen and sing. Because students are expected to write in the lecture theatre, not merely take in the spectacle or meditate on what is being said, lecturers sometimes ask them why they aren't doing so. Of course, they aren't obliged to write—it is not as if those who don't are kicked out of the lecture theatre—but it is strange to see someone not doing so as their fellow students write along. While in a sense they are being tasked with making visible the invisible knowledge that the lecturer is sharing with them by being seen to do something in response to the lecture, the purpose of their note-taking cannot be merely performative or ritualistic. Its purpose must be educational—and if it is to continue to be so (and we think it should, as should the lecture [Masschelein & Simons, 2013]), that purpose needs to be better understood. Over time, we would suggest, note-taking has been taken to serve at least three functions: transcription, learning and collective gesture. This last is its contemporary and perhaps even its essential *educational* function.

Hypothesis 1: Note-taking as transcription

The common-sense view is that, in note-taking, students are simply transcribing what the lecturer is saying. They are writing down as much as possible of what the lecturer says because they can't get the information from anywhere else—which implies that the purpose of lectures is the transmission of information. However, if note-taking were simply about information-gathering, then we would have seen note-takers in the early university, in particular, prior to the invention of the printing press. Yet, as William Clark (2006, p. 87) points out, note-taking is 'a striking modern development.' Medieval students did not take notes. They sat with the text being addressed in front of them in small fascicles (*pecia*, or bound sections), listening to the master dictate it and correcting the copying errors on their manuscripts (Blair, 2004). But taking dictation is not the same as making notes. In dictation, the flow of speech is slow, and you write down everything. In lecturing, the flow of speech is more conversational, and you write down only what you think is noteworthy.

With the advent of the lecture proper in Fichte's Jena, lecturing became less about reading aloud from a canonical text than about offering a scholarly reading of a selection of texts (Friesen, 2011) or systematically outlining a scholarly field (Eddy, 2016). As Friesen (2011, p. 98) puts it, 'The lecture, in short, is no longer about the authority of the text; it is about the authority of the lecturer.' Students took to note-taking with a machinic mania that befitted the age of the printing press:

> When medieval students took notes, they usually did so at home, slowly and carefully, using borrowed or lent manuscripts, or other digests. Early modern students became

> note takers in lecture, sometimes manically, according to some eighteenth-century reports. The sound coming from lectures—that 'clear, dry, tingling sound,' like the wind in late fall—arose from so many taking copious notes in eighteenth-century Wittenberg. 'We knew very many at Wittenberg who spent their three years there attending five lectures each day and who filled the remaining hours by rewriting their lecture notes ... [or] when not rewriting them, then filling the holes in them by other notes.' (Clark, 2006, pp. 86–87)

It is as if students wanted to capture—and thus canonise—the lecture as they would a recitation. To do so, they employed different tactics: one tactic was to work in teams and divide the task of who should write what, which in German universities was called the *Schreibechor*, or 'writing chorus.' Another tactic, which was common in Scottish universities, was to attend the same lecture several times or compare notes with their colleagues. Thereafter, they would transcribe the notes neatly into a hardbound note-book, supplemented with headings, indexes and diagrams, the note-book then being on-sold to other students or even to the professors who would use them to publish books of lectures (Eddy, 2016).

This 'modernisation' of note-taking through the addition of an editorial process foreshadows the development of note-taking from a means of storing knowledge externally, in which the notes serve as a mnemonic device, to one of encoding knowledge, in which they serve as a heuristic device. (The empirical literature since Di Vesta and Gray [1972] has relied on this distinction and, for the most part, favoured a combination of storage and encoding—and, more recently, the taking of notes by hand to facilitate encoding [see Mueller &

Oppenheimer, 2014].) The idea that notes could be other than verbatim and could generate new knowledge was a new one.

