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A Study of Integration: The Role of *Sensus Communis* in Integrating Disciplinary Knowledge

Laureen Park

I. Introduction

Much has been written about interdisciplinarity (ID) and its promise for addressing crucial educational objectives. William Newell, one of the earliest scholars in the field of ID believes that ID studies and integrative learning are the two most effective tools for educating students to be prepared for the complex world in which we live.¹ And Julie Thompson Klein, another established scholar in ID studies wrote, “The costs of ignoring these commonalities [of the disciplines] are enormous.”² There are many ways to approach ID and integration, and scholars in the field have attempted to elucidate different aspects of their methods, objectives, function, and history. Not all scholarship in ID focuses on integration. However, like Newell, Klein and other scholars in the field, I believe that integration is central to the process and objectives of ID studies.³ It is the successful achievement of this that sets ID apart from multidisciplinary (MD), an approach that does not necessarily seek commonalities among different disciplines.

In this chapter, I present my reflections on my four years of experience teaching in an introductory level ID course offered at the New York City College of Technology called *Weird Science*. The goal of the course is to explore what it means to be human in the age of technology by exposing undergraduate students to various disciplinary perspectives which are provided by guest lecturers. There is one main instructor whose discipline is English, who listens to all the guest lecturers along with the students, and who helps to facilitate the process of integrating the disciplines. The guest lecturers are mostly full-time faculty at the college and include

representation from Physics, Biology, Psychology, Computer Sciences, Sociology, and Philosophy (this is my discipline). Using observations from class lectures and discussions, verbal and e-mail discussions with students, homework and papers, I draw some conclusions about how emerging learners integrate disciplinary knowledge, and how philosophy in particular supports this process.

Initially, what struck me about student papers was what I thought to be lacking about them. I observed papers that appeared rather quirky and colloquial. For example, a *Weird Science* student, W.C., wrote, in referring to Descartes' '*cogito ergo sum*', "According to Descartes a person that does not have a cognitive process is considered nonexistent."⁴ This is, at best, a misunderstanding of Descartes' idea that thinking is proof of existence. Other examples include a few students whose theses claimed that the question of what it means to be human was unanswerable or endless.⁵ And several papers had seemingly subjective and opinionated theses, such as that humans were greedy and selfish or that we should find a new definition of genius.⁶ I believe that the initial lens I used in interpreting these papers were caused by my assumption that students would have a ready, academic discourse that could transcend and unify the various disciplines. What I have more recently concluded is that, despite initial appearances, students were doing their best to integrate disciplinary knowledge, and that they indeed had a ready transdisciplinary (TD) discourse available to them to draw from, though this discourse was not primarily academic.

What I will argue in the rest of this chapter is that students were relying on the *sensus communis* to integrate the insights from the various disciplines, and to construct commonalities about them. I borrow this term from Hans Georg Gadamer's *Truth and Method* to emphasize the technical way I am using 'common sense' to analyze its role in the integration and production of

knowledge in the emerging learner of ID.⁷ In the ID literature, the role of a common sense informed by life and academic experiences is hinted at, but is not explicitly treated. Klein writes, “There is no unique or single pedagogy for integrative interdisciplinary learning. . . All of these approaches draw from multiple perspectives on a complex phenomenon for insights that can be integrated into a richer, more comprehensive understanding. In integrative learning, perspectives emanate from disciplines, cultures, subcultures, or life experiences.”⁸ In *Weird Science*, students were introduced to disciplines that were unfamiliar to them, and relied, perhaps a little too heavily, on their life experiences and communal mores in making sense of them. Presumably, with more time and experience, they will become more versed in academic discourse. In the meantime, I have found that the struggles the students faced in this course spoke to some fundamental aspects about the learning process.

What Gadamer says is that all knowledge is generated out of the concerns and discourse of the *sensus communis*. The *sensus communis* is the collective sense of a community, or sometimes referred to as the ethos of the community or “common knowledge” that is cultivated over time through the shared lived experiences of its members.⁹ Gadamer did not originate the concept of *sensus communis* (that honor is usually attributed to Immanuel Kant in philosophical circles), but he helped to merge it with the notion of the *Lebenswelt* (the lived world) that Wilhelm Dilthey, a predecessor of Gadamer, began.¹⁰ Prior to Gadamer’s rendering of the concept, it was used in philosophy to account for the universality of the aesthetic sense, or, in other words, the general agreement people have about whether something is or is not beautiful. But Kant considered the aesthetic sense itself “subjective” and unscientific, and therefore suffered by its comparison to the rational, scientific mind. Elsewhere, the fields of rhetoric, biblical exegesis, and other fields, starting with the 18th century thinker, Giambattista Vico, saw

in the concept of *sensus communis* a unique role as a practical, concrete, and active basis for judgement in discourse and interpretation.

