

Does the Dismal Science Need to be Redeemed?

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In some of the richest and best endowed universities, the tutors content themselves with teaching a few unconnected shreds and parcels of this corrupted course; and even these they commonly teach very negligently and superficially. – Adam Smith, Wealth of Nations

I. Introduction

The title university derives from a shortening of the Latin phrase *universitas magistrorum et scholarium* meaning “community of masters and scholars¹.” However, many modern universities appear to have lost the community in the pursuit of mastery and scholarship. Individual disciplines and scholars appear to silo themselves. Modern departments can become echo chambers where faculty listens to no one outside of their discipline. While these silos allow for greater knowledge due to specialization among the disciplines, without the university community this added knowledge creates a limited social value. We see this with the application of jargon rather than useful policy prescriptions. Why then do economists, who devote their lives to purporting the advantages of trade, fall into the same trap? How can they so easily ignore other fields that clearly have a comparative advantage in other arts and sciences, for example theology, which are clearly better suited to discuss non-qualitative human characteristics like the purpose of a human life?

Specialization without trade loses all of the benefits of the division of labor. While the division of labor within different academic fields increases efficiency, as Adam Smith explains, the work of John Henry Newman adds that without trade, we lose the benefits of specialization. Trade within the university breaks down the language of specialization is not the same as the language of broader community. Jargon works to make a discipline efficient, a robust language is needed for trade between disciplines.² Finally, this trade is most effective when cooperative, with those engaging in dialogue setting aside minor differences for the sake of a larger purpose, as opposed to a monopoly model, where one group directs dialogue for an entire group.

¹ <http://www.etymonline.com/index.php?term=university>

² Zelik et al (2007) Understanding Rigor in Informational Analysis

II. Division of Labor

The division of labor concept allowed economics to explain wealth accumulation. In the generations after Adam Smith this new approach to describing political economy changed the very foundation for thinking about government and markets. Where many had previously thought of statecraft as a form of applied morality, the new political economy provided a scientific alternative which sought to understand cause and effect and understand how countries could increase their wealth relative to other countries. Adam Smith's powerful description of economic growth laid a foundation of the success of economics in public affairs.

Smith's Division of Labor

Adam Smith begins *The Wealth of Nations* with a discussion of the division of labor, which for him creates "the greatest improvement in the productive powers of labor³." Simply put, when we divide the production of a good into its simplest individual tasks, and give each of those tasks to an individual person, our labor becomes much more productive⁴. Smith writes, "the separation of different trades and employments from one another, seems to have taken place, in consequence of this advantage⁵." Thus, the farmer is only a farmer and a manufacturer is only a manufacturer because the farmer and manufacturer's labor is much more efficient if they devote their labor to one industry.

Smith gives three reasons for this phenomenon: an increase in dexterity, time saved from switching, and innovation⁶. He gives the example of a blacksmith, who if charged with the unusual task of making nails could possibly make two or three hundred nails a day, "and those too very bad ones."⁷ However, Smith notes having seen boys who "had never exercised any other trade but that of making nails" capable of making over two thousand three hundred nails a day⁸. Certainly, the blacksmith is more skilled than those boys in the art of metalworking, but the boys can make more nails because that is all they do. In other words, by only making nails

³ Smith, *Wealth of Nations*, 1.1.1.

⁴ Smith goes as far as to say that manufacturing was making much larger gains in productivity than agriculture because we cannot subdivide agriculture as much as manufacturing. (1.1.4).

⁵ Smith, *Wealth of Nations*, 1.1.4.

⁶ Smith, *Wealth of Nations*, 1.1.5.

⁷ Smith, *Wealth of Nations*, 1.1.6.

⁸ Smith, *Wealth of Nations*, 1.1.6.

the boys increase their dexterity in nail making, and thus their labor is much more productive given their increase in skill in their narrowly defined trade of nail making.