Hypothesis 2: Note-taking as learning

Over time, note-taking to encode knowledge—later called 'epistemic note-taking' (Castelló & Monereo, 2005)—supplemented the storing of knowledge with its sorting, selecting and summarizing (Blair, 2004; see Daston, 2004). Whereas sorting primarily involved the provision of an editorial apparatus for the text or lecture, selection and summarizing involved the more active process of its abridgement by quotation (*florilegia*, or commonplaces) or paraphrase (*adversaria*, or commentaries). Students ever since have transcribed, paraphrased, organized and diagrammed material in lectures—and revisited them afterward. Such practice has given rise to the view, often rehearsed in student handbooks, that students are taking notes primarily for learning purposes. But this view also conceals a shift in what it means to be a student. To extrapolate from Friesen (2014), if the lecture proper is about the authority of the lecturer, note-taking is about the student learning to generate an authoritative reading of the 'text' of the lecture to establish their authority, their right to partake in the scholarly conversation. And lecturers since at least Fichte have facilitated this apprenticeship by giving students clues—more or less explicit—about how to organise a lecture, reading or body of knowledge by making available printed syllabi or lecture outlines as a guide to note-taking (Eddy, 2016). Looking at these outlines taught students how to structure their note-taking: on what to focus; what is essential and what wasn't; what is worthy of paraphrase or citation; and so on. The outlines are the ancestors of the power-point handouts that students often rely on today in lectures.

Such note-taking provides material evidence that students are paying attention in the lecture—which is why lecturers get worried if students aren't writing along as they speak. It also evinces that they attended the lecture and that they now have something to learn, and perhaps even study. As they did for their early modern counterparts, the resulting notes provide students with source material for individual or collective study, in which they revisit—and to a degree rewrite—the lecture by re-reading, highlighting, re-organising and supplementing the material to their own ends. (The empirical literature attests that note-taking can indeed facilitate attention to, processing and organisation of material [Kiewra, 1989; Kobayashi, 2006; Reed et al., 2016].) But, more than that, note-taking materialises and externalises the process of study: it diverts, as it were, the lecturer's flow of speaking and demonstration onto the page, such that it mixes with the student's flow of thought and inscription. It implies that study doesn't happen just in the student's mind; it is informed by the movement of the body, by the dance of the hands that is note-taking. Note-taking, on this view, is less transcription than translation: less a prosthesis for memory than for embodied cognition.

Hypothesis 3: Note-taking as gesture

But is not lecturing a collective event? The lecturer speaks, writes and demonstrates knowledge-in-the-making to the class as a collective body. They do not speak to this or that individual student, but to all at once. To say then that note-taking is about individual students taking notes for themselves, while they just happen to be sitting next to each other in the same hall, seems to miss its point. The students could just as well be sitting alone in front of a screen and watching the lecture on video, and the notes they take could be no different from those they make on any learning materials. Instead, we propose a third view of note-taking as

a gesture that has a collective dimension, as study in the sense of 'common intellectual practice' (Harney & Moten, 2013, p. 110). But what is exactly a gesture?

In everyday language, gestures are what we do with our hands: we point; we write; we touch screens; we raise our hands. Vilèm Flusser (2014, p. 2) theorises that a gesture is 'a movement of the body or of a tool connected to the body for which there is no satisfactory causal explanation.' A gesture is not natural: sneezing is not a gesture; it is a bodily reaction. Nor is flinching when someone punches your arm. But clutching your arm to signify pain is a gesture, not least because you could choose to perform the gesture to communicate pain without actually being in pain. So, gestures embody a certain freedom (Flusser, 2014, p. 163): because the person making the gesture is free to make it or not and they most often gesture for others to understand, a gesture is never fully exhausted by its functionality: there is always the possibility of not making the gesture or of it being interpreted in different ways (or misinterpreted). Ultimately, for Flusser (2014, p. 164), that freedom is 'a freedom to hide from or reveal to others the one who gesticulates.' Me taking a book off a shelf is a purely functional movement; it is not a gesture because it leaves no room for interpretation. But me clapping as someone waves a flag is a gesture: it signals to others my patriotism or, if I clap less than enthusiastically, my ambivalence or sarcasm. I reveal who I am to others through my gestures, sometimes unconsciously, and I am connected to them because a gesture makes little sense without someone to share or interpret it. As such, as Agamben (2000, p. 58) puts it, 'the gesture is the exhibition of a mediality: it is the process of making a means visible as such.'

