Applying Cognitive Presence to Individual Educational Experience as a Framework for

Reflection

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Abstract: Traditionally understood in reference to distance education, cognitive presence may be defined as "the extent to which the participants in any particular configuration of a community of inquiry can construct meaning through sustained communication. The purpose of this paper was to create a blueprint for the reflective ePortfolio as the capstone project for my graduate degree. The blueprint was accomplished by adapting for use cognitive presence as a tool for both analysis and framing, which has never been done to the best of my knowledge. I considered myself to be a participant in a "community of inquiry" model and substituted the result of my interaction with each of the required instructor-course content pairings I took to serve as fellow participants in this community model. The result of my participation was understood to be the knowledge and experience that I have gained, which was reflected in eight of my academic research papers. These selected papers were the artifacts around which my ePortfolio was ultimately developed and demonstrated my participation as an active member in this community of inquiry constructing meaning through sustained communication.

Keywords: *Cognitive Presence, Reflective Writing, E-Portfolio, Community of Inquiry, Construction of Knowledge*

Part One: Overview and Rationale for Artifacts Included for Reflective ePortfolio

In my approach to reflecting upon my entire educational experience, I have appropriated as a tool for both analysis and framing a construct that has not been previously employed to the best of my knowledge. Traditionally understood in reference to distance education, cognitive presence may be defined as "the extent to which the participants in any particular configuration of a community of inquiry can construct meaning through sustained communication" (Garrison, Anderson & Archer, 2001). Furthermore, aware that within the cognitive presence framework a community of inquiry model will normally apply to an instructor and his or her students as participants all of whom are participating in a distance course or program intercommunicating to bring about meaning, I asked myself the following question: "what if for participants, in place of living students, I substituted each of the courses I have taken comprised of their respective instructor moiety acting as conduit for the content moiety and treated the course instructor-content pairings as "living" entities with which I maintained communication (via the instructor)?"

Although somewhat abstract, as is my tendency, I felt as though my unique modifications to the components of the cognitive presence framework may lead me to nnontraditional yet significant insight. Fully committing myself, I let my mind go, and everything became clear immediately: By framing my educational experience in such a manner, I could both substantiate and map my claims in knowledge growth. In doing so, I would consider myself to be a participant in a "community of inquiry." Furthermore, the result of my interaction with the instructor-course content pairings serves as fellow participants in the community and can be understood to be reflected in the knowledge and experience that I have gained. Also, given the abstract nature of my framework, as concrete evidence of the knowledge and experience that I do

claim to have acquired from my participation as a member of this "community of inquiry," I

have selected a representative piece of my academic research and writing from each course.

Introduction

Each representative research paper, proposal, critique, or curriculum that I have selected

was an artifact on which I reflected in creating my ePortfolio. In addition, I have developed

many of the artifacts into full academic articles that have either been published in peer-reviewed

scholarly journals or are currently in the process. As for the structure of this ePortfolio, there are

two main parts. Within each part, the sections are headed with the title of the course and have

been placed in chronological order. Included under each course section heading in part one are

both an overview and rationale for the artifact selected as a representative piece. In part two,

each section comprises the reflective component based on the artifacts used.

The particular arrangement of the content was felt to best allow the reader to follow

along, as though they were participants observing the manner in which knowledge was being

constructed course by course in a logically coherent fashion. It is ultimately the process of

developing knowledge-claims from each of the artifacts that assist in establishing the case for my

reflection as an argument. With the abstraction of a well-known framework applied in a

different manner to a new area, my reflective ePortfolio was born and fully developed allowing

me to *apply cognitive presence to the individual educational experience as a framework for*

reflection. Continually being refined, Portfoliogen is hosting the accompanying ePortfolio

website that contains the artifacts, and much more, at https://www.portfoliogen.com/llcddsedm/.

LAI 525 Science, Technology & Human Values - "The Metaphysics of Technology:

Developing definition through analysis of authoritative opinions in the literature."

As my final paper of the LAI 525 course, after having considered the definitions of technology throughout the term, I had felt as though something was noticeably absent from the scholars' efforts we had read. Upon reflection, both my purpose in authoring and the reason that this paper was selected as an artifact, was to systematically untether both readers and myself from such restrictive definitions to ultimately construct an adequate definition in which examples of technology that had not been considered previously now felt entirely at home.

The research I conducted into the existing literature contributed to my understanding of Science in the Public by reminding me that scholars in any scientific field of endeavor are as much a part of the public as any layperson: they are equally vulnerable to, and at times guilty of, *missing the forest for the trees. Conversely, scientists are just as likely to acknowledge that the forest exists yet fail to recognize all the various trees situated within it. Regardless of the case, even the science of scholars who are members of the public along with laypersons can behave in a manner that is tantamount to denying the legitimacy of all trees that comprise a forest.*

A geometrical analysis of Postmodernist authoritative definitions of technology was undertaken within the context of a philosophical framework relying on principles of logic. The choice of topic was conducive to furthering humankind's understanding by providing a structured framework within which interpretation could be successful. Furthermore, such a framework will allow for the determination of both major and minor aspects of technology en route to developing an original comprehensive definition.

In order to be considered comprehensive, a novel definition of technology according to the author ought to encompass all forms at best, and at worst allow for more types than any

definition in the literature. It will be through the use of implicative argumentation on authoritative grounds that the thesis claims of concept and interpretation herein proposed will be advocated. Given *skill* or *art* are undoubtedly implied in contemporary usage of words incorporating "*techne*," it is determined that implicit in these words must be a common conceptual precursor integral to that to which the words refer.