In line with the goal of Rhetoric, Gadamer revives the notion of *persuasion* as a way of philosophical argumentation that opens up discourse in a way the more precise and narrow *demonstrations* of the natural sciences (*Naturwissenschaften*) does not. For Gadamer, arguments must be convincing to the informed person, which appeals to the broad, universal and multi-faceted elements of the *sensus communis*. It is this openness and universality that I perceived as vague and merely approximating academic discourse when I read the *Weird Science* papers. But it is exactly the lived experiences we have in the community that make us aware of and conditions the problems that eventually become a part of the problems of academic discourse. Gadamer calls this precondition of academic knowledge, “foreknowledge”.

Below, I first set out the problems facing the notion of integration for ID learning. I attempt to define more precisely what integration is, establish how the individual learner integrates disciplinary knowledge, and establish the extent and parameters of commensurability and consensus between disciplines. I then argue, along with J. Britt Holbrook, that a neutral field of discourse that transcends disciplinary limitations (i.e. a TD discourse) seems to be indicated as the underlying construct for ID communication and learning. Unlike Holbrook, I argue that the TD discourse is one based on the *sensus communis*, and not one that is constructed out of a combination of academic disciplines. I then go on to elaborate what Gadamer means by the *sensus communis* and what significance it has for the idea of integration in ID studies. I conclude with reflections on student work and how it exhibits the ideas I argue for.

II. The ‘What’ and ‘Who’ of Integration

Integration is a critical objective in ID learning. Accomplishing this goes to demonstrating that the student has found commonalities between disciplines, as well as differences, and shows the exercise of crucial meta-cognitive and critical thinking skills. But what does it mean for disciplines to become integrated? Does it mean that a variety of disciplines become subsumed under one discipline? Does it mean that elements from all the disciplines become blended? In *Does Interdisciplinarity Promote Learning?*, Lisa Lattuca, et. Al delineate four ways disciplines can interact in ID learning. They are *informed interdisciplinarity*, *synthetic interdisciplinarity*, *transdisciplinarity*, and *conceptual interdisciplinarity*. In informed ID, a single discipline is the focus, and encounters with other disciplines are used to enhance or elaborate the main discipline of concern. In synthetic ID, a number of disciplines are considered in searching for commonalities, but the disciplines remain identifiable with their parameters and methods intact. In TD, disciplinary learning is not the main concern – one uses an approach that “transcends” the disciplines and provides a neutral, overarching basis in looking at the various disciplines. Finally, in conceptual ID, the authors conceive of an ID that seeks to explore and comprehend fundamental concepts of experience and their limits. This approach might use disciplinary learning as a tool, but is not focused on a single discipline.¹¹

I believe that the *Weird Science* course exhibited characteristics of the latter three ways of interacting. There was definitely an expectation that students would understand disciplinary methods and vocabulary on their own grounds, but there was also an expectation that students would be able to unify them in an overarching way in their papers. My argument holds that students rely on the *sensus communis* as a TD, extra-disciplinary approach to ID learning, as well as the basis for understanding the fundamental concepts of disciplines. The important question for me in terms of integration is on what basis, whether methodologically or conceptually, do

students unify these perspectives? And very importantly, how does the individual learner go about integrating the different perspectives?

I believe that the process that goes on at the individual learner's level is an important area to focus on in a discussion of integration. However, I find the literature surprisingly vague on the topic of the 'who' of integration. There are two philosophers, Hanne Andersen and Susann Wagenknecht, who explore this question: "Who is...the knowing subject of interdisciplinary teamwork in the end?"¹² This question comes at the end of their paper in their section entitled, "Summary and conclusion". What is their concluding thought on the answer? It is this: "There is no general answer to this question."¹³

The reason for the difficulty in answering the question of who is the subject of ID learning is probably obvious. In ID learning, there are layers of complexity involving both the individual learner, as well as the various players involved in the process - the experts and the group members and their roles in the integration process. The authors, citing research done by F.A. Rossini and A.L. Porter, isolate four primary ways experts and group members interact in interdisciplinary research: "integration by leader", "common group learning", "negotiation among experts" and "modeling".¹⁴ It is not worth delving into the intricacies involved in each category of interactions since they mainly involve interactions among experts towards research, which is not the main concern of this chapter. The main question for us, whether the ID work is based on modeling, or on an expert leader or the group members themselves, is how the work achieves what the authors call "cognitive integration" in the individual researcher or learner - "[N]amely that it will often be too demanding for the individual group member to master several fields in detail and that it will therefore often lead to a decrease in depth."¹⁵ In the end, the authors have trouble establishing how a learner integrates ID knowledge on an individual level,

and leaves it an open question as reflected in the above quote. But is this not the crucial issue to be resolved when it comes to the issue of the integration of ID knowledge?

