

Chapter 8

Apps and Autodidacts: Wayfaring and Emplaced Thinking on iPads

Jennifer Rowsell, Fernando Maues, Sharon Moukperian and Chrystal Colquhoun

Introduction

As scholars concerned with what children and teenagers think about and pay attention to, we believe that literacy policy and pedagogy need to make a decisive shift away from existing models of reading and writing to account more for the consequential nature of tablets as influential pedagogical objects. However much international policy promotes ‘twenty-first century’ or ‘future-forward’ skills and competencies, educators are still left with fairly anachronistic orientations to reading, writing, speaking and listening (Burnett et al. 2014). Admittedly there is research showing that tablet-based reading is hybrid and nonlinear (Kress 2010; Walsh and Simpson 2013) and there is research that examines the nature and properties of haptic reading (Mangen 2008; Simpson et al. 2013). However, arguing that iPad engagements are web-like and woven together through threads of movements and lines in a manner that resembles Tim Ingold’s ontological framings of the environment and patterns in nature *is* new. In research reported in this chapter, we observed young people using iPads for a wide variety of tasks that entailed such traditional literacy activities as word searches and letter sorting and as open and free as playing *Minecraft* and researching how to fine-tune designs in *Minecraft*.

In this chapter we present data from a research study that took place in an after-school tutoring program in the Niagara area. Having served families for over 25 years, the tutoring centre works with families in the Niagara community and the

J. Rowsell (✉) · S. Moukperian · C. Colquhoun
Brock University, St. Catharines, Canada
e-mail: jrowsell@brocku.ca

S. Moukperian
e-mail: smoukperian@brocku.ca

F. Maues
Universidade Federal do Para, Belém, Brazil
e-mail: fernando@fernandomaues.com

reported research focuses on a smaller cohort of children and teenagers who were tutored on iPads. Tutor participants and the research team documented how iPad literacy practices differed from more traditional literacy practices during tutoring sessions. A consistent pattern in our findings has been how much young people engage in autodidactic practices that are hybrid and web like. The chapter is divided into four sections: the first section connects Ingold's ontological approach to meaning making with what we witnessed during the research; the second section presents the research background and context; the third and fourth sections present Cole and his passion for autodidactic practices and designing in digital worlds. In these sections we apply Ingold's environmental, anthropological framings of social practices to theorize iPad thinking and epistemologies and to explore how Cole's hybrid, rhizomatic and web-like navigations point to reframings of literacy practices that are valued by younger people.

Applying Ingold's Ontology

Tim Ingold approaches social practices and objects that surround practices from an anthropological, environmental perspective. Ingold focuses on material worlds and materialities but not necessarily for their physical properties, but instead for their lived, embodied, somatic properties. Such work acknowledges the processes of people working within their contexts through objects, practices, spatial features, and the idiosyncratic nature of human beings. Ingold talks about how materials have dynamic properties on their own, not to mention when they are combined with other, live materials. In this way, objects "act back" (Ingold 2010: 94). Using a building or living in a building as a metaphor, he says, 'a real house is always a work in progress' (2010: 94). Inhabitants can 'steer' a home in the right direction, but they cannot completely control its properties. So, we argue that an iPad as an object has many properties, beyond simply being multimodal, active objects, they flow, meander, and exist in a web-like form that follows the materials. There is something particularly generative about Ingold's ontology when applied to readers we observed over the course of the reported research.

Ingold theorizes how humans exist with materials—following their lines—charting their ways of becoming through material flows—and we attempt to do precisely this as we explore the story of one young man, Cole (pseudonym), and his iPad. Cole is a teenager who has been coming to the tutoring centre for seven years. Cole finds school learning boring and unmotivating, yet he can spend hours online watching Ted Talks, YouTube videos, and reading wide-ranging texts on his iPad. He is a self-proclaimed autodidactic and he is the sole case study that we foreground in this chapter.

To explore Cole's story, we harness Ingold's theorizing of objects as made up of living, agentive materials to Cole's fascination with texts on the Internet and we argue his practices are a form of wayfaring. Cole assiduously and enthusiastically works his way through texts—curating—digesting—producing texts—then curating again and these movements are felt and embodied in powerful ways. As Ingold

(2010) maintains, 'it is about becoming rather than being' (p. 99). When Cole gathers information there is a momentum and fearless creativity (Sheridan and Rowsell 2010) about it that is unmistakably a state of becoming.