The second benefit to the division of labor is the time saved from switching between tasks. Each of these boys had been making the entire nail themselves. Their labor could be much more efficient than it already was if they divided the task of making a nail into its individual parts, blowing the bellows, stirring the fire, heating the iron, and forging the nail, because of the time saved from switching tools and moving around in the workshop⁹. Finally, the third benefit of the division of labor is the increased likelihood of innovation. Smith writes that “men are much more likely to discover easier and readier methods of attaining any object, when the whole attention of their minds is directed towards that single object, than when it is dissipated among a great variety of things¹⁰.” If I only complete one task, then I am more likely to innovate, to create a new, more efficient way of doing my one task in an effort to save my own labor. Because of this innovation, people will create new machines that are more efficient than the status quo, and thus our labor will become more productive.

The conversation about the division of labor has up to this point relied on manufacturing; however, Smith expands its benefits to his own field, philosophy. He writes, “Like every other employment too, [philosophy] is subdivided into a great number of different branches, each of which affords occupation to a peculiar tribe or class of philosophers; and this subdivision of employment in philosophy, as well as in every other business, improves dexterity, and saves time. Each individual becomes more expert in his own peculiar branch, more work is done upon the whole, and the quantity of science is considerably increased by it¹¹.” Thus, the benefits of the division of labor also applies to the specialization within an academic field, and so within different fields themselves.

The benefits to the division of labor are clear, and within this framework, the university system serves as a clear set of institutions that facilitate the collection of knowledge. In order for this to work, trade must be facilitated. In a market an artisan must both know her craft and understand something about marketing her product. Similarly, the university without meaningful

⁹ Smith, *Wealth of Nations*, I.1.6.

¹⁰ Smith, *Wealth of Nations*, I.1.8.

¹¹ Smith, *Wealth of Nations*, I, 1, 10.

interdisciplinary dialogue resembles a artisan who does not sell her wares. This dialogue serves as the trade mechanism within universities.

Newman's Division of Labor

John Henry Newman was a Catholic cardinal in 19th century England. His best-known work, *The Idea of a University*, was originally given as a series of lectures while Newman was charged with opening a Catholic university in Ireland. Newman was inspired to respond to political economy during its ascendancy.¹² Newman offers an explicit conversation about how various academic fields should interact with each other, given a division of labor.

For Newman, all fields represent a portion of the truth, and we can only fully understand truth when we compile the understanding of all fields¹³. He writes, "I lay it down that all knowledge forms one whole, because its subject matter is one; for the universe in its length and breadth is so intimately knit together, that we cannot separate off portion from portion, and operation from operation, except by a mental abstraction¹⁴." From this perspective, it is clear why Newman argues for the compilation of knowledge. He sees all knowledge, the fruits of all disciplines, as portions of one truth. In the real world, economics, politics, psychology, sociology, and theology do not occupy different spheres, but instead co-exist and interact. We can only separate these various causes and effects through what Newman calls "mental abstraction," by creating different fields to try to make sense of our world. Economic, political, social, and religious concerns are not separate in the real world, only in our ivory tower.

Newman give the example of a man, who we can view in a variety of ways, in relation to his physical nature, or psyche, or in his relation to his family or community, or in relation to God, each the subject of a particular science¹⁵. Newman writes, "When we think of him in all these relations together, or as the subject at once of all the sciences I have named, then we may be said to reach unto and rest in the idea of man as an object or eternal fact¹⁶. Furthermore, Newman points out that each field has its own set of assumptions that it works under. For example, Newtonian physics assumes that what happens today will happen tomorrow, which

¹² Oslington, Paul (2001)

¹³ cite

¹⁴ Newman, *Idea of a University*, 43.

¹⁵ Newman, *Idea of a University*, 43.

¹⁶ Newman, *Idea of a University*, 43.

may be true for physics, but not necessarily for other fields¹⁷. Thus, simply expanding a fields' boundaries is not sufficient to expand our understanding, because they all have different assumptions and methodologies that may not work in new situations.

In this way, Newman explicitly critiques the division of labor, writing of a particular student, "If his reading is confined simply to one subject, however such division of labour may favour the advancement of a particular pursuit, ... certainly it has a tendency to contract his mind¹⁸." While the division of labor increases efficiency, for Newman, the trade-off, a narrowing of one's worldview, is too high. However, Newman does not advocate for an abandonment of specialization. Instead, he offers a different vision of a university: "An assemblage of learned men, zealous for their own sciences, and rivals of each other, are brought, by familiar intercourse and for the sake of intellectual peace, to adjust together the claims and relations of their respective subjects of investigation¹⁹." Thus, while on the surface Newman appears to critique the division of labor, he really critiques specialization without trade. Newman sees the university as the facilitator of communication between fields, as the space where they come together. This communication increases the quality of our knowledge, by forcing practitioners of different fields to adjust their claims to be in line with the whole, i.e. it corrects for systematic biases within a particular field. Thus, without trade specialization merely contracts the mind; however, with "familiar intercourse" zealots of their own sciences can come together to not only produce more, but also improve the quality of the knowledge of their peers.

