TAXONOMIES, THE ECOLOGICAL FALLACY, AND THE NET GENERATION

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In his essay "Definition of Man," Kenneth Burke observed that humans are "goaded by the spirit of hierarchy," noting that this could also be rendered "moved by a sense of order."[1] The desire to classify seems to be an intrinsic part of human nature, and "this taxonomical urge is applied to most everything in the human universe."[2] Yet, we often ascribe qualities to certain groups although they may actually have little in common besides a certain quality. Kurt Vonnugut, Jr. provides a striking example of such a phenomenon in his novel *Cat's Cradle*:

> "My God," she said, "are you a *Hoosier*?"
> I admitted I was.
> "I'm a Hoosier too," she crowed. "Nobody has to be ashamed of being a Hoosier..."
> "I don't know what it is about Hoosiers," said Hazel, "but they've sure got something. If somebody was to make a list, they'd be amazed..."
> Hazel's obsession with Hoosiers around the world was a textbook example of a *false karass*, of a seeming team that was meaningless in terms of the ways God gets things done.[3]

Although such an obsession with Hoosiers may seem odd when considered logically, we have all been guilty of such associations. Even the notion that American citizens all value the same things is quickly put to rest after examining the increasingly divergent stances of the two major political parties, not to mention the many smaller, less prominent political parties. In short, affiliation with a particular group only takes one so far.

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There are, of course, certain things that one can expect from a particular generation. For example, those who were adolescents or adults in the early 1960s would know about the Kennedy assassination, the space race, and the Cold War. Yet, it seems that some have confused the cultural *zeitgeist* with essential attributes of those who existed in that milieu. Not all who came of age in the 1960s were free-love hippies, for example. As Murphy and Medin observe: "Without some explanation of why things seem similar, we are left with an equivalent problem; many things appear to be similar just because they are members of the same category."[4] To ascribe essential properties to a cohort of humanity—especially in radically differentiating them from all other generations—is foolhardy at best, but if one is to do so, he or she must make a clear accounting as to why such judgments are made. Alexa McCray notes that a "taxonomy depends crucially on a system of hierarchical, categorical ranks, or levels. Once a taxon is created, each of its members is required to have the essential properties of that taxon."[5] Thus, one must first begin by considering what the essential qualities of the cohort are.

Even attempting to classify is fraught with potential pitfalls. According to Marie-Laurie Ryan: "The first decision to make when addressing the problem of getting at the basic units of the proposed taxonomy, is whether these units exist independently of the taxonomical scheme, or arise as a result of the attempt to classify."[6] McCray also suggests that "every conceptualization is biased" because "representing, or categorizing, the world depends on at least two crucial factors (1) the purpose for which the conceptualization is being created, and (2) the world view of its designer, with the corollary that this depends on the state of general knowledge at the time, as well as on the personal knowledge of the designer."[7] In short, we must consider the thought processes behind the creation of a particular classification. To illustrate some of the problems with engaging in this taxonomic behavior, I will briefly consider the case of the so-called Net Generation and the problems that the creation of this category has raised with regards to educational policy.

The Ecological Fallacy and the Net Generation

The rising generation has been called many things: the "Net Generation,"[8] "Generation Y,"[9] "Digital Natives,"[10] "Millennials,"[11] or the "iGeneration."[12] Although Huang, Huang, and Syu observe that "it is difficult to generalize about an entire generation, as individuals will not always act in accordance with their generation's values and norms," they argue that "social trends, norms, and historical events that influence generations during childhood and adolescence define what range of behaviors is possible in their lives."[13] I have

no quarrel with the idea that particular social and political environments allow for a certain range of behaviors and norms. Rather, the issue is with those who, when considering a particular range of possibilities, distill them into specific *inevitabilities*. Indeed, Huang and colleagues cannot resist the siren call of essentializing, stating that "Generation Next's focus on the self, increased appetite for consumer goods, and shift to creating social ties online contrast this generation with previous generations; this group of young adults has disengaged from society and its norms more than any preceding generation."[14]