ID studies have been a part of a modern movement to displace teacher-centered learning with student-centered learning. One example of this effort is the transformative learning theory (TLT), which the present argument can be said to represent. The TLT promotes the idea of active learning through pedagogy that encourages critical thinking, self-direction, responsibility by the student for his or her own learning, and skill-building. It posits that students already have assumptions, values, and ideas that are contributory to their learning process. The TLT says that learning should further *transform* the student (versus implant learning in their minds or mold them by teaching) by allowing the student opportunities to integrate new knowledge by constructing and reconstructing what he or she already knows. Two scholars of TLT, George Slavich and Philip Zimbardo, have given us pedagogical methods using TLT to promote transformative learning.¹⁶ My argument here is that the *sensus communis* constitutes the background knowledge that students bring to learning. From this familiar base, the learner integrates disciplinary knowledge by constructing and reconstructing what is already known to her to meet the demands of new material and expectations. Whereas Zimbardo, Slavich, and others have explicated pedagogical methods that can be effective for encouraging transformative learning, Gadamer gives us the theoretical underpinnings that can explain how the integration happens on the level of the individual learner.

For the reasons above, I prefer the term ‘agent’ to describe the ‘who’ of ID learning as opposed to other ways of describing him – E.g. ‘subject’ or ‘knower’. The term highlights the active/constructive and concrete characteristics of the learner. Gadamer’s own term for ‘agent’ would be the person of ‘*phronesis*’, a term borrowed from Aristotle, and in the Greek means,

“practical wisdom”. For Gadamer, like Aristotle, the individual who can reflect intellectually is the same individual who lives in a community and is ethically and aesthetically inclined, and is capable of making decisions. This is the individual that is at the center of ID learning.

III. Consensus, Commensurability, and the Need for a TD Discourse

In this section, I would like to explore the possibilities and limits of the consensus of disciplinary discourse, and the issue of commensurability. In the ID literature, despite the importance of the notion of consensus, it is often presumed rather than treated explicitly. But as Holbrook shows well, we cannot presume that discourse, and therefore understanding, between disciplines is even commensurable, much less unifiable under a universal discourse. Clearly, discourse between disciplines is not always smooth and transparent. A biologist does not necessarily understand the nuances of quantum mechanics, nor the physicist understand the nuances of genetic theory.

Holbrook believes that the thesis about the integration between disciplines that dominates ID scholarship is what he calls ‘the Habermas-Klein thesis’. It holds that the commensurability and consensus between disciplines can be achieved in a way that is transparent to all involved. In this thesis, the desirability and possibility of consensus is mostly presumed, and the transparency of communication and reason is mostly unproblematic. This thesis draws its inspiration from Jurgen Habermas’ model of communicative action in which rational actors, based on trust, rational utterances, and reciprocation come to a common understanding. Any obstacles to a common, rational understanding is seen as temporary and commensurable. Holbrook believes that this take on communication describes Klein’s view of ID communication as well.¹⁷ While Klein, a well-known figure in ID scholarship, acknowledges the nuances and complexities of ID

learning, she nonetheless remains committed to the view that a common understanding based on this commensurability can be achieved. Holbrook believes that actual ID communication is messier and more complex than the picture depicted by the Habermas-Klein thesis.