Because of its limited methodology, Newman in critiquing Nassau Senior argues that economics does not have the proper toolkit to make moral judgements²⁰. Instead, theology provides the metaphysical background that economics operates under, and Newman appears to argue that theology provides the moral premises for economists to utilize in their analysis²¹. Thus, Newman appears to be advocating for the division of labor he at times critiques, but only when trade allows these fields to compile their research into a composite whole. To give an example, take the issue of charity. Economics does not have the tools to determine what sort of obligation a society has to the poor, if it has any, or what principles such an obligation must

¹⁷ Newman, *Idea of a University*, 44.

¹⁸ Newman, *Idea of a University*, 76.

¹⁹ Newman, *Idea of a University*, 76.

²⁰ Oslington, "John Henry Newman," 832.

²¹ Oslington, "John Henry Newman," 840.

adhere to. In the same light, while theology can explain a particular need to care for the least well off in society in a way that uplifts their inherent human dignity, it has no means for determining the most effective method for achieving this goal. When seen this way, theology and economics become interdependent. Because theology cannot evaluate its efforts, and economics cannot determine the purpose of its efforts, both need communication with the other to furnish what they themselves cannot provide.

III. Dissolution of Dialogue

Up to this point, we have discussed the benefits of specialization and the need for trade. If specialization is good up to a point, at what point does it break down? Because individuals interpret the world in different ways, communication falters when each conversant interprets the world differently. The language groups people participate in become communities. In universities jargon defines our disciplines, it facilitates efficiency, but it also excludes non-experts from participating in the conversation. Without a common language between the disciplines, specialization goes on without trade. This specialization, because it is not oriented to the final consumers of the knowledge created, becomes an echo chamber instead of a center of knowledge creation.

Arthur Denzau and Douglass North (2004) explain the mental model framework and explore its implications within dialogue. A mental model is the framework through which we interpret the world²². We constantly experience different phenomena, and mental models provide structure understand these phenomena. Parts of our mental models our genetic; for example, our brains interpret light and sound waves into images and voices that we can understand²³. However, much of our mental models are learnt from our culture²⁴. When more than one person has the same way to explain and interpret their environment, they have a shared mental model. However, because no two people have exactly the same experiences, each individual's mental model will vary to some degree.

What does this mental model framework mean for communication? Communication consists of encoding and decoding. When I communicate with someone, I have to first translate

²² Denzau and North, "Shared Mental Models," 4.

²³ Denzau and North, "Shared Mental Models," 13.

²⁴ Denzau and North, "Shared Mental Models," 13.

my thought patterns into a form that can be communicated. However, I cannot include everything I used to make said thought into the communication, in part, as Denzau and North explain, because “we almost never know what factors actually influenced a decision we have made²⁵.” Thus, I can never fully communicate every piece of information that might be necessary for the listener to understand my message. The second problem occurs when the interlocutor must then decode my message. In order to understand my message, the listener must first interpret what I say through their own mental model. As Denzau and North explain, “the reception of a message and its interpretation by the listener are strongly influenced by the categories and beliefs that the listener already has about the world²⁶.”

Figure 1 shows demonstrates how these communication errors occur. Person L has a thought (Idea A) that she wishes to communicate with Person C. In order to do so, she must first encode her thought into words, phrases, and sentences as the mechanism for communication. However, this process is imperfect, and it is impossible for L to include all the pieces of information she used to create Idea A in the encoding. In order to understand this piece of communication, C must first decode the message. However, C already has pre-existing thought patterns, which he uses to decode the message. Thus, before C can understand Idea A, this idea is already filtered through his thought patterns. As a consequence, Person C, the receiver, never fully understands Idea A, because he interprets it through his own preconceptions .

