

Six Metaphors in Search of the Internet

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One task of educational technology is to develop and use the tools of technology to enhance teaching and learning. Another important function of educational technology, however, is to be “ahead of the curve” in understanding how forms of technology like the Internet impact culture and restructure our awareness within culture. This paper uses the semiotic and abductive principles of juxtaposition via metaphor to explore six aspects of learning and culture which have been changed by the Internet, but where the changes have been such that we have not been conceptually positioned to see them. We conclude with an acknowledgement of the arbitrariness of the metaphors we have actually used and a call for an abductive proliferation of metaphor examination along the very lines of the medium under study—that is, we seek a thread of metaphors.

The title of this paper is an echo of the famed Pirandello (1922) play *Six Characters in Search of an Author*. This work of art was one of the first declarations that the search for meaning was going to be THE major problem of the 20th century. Pirandello brought that point home by having his six characters wander onto a stage and, out of desperation and boredom, concoct their own play on the spot.

Like the characters in that play, the Internet has been engaging in its own tortuous search for an identity. Starting in the late 1960s, the Internet emerged haltingly into public consciousness as a frontier of hypermodern sensibility. What it didn't know about itself, precisely, was what it truly was. So, those of us who have been drawn into its presence have all contributed in some way to this search to define the Internet. The search perhaps peaked with the work of such brilliant thinkers as Hakim Bey (1991), Bruce Sterling (1992), and John Perry Barlow (1996). These innovative minds, like Pirandello's characters, took the stage and wrestled with the meaning of the Internet.

Unfortunately, as we enter the 21st century, it seems like the search is coming to a “whimpering” end. E-commerce is striving mightily to turn the Internet into the ultimate

Late Capitalism engine of unquenchable desire (cf. Jameson, 1991). In particular, the World Wide Web (WWW) has suffered the greatest commodification. Sophisticated market strategies have been used to guide search engine users not to those web pages that contain either substantial cultural information stores or cutting edge hypermodern thought, but to yet another dot com phenom or merchandising giant with a brand new web presence. At the same time, USENET sites are turning into classified ads, especially for web sites, and chat facilities are becoming more and more used to deliver traditional commercial messages. Even the stodgy and venerable listservs are in danger of being rendered as vehicles for advertising goods and services.

In the meantime, though, we can only hope that at least some people will get tired of the Internet as a massive bartering pit, and they will want to seek new ways of understanding how Internet Culture can come into its own, on its own terms. In this brief paper, we would like to help craft a few tools to help educators regain at least a niche in the great ongoing Internet explosion into ordinary consciousness. We will restrict ourselves to the Internet as a teaching and learning domain, since we are educational

researchers by trade. We need to start by taking a few moments to talk about the tools we will use for our task.

Semiotics, Abduction, and Metaphor

The three chief tools we will use in this work are 1) semiotic theory; 2) abductive reasoning; and 3) metaphor. As matters stand, the first two tools are needed to set up the third tool, which will provide the bulk of the concrete products of our efforts. But in order to understand how we use that third tool, we have to stop and look at the first two tools in action.

The Two Faces of Semiotics

We will start with the briefest possible look at semiotic theory. To understand semiotic theory, we first have to understand the fact that it is a two-headed theoretical creature. This is due to the fact that two modern geniuses each formulated it independently of each other.

The most common and familiar form of semiotic theory is called “semiology” and is based on the insights of Ferdinand de Saussure (1959). Saussure, who was a Swiss linguist and who died young in 1911, started by examining the nature of language. Prior to Saussure, linguistic research was historical in nature; that is, it sought to trace the development and evolution of languages. Saussure was the first to look at language in a more formal way as a complete system. He was interested in finding the universal principles that are manifest in any and all languages. This approach soon led him to realize that languages are specialized forms of more general systems—systems of signs. In other words, linguistics is a branch of a more general area of study he called semiology, or the study of signs.

Those who concentrate on a semiological approach tend to use language as the basis for modeling and understanding other systems of signs. Language is a good

model for such work, since it is the most advanced and most abstract example of a sign system in everyday use. By taking a quasilinguistic approach, inquirers have uncovered codes of signification in such diverse areas as tribal kinship patterns (Levi-Strauss, 1978), biblical history (Prewitt, 1990), and popular culture (Barthes, 1957).