Practical issues are discussed concerning how society can rationalize as instances of technology that which humankind did not create if one accepts the range of definitions suggested in the literature from Bigelow to Volti as they are. We argue that aspects of technology are timeless and identifiable; therefore, a consistent definition is possible. A general definition is developed by exposing inherent flaws in existing definitions while debunking the apparent anthropocentric standard.

A framework for definition follows, which is constructed before proposing the author's comprehensive tripartite definition of technology that will stimulate future research by forcing society to discuss and reevaluate notions of technology. Although this study only considered authoritative cases of definition that were general without being vague and written in English, it addresses the inconsistency surrounding the process of defining technology by appealing to its essence through the identification of fundamental aspects to develop a metaphysical framework for understanding technology.

LAI 641 Survey of Educational Research Design Option Research Proposal

If successful students want to learn how to succeed, then they need only to study themselves because they are the ones thriving. From the perspective of those students wishing to find out how to succeed who currently are not, these students ought to examine successful students because successful students know how to succeed.

For researchers investigating the phenomenon of success in students, in order to provide the most valuable insight, I argue that they need only to study successful students to learn what is conducive to their success. Because the students studied are successful, both those students who succeed and those who do not stand to benefit. Specifically, students who do succeed may add strategies to their existing repertoire while those who fail may learn strategies anew from the findings of such a study. In no way is the author discounting the worth of struggling students themselves or the information they could provide researchers of other studies. Nevertheless, for the current research problem and according to the argument as mentioned earlier presented, the author finds that for every way that there is to succeed there are infinite ways to fail. If true, then the implication is that there can exist minimal if any benefit to investigating students who fail, as relatively little may be gleaned from learning from the negation of success without first learning, without defining, and then comparing to, what success is.

 If there were an equal number of ways to both succeed and not to succeed, then the probability of achieving success would be fifty percent, which would imply that success is no more determined than chance.   Nevertheless, this cannot be the case since successful students regardless of their experiences with failure are ultimately significantly more successful than what would be predicted by chance alone. Moreover, students who fail are considerably less successful as a proportion of their total number of attempts than chance predicts.   Furthermore, no matter how many events were attempted with different approaches resulting in repeated failures, although the probability of succeeding for any given student may initially fluctuate or decrease with every trial, once the knowledge of how to succeed is gained after a trial or event, thereafter, success becomes permanent with probability steadily increasing, as each subsequent attempt occurs. Therefore, disproportionate yet significantly greater, or fewer, trials of success

over time cannot be purely due to a chance occurrence substantiating them as the primary focus of the research.

One word that may be used to describe both how and what the creative endeavor that was undertaken in designing this research proposal contributed to my understanding of science and the public would be *perspective*. Perspective, serving as the context for framing any research problem I would argue, entails both the "how" and the "what," which motivates and guides one's focus zeroing-in on the crux of the issue. In this case, after having considered both perspectives concerning the problem or student learning, it was a convergence towards which each duality led me.

I gained clarity from thoroughly contemplating learning. Unlike the debate that exists categorically dichotomizing learning into either product or process, how best to characterize learning ought not to be framed as an exclusively disjunctive problem at all. Learning comprises a duality. The duality that is learning may be most accurately and appropriately be described as the *"what" and the "how" of that which is learned*. Contemplating what it meant to learn indeed was the what and how that contributed to deepening my understanding of the nature of the relationship that exists between science and the public.   The clarity gained from the conclusion as a result of this undertaking was that what it meant to truly learn did not merely involve product and process, or the what and the how; it was that learning as a whole was equal to more than the sum of either aspect that comprised it. Thus, *much like the context of the society that concerns Science and the Public within which it occurs, I have come to the conclusion that learning is, in fact, synergetic.*

LAI 639 History & Philosophy of Science Teachers - Observation Critique 3 Paper Final

I approached this observation assignment in the traditional spirit of reform critiquing a recorded classroom that I observed for recognizable and recommended activities from the literature that were related to science education. This critique was comprised of my analysis in order to identify teaching strategies and techniques that were aligned with recommendations as found in the text of the works of eminent scholars in the literature. Once the activities were identified and supported through attribution with citations, any implications of the recognized techniques and strategies were elaborated on and discussed.

A prerecorded video source of fifth graders from Turtleback Elementary School served as my classroom for observation. The activities in which both students and teachers were engaged was a reflection of their understanding of some of the most significant historical debates known to humankind. Writing, delivering, and critiquing short stories were just a few of the processes that these children acquired as skills that were related to the activities involved in the observation. The students collaborated once formed into heterogeneous groups and worked cooperatively toward the development of their best arguments. After obtaining accurate and appropriate information using a variety of technological media, such as computers, the internet, hands-on learning, and iMovie, the students presented a demonstration that incorporated what they had learned from their teachers concerning the History and Philosophy of Science (HPS).

My approach was logical, and the strategy for completing this critique was to develop and substantiate an argument for what science looks like in the classroom. *Moreover, mapping the implications of the identified activities was done based on their relationship and extent to which they satisfied the content goals mentioned in the original documents of the National*

Science Education Standards (NSES), Frameworks for K-12, Common Core State Standards

(CCSS), and Next Generation Science Standards (NGSS).