In comparison, Holbrook's Kuhn-MacIntyre thesis holds that disciplines evolve into language systems with their own paradigms and conceptual frameworks, and are incommensurable to each other. This thesis draws its inspiration from Thomas Kuhn, who famously argued that scientific paradigms were a historical and conventional creation. Once created, he believed that the scientific paradigm (e.g. Einstein's relativity model of the universe) began to define the meaning and significance of the language a scientist used. For Kuhn, the conventional and *unscientific* paradigm preceded and set the stage for scientific work. The implication of the Kuhn-MacIntyre thesis for ID studies is that disciplinary communication cannot be truly integrated, and that instead they can merely *interact* with each other. According to this thesis, no one working in one discipline could truly understand the meanings and significance of the language of another discipline without being inculcated in that discipline's worldview. Learning the language of a discipline is like learning a foreign language. In this case, integration is seen as possible only as translation of one disciplinary discourse into another. This can be seen as a case of synthetic ID in the way Lattuca, et. Al spoke of. The situation does not support the notion that a neutral approach could guide the discourse, nor that a blended one could be achieved. The disciplines can be ID by co-existing and being in dialogue with each other, while maintaining each its own parameters and methods.

I am not rejecting this possibility, and I can conceive of particular instances when translation would be the primary form of integration, especially when learning a new discipline for the first time. I encountered this when I worked with a mathematics professor recently in

developing a logic course. I had to translate certain mathematical notations into philosophical ones, understanding that they had the same meaning. However, my focus in this chapter is to understand how an emerging ID learner integrates disciplinary discourse in a broader, more fundamental context. Students in the *Weird Science* course are often not even versed enough in one discipline to be counted as competent language-speakers of that discipline.

I find Holbrook's Bataille-Lyotard thesis to be the most useful for my argument. In this thesis, Holbrook makes a distinction between "weak" and "strong" communication, appropriating and reinventing George Bataille's usages of the terms. He calls communication "weak" when everyone involved in the communication readily understands the language and there are no strong barriers blocking communication. It is "weak" because the language is penetrable. Holbrook understands this form of communication as the predominant one in communication within disciplines, but also implies that the same commensurability holds, for the most part, in ID communication.¹⁸ I agree with Holbrook, but for different reasons. My argument shows that the reason commensurability holds between disciplinary discourse is because of a more fundamental commonality which I am owing to the *sensus communis*. Indeed, Holbrook himself seems to indicate that the goals of weak communication is based on the concerns of the community at heart: "Bataille's weak communication is thus used for the purposes of gaining a clear understanding of the things that constitute the objective world and of establishing a consensus as to how we ought to act in order to be productive members of society."¹⁹ Reflecting this idea, Gadamer shows below that our concerns and problems as members of a society and as people defined by the human condition are at the heart of what we study in academic disciplines. However, once the problems become removed from the context of lived experience and become

a part of the abstract framework of disciplinary discourse, common sense starts to appear inadequate to elucidate those same problems.

The other form of communication that Holbrook attributes to the Bataille-MacIntyre thesis is the “strong” form of communication. This is when language presents barriers to communication between disciplines. In Bataille’s formulation, weak communication cannot penetrate strong communication when the discourse begins to express extraordinary concerns that transcend our ordinary understanding and therefore causes a break in ordinary communication. To understand Bataille’s understanding of strong communication adequately would take us too far afield. The important thing for us here is to understand Holbrook’s appropriation of this term. In Holbrook’s context, an example of strong communication might be over-specialized disciplinary terminology. A learner outside the discipline might follow specialized discourse up to a point, but communication would break down if it became so specialized, that the learner’s conceptual framework was no longer adequate to making sense of the discourse. Nonetheless, the productive aspect of strong communication is that it highlights areas of difference between disciplines, which is as important a characteristic in ID studies as is the commonalities underlying the disciplines. Holbrook sees this thesis’ accounting of difference as an improvement over what he believes to be the naïveté of the Habermas-Klein thesis.

Holbrook’s solution to the problem presented by strong communication reflects my own view about how ID communication works, though not completely. He believes that the solution to a break-down in ID communication is to “co-create” a new genre of discourse that discards the identities of the old disciplines.²⁰ I agree with Holbrook that, essentially, we need a TD approach to ID discourse. However, he does not fully elaborate what this would entail. What would a genre of discourse look like that both blends and blurs the identities of several disciplines?

Holbrook's goal might make more sense applied to more specialized academic work. For my purposes, however, Gadamer's notion of the *sensus communis* seems to me to better elucidate the TD approach needed to understand how students in the *Weird Science* course integrated disciplinary discourse.

IV. The Role of the *Sensus Communis* in ID Integration

Gadamer believed that our training as learners begin with our immersion in the communal sense of the *sensus communis*. This communal sense is not interested in precision or specialization, but dwells in the “verisimilar” or probable.²¹ To the specialist, this imprecision might be seen as vague and inadequate. But for Gadamer, it speaks to the fact that common sense is broad and open enough to be the flexible source of the breadth and depth of the full scope of academic disciplines. But whether we become specialists in the stars above, or in the psychological dynamics within, our first approximations about how the world works all start in common sense.