The second version of semiotic theory was forged by C.S. Peirce (see Peirce, 1992, 1998 for the most thorough and concise introduction to his main ideas). Peirce, whose career spanned the late 19th and early 20th centuries, is considered to be one of the finest minds produced in America. He founded the philosophical doctrine known as Pragmatism. Pragmatism is a doctrine that seeks to resolve issues of meaning by appealing to the consequences of those issues in the world of experience. For Peirce, the act of understanding was an act of logical inference. But the logic of understanding is quite different from more traditional forms of logic as tools of demonstration or verification. Rather than working with principles or facts, understanding is based on signs. So Peirce created his model of semiotic theory as a way to capture meaning as a consequence of logical inference. If a meaning can be grounded on one end by its nature as a formal logical inference and at the other end by its consequences in the world of experience, then we can be assured that our meaning is a genuine part of the nature of things, and not just something that we might fancy to make up to explain away circumstances that make us uncomfortable.

From our brief look at the two faces of semiotic theory, we can assume that the Internet can be understood as a complex and emerging code-in-use and that its nature can be understood as a logical consequence of the practices of its users.

We will assume that the code-in-use dimension is intuitively obvious to the reader, particularly in light of the fact that this code-in-use is currently being massaged to transform the Internet into an engine of

Late Consumer desire. Therefore, we need to focus instead on the less familiar notion of a semiotic system functioning as an evolving and recursive system of logical resolution of meaning. To grasp the nature of this functioning, we need to pinpoint the type of logical reasoning that is involved in the explication of meaning for any sign system. To that end, we turn to the following discussion on abduction and abductive reasoning as the logic of meaning.

Abduction as a Research Strategy

Abduction is a term coined by Peirce to signify the type of reasoning we do when we are aiming toward the resolution of meaning. It is best understood in contrast with the two other more commonly accepted modes of reasoning—deduction and induction.

Let us start with a simple syllo-gism. Suppose we know for a fact that all the beans in the yellow sack on our table are white. We then reach into the sack and retrieve a handful of beans. We know, even before we look at them, that these beans will be white. This is an example of deductive reasoning.

Now let us change things around a bit. We have the yellow sack on the table, but we don't know anything about it except that it is filled with beans. We reach in and pull out a handful of white beans. We reach in again and pull out another handful of white beans. We do this same act 35 times, and each time we get a handful of white beans. By now, we are willing to entertain the hypothesis that all the beans in the yellow sack are white. This is an example of inductive reasoning.

These two modes of reasoning are quite familiar to all of us, and so we will not dwell upon them. Instead, we move on to a more unusual scenario. This time, suppose we have been told that a yellow sack of beans has been placed on our table. We enter the room and find the sack on the table as expected. But we find something else that we did not expect. There, beside the sack, is a small red bowl filled with white beans. In

summary, we were expecting the sack, but not the red bowl. Where did this red bowl come from? And why is it filled with white beans?

Peirce argues that our instinct is to reconcile the meaning of the presence of the red bowl filled with white beans as logically as possible. We cannot deduce or induce any conclusions, however. We need a third form of reasoning, which he called abduction.

The nature of the abductive inference is quite simple. We start with some surprising fact (in this case, the red bowl filled with white beans). We then seek to find some explanation that will render our surprising fact into an ordinary occurrence. In this case, we might suppose that the yellow sack was not big enough to hold the entire delivery of white beans, and that the delivery people put the excess beans into the red bowl. But why a red bowl? Well, maybe just because it was handy.

The scope of abductive inferences is quite broad (see Shank & Cunningham, 1996). In fact, there are six primary “meaning tools” that abductive inferences can use: hunches, omens, metaphors, clues, patterns, and explanations. In this paper, we will focus on an abductive analysis centering on the use of metaphor as the primary inferential vehicle, for reasons that will be clear in a bit. First, however, we need to look at a more traditional understanding of metaphor in order to see how to extend this concept into a systematic and effective research tool.

The Concept of Metaphor

Rather than tackle the long and tangled history of metaphor, we make our start with the ground-breaking work of Lakoff and Johnson (1980). In a break with tradition, Lakoff and Johnson argue that metaphors are not just “flowery” tools for poetic expression. Instead, they present compelling evidence that all concepts, no matter how abstract or seemingly literal, are

metaphorical at heart. Furthermore, most of those metaphorical structures are completely unconscious. For example, all of us assume, without thinking about it in any detail, that GOOD is UP and BAD is DOWN. There is no law of nature that requires us to think of good as being up and bad as being down, but we talk and think and argue as if that were the case. These and countless other “dead metaphors” permeate our language and our structures and models of concepts.