The process of mapping what I observed to the sources from the literature not only

substantiated the claims that were made but in doing so, I familiarized myself with some of the

best practices. Through my research in preparation for this work, historical context for education

in science, its relevant periods, problems, and the trends through which science education has

passed were all considered. Through the completion of this critique, yet another facet

contributing to my understanding and appreciation of Science and the Public was the growth that

came from observing the manner in which science is taught to children in the classrooms who are

a segment of the public.

LAI 648 Research Ethics - Seminar Paper: The Violation Imperative

Allegations of fraud involving falsification as research misconduct have the potential to

ruin the lives of the accused and result in harsh consequences for those convicted. Throughout

the course, although I could appreciate what the purpose of guidelines for research misconduct,

the devil's advocate in me found glaringly obvious holes in the Public Health Service's (PHS)

definition of falsification. Considering the severity of any allegations of misconduct, based on

falsification as defined currently, I felt as though too many innocent people could fall victim.

Thus, a well-articulated revised definition is sorely needed if veritable instances of falsification

as misconduct are to be consistently identified.

Determined and relying on my philosophical background as the framework for this

seminar paper, I critiqued the explicit definition in order to determine what comprised

falsification at its core. I thought, if even slightly successful in doing so, a partly, or wholly, the

revised definition could substantially reduce the allegations of fraud as suspected instances of

misconduct. The flaw in the PHS definition of falsification, I argue, was due to a logical fallacy

referred to as circular logic (yourlogicalfallacyis.com, n.d.). If left as-is, the definition would

allow for anything to be proven. Specifically, this translates into heightening risk for innocent

people of the public who happen to be scientists being wrongfully accused being unjustly found

guilty.

The research and ideas I put into this paper were vital in contributing to the furthering of

my understanding and appreciation of the nature of the relation between science and the public.

Because whether it genuinely occurs, allegations of research misconduct are something made

public, and the process of proving or defending it is often carried out in a public forum.

Furthermore, claims of research misconduct can go to trial, always involve practitioners of

science whose lives are scrutinized, and the juries delegated the task of determining whether the

scientist (who is a member of the public) is guilty of purported misconduct is comprised of

members of their peers who are the public. Also, research misconduct occurs during the practice

of science. It is for all of these reasons that the deepening of my understanding of this aspect of

science and the public that came as a result of endeavoring to reexamine the PHS definition of

falsification under research misconduct *I consider to be among the most important.*

LAI 524 Critical Thinking: Perceptual Phenomenon of Ambiguity and The Modes of

Understanding

The purpose of exploring the construct of ambiguity was to develop a theory that

contributes to the elucidation of its nature as ambiguity pertains to our understanding. Using two

definitions of ambiguity, the author suggests core components responsible for what he refers to

as the *perceptual phenomenon of ambiguity*. An argument is presented that demonstrates the

manner in which these core components may be reconciled with one another comprising what I

refer to as the *modes of understanding*. Through comparison to the notion of what it is for

something to be *deictic,* ambiguity is revealed to be the result of, and a perceptual phenomenon

itself, within the conceptual framework for understanding that is herein discussed.

Whether I, or anyone for that matter, can be correct or even agree about a law of science,

indeed there is a singular, unchanging, and unaffected truth regarding it. And, in consideration

of such science being unaffected –like a denotatively-fixed concept of a particular word— how

people come to understand it *necessarily* depends on what it *means to them or how they interpret

it*.

According to Ravitch & Riggan (2016), the meaning is contingent on the way one thinks

such that beyond one's interpretation there exists none. If this is the case, then it occurred to me

that understanding with regard to notions of *deictic* pronouns, to science, and to scientific

statement remaining unchanged may be considered the *property, attribute, or qualitative

characteristic, which allows for the multiplicity of understanding derived from the fixed

denotative concepts represented by, or embedded in, deictic* terms themselves.   It is the natural

conflation associated with such deictic words that result in ambiguity from having a single

meaning yet multiple *interpretations* in understanding. Moreover, having a single meaning with

the ability to give rise to plurality in interpretation is that which is responsible for the tendency

for people to fail to distinguish the *perception of the existence of inherent ambiguity in things*

from *the perceptual illusion of the existence of inherent ambiguity.*

The thesis of this paper brings to the forefront the perceptual phenomenon that is

ambiguity and relates to science and the public in that it can account for the lack of consensus

and multiple, often pseudoscientific and unjustified beliefs held by the public regarding issues of

scientific concern. As it pertains to science and the public, whether I, or anyone for that matter,

can be correct or even agree about a law of science, indeed there is a singular, unchanging, and

unaffected truth regarding it. And, in consideration of such science being unaffected –like a

denotatively-fixed concept of a particular word— how people come to understand it necessarily

depends on what it means to them or how they interpret it.

LAI 575 Improving Dietary Choices: Healthier Decision-Making Through the Use of

Nutritional Data to Encourage Metacognition

I chose to develop this activity because of the direct relationship between science and the

public and obesity. Additionally, I have felt for some time that public understanding of science

should focus more on establishing better dietary habits and nutritional practices. The focus on

developing habits with youth now may be one way to prevent recent trends in obesity in

America.

The rates of obese adults rose in Massachusetts, Ohio, Oklahoma, Rhode Island, and

South Carolina between 2016 and 2017 (stateofobesity.org, n.d.). While some cases of obesity

are not related to one's dietary habits, the vast majority of them correlate with eating habits.