For Gadamer, the most basic level of educating someone is in acculturating them into the *sensus communis* “in getting beyond his naturalness”.²² We are born biological creatures, but we *become*, through experience, acculturated human beings with ethical, aesthetic, intellectual concerns that go beyond the merely natural. From the earliest associations with others, we are always and already in the midst of being acculturated into the habits, norms, and traditions of our community. He calls this process the process of *Bildung* (culture). In the earliest forms, the knowledge we get from *Bildung* is approximate and more unconscious than reflective, but as we become more educated within more narrowly-defined “cultures” of academic disciplines or other arenas of learning, the knowledge becomes more precise, reflective, and/or rational. But though

the quality and the quantity of the knowledge may change, the fundamental process of acquiring education, for Gadamer, remains the same throughout. He writes, “Hence, all theoretical Bildung, even acquiring foreign languages and conceptual worlds, is merely the continuation of a process of Bildung that begins much earlier.”²³ As I have been saying, the process begins with the *sensus communis*, the communal sense that we all share in our lived experiences with others. There are two aspects of the *sensus communis* that are significant for our purposes in looking at how students integrate disciplinary knowledge. First, the *sensus communis* is inherently consensus-building, and second, it has an inherent sense of standards that seek to evaluate and validate knowledge. These two aspects of the *sensus communis* condition our higher-order thinking in the disciplines.

I must say a word here about what it means to share a communal sense. Not all communities share the same norms and expectations, and clearly, there is a wide variation of what is acceptable, especially from a global perspective. What is considered culturally normal in Korea will, of course, differ from what is considered culturally normal in Turkey. Even in one country, like America, there can be subcultures within a dominant mainstream culture, and fluidity between subcultures. Gadamer himself faced criticism about what he meant by culture and tradition, criticisms that he could not fully address. I doubt that anyone who speaks about culture could fully address what does and does not count towards inclusion in a given culture. To do so, in any case, would be beyond the scope of this chapter.

What Gadamer focuses on instead are the ways in which our experiences in the community contribute to the font of knowledge that provide the basis for our larger, more speculative ideas about how the world works and what our place in it is. In other words, he is interested in the font of knowledge that goes into understanding the human condition, which

might speak to universal commonalities between all people. That can be questioned and if it is better, we can specify that Gadamer's focus is on questions framed by a western European approach to philosophy and philology. In any case, I wanted to distance his concerns from the concerns that might interest an anthropologist or another someone working in another discipline. He is not so interested in the empirical or "natural" concerns of a community – like how they acquire food or how they heal those who are sick, or what are their marriage and death rituals. Paralleling this, I observed that what occupied student papers in *Weird Science* were not so much the particularities of their lives, but broad, sweeping concerns, which indicated to me that students were interested in exploring the deep, fundamental issues of humanity.

When they had one, students' theses clearly reflected concerns that are in line with a thoughtful person's reflections on the human condition. A few students expressed hope that the knowledge gained in the course would be learned by all for the sake of a better future for humanity.²⁴ Other students expressed concerns that humans are incorrigibly greedy or power-hungry.²⁵ These were themes borne out of their lived experiences and which were familiar to them. From these frameworks, they could then construct a bridge to the more unfamiliar discourse of the academic experts. Their attempts at transforming pre-existing knowledge to the new ones had mixed success, but their attempts were as much as could be expected from introductory students.

For Gadamer, the work of the academic is the culmination and fulfillment of the same impulses that motivate common sense understanding. But whereas the valuations of the person of common sense only asserts itself "without being able to give its reasons"²⁶, scholars are able to be self-reflective about its assumptions and assertions. The fact that disciplines can become so specialized speaks to the level of sophistication and nuance that people are capable of generating

and advancing. This is the mark of human ingenuity for Gadamer, and need not be seen as antagonistic to common sense or elitist as some philosophers believe.²⁷