Tutoring by Design: An iPad-Driven Tutoring Research Study

The reported research took place over 10 months in an after-school tutoring program one night a week (devoted solely to the research) with a cohort of 40 children. There were a range of ages involved from children, adolescents to teenage research participants who used iPads and completed multimodal knowledge work for their literacy tutoring. The project, *Tutoring by Design: Twenty-First Century Approaches to Literacy Tutoring* involved a team of researchers (Chrystal Colquhoun, Fernando Maues, Sharon Moukperian, and Jennifer Rowsell) who observed teacher education students at Brock University who took part in the research by tutoring children, adolescents and teenagers on iPads on the designated evening. Each researcher sat beside or near tutors as they worked with tutees and we filmed their interactions and took detailed fieldnotes. Research questions that framed the study were: How do tutees practice/enact multimodality? What reading and writing practices emerged? What is the role of the iPad and its shape/format/materialities in shifting reading and writing practices? After every evening, the research team debriefed about what was observed and we mapped out patterns and recurring strands. The research design comprised a researcher blog for fieldnotes, interviews with all tutees and tutors, detailed fieldnotes, and 20 hours of video-recordings of iPad engagements. Fernando joined the research team in October of the school year and he was included in the research ethics board approval alongside Chrystal Colquhoun, a Masters student, and Sharon Moukperian, a PhD student. As researchers, we documented practices, problem-solving and thinking processes enacted during tutoring sessions and in our fieldnotes we noted the particular nature of acting and thinking through iPads, but we also visualized the process. Focusing on different apps, games, and ibooks (Rowsell 2014), tutees worked closely with tutors on digital texts that they use significantly outside of school and also documented practices, problem-solving, thinking processes enacted over the course of tutoring sessions.

Context

Before showcasing Cole's story, it is important to contextualize the tutoring centre and its surrounding community to give the research a richer back story (Flewitt 2011). There is a cluster of cities in close proximity to the tutoring centre that can

best be described as blue-collar towns. These cities share demographics with long-standing White working-class families and more recent immigrants who have immigrated to Canada. We do not want to put a deficit lens on our research contexts and prefer our work to sit alongside researchers who represent social class with a sensitive touch (Collier 2014; Hicks 2002; Jones and Vagle 2013). Falling back on such careful research, we have tried to sensitively frame social class in a manner that Code (2000) describes as ‘responsible inquiry that entails an effort to be ‘true to’ the everyday practices of knowing’ (p. 217). The communities where our research took place are White, blue-collar towns with some unemployment over the years, primarily due to the collapse of the automotive industry and a lack of other employment opportunities. Children and teenagers involved in our research were from this population.

The tutoring centre was established 25 years ago. The original intent was to offer reading assessments, interventions and tutoring services. The model of teacher education students in a concurrent and consecutive teacher education program tutoring children, adolescents, and teenagers in the community remains intact. Over the years, the tutoring centre has moved away from a psychological approach to literacy to more of a balanced literacy approach. As of September 2014, the centre adopted a digital, multimodal approach for some tutoring clients (particularly those who were interested) and they used iPads with different reading programs such as *Reading A to Z* to tutor as well as more than 40 different literacy apps. The tutoring centre works on reading strategies and skills as well as writing, word study, numeracy, and oral language. The tutoring program runs every evening of the week during the school year from September until early June.

Data Analyses

For data analysis, we followed an inductive process by reviewing blog posts, video data, interview transcripts and identifying recurring themes and patterns across the case studies. Cole stood out to us as the strongest, most compelling example of autodidactic practices and we wanted to devote the chapter to his story in an effort to underscore what took place when he curated information. As a prominent code within our data, autodidactic actions such as referring to a source or finding a source on the iPad or using an app like *Minecraft* and then moving to another web text represented varied repertoires of autodidactic practices that were enacted. To theorize these different types of autodidactic approaches to topics, we applied Ingold’s work in social anthropology on how humans make meaning. We found his language of description and conceptual framing of life particularly helpful in mapping out how Cole made meaning because terms like wayfaring, emplacement, and meshwork captured the hybrid and rhizomatic way that Cole moved through multimodal forms of information.

Unpacking Autodidacticism and Its Wayfaring Properties

Wenger (1998) claims that ‘knowing is defined only in the context of specific practices’ (p. 142). Cole comes to know and demonstrate knowledge by moving across different types of texts to think and learn and he frequently engages in practices that are spontaneous and that require on-demand information that he seeks out. Often learning happens through a process of apprenticeship (Rogoff 2003) either by a person or informational text where Cole will either ask an authority or find an authoritative text. Ingold (2010) talks about a ‘logic of inversion’ that happens when intersecting pathways of people, materials, resources, ideas and energies constitute a classroom. If we think about learning in these terms and through these concepts learning becomes unmoored from more formalized framings of learning that are linear and unidirectional and learning then becomes more spontaneous, fluid and self-directed. This is the type of learning that we witnessed daily in the tutoring centre over the course of the 2014–2015 academic year.