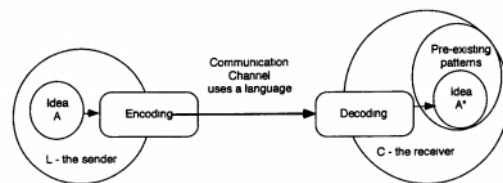


Figure 1

The more similar our mental models, the more likely two interlocutors are to be able to understand each other.²⁷ Shared mental models provide precisely this benefit because they allow groups of people to interpret the world in similar ways. However, communication can break

²⁵ Denzau and North, “Shared Mental Models,” 19.

²⁶ Denzau and North, “Shared Mental Models,” 20.

²⁷ Denzau and North, “Shared Mental Models,” 20.

down if parties interpret the world differently. What is necessary for talking between specialists is not the same as what is necessary for talking between specialties. The shared mental model of jargon has to be complemented by a shared mental model for exchange. This is an important factor for why interdisciplinary dialogue can be so tricky. Different fields inherently have different mental models, which means that they encode and decode information differently. Thus, within our specific conversation about theology and economics, what the theologian says is not necessarily what the economist hears. Essentially, different mental models cause an increase in transactions costs, because they create additional barriers to dialogue.

A university is by design a place for bilingual people. Faculty are required to be specialists in their research, but they are also required to engage students that have no specialized training and introduce them to ideas from their fields. In addition, these faculties have to interact with one another so that Newman's vision is fulfilled. The division of labor in a university depends on fields like economics applying their logic and statistical skills and fields like theology asking the metaphysical questions that provide the normative context for these investigations. In response to these difficulties surrounding communication, the university serves as the institution which brings together different ways of thinking. Essentially, if we see mental models as languages, then there are three options to achieve effective communication. When both parties have the same mental model, like speaking the same language, then they are able to communicate effectively. This is why communication functions within various departments in a university. Because they have the same training, they have the same mental model and can communicate effectively. The second option is similar to codeswitching, when someone who is bilingual alternates between two languages within a given conversation, often within the same sentence. In order to communicate effectively, both parties do not have to have the same mental model, i.e. they do not have to think in the same way, they only need to understand how the other person thinks. If I understand how you think, then like code switching, I can change how I speak to you so that you receive my intended message. This does not mean that the two mental models will converge. Successful communication only requires that both sides *understand* the other's mental model so that they can adjust their communication accordingly. The university community depends on those that can facilitate communication between the different faculties. Otherwise why even bother bundling so many disciplines together in the first place? The university has the ability to facilitate this type of communication by providing the space for

people within different fields to learn the various mental models and update their communication accordingly.

The final role of a university is to offer what Denzau and North call a shared mental model which serves as a starting point for communication. Essentially if we see each field as its own language, then the university provides a third language that everyone speaks when they gather together as a whole. In this way, the university serves as a market maker in order to facilitate trade. A university has its own identity and charism that every department is expected to align to (catholic universities, public universities, teaching universities, research universities, land grant). This particular value system serves as a shared mental model, so that when gathered together, everyone within the university begins with the same interpretation of the world, facilitating communication. In this way, the university provides a shared language, so that when communicating, everyone speaks this third language instead of the jargon of their own discipline.

Voltaire provides a similar example in his letter “On the Presbyterians.” He notes that in the Royal Exchange in London, “the Jew, the Mahometan, and the Christian transact together, as though they all professed the same religion, and give the name infidel to none but bankrupts²⁸.” Then, on the weekends, each person returns to his own home and religious tradition, and all are satisfied²⁹.” Despite the common perception that religion causes unnecessary conflict, in this case Voltaire describes a situation where those of different religions act in harmony. Because everyone can operate within the rules and expectations in the Royal Exchange, they all act together perfectly well. In essence, the Jews, Muslims, and various types of Christians Voltaire discusses live within two worlds and speak two languages: that of their own religious tradition and the language of finance. When the university works well, it can serve as a sort of Royal Exchange of London by providing a similar type of market space. The different faculties are like the different religions in Voltaire’s description. When they retreat to their research specialties they use one language, but when they teach or engage each other in the university community, they are supposed to reserve the name of infidel for those that don’t participate in the pursuit of ideas. In creating a shared space with clear expectations and a shared way of communicating, a university creates a shared mental model to circumvent the problems that arise with different

²⁸ <http://www.bartleby.com/34/2/6.html>

²⁹ <http://www.bartleby.com/34/2/6.html>

interpretations of the world, because everyone within a particular university has a shared language to speak to begin the communicative process.