Gadamer describes the *sensus communis* as both historical and aesthetic. What he means is that communities share habits, customs, and traditions that are connected by a shared history. This history informs the world-view (*Weltanschauung*) of the community's members and shapes our values and the very way we see our world. This accumulated/constructed history at any given time makes up our culture. In addition to it being historical, Gadamer also describes the *sensus communis* as 'aesthetic' because initially our sense of what is right, wrong, good, and beautiful are based on an affective sense governed by the norms and customs of our community, and are not necessarily rational, academic, nor scientific. Only after more experiences with formal learning does one begin to account for and explain their valuations. Even then, Gadamer nonetheless maintains that the various scholarly disciplines within which scholars work are no less communities with habits and traditions as is the *sensus communis*. This justifies why Gadamer later shifts the talk of aesthetics to *prejudice* in developing his method for understanding the human sciences.²⁸ For Gadamer, like common sense, disciplines are self-justifying and rely on a history of created norms or traditions, or prejudices. Disciplines, however, have less membership than the common sense community, and is in this way more specialized. The task for the emerging learner of ID is to integrate the more specialized language of disciplines into the more common discourse, and in turn become acculturated into the new discourse. Fortunately, as Gadamer has been arguing, there is much foreknowledge that is already shared between common and theoretical discourses.

Two fundamental features of the *sensus communis* that carry over into theoretical discourse that can also help us to understand what we have said about integration so far are

these: First, Gadamer accounts for the commensurability of discourse, as well as the unifying element of integration by revealing a circularity in the process of acculturating individuals in the *sensus communis*, which is the same process in acquiring disciplinary knowledge. The individual uses what is already familiar to condition the reception of new knowledge, and seeks, in turn, to transform the new knowledge into the familiar. Gadamer writes, “To recognize one’s own in the alien, to become at home in it, is the basic movement of spirit [*Geist*], whose being consists only in returning to itself from what is other.”²⁹

Second, common sense seeks to make sense of the world; in the most minimal expression of this making sense, a standard is implied. Prior to mature judgment, Gadamer believes that we evaluate the world in terms of *tact* or *taste*. “Tact” is often used to refer to behaviors and “taste” to an aesthetic judgment, but both are acquired senses that make judgements using standards learned from one’s community. A child might say that he should not speak too loudly because ‘mother says so’, or that he likes the look of those shoes ‘just because’. They are ‘modes of knowledge’, Gadamer says, but ones that rely on a standard that is merely felt. With maturity, experience, and more education, one can make more reflective judgments, using a stronger sense of *validity*.³⁰ Nonetheless, that standard, for Gadamer should remain open and flexible, reflecting the human experience.³¹

I believe that these two observations about the relationship between common sense and disciplinary knowledge help to elucidate how students in the *Weird Science* course in fact integrated the various disciplinary perspectives presented to them. No matter what the discipline, there was an utter conviction that the disciplines had something to offer the students, and that they would understand the significance of the lessons. They also approached the disciplines with

the conviction that they were capable of evaluating the worth of the lessons, rooted in the expectations that their experience in the common sense world provided.

V. **Integration in *Weird Science* Student Papers**

I found that the most integrated papers in *Weird Science* also exhibited the most dissonance. That might not be such a bad thing. According to John C. Bean, who wrote a popular guide book for professors to encourage active learning in the classroom, “cognitive dissonance” should be the very objective of our pedagogical methods.³² For, in this dissonance, students’ familiar ways of thinking are challenged, and thus awakened, become open to new insights. I found that the more ambitious a student was in integrating disciplinary insights, the more he or she appeared unorthodox and perhaps disorderly. Interestingly, this is in line with Steve Fuller’s idea about “deviant” ID. He argues that when a thinker attempts to approach ID outside of the specialized language of academia, she appears “‘eclectic’ and ‘arbitrary’, very much as upstart entrepreneurs look to managers in established firms, where the former wish to ‘creatively destroy’ and the latter to ‘monopolize’ markets.”³³ In other words, academic training sets up an expectation about how students will resolve problems. Using common sense discourse will, by comparison, appear arbitrary and quirky. But inevitably, students in the *Weird Science* course approached problems in the course with the only tools they had, and this was their common sense informed by their life and academic experiences. Their efforts – because of their eclectic approaches and not despite them – suggested to me that they were genuinely engaged in what the various disciplines offered. On the other hand, papers that stuck with one discipline or one theme without attempting to integrate the many disciplinary perspectives offered in the course were also the smoothest and most organized.

I would like to conclude by sharing my thoughts on papers from each category – 1. papers attempting to integrate disciplinary perspectives, 2. papers not attempting to integrate disciplinary perspectives. In general, I considered papers integrated if the student attempted to provide a unifying theme or thesis that purported to organize ideas from several disciplines. I considered papers unintegrated if the student did not attempt to make sense of several disciplinary perspectives.