Poor dietary habits, such as overconsumption of food, or consuming food with little to no

nutritional value are what contribute to obesity. Food consumption is determined by the

nutritional habits and dietary choices that one makes, which are learned behaviors.

Unfortunately, when proper dietary choices and eating habits have not been acquired, or have

been learned inadequately, the decisions made about which food to consume at each meal will

not consider its nutritional value.

The absence of necessary nutritional value awareness concerning food options, as well as

estimated energy requirements, results in the consumption of food containing amounts of energy

that are either qualitatively or quantitatively inaccurate concerning the specific needs of the

individual. Whether insufficient or excessive energy is consumed, the failure to meet nutritional needs takes a toll on overall health. Specifically, when there is an inordinate amount of energy consumed, weight gain results contributing to the overweight and obesity epidemic in the United States.

In the United States today, nearly two out of three adults and one out of three children deals with being overweight or obese (NIDDK, 2017). Moreover, research has suggested that, if the present rate at which the overweight and obesity epidemic is spreading continues, then the population will be comprised of a majority (51%) of individuals classified as obese by the year 2030 (Trust for America's Health, 2017). That implies that over the next 12 years, not only will more of those classified as adults currently join the ranks of the overweight and obese, but current children and adolescents, as well as those yet to be born, will as well. This informal science learning activity was designed in consideration of the growing epidemic of overweight and obesity. The purpose of this informal science learning activity is to help teach children to learn how to improve dietary choices by making healthier decisions through the use of nutritional data.

LAI 531 Current Trends Science Curricula Curriculum Plan: Fundamentals of Logic, Reasoning, and Argumentation for Public Engagement with Science.

Using what we had learned throughout the course and repurposing it to develop our curriculum plans was a fantastic way to reinforce what was learned. I also thoroughly enjoyed conducting the research necessary to familiarize myself with some of the theoretical frameworks that could provide a solid foundation for the curriculum plan development task. In particular, the insight derived from having conducted research and contemplated lead to some exciting points individually contributing to my understanding of what the public of science and the public is.

The section entitled "*Fractal Public and Its Logical Consequence*" details my argument's

progression from plurality of public, how this is consistent with there being various

interpretations of science and levels of confidence in science, and finally conclude with a

consideration of the nature of the relationship between interpretations and confidence levels that

helps to explain what is observed.

I viewed this paper as an opportunity to demonstrate exactly how I had digested,

interpreted, and connected everything that we covered during the semester. From the choice of

the plan's focus to the decision to adopt a learner-centered approach in designing my curriculum,

every choice I made was deliberate and conducive to achieving the desired overall goal of the

curriculum plan, which was to serve as a foundational bridge across which each aspect

comprising science and the public could safely travel in the name of mutual understanding.

The importance of the final plan as end-product, which served as a showcase for the

connections made, is that in revealing their connections in the design through the choice of

learning experiences, learning proficiencies, and assessment procedures, readers are given a

glimpse into the minds of the students during the creative process facilitating assessment. How

so? Well, if x recognizes a connection then implicit in the recognition of x possessing

knowledge of the connection is knowledge about how and what was connected.

Let us suppose that I am shown something of someone's choice, which happened to be

easily identifiable for me. Upon sight, I immediately recognized a hip joint. Furthermore, this

hip joint is also a connection. I claim that if I know a hip joint is a connection, then implicit in

my knowledge of a hip joint is an understanding of the how and the what concerning it being a

connection. That is, to say, I recognized a hip joint because I knew, by definition, that it was a

ball-and-socket synovial joint (i.e., the what) that includes the head of the femur representing the

ball and the acetabulum into which the ball situates itself (i.e., the how) (Hip and Joint Anatomy, 2017). Thus, from my recognition of the joint as a connection, I knew what it was, which allowed how it was to follow from the knowledge of what logically. Furthermore, it appears as though either what or how implies knowledge of the other. It is in this manner that the decisions made and presented in this curriculum plan were choices intended as indicators that serve as recognizable connections that allow the professor and students to identify the what and the how of the connection, which facilitates summatively assessing students thinking and learning.

If I construct an argument to support the claim that there are many publics as I have previously mentioned and begin with the fact there is a lack of consensus among the public; then it may be more convincing to the reader. For example, borrowing just one potential scientific issue of contention among the public in which there may only be two possible positions for members comprising it to adopt, either everyone agrees, or they do not. So, unless there was complete unanimity (i.e., 100% agreement), then the people could be designated according to the position they supported, which would result in two groups. However, if each of the *groups* consisted of *people* who share a *common* position, then, according to the definition provided earlier, each group would technically be considered its own *public*. In other words, we have discovered that the first public comprises two distinct publics. Continuing along this same line of reasoning would result in each subsequent public containing yet others, and so on *ad infinitum.*

The takeaway message from this thought experiment is that there exists more than one public.

Furthermore, the existence of multiple publics is consistent with the reality of varying interpretations of science as well as confidence in science. Also, given the differences as

mentioned earlier in confidence and meaning of science, it may be concluded that the

relationship between them is one of cause-and-effect (Machi & McEvoy, 2016). In other words,

it is not that levels of confidence in science cause various meanings of science; I argue that *the*

differing levels of confidence in science can be attributed to the different meanings that science

has to different people.