It is one thing to track down metaphors and see how they are used to form concepts. It is another thing to use that process as a deliberate research tool. Let us examine how such a shift can be made.

Metaphor as a Research Tool

The possibility for using metaphors as a research tool requires one simple shift. Suppose we assume that a metaphor is an inference that helps us settle meaning in some ordinary and everyday setting. This would make metaphor a form of abductive inference by definition.

If we accept the fact that all metaphors are types of abductive inferences (where we are seeking to understand the potential presence of some aspect of meaning by the formal manipulation of possibility), then it is a small step to suggest that this process can be harnessed and directed toward any phenomenon in need of greater explication of meaning.

Perhaps the easiest way to use metaphor deliberately is via the process of arbitrary juxtaposition (see Shank, 1994, 1998 for a more extensive discussion of the method of juxtaposition). Why would we want to use arbitrary juxtaposition as a research tool? The answer is very simple. First of all, the human mind cannot tolerate a meaning vacuum. If we compare some X to Y, then we strive mightily to understand that comparison. Sometimes the comparison is simple and transparent. When we compare, say, a smile to a flower, then it is easy to

abduce that the smile is pretty and pleasant, much as a flower is pretty and pleasant. When we make such simple abductions, then we are staying well within our current range of preconceptions about the meaning of things in the world.

When our metaphors are arbitrary, however, then we are no longer in “safe” preconceptual territory. There is no easy and apparent solution to the metaphor “puzzle.” Also, even though we know that the comparison is arbitrary, we still feel the tug of our desire to render the comparison as meaningful. Therefore, we have no choice but to leave our familiar preconceptions and engage in meaning exploration. This will be our strategy in the forthcoming metaphorical analyses of the Internet and Internet Culture in relation to teaching and learning within educational research.

Metaphor and Internet Culture

Internet Culture is certainly a complex phenomenon, and it is certainly understood only on the most superficial of levels. Therefore, it is entirely reasonable for us to apply any number of metaphors to Internet Culture, to seek to expand and enhance our richer understanding of its nature. As a tribute to Pirandello, who was one of the pioneers in this form of inquiry into meaning, we have settled on six. All metaphors were chosen arbitrarily. They are a “red bowl.”

To our knowledge, none of these metaphors have ever been used before to describe the Internet or Internet Culture. Each of us has taken three metaphors for explication. They are presented in alphabetical order. We will not reveal whose metaphors are whose. Instead, we have rewritten our accounts to disguise individual author-ship of each metaphorical explication.

Pirandello wrote to capture the conundrum of creating meaning just as our six metaphors are meant to trigger different perspectives on the Internet. The creative and

divergent thinking required to consider each metaphor is part of using an abductive process for discovery.

We are sure there are other metaphors wandering about, but here are our six metaphors in search of the Internet:

The Internet as Albatross

The albatross is a bird steeped in meaning. It has long been a symbol of bad luck and even death. But it is not that dark side of the snowy white albatross that we wish to bring in focus here (although that dark side is part of its cultural consciousness and cannot help but “flavor” our thoughts here). We want to look, instead, at the albatross in flight and in landing.

No bird is more graceful than the albatross in flight. Its huge wings and its lean body were made to soar the skies. But no bird looks worse when it finally comes in for a landing. The albatross is lucky that it is a mainly a waterfowl. If it tried its gawky and stumbling landings on hard ground regularly, sooner or later it would break its neck.

What is the moral of the albatross for educational researchers using the Internet as a source for new methods of teaching and learning? Natural scientists from the Greek historians through the medieval bestiary writers have reminded us that the albatross is a lesson on the wing. It is not enough for us to know what something is. We have to go further and understand what it means. And there is the further complication that there seems to be no end or limit to what things can mean. But then again, something cannot mean just anything.

As we soar with our sound little theories of teaching and learning, do we resemble the albatross in flight? Our models fit like the white bird in a blue sky. Tackle the larger issue of what our theories might mean to the ordinary conduct of life. Bring the bird in for a landing and notice how grace becomes awkward.