In terms of integrated papers, I found W.C.'s paper (a paper I referred to earlier as misappropriating Descartes) to exhibit characteristics of an emerging learner of ID in integrating new disciplinary insights. His paper, as well as many of the integrated papers, in fact, touch on deep, fundamental matters. W.C.'s thesis was about the unique and dominant status that humans had on earth. In discussing his thesis, he points to evolutionary theory, genetic theory, Cartesian philosophy, music, the epic of Gilgamesh, religion, gender theory, prosthetics, physics and much more. His paper is eleven pages long, which is only space enough for broad, surface renderings of these topics. Nonetheless, it helps him to make a number of conclusions about his thesis, which reflect Gadamer's ideas about the kind of agency the learner has – the agent is the person of *phronesis*, and has both an open-ended and practical comportment to his world. W.C. concludes that "Humans will endlessly expand their knowledge."³⁴ and that "Being human is a natural ability that any person should hold dear to themselves and use what is given to express try to better the rest of the living world."³⁵ A number of students reflected both the "endlessness" of knowledge, as well as expressed ethical aspirations in their conclusions.³⁶

In terms of papers that do not attempt to integrate the various disciplinary perspectives, I point to G.M.'s paper. I found it to be quite cohesive, and well-argued, two marks of a well-written paper. But it also did not, by the same token, take much risk in terms of exploring

perspectives that were not new to him, or so I gather. Despite the fact that G.M. made a conclusion that was reminiscent of a “deviant” ID paper, writing, “[T]he question should not be, “What does it mean to be human?,” the question should be, “ What could humans do to bring peace amongst ourselves?” would the wealthy human’s response be the same of a homeless humans’ response?”³⁷, the actual content of the paper revolved around the theme of the human brain and the scientific understanding of it. G.M. begins with a discussion about the genetic similarity between humans and chimpanzees, and then goes on to touch upon how a doctor used HeLa cells therapeutically, how we evolved from the Peking Man, how we have changed the physical environment of the earth, and how we can make artificial meat from 3-D printers, in addition to other scientific topics related to the brain. G.M. does draw from a variety of topics, but they mostly relate to the biological sciences. Despite the sweeping question that ends his paper as I state above, G.M.’s paper presents a narrow argument which does not contain much that sticks out as particularly arbitrary or quirky.

VI. Conclusion

Let me summarize the main points of this chapter. I started with the premise that integration was a key notion for ID. I attempted to elucidate how integration happened in the emerging learner of ID as evidenced by my interaction with students in the *Weird Science* course. The key figure that, to me, elucidated this process was Gadamer and his ideas about the *sensus communis*. He believed that all disciplinary knowledge is the outgrowth of a more fundamental acculturation process that begins with common sense knowledge. Two significant aspects of common sense that conditions how we learn anything at all is that 1. it seeks to unify new knowledge into the

familiar store of common sense knowledge, which explains the unifying and consensus-seeking aspect of integration and 2. it is inherently governed by a standard of validity, which speaks to the fact that one integrates knowledge based on the norms and values of one's community. Later, the standards of validity become heightened as the community becomes more specialized and disciplinary.

Another theme of my paper was to validate the integration process that the *Weird Science* students exhibited in their papers. Initially, I had difficulty understanding how it was that students were integrating the various disciplinary perspectives in their pursuit of the question, "What does it mean to be human?" In adopting the interpretation that they were using common sense (in the way Gadamer talked about) as a basis of that integration, I came to understand that what appeared to be unorthodox and eclectic ways of interpreting the problem in their papers was a sign of something more productive of the learning process. It was a sign that they were genuinely engaging with what was unfamiliar to them, which caused them to appropriate the new ideas in ways that seemed quirky from the standpoint of a disciplinarian. In contrast, those who chose to use more finite, perhaps familiar, disciplinary parameters produced smoother, more organized papers (that is, among those who attempted to write a thesis-driven, organized paper). Presumably, all the students will go on to become more versed in academic and disciplinary language with time and experience.

Gadamer's mature view in *Truth and Method* elaborates upon his ideas adapting them to increasingly more specialized forms of discourse. He talks about "horizons" of interpretation which speak to the historical, cultural, and educational conditions that both enable and limit a thinker's field of vision. "Horizon" can refer to the broad and flexible field of the common sense world, or it could refer to the more narrow disciplinary boundaries of the historian or another

disciplinarian (who can turn her eyes to either worlds). Rather than fixed points, these horizons can stretch and reach beyond themselves to expand and/or mesh with other horizons, and become as broad, diverse and nuanced as the finitude of one's existence will allow.