Applying Ingold’s ontology to our research, what we documented during tutoring sessions were movements and meanderings across visuals, moving images, sound-based texts like podcasts when tutees used a variety of apps, websites, and social media to play and think. Relating this textual travel to the work of Ingold, Cole exhibited what could be described as wayfaring and we think of printed texts as emplacing people more than digital texts. Ingold (2008) defines emplacement as follows: ‘there would be no places were it not for the comings and goings of human beings and other organisms to and from them, from and to places elsewhere’ (p. 1808). We are clearly adapting Ingold’s sense of emplacement and using it slightly differently as Ingold centrally talks about emplacement as a form of enclosing. To us, books pin down a reader more and they do not allow for as much transport as digital texts. In fact, Ingold actually refers to this in a chapter: ‘Travel through cyberspace resembles transport. Experienced users, however, tell me that, as they ‘surf’ the net, they seem more like a mesh than a net’ (Ingold 2000: 38). Ingold goes on to say that surfing the net is more like wayfaring. Cole is definitively an experienced web user who is not emplaced in his journeying through web-based texts, but rather a wayfarer who follows the flow of information in digital worlds.

There was a freedom to the type of tutoring that happened in the tutoring centre where tutors start each hour looking at a text the tutee is interested in and then they discuss what drives this interest. Another descriptive phrase that we applied to the practices and processes we witnessed was *sliding across* or *flowing in and out of* several different types of texts. There are losses and gains in this type of spontaneous textual engagement—a loss being sustained reading of one text and a gain being a variety of sensorial, somatic engagements. Jennifer noted that tutees followed rhizomatic patterns to reading and thinking where they read or slid across many different genres of texts to gather information, create designs or write compositions based on their readings.

Over the 10 months, there was a wayfaring with tutees moving to and from a text to gather information. Cole is particularly proficient at journeying and following the flow of information about a wide range of topics—from energy to herpetology to swords—in order to understand a given topic. Within Ingold's ontological framing of meaning making, he talks about meshwork where intersecting paths of life and experience are knotted together at varied moments to constitute a place and state of mind. Cole gathers information from different sites, apps, and sources and they intersect into a meshwork of knowledge that he can extemporize about when prompted (he often liked to talk about what he has learned). At the beginning of tutoring sessions, various tutors encouraged Cole to share his meshwork and we feature this prompting and its implications later in the chapter.

Within his conceptual framing, Ingold (2010) also talks about threads of movements and wayfaring as periodic movements that constitute place. Within our research, wayfaring happened when research participants brought together, merged, and melded knowledge acquired over a series of texts that they read, engaged with and sled across texts and that meshed together into a designed product such as a gaming world or a PowerPoint or a written narrative or a visual composition. Wayfaring works so well with how we conceptualize our research and attendant research questions because, based on Ingold's definition of wayfaring as knowledge integrated with a meshwork of movements from place to place, the knowledge that we saw tutees enact showed a culling of information, curated from a wide range of texts and apps, applying senses and thinking processes, making, doing, and designing things. In this way, autodidactic practices became a form of wayfaring as a meshwork of textual genres merged and melded into another entity. Ingold (2007) writes that 'wayfaring is neither placeless nor place-bound but place making' (p. 101). Repeatedly, Cole *made places* by cobbling together knowledge that he gathered from a variety of sources, authorities, and modalities. At times these authorities were Ted Talks or YouTube talks and at other times he read information in books or on websites. This kind of self-directed learning or knowledge wayfaring was on prominent display as Cole researched topics on iPads during our tutoring research. Ingold (2007) describes the wayfarer as 'one who participates from within, in the very process of the world's continual coming into being and who, in laying a trail of life, contributes to its weave and texture' (p. 81). Based on observations of Cole's pathway into content on iPads, he had a fluency of thought when he meandered across multiple genres of information. Ingold (2015) claims that wayfarers leave traces of themselves as 'any enduring mark left in or on a solid surface by continuous movement' (p. 43). Cole left markers of self through his many compositions that he created over the course of his research and these markings were frequently visuals but not always. Ingold speaks of every somewhere being on the way to somewhere else, and as we watched tutees work across hybrid types of texts from apps to websites to Word documents to social media, there was a logic behind the movement as an intent but at the same time a spontaneity and experimentation with the process. The goal was often design-driven, but the final product was fairly spontaneous and curiosity-driven.