We talk about the soaring potential of the Internet to teaching and learning. The future promises to be a graceful one. Bring it down to earth, apply it to the classroom, and we are witness to the potent structure stumbling along its way in the present. We look at the potential in terms of the past so the meaning is lost somewhere between the packaged theories and the pragmatic application. Perhaps it isn't lost as much as it never developed.

The metaphor suggests that we consider a different approach and turn from looking up to develop our theories and, instead, look at where they have to land. The Internet is a growing sea of information. Consequently, the book, our mainstay cultural edifice, is being displaced as the authority and embodiment of shared knowledge. The book means something different than the Internet. Where the book engenders a didactic approach to teaching and learning, the Internet used solely as a didactic resource is awkward and does not display its potential. The Internet has made information available at unprecedented speed and quantity, but it is inert and out of place until it performs and engages interactively with learners.

The Internet as Chiaroscuro

There are times when the Internet seems like the dancing light at the bottom of a swimming pool, moving, ephemeral, mesmerizing, and without scale. It is tempting to stay within the metaphor of the swimming pool itself. A swimming pool is a place of weightlessness, a site of grace only through practice, where we come up for air and are unaware of the medium that surrounds us until we are out of it.

But let us return to the bottom of the pool and seek out that metaphor instead. Our best label is taken from the world of painting—chiaroscuro is the use and interplay of light and dark. Massacio, the Renaissance painter, developed chiaroscuro to add form, depth, and significance to a

painting. But, unlike a painting, Internet chiaroscuro is constantly morphing from today's fashion to the next new thing. It never stands still; out of the darkness at the edge where the network of connections emerges the Internet is taking on its new form. Between the time we access a web page and the time we finish reading it, someone somewhere in the world has uploaded yet another web page that will change the nature of what we have just read.

What is the moral of the role of chiaroscuro for educational researchers using the Internet as a source for new methods of teaching and learning? Inquiry is subject to chiaroscuro. In chiaroscuro, we are reminded to give up our quest for absolutes; nothing is either light or dark. Social science research has taught us, from the study of psychophysics through the study of culture, that human functioning is not absolute. But the process of chiaroscuro teaches us that there is a mastery to relativism that allows us to stay in the flow of life while rendering an authentic portrait of our world. Taking it a step further, it suggests that we seek the yin to the yang of each and every one of our main theories and findings in teaching and learning. In traditional settings, yins can be hard to find for the yang master, but with the Internet, it is just a click away on a search engine. Teachers and learners should embrace the Internet as a process of conceptual understanding that gives way to confusion and darkness. The interplay of extremes gives form to our making something extraordinary out of the Internet. After all it is less a thing to look at than a way to look.

The Internet as Diadem

If the Internet is a diadem, then it is a crown designed by M. C. Escher and crafted by Moebius.¹ It is a crowning adornment of culture but there is no centerpiece, no privileged spot. There is no authentic or aesthetic keystone. Furthermore, its contents

shift and shimmer; it can never rest still upon any head.

But there are most assuredly Internet royalty, monarchs of the world wide web, and upon their heads the diadem sits. But Internet royalty, as a group, are a ragtag lot indeed. Hackers and phreakers are surely part of the mix, but so are e-commerce gurus and hard working engineers and programmers. Many of the elites in the educational side of the Internet are adjuncts struggling to hold onto any foothold within academia. Retired professors are putting the wisdom of their years online, but then so are chatters on bulletin boards. They pass through the space contributing to the adornments making the Internet a reification of their actions.

What is the moral of the diadem for educational researchers using the Internet as a source for new methods of teaching and learning? For teachers and learners the Internet is a user's crown. When we have a diadem, we are confronted with two tasks. We must define which people can wear the crown and how to find them.

Our first instinct might be to say that no one should wear the Internet as crown or that the diadem can be worn by all in a system that is nonhierarchical by nature. But as the Internet has grown, and as various branches of Internet Culture have taken form, then the formlessness of the Internet has oscillated into branches of hierarchical structure and order almost inevitably.