CEP 532 Using Qualitative Research to Guide Evidence-Based Practice: Twice-

Exceptionality (2e) —For gifted individuals with a disability (i.e., "Twice-Exceptional," or

"2e") do effective interventions/strategies exist to improve domain-specific (i.e., social,

emotional, professional, or academic) outcomes?

A "free and appropriate" education regardless of intellectual ability or circumstance

guaranteed both opportunities for and the fair treatment of, those with special needs.

Additionally, since there exist organizations and laws that support the interests of those with

special needs, society has become somewhat friendlier. Furthermore, conditions in the friendlier

society noticeably allow the disabled to do much of what those unaffected can do.

As I considered my topic for this research paper at the moment I wrote the previous

statement, at first, I could not rationalize what it was about such an innocuously positive claim I

made concerning friendlier conditions and the disabled doing that which those unaffected by

disability could that struck me as dissonant-discordant. I am hesitant to label this experience one

of cognitive dissonance (CD), which research has established results in a psychological

uneasiness that motivates us to resolve expediently in individual ways (Cognitive Dissonance

Theory, p. 96).   The main difference and why I withhold labeling it CD is that it was not as

though I had already possessed some belief with which the content of this newly encountered

innocuous statement conflicted. Nevertheless, the closest phenomenon it resembled was CD

except that my mind had to rearrange the components of the CD equation to allow me to solve for the unknown variable.

Whenever this occurs to me –some neutral-to-positive claim is made or read that triggers dissonance and discordance in me as though I was somehow conflicted — I trust my instincts and pause for a while to reflect. Stopping permits my mind to rearrange the factors and solve the equation for the unknown. In this particular instance, during the reflective process of rearrangement, I contemplated both my conception of what it meant to be disabled and the conceptualizations others may have had.

Almost as though patiently watching and waiting in anticipation of the inevitable conclusion of a sustained note being played resulting from a single vibrating string of a musical instrument that currently seems to appear as many strings, the dissonance that had been reverberating in my mind came to a standstill revealing to I clearly understood why it triggered me.   The profoundly humbling experience that I had at that moment resulted in clarity in understanding what was upsetting me about the apparent "good" that has come from society's accommodations for those experiencing disability. I was forced to acknowledge and conclude the following:

"If conditions (in society) allow for those experiencing disabilities or who are considered disabled to do what non-disabled persons can do, then conversely, necessarily it is the case that based on the provision of certain other conditions *those* not experiencing disabilities or who are not disabled can, in fact, *be made to experience, and appear to have, a disability."*

It became rather clear to me that the focus needed to be shifted away from the disability one suffered and moved toward the conditions themselves that society and the public have put into place or allowed to remain as such. Like science and the public, conditions are the interface

between being classified as disabled and the accomplishments of those who are able. Society is

accustomed to claiming the nature of the relation between individuals and disability. It is not

uncommon to hear that a *person who is disabled* /*has a condition (i.e., disability precedes the*

condition that results). I contend that instead, or, in addition to, it is the converse that can be

stated like this: *Conditions are what creates and exposes the disability (i.e., conditions precede*

the disability that results).

In order to discern important from unimportant, let us engage ourselves in an extreme

thought experiment using a Neo-Luddite Possible Universe, given both a person who is disabled

and a condition that he or she has or suffers from, suppose such as a person is born without legs

and lives in this hypothetical world. The world is home to a Luddite society without technology

of any kind, no vehicles, and prohibits their use. Things such as prostheses do not exist and

cannot be gotten. Since everyone is required to walk with his or her legs in order to get around

(i.e., the conditions set in place by society or allowed to exist), those born without legs cannot

get around due to the conditions in place and may be considered disabled. Therefore, the

conditions imposed by society are the limiting factors and render legless people disabled.

Furthermore, a person born without legs in such a society may be disabled, but it is

consequential.

Having a disability does not necessarily cause a condition at all; this incorrectly attributes

the disability resulting in being unable to get around to their born without legs. However,

vehicles with assistive self-operational technology could get these people around if society

permitted the technology and vehicles *regardless whether one had legs or not*. So, by engaging

in a little falsifiability in the Popperian tradition, it appears as though the disability (that

supposedly is preventing the person from getting around) is actually due to *a condition* that is

unrelated to not having legs.

I contend that much the same way that developing a disability and its effects are

contingent on the conditions within which they occur, the conditions themselves may be made

conducive to the development and manifestation of giftedness or talent. The previous statement

is not to be misconstrued as claiming giftedness/talent or its results can be created through

conditions; It is conditions that exist or that are created, which provide the platform from which

gifts and talents may spring. Thus, in virtue of such revelations, not only must we both revisit

and reevaluate what it truly means to be disabled or have a disability, but conversely, what is

meant by giftedness or talent as well.

Levi (2006) has argued that from the standpoint of a minority oppression model, "society

creates disability by creating physical and social environments hostile to persons different from

the majority of "abled" culture" (p. 1). If this is the case, then if we are to accept this hostile

framework for appreciably understanding what is meant by the term "disability," then I contend

that the physical and social environments –either created by society itself or permitted to exist by

society— are nothing more than conditions. It is the conditions allowed or those instituted as

context, which are conducive to the experience of disability and its effects to be had. It is

through a hostile framework (cite) that one may describe any such "set of assumptions and

practices [constituting the conditions] that promote unequal treatment of people because of

apparent or assumed physical, mental, or behavioral differences" (Levi, 2006, pp. 1-4). This

description is the definition of "ableism." If we are to adopt a hostile framework to understand

what is meant by the term "disability," then we must also concede the construct of "ableism."