Focal Case Study: The Case of Cole and His Tablet

Cole was fourteen at the time of the research and he has many diverse interests. On his individualized education plan it stipulates that Cole should use a laptop or iPad as an assistive technology to complete his schoolwork. At the beginning of the research Cole was reading at a grade 4 level. From the beginning of the research, Cole's Mum gave us some wise advice, 'find a subject that peaks his interest and he cooperates and will find different ways to seek out information'. Some of Cole's interests include *Minecraft*, cadets, reading and playing on his iPad, making up his own stories, and he is interested in specific topics such as metal-work, energy, and biology. Cole has attended the tutoring centre for many years and has had many different tutors over time. Consistently, Cole exhibited interest and excitement when he could talk about his autodidactic research—often outside of school work. All four of us have worked with Cole and we have experienced his love of information and curating facts. Cole is upfront and ebullient about his aptitude for information gathering and research skills:

I do research and projects on my iPad – anything that crosses my mind I research. For instance, today I looked up – what is energy? Everything is energy, but on the website that I was on, it said that energy is an object that is everything. The cosmos is another word for everything and the world. Our planet is an asteroid – everything has its own energy. Cole, March 10th, 2015

We have witnessed Cole's wayfaring and the more at ease he felt with each of us, the more he enjoys extemporizing on a given topic.

Journeying Through Cole's Castle of Mind

Returning to Ingold's ontology, Ingold talks about the comings and goings of people and Cole's traveling involved not only moving about across a myriad of texts online and offline, but also a sorting of facts, design, and thoughts in his head. Sharon spoke with Cole at length about his 'Castle of the Mind' (a phrase that Cole invented to describe the patterns of his mind) and in one of her fieldnotes, she outlined it in detail:

During the time I worked with Cole, we would focus on two things at the same time. First, we would talk about an assignment he needed to complete for school, and second, his thought process around that assignment. Most students at his grade level would just talk about what the assignment required; however, I was able to ask Cole how he thought about the assignment and what strategies or process he would use to make connections. Cole's response was that he worked with words, and these words would lead to ideas. He had just finished reading three novels, one for recreation and two for school: *Ghost*, *Lock Down*, and *Acceleration*. We discussed learning strengths that he had, which involved seeing patterns in the main characters' behaviours and story plot in these novels. When asked how he did this, he said he would pick up on the similarities in attitudes, life events, or circumstances between novels. In particular, words drew his attention and then the ideas around what was

similar between characters or plots would emerge. In the instance of the three novels, Cole identified, 'pain, alone, and inflict pain' as key words. Next, a discussion ensued where he justified with examples from the literature his observations. I asked him how he was able to make the connections between the key words and the insight into the characters, and his response led into a dialogue about Cole's Castle of the Mind. Sharon Moukperian, March 2015.

When we met about this specific fieldnote entry, Sharon elaborated on what Cole means by, in his words, 'a Castle of the Mind'. He described his mind like a castle with many doors and behind each door there is knowledge about a specific topic. The doors or ideas do not connect on their own. Sharon asked him to explain how the information behind the doors connected with other doors with information. This is where Cole described his ability to use patterns or similarities. Sharon asked if that allowed him to connect information behind other doors in his mind if that information was similar. Cole thought about it and said yes he believed that is how it worked. Each week the conversation was expanded on this metaphor of the castle and knowledge being compartmentalized behind doors. Observing Cole as he talked about his thinking allowed Sharon to make a list of repeated behaviours (i.e. strategies) that Cole could use to move along the corridors. The strategies became the corridors connecting the doors in this castle of the mind.

During the dialogue that Cole and Sharon had, a question was asked about his first two semesters at high school and which semester was more engaging for him. In one semester he had science, history and math. The other semester had English, physical education and computers. Since Cole is more of a tactile, haptic, and visual learner, he struggled with academic skills such as the mechanics of reading and writing, so Sharon assumed that he would prefer the semester with more hands-on activities. Cole's response surprised her. In fact, he found the semester with hands-on activities was dull and repetitive. His reason was there were no ideas that engaged him. For Cole, there is something more generative about challenging subjects that engage him. Sharon noticed that there was a strong affect and embodiment to his reactions when he discussed science. We believe that a strong source of this embodiment comes from his wayfaring process whereby Cole generates ideas, sorts them and connects them to different corridors that lead to doors in the Castle of his Mind.

Cole's Wayfaring Ways

Wayfaring, according to Ingold (2015), involves 'labyrinthine movements' (p. 133) that are attentional and not intentional. 'Attentional movements' imply an unpredictability that is more in-the-moment and on-demand than 'intentional' movements. Sharon has had the most experience with Cole when he recounted how he sought out information. Cole came in for his first tutoring session and did not believe he needed to continue with tutoring as a high school student. However, instead of following the usual introductory process, Sharon asked Cole to describe

