WHITE PAPER:

NSF SBE 2020: Future Research in the Social, Behavioral & Economic Sciences

The Public Administration Genome Project (PAGP)

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ABSTRACT

This white paper is concerned with public administration (PA), which can easily involve many other disciplines. At last count there were 87,000+ “governmental units” in the U.S. (with the Federal government and every state counted as one each). Relatively little is known across the spectrum about these entities. They could be involved with a significant percentage of 13,000 identified problems.

There is an obvious need to find a way to approach this overall problem solving situation on a different scale and with a different scientific schema then in the past. The fundamental and important challenge question for the SBE 2020 visioning exercise thus is “What could this scale/schema be?”

One scientific, large-sized schema to use as an analogy is the Human Genome Project (HGP). Starting in the year 2000, much effort has been exerted on a similar long term endeavor known as the Public Administration Genome Project (PAGP). It is proposed that the further development of the PAGP will be both foundational and transformative to SBE research; will increase the educational capacity of its developers and users; and with the required sizeable scale-up, will create a need for new types of hardware and software infrastructure.
1. FUNDAMENTAL QUESTION

This white paper is concerned with public administration (PA), which can easily involve Political Science, Economics, Sociology, Engineering, Law, and many other disciplines. At last count there were 87,000+ “governmental units” in the U.S. (with the Federal government and every state counted as one each). Relatively little is known across the spectrum about these entities. How many problems do they face? How frequently? What are the common problems? What are the common solutions they take to these problems? What are the uncommon? What formal theories (if any) do they employ? How do they employ these theories?

One time I read that there were 13,000+ problems to be solved in the world. A quick scan of the Sunday edition of, say, The Washington Post might lead to a belief in the possibility of that figure. So even if each governmental unit were subject to only a small percentage of these problems, there still would be an obvious need to find a way to approach this overall problem solving situation on a different scale and with a different scientific schema then in the past. The fundamental and important challenge question thus is “What could this scale/schema be?”

One scientific, large-sized schema to use as an analogy is the Human Genome Project (HGP) (Davies, 2001) (Tapscott and Williams, 2006). Starting in the year 2000, much effort has been exerted on a similar long term endeavor known as the Public Administration Genome Project (PAGP) (Dickey, 2009). See also http://pagenome-compass.pbworks.com/FrontPage. The basic idea is that public administrative behavior has many similarities to the functions of genes in the human body. Moreover, since there are approximately 35,000 genes in each of the human body’s trillions of cells, there are likely to be at least that many “genes” (referred to as single-word “topics” or "cistrons") in public administration. Hence the long term goal for the PAGP is to “map” these topics and clusters thereof (that is, “variables” or "operons"), as well as the relationships ("kineses") between them. The result should be a clearer understanding of public administration actors and their actions, as well as a tool (called "COMPASS") to help use this knowledge productively in every day strategy development and impact identification.

Currently (as of August 2010) the total number of topics (PA “genes”) is over 5000; variables about 14,000; and bivariate relationships about 15,000. All of these come from 60 sources, including case studies, textbooks, articles, broad theories, reports, regulations, constitutions, and analogies to the biochemical and genetic world. (Dickey, 2009)

The ultimate, quite ambitious objective of the PAGP is to create a database as large as those in the biological and genetic world. For instance, the U.S. National Center for Biotechnology Information (NCBI) has created GenBank® -- a collection of over 108 million "sequences"
strings of genes - which might be analogized as variables) from over 500 organisms (as of August, 2009).

The PAGP (that is, COMPASS) currently is set up as a wiki (actually as a wiki of case wikis) (Tapscott and Williams, 2006). This allows a network of researchers, advanced students, and practitioners from around the world to collaborate and contribute. So far, substantial contributions have come from seven countries outside the U. S.

There are, of course, many questions to be answered about the PAGP and its potential. So far it obviously is a very, very small (although still somewhat useful) operation compared to, say, GenBank®. Questions include: How to upscale it? How to get more contributions? How to reach and engage the 87,000 governmental units? How to match source case theories with practice?

2. IMPLICATIONS, CAPACITY, INFRASTRUCTURE

Further development of the PAGP will be both foundational and transformative. It will be foundational in that it will gently force co-operation among the disciplines as they contribute and attempt to change source case content (which includes theories) with other academics and also with practitioners as well.

It will be transformative because it provides a mechanism to undertake a whole new cycle of research. For instance, a new set of “genes” (topics) may be discovered and provide much grist for research endeavors. This situation is exemplified by a very small experiment in which words (“aback”, “abandonment”, “abasement”) were taken from a dictionary; combined with the word “theory” (e.g., “aback theory”); and researched on the web. This process opened up some surprising new vistas for PA studies.

PAGP development will also help build capacity in education and training. As an example, most students have a limited perspective on what politics, economics, sociological aspects, etc. are involved in, say, disaster impacts. COMPASS now contains a source case stemming from Hurricanes Katrina, Rita, and Wilma (KRW) that includes over 1900 variables and 2000 bivariate relationships. This set includes impacts in the above three disciplines as well as impacts on, and reactions by, public administrators. So COMPASS should be of some assistance to practitioners as well. And, of course, researchers may benefit by gaining perspectives on theory and practice and perhaps find themselves rewarded through their contributions to the PAGP (as is the case in some academic areas of genetics with GenBank®).

Thirdly, the required sizeable scale-up of the PAGP will create a need for some new types of hardware and software infrastructure. On the former, it is not inconceivable that special hardware will be created and deployed for relatively instantaneous access to COMPASS, especially in training exercises. A similar technology already is being employed by medical school students.
for quickly identifying disease symptoms and drug interactions. As for software, there is, for instance, a major need to find an easy way to enter and search large source cases, like the KRW one mentioned above. Then there is the question of how to match cases (or parts thereof), especially if one is a specific empirical case and the other is a broad theory.

Lastly, there is the question of how to organize the whole PAGP effort, a situation which may involve the recursive use and development of COMPASS itself. More to the point, the experience with the Human Genome Project (Davies, 2001) could prove quite instructive.

REFERENCES


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