For Flusser, a highly sophisticated practice like writing is also a gesture—and one that embodies a whole way of thinking, namely, the '"official" thinking of the West' (Flusser,

2014, p. 24), which is linear, reflexive and stylised. It thus illustrates how gestures are 'symbolic representations of states of mind' (Flusser, 2014, p. 4): they express intersubjective meanings (they are public) and constitute a language of affect (they are aesthetic). Note-taking, as a form of writing, is similarly gestural.

Note-taking as individual gesture

In his book *Does Writing Have a Future?*, Flusser addresses the gesture of writing, soon-to-be archaic in our age of computing and digital images (see Leroi-Gourhan, 1993; Sturm & Turner, 2014). He distinguishes writing as *inscription*, 'monumental' and designed to be contemplated (like the medieval text the lecturer dictates) from writing as *notation*, 'documentary' and designed to instruct (like the early modern student's notes) (Flusser, 2011, p. 18). Taking notes, for him, is about documenting something for yourself; it is not like an inscription in stone which is always about leaving a message to others, to the future. It is a gesture that aims to 'sketch' and 'schemati[se]' something evanescent in order to 'grasp' it (Flusser, 2011, pp. 19, 18), to be able to learn from it. And because it represents the marriage of quick, linear thought with the necessarily discontinuous practices of hand-writing and written language, the gesture takes on a staccato rhythm, 'hectic and intermittent' (Flusser, 2011, p. 19), a rhythm that expresses the note-taker's effort to both understand and articulate what they're addressing:

> We do write (and think) hastily and schematically … but we write asthmatically. We always have to stop to catch our breath. This inner dialectic of writing and its associated consciousness, this thinking that is driven by a pressing impulse, on one hand, and forced into contemplative pauses, on the other, is what we call 'critical thinking.' We are repeatedly forced to come up from the flow of notation to get a critical overview.

> Notation is a critical gesture, leading to constant interruptions. (Flusser, 2011, pp. 19–20)

Flusser's (2011, p. 20) description of the gesture of note-taking as 'simultaneously hectic and stuttering, schematic and critical' captures its urgent rhythm. It fits with student testimonies about their note-taking practices gathered by Palacios (2016) in her phenomenology of note-taking among KU Leuven students. Often a student notes down something the lecturer says when they are suddenly interested in it in order to hold on to it or to a thought it has prompted in them:

> There are some moments in a lecture when you realize... oh my God... this is so cool! This is like … this is very interesting ... to ME ... so then I just write. I write a lot more … like ... with frenzy … you know … like I need to write this down … and that down … and that down. (Bravo Palacios, 2016, p. 37)

In such a case, note-taking becomes like a seismograph for thinking: the student writes because something made them think and needs to be expressed, as Flusser might say, in a gesture.

But note-taking does not always work quite the way Flusser thinks it does. Sometimes, a student ends up taking down everything they can because they can't engage with what the lecturer is saying, as a way to keep themselves occupied or to record the information for later:

> If write down everything in a lecture, it's not like 'oh, I need to remember this.' If I write down every single word, either I am bored or ... yeah, it's mostly that I am bored. (Bravo Palacios, 2016, p. 40)

> It also depends on the style of the lecturer. If they go really fast, then you don't have time to reflect at all … you just write, write, write. (Bravo Palacios, 2016, p. 44)

In these cases, note-taking becomes verbatim transcription of what is being said, as if by default, even if it is not intended to be.

At other times, a student can't write at all, as if they don't know where to begin because they can't understand what is noteworthy in what the lecturer is saying:

> That happened to me this year ... I think for the first time.… I just decided to stop writing in the middle of the lecture.... I just listened because I could NOT follow ... and it was just too fast and I couldn't understand and write at the same time, so I just stopped taking notes, and I said I'm gonna look up at the powerpoint. (Bravo Palacios, 2016, p. 38).

In these cases, lecturers can become nervous not to see students writing anything down. They sometimes ask, 'Why are you not taking notes?' They assume that if students are present—physically *and* mentally—they should be writing; it is the only clue lecturers have that students are paying attention to what they're saying. But if the students refuse to write, either they're not 'there' or they didn't understand.