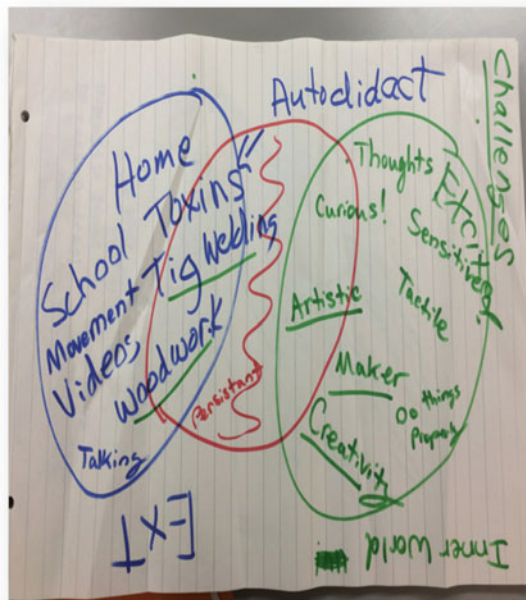
his hobbies. Cole responded to this request by providing a mini-lecture on one topic of interest—manufacturing swords. During this tutoring session, the tutor and researcher observed Cole’s thought process and listed the steps he used. The debrief engaged Cole’s attention and interest in understanding more about himself as an autodidact (See Fig. 8.1):

Today’s lesson was originally planned to have Cole complete the client reading interest survey, the San Diego word assessment, a language experience story, and a word game. Due to Cole’s age, interests, and years of experience at the tutoring centre, we decided to scratch our planned lesson after discussing it with Sharon. One challenge that we experienced today with Cole was that we do not know him very well yet. We learned that he tunes out when he is not interested in something or if it seems like it might be boring (*Romeo and Juliet* for example). Throughout the session the researcher noted that Cole acquired information in five steps:

1. He gave us a general overview before going into specific details especially when prompted with questions like What is...
2. He listed the terms that related to the subject (swords).
3. He defined those terms once he noticed that we did not know them.
4. He provided us with examples through creating a visual drawing.
5. He explained the reasoning behind the visual.
6. Then, he moved into other texts to extend and nuance his knowledge. February, 2015.

Throughout Cole’s lesson about swords we observed that he has a wide range of vocabulary knowledge, and that he comprehends vocabulary if it relates to his

Fig. 8.1 Reflecting on his wayfaring autodidactic practices



interests. Swords are present in his *Minecraft* worlds and they are tied in with his interest in weaponry that connects, albeit distantly, with his cadet training.

When Cole discusses school, his associations tend to be about feeling bored and apathetic and he does not have a happy relationship with schooling. Cole has been on an individualized program for some time and despite being so well-versed on a range of topics, he has struggled with literacy. We did not recognize Cole's description of his schooling self/learner in a more formal space. Instead we saw him as a voracious information seeker. For instance, in the above fieldnote excerpt, Cole modelled how he thinks about a topic of interest and the process he follows. Cole begins thinking about a topic by entering a search for a YouTube information video related to the concept of swords. Cole confirmed that online texts allow him to access knowledge using a combination of visuals and words since he is a visual thinker and works from pictures to words. He uses an iPad and Google to provide independent access to information he needs in a format that aligns more with the way that he thinks. Cole talks about having a number of texts open at the same time and how he has a hybrid way of following them. He uses the same approach with Sharon when she is unable to understand his drawings and explanations.

After Cole finished using the iPad to create meanings for Sharon, she asked him if he understood what had happened during his explanation of sword manufacturing. At this point, Sharon, Cole and the tutor debriefed about Cole's thinking process using diagrams to visualize Cole's thinking and learning behaviour.

During the debriefing, Cole was told that he uses autodidactic practices, and he wanted to understand what that meant. He was asked to describe things that he did that he could observe (e.g. using TIG welding to make a sword, or looking up information about toxins on an iPad). The left circle in Fig. 8.1 represents these concrete observable behaviours. However, Sharon asked how these behaviours happen and did they happen with prompting? Cole described personal attributes that he possessed. In Fig. 8.1 the right circle represents these abstract attributes. Sharon observed that Cole did not stop when he was explaining his ideas about swords when his audience still did not understand. He was persistent and found another way to expand his explanation. This persistence made a connection between the concrete observable behaviours represented in one circle and the abstract personal attributes that triggered those external behaviours in another circle. The centre circle of the Venn diagram represents new knowledge or meaning and how his autodidactic learning style involves both external resources and internal, naturalized wayfaring habits of the mind. The use of the iPad allows him to persist because he can independently research information on a specific topic and curate them across web-based texts. In Ingold's terms, he can follow hybrid or rhizomatic pathways to develop a meshwork as a way of finding a place and anchoring an understanding.

Clashes Between Linear Schooling Models and Rhizomatic Wayfaring Models

Cole speaks freely about how his self-directed learning/autodidact habits contradict schooling models of learning that seem more linear to him. Cole's Mum talks openly about how schooling has not been particularly kind to Cole. It is clear to us that Cole is a reader and communicator, but for some reason, this does not transfer over to school and we could not quite piece it together. Sharon believes that it is the linearity of schooled approaches to reading and writing that demotivates Cole.