Collectively, the hostile framework comprising physical and social environments within which certain assumptions are held and practices followed may be placed under the same category: "conditions." Furthermore, assumptions, practices, physical and social environments are all conditions that are either created by society itself or are allowed by a lax attitude adopted by it. Therefore, *it is these conditions allowed or instituted as a context, which are conducive to the experience of disability and its effects to be had.*

Undoubtedly, there will always be conditions or contexts beyond ones' control and the control of others from which disability may naturally develop or occur. That notwithstanding, no longer can we simply view something as a naturally developed disability that occurs and the result of its effects as causing societal burden; we must acknowledge that it is society's own burdening of its people, therefore, itself by *creating or permitting the right conditions to cause disabilities* to manifest themselves and their effects to be experienced. The relationship between society and disability bears a strong resemblance to the relationship that exists between science and the public; neither is as easy to explain as one may think. Nevertheless, as difficult it may be or uneasy it makes us feel, through my reflection I hope to have convincingly proposed how opening oneself to the possibility of an equally valid alternate worldview in the case of the relationship between society and disability may be one crucial step that can be taken to improve that which exists between science and the public.

Part Two: Applying Cognitive Presence to the Individual Educational Experience as a

Framework for Reflection

My perspective served as both a theoretical lens and the title of my ePortfolio: *"Applying*

*Cognitive Presence to the Individual Educational Experience **as a Framework for Reflection."***

Having adopted a somewhat unusual perspective in my approach to reflection in constructing the

lens for my ePortfolio, I found it to be the best manner in which to frame my pedagogical

philosophy. Although fundamentally similar to its original state, my educational philosophy has

certainly evolved. This evolution was a result of the personal and professional growth that I

experienced throughout the completion of each of the course components to obtain my Ed.M.

degree.

In applying cognitive presence as a framework, it was as though my reflective ePortfolio

was my argument-as-thesis. As such, my argument was to be both supported by, and developed

from, premises that were claims derived from what I learned from the community of inquiry of

each course. Much in the same manner as a logical proof demonstrates the steps taken in a

philosophical derivation of the conclusions claimed in an argument, each of the claims I used as

premises was a conclusion at which I arrived from assumptions that were claims from prior

courses or self-evident. In carrying out this process to completion, the goal was to achieve

a logically consistent final product that was a unified, coherent and developed whole

(Behrens & Rosen, 2017).

LAI 525 Science, Technology & Human Values - "The Metaphysics of Technology:

Developing definition through analysis of authoritative opinions in the literature."

Before taking a course entitled "Science, Technology, and Human Values," I had not

considered societal expectation about turnaround time between the science being completed and

development of the technology related to the science coming to market. Although I knew, in

theory, it could not be as quickly turned around as the public expects, learning the extent to

which technology could lag was indeed surprising. Technology takes a median of nearly a

decade to become commercially available from the completion of the related research (Sherwin,

Isenson, 1967). Considering how much of a discrepancy there was between expectation and

reality, it became evident how estranged science and the public have grown from one another.

Awareness of, knowledge about, and hopes for science and technology were each out of touch

when compared to the true nature of scientific innovation and technological progress.

Upon reflection on the present state of affairs based on learning from research done for

assignments in the course, unless we are to anthropomorphize Science and Technology (S&T)

itself to allow for it to be held responsible for the disconnect that exists between its own reality

and what the public believes that truth to be, then I was left with no choice. That choice led me

to conclude that it is the various "publics," or sectors of one public –comprised of both the

scientists producing and the nonscientific laypeople who consume the research and subsequent

technological products—that are ultimately responsible. Moreover, to remedy the discrepancies

between perception of the public as a whole and the reality of all things S&T related, more than

just fostering open communication among the different sectors needs to occur; those responsible

for communicating need to do at least do so in the same, universal language: that of basic logic

and reasoning.

LAI 641 Survey of Educational Research Design Option Research Proposal

In LAI 641, surveying educational research, I learned about the various experimental and

quasi-experimental designs at the disposal of scientific researchers. In addition, upon review of

the possible relationships that may exist between any sets of variables under consideration for

research and the potential to confuse correlation with causation, it became evident that it was likely the absence of a rudimentary foundation in logic and reasoning that could be the main obstacle to achieving a basic standard of scientific literacy and a well-informed public. Thus, at least part of the blame that society –including both the scientists and the nonscientific lay public—bears regarding its lack of awareness, knowledge, and unrealistic expectations concerning science and technology may have to do with confusing correlation with causation. Moreover, the confusion stems from an absence of basic understanding about these potential differences in relationship, or pure ignorance altogether.

LAI 639 History & Philosophy of Science Teachers - Observation Critique 3 Paper Final

Despite having gained a general understanding of the potential for discrepant information regarding S&T to be had by the public, it was in LAI 639, history & philosophy of science teachers, that I learned more about the specific types of misunderstanding the public had. Such misconceptions included those held about the scientific enterprise, about the scientists involved, and about the science itself. Also, I learned that a significant amount of the general public neither knew what real science looked like when taught in the classroom nor did they know descriptively or prescriptively about science in the real world (e.g., laboratories). Without such knowledge as context, how could the public be anything but confused about, or ignorant of, science-related matters.