Nonetheless, these examples do attest that note-taking is a gesture in Flusser's sense because it involves a freedom to write or not, and to write what strikes the note-taker as noteworthy—or, indeed, to not do so and merely transcribe what is being said (Flusser [2014, p. 164] at one point writes that gesture embodies the 'freedom to hide from or reveal to others the one who gesticulates').

Note-taking as collective gesture

Flusser assumes that all gestures are individual and express individual thoughts. But there is something collective about note-taking in the lecture theatre. It is not just about one student or another deciding to write or not; it is about students all writing at the same time (if not together), often as if by contagion:

> Sometimes ... the teacher is speaking ... and I think ... oh ... that's not that important … but then ... if I see other people taking notes ... I think, oh ... why are they taking notes? So I say ... ok ... maybe I should too. (Bravo Palacios, 2016, p. 45)

Or perhaps it is a sign that thinking is present, like a current that galvanises the student body. If so, then it is not just the lecturer doing the thinking in the lecture theatre—as it is not just the actors who bring a drama to life in the theatre. The theatre audience sit quiet and attentive; they pay attention. (Actors speak of a 'cold room' or a 'warm room' to describe how the audience feels to them because they need the emotional investment of the audience to be able to perform.) Their silence does something to the play; it is not mere passive attention. Similarly, the students in the lecture theatre enable the lecturer to think further or not through their responses, even if they say nothing. The lecture is punctuated by their nods of agreement or grimaces of dissent; their lifting of heads from their notebooks in surprise or

puzzlement; their shared looks of amazement. And the most telling responses are signs of boredom like their looking at their phones, their gaze wandering the walls, or their ceasing to take notes. At those times, the lecturer is forced to change the pace, topic or delivery of the lecture, lest they lose the students' attention. Contra Flusser, then, the gesture of note-taking need not involve writing—that is to say, inscription or notation—because it carries meaning not by representing something (as a code) but by enacting it (as an event) (Rotman, 2008).

Nonetheless, note-taking sustains the thinking that is present in the room—taking thinking to be 'embodied' in those in the room, if not 'embedded' in the room itself (Clark, 1998). And that thinking is neither the lecturer's nor the students' alone, but something that happens in between them, when an object of study suddenly becomes present for them all. We would go so far as to say that students take notes when there is thinking in the room, as a collective event, not when they think as individuals. Through their note-taking, students make their own study materials, but more than that, they are also present there and then—whether they're actually taking notes or not—which sustains the thinking of the lecturer. Their collective gesture of note-taking signals to the lecturer and to their fellow students: 'I am here; I am thinking with you. I got this; *we* got this.' It embodies a commitment to collective study, to a kind of 'collective improvisation' (Harney & Moten, 2013, p. 131) based on what is and isn't worthy of noting and/or sharing.

But, for us, it means more than that. In its commitment to collective study, note-taking also enables what Erin Manning (2016, p. 1) calls a 'minor gesture,' which she defines as 'the gestural force that opens experience to its potential variation.' Her human examples of minor gestures are embodied experiments like collective study and creative research, which cultivate 'worlds in the making' (Manning, 2016, p. 15); her more-than-human example is

sensing a weather pattern like the turning of the seasons in Canada, which 'makes experience in its ecology felt' (Manning, 2016, p. 64). If note-taking has normally been taken to focus on the normative (major) gesture of students working to capture the shared truth of the lecture, or 'content,' the fact that notes aren't usually shared, with the lecturer at least, and can creatively respond to the lecture also allows for the alternative (minor) gestures of students, for their individual or collective note-*making*. Contra the approach of educational psychologists (see Castelló & Monereo [2005] on epistemic note-taking), these gestures need not be personalising or even intentional. Though organizing or diagramming material, or indeed, questioning or applying it, can be creative responses to the lecture, going wrong or astray ('error') can be creative too. For example, every 'reading' of the lecture is to some degree a misreading—a 'mis-take'—in that it departs from the original in ways that reveal what Agamben (2007) would call its 'potentiality,' whether by refusing its reading ('inoperability' [Agamben, 2000]), taking up an alternative reading ('decreation' [Agamben, 1999]) or offering a playful reading ('profanity' [Agamben, 2007]). What is noted is only noteworthy relative to what isn't noted; this is what makes it 'note-able.' But it is also noteworthy only insofar as it differs from what it notes, insofar as it mis-takes it.