Cole's autodidactic approach to learning is not limited by his thinking processes, but instead by the mediums through which content is presented and the degree of open and free knowledge work that he is allowed to do. In school, Cole finds that he is 'not heard or seen' in ways that he would like. He finds formal teaching hard to follow because it is so word-based and so teacher-led. On one particular evening when Sharon observed Cole's tutoring session, she noted the hybrid nature of his thinking process:

Tonight, Cole told me about: 1. 'zombie slug' and he is looking for a bacteria that invades a host and takes over...I think like the Walking Dead idea but in a nonfiction, real life scenario. 2. Working with liquid metal to convert it to a gas, liquid or solid. 3. Some kind of 'ray gun' or synthesizing machine. I wanted to work with Cole to organize his thoughts a bit more into a pattern. I know that Cole loves cadets – order, the military, discipline, etc. I wonder if there is a way to connect his hybrid way of thinking with his cadets? April, 2015.

The curiosity that he displays in his tutoring sessions is not replicated at school. Part of it may be due to the fact that Cole likes people to listen to him as he extemporizes about topics and facts which is more difficult at school when there are more students to navigate and listen to. Cole finds aspects of school learning more challenging because he needs to focus on one topic for longer periods of time than he prefers and learning is more linear.

From Autodidacticism to Design Work

Like many others, Cole is a *Minecraft* enthusiast. Some of his drive for autodidacticism comes from his design work that he fixates on in *Minecraft*. During a few tutoring sessions, Cole recounted how he does 'background research for *Minecraft* designs' (17 March 2015). During the session, Chrystal, Fernando and Jennifer sat outside of the cubicle where Peter (pseudonym for his tutor) and Cole worked together. Peter had been tutoring Cole for a year and they had a natural rapport that showed through when we observed them. During this particular session, Cole and Peter analyzed different spaces/environments that Cole has created on *Minecraft*. Peter was keen to focus on Cole's writing skills for this session, so he engaged in stimulated recall with Cole by asking him questions as Cole navigated through a

particular village that he built in *Minecraft*. The village is Medieval and Cole completed a significant amount of research on all aspects of Medieval life as he designed the world. Cole went into a lot of detail when explaining aspects of his world from its topography, buildings and structures, natural resources (including crops), living beings, and tools that he uses (see Fig. 8.2). When Peter asked him if he had any inspiration from any real-world sources he said that everything is original and created ‘from his mind’. To help start off categorizing his world, Peter asked him to think about the crops, climate, societal structure and buildings. They started off with his world which they referred to as the ‘Village’. Peter decided to encourage Cole to write down his thoughts about his designs in *Minecraft* and he asked him to map out his design process through a Venn diagram. It was observed that when Peter asked Cole to pause the game and to start filling in the Venn diagram he was hesitant—this could have been for a few reasons. To begin with, Cole was invested in what he was doing and he did not want to be distracted. Second, Cole seems hesitant with writing. On our research blog, Peter noted the following:

I constantly noticed throughout the session that when he was writing he would pause and wait for my feedback to help him correctly spell out the word. Cole spells words phonetically (for example ‘church’ was spelt ‘cherch’ or ‘houses’ was spelt ‘hoases’), and throughout the session he had a harder time with vowel blends. This session I did most of the writing as I saw Cole was becoming frustrated (and shy), and for next session, I am going to give Cole the option of working with a word processor or writing on paper and have Cole do more of the writing.

Near the end of the session I asked Cole to highlight unique features of his Village that we wouldn’t expect to find in other places around the world (or in history). He said that everything we would find in the world and he was particularly interested in Medieval Times (which next week we will start to learn about Medieval cities and note the similarities and differences). We started reading about different types of buildings although we didn’t have a lot of time for this. When we were finished with the session Cole said he sees himself as a ‘little scientist’ and started explaining to me about how he is really intrigued about energy, particularly energy in stones. Cole frequently referenced Albert Einstein’s theory of energy and he wants to find out how to harness the energy from stones to usable energy. March, 2015.

The Venn diagram allowed Cole to step back and categorize wayfaring knowledge that he picked up and emplaced when he designed the Medieval world in *Minecraft*.

Peter understood the rhythm of Cole’s work and he shaped tutoring lessons around his preferences, which Peter described as: (1) talk/catching up; (2) some reading and/or writing; (3) game play (*Minecraft* or something else); (4) extend game play with other related texts on the web; and (5) writing prompts based on research. Often, when it came to work on *Minecraft*, the research that Cole completed led to design work of some kind or another.

There were several other instances when Jennifer observed Cole demonstrating what he had learned online about topics when he designed an impromptu text such as the PowerPoint in Fig. 8.3. For example, after speaking with his tutors about herpetology, he wanted to create a PowerPoint on the topic.