End Notes:

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- ¹ William Newell, "Educating for a Complex World: Integrative Learning and Interdisciplinary Studies," *Liberal Education*, 96, 4 (Fall 2010): 6.
- ² Julie Thompson Klein, *Interdisciplinarity: History, Theory, and Practice* (Detroit: Wayne State University Press, 1991), 14.
- ³ Newell, "Educating for a Complex World," and Klein, *Interdisciplinarity*.
- ⁴ W.C., "On Being Human," *Weird Science* paper (New York: City Tech, 2015), 5.
- ⁵ W.C., "On Being Human", J.M., "What does it mean to be human?," *Weird Science* paper (New York: City Tech, 2015), and L.P. "Motivation," *Weird Science* paper (New York: City Tech, 2015).
- ⁶ D.K., "Future Genius Generation," *Weird Science* paper (New York: City Tech, 2015) and R.S., "Misery Enjoys Selfishness," *Weird Science* paper (New York: City Tech, 2015).
- ⁷ Hans-Georg Gadamer, *Truth and Method*, translated by Weinsheimer, Joel and Marshall, Donald G. (New York: Continuum), 1995.
- ⁸ Julie Thompson Klein, "Integrative Learning and Interdisciplinary Studies," *Journal of the AAC&U*, 7, 4 (2005): 9.
- ⁹ Klaus Döckhorn, "Hans-Georg Gadamer's 'Truth and Method,'" *Philosophy & Rhetoric*, translated by Brown, Marvin, 13, 3 (1980), 160-180.
- ¹⁰ Jeff Polet. "Taking the old gods with us: Gadamer and the role of Verstehen in the human sciences" *The Social Science Journal* 31, no. 2 (1994): 171-196.
- ¹¹ Lisa R. Lattuca, Lois J. Voigt, Kimberly Q. Fath, "Does Interdisciplinarity Promote Learning? Theoretical and Researchable Questions," *The Review of Higher Education*, 28, 1 (2004): 25-26.
- ¹² Hanne Andersen and Susann Wagenknecht, "Epistemic dependence in interdisciplinary groups," *Synthese*, 190, 11 (2013): 1896.
- ¹³ *Ibid.*, 1896
- ¹⁴ *Ibid.*, 1888
- ¹⁵ *Ibid.*, 1890
- ¹⁶ George Slavich and Philip Zimbardo, "Basic Principles of Transformational Teaching," *Educational Psychological Review*, 24, 4 (2012), 569-608.
- ¹⁷ Holbrook, "What is interdisciplinary communication?," 1869-1870.
- ¹⁸ *Ibid.*, 1877
- ¹⁹ *Ibid.*, 1874
- ²⁰ *Ibid.*, 1878
- ²¹ Gadamer, *Truth and Method*, 20-21.
- ²² *Ibid.*, 14
- ²³ *Ibid.*
- ²⁴ W.C., "On Being Human," and D.K., "Future Genius Generation"
- ²⁵ A.Y., "Term Paper," *Weird Science* paper, (New York: City Tech, 2015), R.S., "Misery Enjoys Selfishness," *Weird Science* paper (New York: City Tech, 2015), and D.P., "Abuse of Power: Failures of Authority Leadership and the Profit Motive in Journalism," *Weird Science* paper (New York: City Tech, 2015).
- ²⁶ Gadamer, *Truth and Method*, 17.

²⁷ For a fascinating critique of the specialization of disciplinary language as a detriment to exploring the human condition in a broader, more fundamental way, see Steve Fuller, “Deviant interdisciplinarity as philosophical practice: prolegomena to deep intellectual history,” *Synthese* 190, 11 (2013): 1899-1916.

²⁸ As in Gadamer, *Truth and Method*, 271.

²⁹ *Ibid.*, 14

³⁰ *Ibid.*, 36

³¹ *Ibid.*, 17

³² John C. Bean, *Engaging Ideas* (San Francisco: Jossey-Bass, 2001), 27.

³³ Fuller, “Deviant interdisciplinarity,” 1902.

³⁴ W.C., “On Being Human,” 10.

³⁵ *Ibid.*, 11

³⁶ E.g. L.P., “Motivation,” J.M., “What does it mean to be Human?,” and S.D., “Final Report,” *Weird Science* paper (New York: City Tech, 2015).

³⁷ G.M., “What Does it Mean to be Human? Is that the Question?,” *Weird Science* paper (New York: City Tech, 2015), 9.

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