Conclusion: The lecture as laboratorium

We see this last function of note-making, note-making as a collective experiment in gesture, as the essential one. It is what makes note-making political—in two senses. As Agamben (2000, p. 60) might say, note-making is political because it is a 'pure means,' because it is a gesture that makes its mediality visible. It isn't a means to an end, but a 'means without end.' And it is political because it makes study as 'collective improvisation' (Harney & Moten, 2013, p. 131) possible, and because, as a minor gesture, it is a 'mobilisation' (Manning,

2016, p. 12), a gesture that affirms difference. The gesture of note-making is thus at once contingent and improvisatory, collective and differential.

But if note-making as a collective experiment in gesture is political, how is it educational? A refusal to take notes because the lecture is an ideological tool of what Illich (1971) would call the 'state apparatus' could be seen as an act that is political without being educational, an act of civil disobedience at the state's perversion of education. But even such an outright refusal constitutes, nonetheless, a refusal *in favour of* educational potentiality, whether intentional or otherwise. Whereas the political potentiality of note-making lies in its mediality (its status as a 'pure means' [Agamben, 2000, p. 60]), its educational potentiality lies in its mediaticity (its status as a medium [Friesen & Hug, 2009, p. 68]). Note-making is a form of writing that involves not the transcription of another's speech but its translation. It thus entails a certain 'mediatic displacement':

> Mediatic displacement entails a double movement: a thought encoded in some media form—a text, an image, a sound—is brought to the centre of our attention, but it [does not] take … centre stage. It is immediately displaced to the periphery, turned into a pretext for thinking. Mediatic displacement emerges … when … the specific resistance of media is suspended and … the concept encapsulated by them becomes present. (Marin, 2018, p. 183)

Mediatic displacement overcomes the representational logic of media because it makes thinking present by overcoming the influence of the medium. For example, in the lecture, it happens when students displace the lecturer's words—or, rather, their written (and sometimes voiced) thoughts—through their note-making. What gets translated onto the page

or laptop is neither the lecturer's words, nor students' words in response, but something in between. Students thus note and make notes on what impresses them and, in doing so, demonstrate as a collective body that the lecture matters to them by making present the new thinking that takes place in between lecturer and students. As Masschelein and Simons (2013, p. 174) put it, the educational potentiality of 'pedagogic forms' like the lecture—and hence the significance of note-taking in lectures—lies in how it 'gathers a public in such a way that it becomes a thinking public.' As such, this collective mobilisation is an essentially educational gesture in Arendt's (1961, pp. 196, 174) sense: it takes up 'the task of renewing a common world,' thereby confirming that 'the essence of education is natality'—natality being 'the capacity of beginning something anew' (Arendt, 1958, p. 9). But, more than that, it reveals the true 'educational machinery of the university' (Nietzsche, 2016, p. 75) at work, not, as Nietzsche would have it, as a 'acroamatic' institution where students learn primarily by listening to lectures (an institution 'for hearing,' in the Greek), but as a gestural one where lecturer and students stage a collective experiment in an 'institution of the "yes"' (Derrida, 1985, p. 20), a university with ears—and other senses—open to the future.

References

Agamben, G. (2007). *Profanations* (M. Rueff, Trans.). New York, NY: Zone Books.

—. (2000). *Means without end: Notes on politics* (V. Binetti & C. Casarino, Trans.). Minneapolis, MN: University of Minnesota Press.

—. (1999). *Potentialities: Collected essays in philosophy* (D. Heller-Roazen, Trans.). Stanford, CA: Stanford University Press.

Arendt, H. (1961). The crisis in education [D. Lindley, Trans.]. *Between past and future: Six exercises in political thought* (pp. 173–196). New York, NY: Viking.

—. (1958). *The human condition*. Chicago, IL: University of Chicago Press.

—. (2006). *Between past and future: Eight exercises in political thought*. New York, NY: Penguin.