Ascribing behavior to individuals within a cohort is such a prevalent phenomenon that there is a name for the fallacy: the ecological fallacy.[15] Lawrence Hong notes that "the idea that a relationship found at the group level does not always hold at the individual level is not immediately evident to everyone."[16] This can be, especially problematic in the case of education, the primary concern for those examining the Net Generation. But this is the case with any aggregate concerning education. White and Reynolds examined the same data used to bolster claims that socioeconomic status (SES) provides indicators for student achievement, but found that "among all schools using the common level aggregated data, SES would be said to account for 72% of the variance in achievement levels. But using the more accurate individual student data, SES accounts for less than 20% of the variance. In CCSs [central city schools], where the variations on income and achievement are greater, student SES can explain only 8% of the variance."[17]

White and Reynolds caution against policy changes based on such data, noting that "the key to student achievement is not as simple as the income of their households."[18] Paul Connolly also observes that such ecological fallacies can inaccurately depict not only those from different socioeconomic classes but also gender and ethnic differences and educational achievement.[19]

A similar problem seems to have occurred with the idea of the Net Generation. For example, Larry Rosen bluntly states that "it is the iGeneration student's love of all things technological that need to be incorporated in the way we teach them in and out of the classroom. If we continue to try to reach them on our terms, using traditional tools, we will fail them."[20] Don Tapscott likewise writes: "School officials are grappling with the reality of students often being far smarter on cyber issues and new ways of learning than the teachers."[21] Anecdotal evidence of wired youth has translated into the notion that *all* youth are wired, but research has not borne this idea out. A study by Kolikant found that "only a third of the interviewees believed that their generation is empowered by technology, in terms of learning. The majority of the students, however, thought that their generation was worse at learning than the pre-ICT

generation."[22] According to Margaryan, Littlejohn, and Vojt: "Students have limited understanding of what tools they could adopt and how to support their own learning. These findings challenge the proposition that young people have sophisticated technology skills," and suggest that "although calls for radical transformations in education may be legitimate, it would be misleading to ground the arguments for such change in students' shifting patterns of learning and technology use."[23] Moreover, Van den Beemt, Akkerman, and Simons found that "although most of today's youngsters engage in traditional activities, not all of them are active with interactive media production. By result it is not self-evident that all students' learning improves by using convergence media such as videosite YouTube, photosite Flickr or social networking space Facebook."[24]

In other words, the notion that students have the requisite media literacy skills to actively engage in the educational experience in radically different ways seems to be overstated. After all, media literacy, like print literacy, requires that one not only consume, but have the ability to create as well.

The notion that the Net Generation has specific intrinsic qualities that lead to a desire among students to be taught using certain technologies, such as social media, is likewise deflated by studies that suggest otherwise.[25] Margaryan, Littlejohn, and Vojt found that student's "expectations of integration of digital technologies in teaching focus around the use of established tools within conventional pedagogies."[26] Such findings call into question the need for radical shifts in pedagogical practice. Along with this is the assumption that students are already using specific instructional technologies and that the faculty need to catch up. Yet Stephen Walls and colleagues found that something as seemingly simple as the podcast was not as familiar as expected among the student body.[27] To lump individual students into a homogeneous cohort allows one to overlook the possibility that students within a particular cohort may use different learning strategies.[28]

Finally, this engagement in the ecological fallacy allows one to ignore what scholars have observed concerning technology adoption by assuming that adolescents and young adults adopt technologies with little thought. The most widely used model for technology adoption is the technology acceptance model, which suggests that the major determinants for technology adoption are perceived usefulness of the technology and ease of use.[29] Others, such as Lunceford, argue that one must also consider the overall technological landscape to examine structural constraints that go into making decisions concerning technology use, such as social and institutional mandates that encourage technological adoption.[30] Still, others take a uses and gratifications

approach and argue that technologies fulfill some perceived need.[31] Even so, none of these frameworks have much to do with the age of the individuals adopting the technology. Net Generation students adopt technologies for much the same reasons others not of that generation do: they see some utility in adopting the technology and wish to avoid the disadvantages of not adopting it.

Suggestions for Policy

As with any incorrect belief, the belief is of less concern than the actions that it engenders. This narrative of the Net Generation has infiltrated all levels of education, which has led to some problematic policy implementations. My spouse is an elementary school teacher and she related to me an experience she had while attending a training on the use of smart boards. She has been in two school districts that have each poured thousands of dollars into buying these products with the belief that it would significantly improve the quality of teaching by reaching these digital natives. The trainer insisted that if teachers didn't use all of the bells and whistles, then students would not pay attention, repeating the narrative that these students were different and required technology to be integrated into their educational experience. In the training, little time was set aside for how to effectively use these products, focusing instead on the gimmicks that the products offered. The implicit message was that just using the technology—regardless of *how* it was used—would be enough to fulfill the needs of these digital natives.