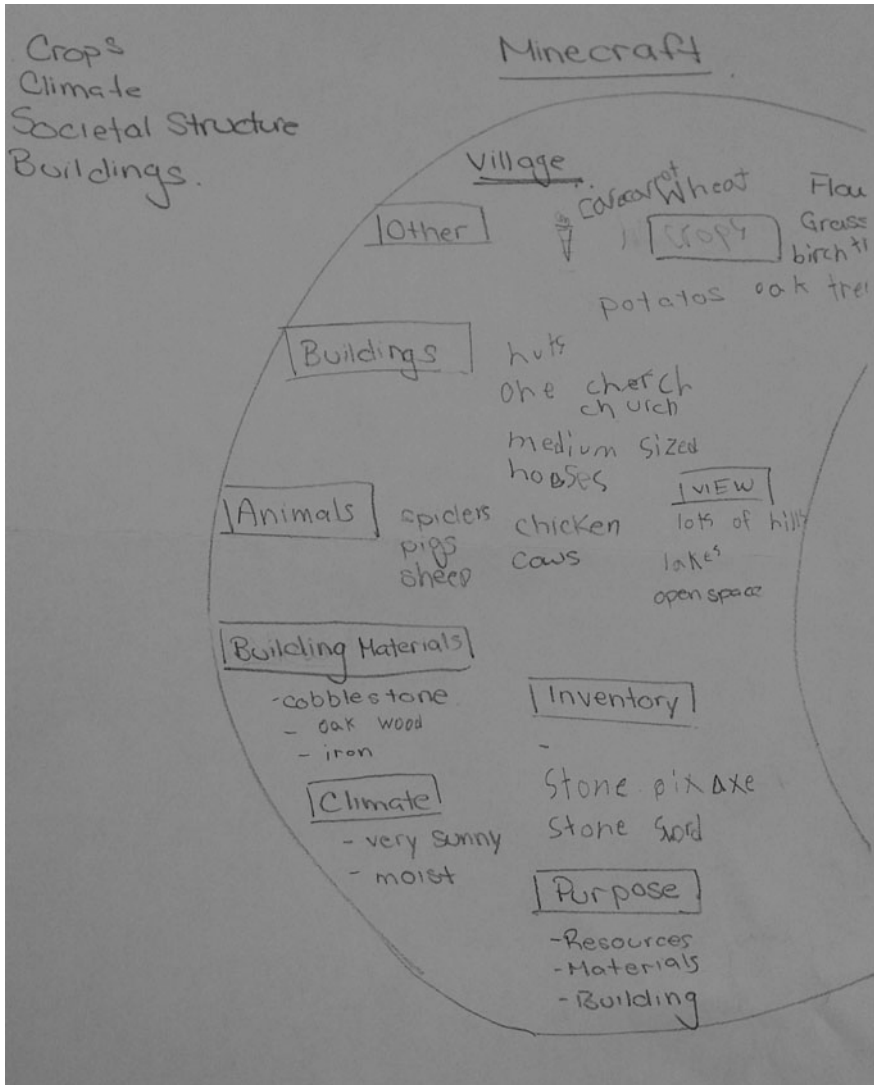


Fig. 8.2 Venn diagram of Minecraft village

Have you ever wondered who researches reptiles and amphibians? Well, this career field is called a herpetologist. Herpetology is not just about working in a lab but going out and exploring land and finding new creatures to study. This is one of the many reasons why someone might want to become a herpetologist. For those interested in becoming a herpetologist there are a couple different career paths one could follow.



Introduction

Fig. 8.3 Researching for designs

Apps as Autodidacts

Although all apps cannot be created equal (Rowsell and Wohlwend 2016), Cole liked to use different apps as part of his autodidactic approach. A specific app that he gravitated to is the *Exploratorium* app that explores a wide range of topics such as colour, sound, electricity and heat. Cole often uses this app as a catalyst to curating different types of information as seen in the following fieldnote:

We started off with the original tutoring plan but then switched gears as I observed reading was a bit difficult specifically the pronunciation of words and concentrating due to Cole's cold and flu, therefore I did most of the reading this session and we had a lot of conversation about different topics.

We started off with the app *Exploratorium Sound Uncovered*, which caught Cole's attention last session. Within the app there are a lot of modules that you can work through to explore sound. We started off on the first module but as we were moving through, Cole wasn't interested in some of them and therefore wanted to skip them. I asked him why he enjoys some modules more than others but he wasn't really sure. While moving through some of the more interesting modules, Cole and I shared reading alternating paragraphs. In the modules he was interested in he was inclined to read and participate in the activities outlined in the app.