Latour, Salk, & Woolgar's (2013) work provided a unique perspective into the daily life of science as practiced that disclosed many of the same issues, such as office politics, greed, and competition are involved in the assumedly fair and objective "professional" scientific workplace that plagued non-scientific environments. Although I do not necessarily agree with many of the undertones of social construction of scientific knowledge being responsible from science

laboratory research for a number of reasons, upon reflection, that the public knows little to nothing of how science is, or ought to be, taught or practiced is consistent with their being confused due to lacking a basic understanding of core scientific concepts, or purely ignorant.

LAI 648 Research Ethics - Seminar Paper: The Violation Imperative

In Lai 648, Research Ethics, I learned about the historical context within which our present-day code of ethical conduct of research was developed. Frightening to learn of were the numerous atrocities either committed in the name of science, or from which science benefited directly or otherwise. Such an example would be the Tuskegee Study in which African-American's were misled, had treatment withheld when it was available, and not given a chance to quit (CDC, n.d.).

At the completion of the course, I decided to play devil's advocate. I wondered if given the benefit of the doubt despite how ludicrous, then the atrocities committed by these "scientists" in "the name of science" either were done with the express knowledge of their unethical nature, or they were not. In other words, it would make complete sense that the atrocious behavior occurred because they did not know the action was wrong.

Continuing under the assumption that this lack of knowledge concerning wrongdoing could have been the result of the absence of guidelines, or the absence of explicit instructions. That is, to say, there is no significant difference in getting unjust outcomes from a state consisting of the lack of any guidelines on ethical conduct, and the presence of unclear instructions concerning it. And, although there was a period before established guidelines regarding conduct existed, which could explain the ethical misconduct that occurred, that, counterfactually, had there been guidelines that were unclear in any way could have led to the same outcomes I found quite unsettling.

Knowing that presently guidelines for unethical behavior or misconduct are now in place, if they were, in fact, transparent, then an occurrence of misconduct would be purely and blatantly disregard or malice, or due to a lack of clarity in the guidelines. Moreover, considering the behavior concerns scientists, the conclusion was that occurrences of unethical behavior or research misconduct would be due to an issue of lacking clarity with the guidelines themselves. I addressed the Public Health Service (PHS) definition of FALSIFICATION as misconduct directly in my final research paper for the course. I also realized that whether it concerns principles of, or guidelines for, science, unclearness of any sort is consistent with and could explain why there might be a lack of basic understanding and confusion surrounding science in general. In other words, instead of the laypeople of the public bearing the blame, perhaps it was those responsible for teaching or guiding them that were to blame.

LAI 524 Critical Thinking: Perceptual Phenomenon of Ambiguity and The Modes of Understanding

Course Lai 524, critical thinking, covered core concepts in basic reasoning, specific cognitive biases, and fallacious argumentation. The course's primary focus on these aspects of critical thinking effectively reinforced my critiquing the arguments of others and was a result of the process being both abstract as well as self-reflexive; as the specific ability to think critically about the arguments of others improved so did my skill in critically thinking about arguments improve in general. Such development is also associated with enhanced communication because of the level of scrutiny under which I now place arguments of my own. Nevertheless, communication is bidirectional and requires at least two parties: the one performing the act and the individual(s) to whom the performance of the act is directed.

As such, this bidirectionality is that which also makes communication in any form –be it scientific principles or guidelines for conduct— vulnerable to failure from both perspectives, which is what is consistent with my hypothesis that both scientists and nonscientific comprising a public are to share the blame. The one communicating may be unclear in doing so and those in receipt of that which is being transmitted may either possess basic reasoning yet be confused about certain aspects of the communication or lack the solid foundation to understand thereby precluding their ability to do so. Reflection on what I covered in the course led me to conclude the following: One way to address a potential deficit in necessary critical thinking, reasoning, and argumentation skills that are at least one barrier to improved communication and increasing public understanding and engagement in science would be to offer the public various fundamental courses to correct any deficiencies.

LAI 575 Improving Dietary Choices: Healthier Decision-Making Through the Use of Nutritional Data to Encourage Metacognition

The course LAI 575, informal science education, taught me about the importance of informal science venues or settings and how the environment can significantly contribute to learning by reinforcing the science topics that are covered in the traditional classroom setting. Informal science environments, such as museums, strengthen traditional educational efforts by making learning meaningful through interaction that incorporates involving a level of learner autonomy, as well as by being fun. Reflecting on this as it relates to the overall theme, I know that as a child we did go on trips; however, we did not do them as much as we could have perhaps. Moreover, while I still went into the science professions including healthcare, education, and research, I feel that the positive or negative impact as a result of informal venues may be commensurate with the particular aptitude, desire, and intelligence of the individual.

That is, a lack of informal educational opportunities may not preclude the few children with high

aptitude and ambition from careers in the sciences, but for the vast majority of children,

insufficient informal science experiences may not only be directly correlated with later choice of

career pursuits not being in the sciences but may also explain the reason that a large proportion

of the present-day public struggle with their understanding of the science they were taught. Thus,

both the public struggles to understand science and the guidance provided (e.g., guidelines) is not

as clear as it ought to be.

LAI 531 Current Trends Science Curricula Curriculum Plan: Fundamentals of Logic,

Reasoning, and Argumentation for Public Engagement with Science.