Blair, A. (2004). Note taking as an art of transmission. *Critical Inquiry, 31*(1), 85–107.

Bravo Palacios, E. (2016). *Can I take a look at your notes? A phenomenological exploration of the paper-based and paperless note-taking experience at the university* [unpublished MA thesis]. KU Leuven, Leuven.

Castelló, M., & Monereo, C. (2005). Students' note-taking as a knowledge-construction tool. *L1-Educational Studies in Language and Literature*, *5*(3), 265–285.

Clark, A. (1998). *Being there: Putting brain, body, and world together again*. Cambridge, MA: MIT Press.

Clark, W. (2006). *Academic charisma and the origins of the research university*. Chicago, IL: University of Chicago Press.

Daston, L. (2004). Taking note(s). *Isis*, *95*(3), 443–448.

Derrida, J. (1985). Otobiographies: The teaching of Nietzsche and the politics of the proper name. In C. V. McDonald (Ed.), *The ear of the other: Otobiography, transference, translation* (P. Kamuf, Trans.; pp. 1–38). New York, NY: Schocken

Di Vesta, F. J., & Gray, G. S. (1972). Listening and note taking. *Journal of Educational Psychology*, *63*, 8–14.

Eddy, M. D. (2016). The interactive notebook: How students learned to keep notes during the Scottish Enlightenment. *Book History*, *19*(1), 86–131.

Flusser, V. (2014). *Gestures* (N. A. Roth, Trans.). Minneapolis, MN: University of Minnesota Press.

—. (2011). *Does writing have a future?* (N. A. Roth, Trans.). Minneapolis, MN: University of Minnesota Press.

Friesen, N. (2011). The lecture as a transmedial pedagogical form: A historical analysis. *Educational Researcher*, *40*(3), 95–102.

Friesen, N., & Hug, T. (2009). The mediatic turn: Exploring concepts for media pedagogy. In K. Lundby (Ed.), *Mediatization: Concept, changes, consequences* (pp. 63–83). New York, NY: Peter Lang.

Harney, S., & Moten, F. (2013). *The undercommons: Fugitive planning and black study*. New York, NY: Minor Compositions.

Haas, C. (1990). Composing in technological contexts: A study of note-making. *Written Communication*, *7*(4), 512–547.

Illich, I. (1971). *Deschooling society*. New York, NY: Harper & Row.

Kiewra, K. A. (1989). A review of note-taking: The encoding-storage paradigm and beyond. *Educational Psychology Review*, *1*(2), 147–172.

Kobayashi, K. (2006). Combined effects of note-taking/-reviewing on learning and the enhancement through interventions: A meta-analytic review. *Educational Psychology*, *26*(3), 459–477.

Leroi-Gourhan, A. (1993). *Gesture and speech*. Cambridge, MA: MIT Press.

Manning, E. (2016). *The minor gesture*. Durham, NC: Duke University Press.

Marin, L. (2018). *From the textual to the digital university: A philosophical investigation of the mediatic conditions for university thinking* [Unpublished doctoral thesis]. Katholieke Universiteit Leuven, Leuven. Retrieved from https://lirias.kuleuven.be/retrieve/509938

Masschelein, J., & Simons, M. (2013). The university in the ears of its students: On the power, architecture and technology of university lectures. In N. Ricken, H. C. Koller, & E. Keiner (Eds.), *Die idee der Universität-revisited* (pp. 173–192). Wiesbaden: Springer.

Nietzsche, F. (2016). *Anti-education: On the future of our educational institutions*. New York, NY: New York Review of Books.

Reed, D. K., Rimel, H., & Hallett, A. (2016). Note-taking interventions for college students: A synthesis and meta-analysis of the literature. *Journal of Research on Educational Effectiveness*, *9*(3), 307–333.

Rotman, B. (2008). *Becoming beside ourselves: The alphabet, ghosts, and distributed human being*. Durham, NC: Duke University Press.

Sturm, S., & Turner, S. (2014). Digital caricature. *Digital Humanities Quarterly*, *8*(3). Retrieved from http://www.digitalhumanities.org/dhq/vol/8/3/000182/000182.html