There are sick people, and crazy people, and misguided people, and stupid people, and hate-filled people out there making web pages and chatting and posting messages that mimic the trappings of civilized thought. As

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1. Websites where readers could find more information about Escher and Moebius are: <<http://www.mcescher.com>>, <<http://www-groups.dcs.st-and.ac.uk:80/~history/Mathematicians/Mobius.html>>, and <http://mathforum.org/sum95/math_and/moebius/moebius.html>

we teach our young, and as we instruct them via the Internet (among other tools of instruction), we must make it clear to our young learners that the diadem they reach for can be poised on a crown of thorns.

The Internet as Saprogen

Few things in nature are as simple and as mysterious as a saprogen. A saprogen is an organism living upon nonliving organic matter and capable of causing its transformation. It can be a tiny bit of microscopic flora or huge underground growths of indeterminate size, shape, or age. The largest living organism is a saprogen.

The Internet is spreading its influence nourished by the decaying methods of didactic information. Such collective Internet action is not only altering literate forms; it is altering pure and simple. Although shaped by literacy, the Internet manifests the “other” of literate behavior. Creating pages once meant transferring words in the form of ink onto paper, and this was enough to answer the demands of what was literate culture. If literacy is the sword of enlightenment, it is a two-edged sword. One edge of the blade consists of ideas on a page and the other edge belongs to ideas expressed on a screen that command the attention of multiple senses. We can never return to a simple notion of literacy as the domain of words.

What is the moral of saprogen for educational researchers using the Internet as a source for new methods of teaching and learning? Consider the notion of literacy as impacted by the ubiquity of Internet Culture. Our words, spoken and written, once the keys to literacy, are changing before our eyes. Seen from above the saprogen facilitates a new literacy, organizes mountains of data rendering it information. And if action predicated by information (knowledge) is power, then what has emerged is a new appreciation for collaborating on its use. Cultures, large and small, will emerge and flourish on the shared

use of information. Ownership becomes irrelevant, an inert state of no growth, no change, and in an environment of constant change, it decays. Just having information is just that and no more. Staying current requires the actions of teachers and learners to recognize and become familiar with the saprogenic nature of the Internet. It is a simple concept with complex consequences. It is scalable, malleable, and very adaptable.

The Internet as Shibboleth

A shibboleth is a custom or a usage that reveals group identity and at first glance the metaphor suggests that use of the Internet is the test of belonging to the Information age. The Internet is a shibbolethic sea, a medium where use virtually signifies access, class, cultural identity, and profession. On one level it is a way to transform impressions into stereotypes; it used to be that you could tell what someone was like by their record collection, but now all you have to do is look at their bookmarks. And yet, the concept of the shibboleth goes well beyond the idea of just places and passwords. Its very intonation is whispered, speaking of private access to those inner circles characterized not only by privilege but also by committed belief.

Consider the role of contemporary teachers and learners who want to belong to the future. It is the recursive practice of users as individuals and as a group that the Internet culture assumes shibboleths for discrimination and self-identification. Although encounters are anonymous, identity is constructed by virtual interaction with others through the shimmering screen. But, unlike watching a film, successful interaction is not a suspension of disbelief; it is suspended animation. Things vital to our cognitive well-being are put on hold to allow participation that will lead to belonging in cyberspace. Virtual replaces empirical.

Also, consider that entering the Internet strips away some aspects of identity while imposing other measures. As a place to teach

and learn, the Internet is not the same familiar schoolhouse culture. The distinction between teacher and student based on authority over content is blurred, and those that are part of a learning community cannot belong in the same way as before. It begs the question, what is a student or a teacher? Consider that the shibboleth for either becomes the same; after all, no one can see where you stand in cyberspace.

What is the moral of the shibboleth for educational researchers using the Internet as a source for new methods of teaching and learning? The Internet looks like a wading pool, but in reality it is deep and becoming vastly deeper. As we navigate the branching paths that litter our searches, we find that there are web sites, listservs, chat rooms, and the like that are open only to the select few. Mores once hidden deep in culture are now buried under layers of specialized Internet access. It is no surprise that many of the margins of society, like pedophiles and saucer freaks and the like, have set up their sheltered coves deep within the folds and recesses of cyberspace. Just how complicated are human societies? What are the fringes that pull in denizens that go undreamed in ordinary society? Can these tribes continue to survive in the hidden zones of the Internet, and can they sustain the shibboleths they need to bring in their ken and keep the rest of us away? And just how different are they from the child psychologists who want to talk in peace among themselves or the serious music traders who want to distribute bootlegs? The Internet will force those of us who teach and learn to confront the boundaries between knowledge and values in ways we have never seen done before, and on a worldwide scale.