One need not be an educational expert to immediately see the problems with this approach. Almost everyone has sat through a PowerPoint slide presentation that was heavy on gimmicks and light on substance. On the other hand, children will sit enraptured while listening to a good storyteller read a simple book.[32] Technology is not always the panacea that we wish it was, but when it is the central protagonist in the tale of the Net Generation, one begins looking for a technological solution to educational policy woes.

Enumerating the many variables that influence effective teaching and learning is well beyond the scope of this paper, however. My aim is to illustrate how faulty narratives that essentialize entire groups of students is a terrible way to develop educational policy. As Chris Jones and colleagues explain: "Far from our research revealing a single generation of students we find a complex picture of minorities, most of whom engage in a wide range of technology uses with a high frequency but who do not show a strong impulse towards the kind of participation and generational homogeneity predicted by Net generation or Digital Native inspired literature."[33] Generations are far more complex than the digital native hypothesis suggests. Almost a century ago, Floyd Allport

concluded that it is erroneous to "attempt to explain social phenomena in terms of the group as a whole, whereas the true explanation is to be found only in its component parts, the individuals."[34]

Narratives are powerful ways of organizing thought, and we largely construct our lifeworld through narrative. However, these narratives are not always accurate portrayals of how things actually are. Walter Fisher suggests that listeners process narratives not according to the traditional rules of logic, but rather based on whether the story conforms to one's sense of narrative fidelity.[35] Anecdotal evidence may suggest that because young people are immersed in a technological environment they are technologically adept, and this narrative may ring true because we know some highly technological youth. But generalizing from these few to rhetorically create some generational identity is based on a faulty premise. One assumes that all members of the Net Generation are a distinct, unified cohort that share the quality of being technologically skilled, which is not necessarily the case. In reality, research on the digital divide illustrates that one cannot even assume universal access, let alone skill.[36] These faulty narratives then inform educational practice, and one cannot craft effective education policy by basing assumptions about an entire generation of students on the attributes of a subset of that population. Individual differences matter.

Once we define the Net Generation as digital natives and older persons as digital immigrants, it paints us into a linguistic corner. Burke suggests that the words that we use filter our perception, calling this idea "terministic screens": "Pick some particular nomenclature, some one terministic screen.... That you may proceed to track down the kinds of observations implicit in the terminology you have chosen, whether your choice of terms was deliberate or spontaneous."[37] In short, defining the rising generation as the Net Generation or Digital Natives provides a kind of self-fulfilling prophecy. We see them texting on their phones or using communication technologies and ascribe to these actions a meaning that transcends individual differences. By defining them as the Net Generation, we begin to see confirmation of that assessment, ignoring the adults who are equally connected. The digital native hypothesis is based around differences that seem overstated at best. For example, the belief that digital immigrants and digital natives have widely divergent beliefs about technology is not borne out by empirical research. For example, Jenny Waycott and her colleagues found that "both students and staff had similar views about some benefits of using technologies in higher education: they both felt technologies supported communication, provided access to information, and enabled flexible use of resources."[38]

So where do we go from here when it comes to education policy? Bullen and Morgan suggest that we shift the discourse from "digital natives" to "digital learners," explaining that "it is essential that we design instruction based on the needs of the students we have in front of us (or online), not a mythical 'Net Generation' student."[39] Discarding the Net Generation narrative allows educators to more fully consider student's differences in ability, access, and desire, which can be overlooked when reducing them down to a single category with assumed similarities regarding digital technology. Another possibility is shifting the focus from the perceived cohort of learners to the technologies themselves, as Lunceford and Rockwell suggest.[40]

Because the words that we use to describe our students affect how we interact with them, any consideration of educational policy must first begin with language.[41] Every classroom is different, with a different set of students, with different potentials and problems. Attempting to totalize them into a homogeneous aggregate is both intellectually lazy and pedagogically unsound. Beginning with the assumption that students and teachers are of completely different cultures (and that this is somehow different from every other generational difference that has ever been) diminishes the chance that the student and the teacher will share common ground. Technology may be creating new methods of teaching and learning, but it did not create a completely alien culture accessible only to a particular generation. We should stop talking about it as if it did.

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