LAI 531, Current trends in science curricula, provided an opportunity to consider

curricula as they are constructed with scientific literacy of the public as the purpose in mind.

From the more appropriate perspective of achieving or improving public engagement in science

(PES) and public understanding of science (PUS) as both desirable goals and measurable

objectives simultaneously, I realized that efforts, as noble as they may be or have been, are

doomed to fail unless the public possesses necessary foundation comprising sufficient

knowledge, skills, and behaviors on which to build the confidence to foster comfort in scientific

engagement. Without such knowledge, skill, and behavior at a minimum, the ability to think and

do (i.e., behave) for oneself and to understand how to self-regulate. in the presence of conflicting

scientific evidence is lacking.

By self-regulation, I am referring to an ability to independently assess, evaluate, and

make one's own decision as to the merits of scientific claims that one makes or those made by

others. The need for such self-regulatory proficiency in the public may be better appreciated

when one considers statements made in a report by the American Academy of Arts and Sciences

entitled "Perceptions of Science in America (AAAS, 2018)," In this report, it was suggested that

additional research needs to be conducted and it should expand upon the definition of science

literacy in a manner that emphasizes the importance of understanding the scientific process and

the ability to evaluate conflicting scientific evidence (AAAS, 2018).

Conflicting scientific evidence abounds, and there exist a plethora of examples in the

media of both faulty reasoning and unfounded claims (Diethelm & McKee, 2009). Self-

regulatory proficiency is integral in evaluating the merits of conflicting scientific evidence.

Therefore, to address any deficiencies in self-regulation, for my final exam I designed a

curriculum plan entitled "Fundamentals of Logic, Reasoning, and Argumentation for Public

Engagement with Science."

I envisioned my curriculum as being part of a recursively inductive and transitional

process conceptually situated between the realms of public understanding of science (PUS) and

public engagement with science (PES). By recursively inductive, I mean that previous steps and

conclusions made are repeatedly reincorporated as foundations for the next steps from which

more inferences are made, *ad infinitum*. Nonetheless, such a course would be prioritized ahead

of either in that successful attendees will grasp fundamentals of logic and reasoning initially,

followed by increases in understanding built on the fundamentals, then gaining self-confidence

as a result of the prior gains in knowledge because of a good grasp of logic and reasoning

fundamentals, which would foster desire to engage, be involved, and make a difference in

matters of concern for science and public. The curriculum plan would be made available to the

public as potential consumers of research in order to help them be prepared for understanding,

self-regulation, and engagement in science by teaching them how to evaluate conflicting

scientific evidence as an argument and to give them the confidence to more actively engage and

better understand the science society faces.

CEP 532 Using Qualitative Research to Guide Evidence-Based Practice: Twice-

Exceptionality (2e) —For gifted individuals with a disability (i.e., "Twice-Exceptional," or

"2e") do effective interventions/strategies exist to improve domain-specific (i.e., social,

emotional, professional, or academic) outcomes?

In CEP532, Understanding Research Statistics, I learned to critique articles in the

scholarly literature. (USE essay responses written for CEP532 discussion post did). I viewed

this course as a counterpart to critical thinking LAI 524. LAI 524 was broad in scope providing

general knowledge behind strategies whereas focus here was on using statistics to think clearly

and critically. LAI 641 survey of educational research. The public is a consumer of the

scientific research, yet most would have difficulty with interpreting the statistics if they consume

the articles. The skills learned in this course were needed for use in the evaluation of conflicting

scientific evidence, which better equips me to be an intermediary between Science and the Public

as research consumers.

ANA 600 Gross Human Anatomy

In two words: "Know Thyself." While there may exist other examples that come to

mind that could succinctly convey the relation that exists, I argue that there can be no more

salient an exemplar of the interface between Science and the Public than the human body.

Humans comprise the public yet are also one of the marvelous examples of science in the with

which the public interacts. It is for this reason that I believe the aphorism "know thyself" is

appropriate. In fact, I contend that to know thyself provides a unique opportunity possible to

become intimately acquainted with the relationship between Science and the Public because the

observation is made from first-person perspectives, as both the human body itself is representative of Science as well as the Public simultaneously with which it directly interfaces. Such a perspective ought to be conducive to gaining insight into how best to find harmony and balance in the presence of literal and figurative barriers to cooperation because the human body comprises a plethora of such solutions. This kind of insight may only be afforded to one as the result of knowing thyself through careful study of Gross Anatomy, which I was fortunate enough to have undertaken in ANA 600.

The rigorous course completed at University at Buffalo School of Medicine during my doctoral degree studies consisted of material related to the structure and function of the human body. In fact, Gross Anatomy may be further viewed as a metaphor for Science and the Public; it is like a well-grounded framework at its core: little if anything significant changes in how it can be understood or applied in understanding, but what does change changes throughout forcing acknowledgement, reappraisal, adaptation, and response to it regardless of individual reluctance. To having taken this life-changing course of Gross Human Anatomy, I credit much of the insight gleaned from my abstract ideas to an ability to see their whole picture, dissect to zoom into details as needed, then stepping back zooming out to refocus as needed. I hope that I have conveyed through this reflective piece of writing how my ability to manipulate abstract ideas has benefited from my study of the Human Body while facilitating the reader's understanding and appreciation of different perspectives influencing the interpretation of what Science and the Public can mean to various people.

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