The Internet as Zebra

The most interesting things about the zebra are those things that it is not. It is not a type of horse, even though it looks like one. Why is it, even though we realize that the

zebra is not a horse, do we persist in thinking of it as a horse? It is not white with black stripes. It is black with white markings. How is it that these white markings, which accentuate the zebra, take over and define its basic color as a form of markings?

What is the moral of the zebra for educational researchers using the Internet as a source for new methods of teaching and learning? The zebra is our metaphorical marker on the persistence of appearance and tradition, and how these factors can interfere with understanding what it is that we see right before our eyes. Persistence and the Internet suggest that educational initiatives must first accept what the technology is, not what it's thought to be.

One place where the paradox of the zebra seems to infiltrate the nature of the Internet is that amorphous zone known as gender. Gender is a paradox on the Internet. The Internet was built almost exclusively by males, but its penetrable nature is quite distinctly female. It's virtual environments are non-hierarchical, collaborative, and emphasize making connections and building relationships. It acts as a socially determining field of influence, nurturing its participants through interaction. So, where are the stripes, and what is the true color of the Internet? How can we learn from gender, that most basic cauldron of human identity, to manipulate the status of identity in the pursuit of teaching and learning?

Bringin' It All Back Home

We have deliberately not gone into depth in the analysis of any of these metaphors. First of all, such an analysis would consume many pages. But more importantly, we need to leave the reader with a sense of incompleteness in our resolution of the metaphors. As our reader, you need to work with the tensions in meaning created by our lack of resolution. How have we not understood, or misunderstood, Internet Culture from your vantage point? How

would you branch from our arbitrary metaphors to other metaphors that might flesh out the points that we have drawn? Are you tempted to seek out your own arbitrary metaphors, to see what Internet Culture might reveal to you within their forms?

Abductive research lacks a sense of completeness and certitude by its very nature. Rather than seeing this situation as its weakness, instead we wish to highlight the fact that its openness is its great power. As we move into an Internet Culture as part of our ordinary consciousness, the precepts of abductive research will grow more and more important in our quest to understand and foster the growing and shifting and changing phenomenon that we know as the Internet.

Juxtaposition is only one of several possible research tools that we can craft from our abductive awareness of the Internet and its emergent culture. It has the value that it can be used effectively with metaphor to create in-depth interpretations of hard to reach aspects of cultural awareness. As our familiarity with abductive strategies continues to grow and our use of these modes continues to develop, then we can add more abductive strategies and approaches to our exploration and explication of Internet Culture. For example, there seems to be some promise in looking at various configurations of messages and patterns of web pages as Clues into a richer awareness of the complexity of the Internet. As we become more adept at the inquiry of meaning and its relation to the Internet, we can progress from being metaphor makers to becoming semiotic detectives. This is one of many possible avenues for future exploration.

In conclusion, we need to make one final point. In our abstract, we promised to focus on the notion of the Internet as a means to restructure our awareness of culture. Have we really gotten "ahead of the curve" in our use of metaphors abductively to create these strange and hopefully fertile juxtapositions of the awareness of the potential of this

technology to change the way that we look at the world? It depends upon how these metaphors are read. If we have created six metaphors that sit in their cages, like creatures in a zoo, to be stared upon by our readers, then we have failed to make our point. All metaphors limp, but all metaphors live as well. One of the key ideas within Internet Culture is the notion of the "thread." When we create a thread, then our metaphors can take on interactive lives of their own. They can grow and branch as they are told and retold, as they are supported and rebuked by our readers.

And with a nod to our reader who has followed our lead this far, keep in mind that the goal has been to question and review through an abductive logical approach the "search," not the metaphor. Mediation between the affordances and constraints of the Internet as an instructional technology means we have to think through the relevance and action of our metaphors. The Internet affords broad capability, especially in feeling connected, closer together. At the same time it seems to constrain our freedom by establishing a connected and interdependent social world that is modeled after commodity distribution. It is designed to run on desire. There are high stakes in the world of the Internet and instruction, perhaps our souls are the highest stakes of all. So, ours and yours is a desperately important search for metaphors that are trying to find a place, trying to tell us how to achieve meaning and learning.

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