While reading the app Cole made a lot of connections to other topics having a lot of good questions surrounding the topic of sound—in particular when we got to the part about echolocation in humans. Cole had knowledge about echolocation in animals but has never heard about humans being capable and therefore we researched more about echolocation on Wikipedia. While exploring the Wikipedia page, since there is a lot of text information I noticed Cole scrolling through looking mainly at the pictures. Therefore, I helped direct his attention to the headings to see if we could narrow down our search reading the text and looking at the diagrams for more information.

After a bit of research we took a quick break. After coming back from the break, Cole asked if there was one month where there were more birthdays which then we switched our focus and started researching trends in birthdays. This topic didn't show up in the first half of our session, so I am unaware of why he had this question although we looked into it since he was interested in the question. Similar to the Wikipedia page, on the website there were both text and graphs which Cole was more inclined to read the graphics. February, 2015

Jennifer observed this specific tutoring session and noted how organic the whole process was, from the app—to a discussion about echolocation—to finding more information about it—to correcting assumptions about it—to creating something about echolocation. In this moment, the app spoke to both Cole's visual sensibilities as much as it satiated his love of facts and information, especially in the area of science. It is clear that the app led naturally into a longer discussion about echolocation which led to trends in birthdays and so on and so forth. With Cole, you never knew where you would end up in his wayfaring for knowledge.

Following Wayfarers

In undertaking this research we sought to describe what happens when tutors teach through iPads with a fidelity to their affordances. By that we mean we wanted to know how modes impact thinking, accounting for combined modes and modes in isolation. In the spirit of wayfaring, we wanted to know about the properties and processes of iPad reading and composing. Initially, we were aware that iPads naturally invite a more hybrid reading path and that tutees tend to read shorter texts and that there is a closer relationship between reading and writing. There were other serendipitous findings such as young people who do not like iPads or young people who only liked image-based apps or exclusively played spatial games. But, we kept returning to our fascination with Cole and his *Castle of the Mind*.

The thing about Cole that continues to intrigue us is how committed he is to information. In dealing with issues that bother him like school, Cole turns to facts. One of the most natural ways for Cole to cope with being a teenager is to turn to facts and information and share what he finds out with anyone who will listen. There is a rhythm to his wayfaring that intrigues us and it looks a bit like this:

(1) Start with talk by asking questions (e.g., how are swords made?)

⇒ **(2) Brainstorm terms**

⇓

(3) Trial and error with terms (i.e., sometimes Cole is wrong about terms and we check the term on the iPad)

⇒ **(4) CO-PRODUCE VISUAL WITH COLE (create meta-thinking drawings while Jennifer creates visuals of information with Cole)**

⇓

⇒ **(5) Cole explains reasoning behind the visual**

⇒ **(6) Cole moves onto other texts to continue his wayfaring on his own**

It is probably true that this pattern can be replicated at school. It is probably also true that Cole does not always have to learn and think in this way. It is perhaps even true that there is nothing especially profound in what we uncover in this article. But, to us, the key finding is the agentic, meandering nature of Cole's passion and search for information. Cole has to put his mark on facts—even if his mark is not, strictly speaking, correct—it is the searching, finding and reconstituting that drives him. If we are wise as researchers we listen to young men like Cole and document their meanderings, emplacement and wayfaring as knowledge markings. Cole is not alone; there are many other Coles listening to Ted Talks and adding to their growing repository of facts, and if we are not patient listeners then we will never change our mindsets about the sophisticated repertoires that hide in the shadows of schooling.

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Author Biographies

Jennifer Rowell is Professor and Canada Research Chair at Brock University's Faculty of Education. Her research interests include: research in schools and communities doing multimodal, arts and media work with young people; exploring how children and youth think and interact through technologies, videogames and immersive environments; and, longitudinal work in homes connecting artefacts and material worlds to literacy practices and identity mediation. Her latest books are *The Routledge Handbook of Literacy Studies*, co-edited with Kate Pahl, and *Literacy Lives in Transcultural Times*, co-edited with R. Zaidi.

Fernando Maues is Literature Professor at Universidade Federal do Para in Brazil. Dr. Maues teaches various levels of Portuguese Literature and Literature Teaching Training. His research interests include Medieval and Renaissance Literature and he has published books like *A prosa doutrinaria na corte de Avis* and *O Palmeirim de Inglaterra de Francisco de Moraes* to investigate in English teacher education. He also directs a program on vernacular language practices in low-income schools in the city of Belem, Brazil.

Sharon Moukperian is a Ph.D. candidate in Education and is supporting students with learning disabilities and ADHD as a Learning Disabilities Specialist in a university environment. She teaches undergraduate courses in Literacy and Reading Development and she tutors students in the Brock University Learning Lab. Her Ph.D. research examines ways that embodied emotional memories affect reading and literacy development.

Chrystal Colquhoun is a Master of Education candidate at Brock University. Her research explores preservice teacher attitudes on technology, digital literacy and ways in which iPads and apps impact literacy development in children with reading difficulties.