IV. Different Models of Trade

Up to this point we have discussed the benefits of a division of labor within the university, why we need trade, and why this trade breaks down. But what exactly should this trade look like? Broadly speaking, there are two possibilities, or at least two points on a spectrum, to how ideas can diffuse within a society: monopoly or cooperation. The decidedly inferior option is a monopoly, where one group tries gains enough power to take hold of the dialogue to force its views on the whole of society. Take, for example, Texas' public school curriculum, which had incorporated elements that question evolution because of the influence of conservative Christian members on the state board of education. Such a move clearly undermines science, which largely supports the theory of evolution. Furthermore, questioning evolution on religious grounds only represents one small, specific religious group. Catholic Church for example claimed there was no conflict between evolution and the Catholic faith in Pope Pious XII's 1950 encyclical *Human generis*. In creating a monopoly on knowledge, one group forces their particular viewpoint on the entire group, thus directly negating the open dialogue Newman's vision of knowledge requires. When any one discipline attempts to describe the entirety of truth, and thus monopolize truth, it risks stepping outside of an accurate description of reality for the sake of the totality of its own interpretation of the world. In this way, in order to create the university Newman envisions individuals must both communicate with each other and learn to set aside minor individual differences in order to work towards a common, and more important goal.

The alternative model is cooperation. The idea behind this model is simple: if two people or groups want to work together then they will have to make concessions and set aside minor disagreements for the sake of a larger goal. Newman gives the example of a group of Protestants that wish to come together to print and circulate a Protestant Bible³⁰. Individual Protestant denominations can come together for a common project due to an overarching similarity, but in order for the project to be successful, they must also set aside their differences. Thus, no one

³⁰Newman, *Idea of a University*, 24.

group could include a pamphlet on the merit of good works, a subject to which these groups differ significantly, into this commonly produced Bible. Thus, for Newman, when in search of universal knowledge, as is the purpose of the university, it is necessary to make concessions in terms of minor differences for the sake of productive dialogue, although we obviously cannot compromise in terms of the object of our dialogue.

To propose a modern example, take the Soviet Union and United States, who in the midst of the Cold War worked together through the World Health Organization to eradicate smallpox. Why would they work together, especially given their clear and irreconcilable differences? The fear of smallpox entering their own borders was greater than any argument over political philosophies and economic systems. Donald Henderson, the man in charge of the smallpox eradication program, wrote, “There is no question that the smallpox eradication programme could ever have succeeded without the collaborative relationships between the USA and the USSR which survived, and indeed thrived, through some of the most difficult days of East-West antipathy³¹.” Thus, even the United States and Soviet Union can come together and put aside their differences for a common goal, in this case smallpox eradication. Henderson further offers another insight: “It was the WHO venue that made these relationships possible.” The USA and USSR did not come together on their own, but rather through an institution, the WHO. Thus, while even openly hostile groups can come together for a common purpose, institutions facilitate this exchange. In this case, the WHO allowed the United States and Soviet Union to cooperate, in terms of the pursuit of knowledge, the university serves as the institution to coordinate the efforts of scholars in different fields.

V. Conclusion

So what does this mean for the university? First, while both Smith and Newman affirm the benefits and necessity of having different fields, both points of view also describe the necessity of trade, which in this particular case takes the form of interdisciplinary dialogue. As Newman claims, while we produce more with a division of labor, without trade, our knowledge is always incomplete, because we only ever see one slice of information at a time, so knowledge is never compiled into truth. However necessary, this dialogue breaks down because, by

³¹ Henderson, “Smallpox Eradication,” 118.

necessity, different fields have different mental models, causing ineffective communication. The university then exists as a market maker, to both create the space for dialogue, so individuals can understand different mental models, and to provide a shared mental model, which provides common ground for dialogue to begin. Finally, dialogue is best achieved through cooperation instead of one group monopolizing truth.