Symposium Introduction

Information Technology in Public Administration Education

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Should we, as public administration educators, care about including information and communications technology in the curriculum? The question is not new, but it has taken on a new sense of urgency in the present context, especially when the 2009 Network of Schools of Public Policy, Affairs, and Administration (NASPAA) standards do not even mention information technology (IT). When the first set of standards was created in the 1970s, IT education was in its infancy in public administration schools. In 1985, NASPAA's Ad Hoc Committee on Computers in Public Management Education highlighted the significance of computer education for public administrators (Kraemer et al., 1986). The NASPAA standards have since evolved from being input-oriented to output-oriented. The 2009 standards are arguably outcome-oriented, shifting from an emphasis on specific subject area knowledge to core competencies. IT is not explicitly reflected in the competencies. This *JPAE* issue examines the role of IT and related skills in public administration pedagogy. We suggest that NASPAA consider forming an ad hoc committee again to consider the inclusion of IT in the public administration curriculum. Otherwise, we will forfeit the strides made in the last three decades.

Why should we care about teaching IT in public administration schools? The most basic answer is that we live in a digital world. At the 2014 NASPAA conference, the authors in this issue began a conversation with other leading scholars about IT in the context of the 2009 NASPAA standards. The Internet boom has moved IT from handling only internal management processes to becoming a key tool in interacting with public organizations' external constituencies (an interface called electronic government, or e-government). Research on IT and e-government has proliferated over the last decade. The E-Government Reference Library (EGRL) at the University of Washington saw a fivefold increase in such research between 2005 and 2015 and lists eight journals that specialize in IT and e-government. Only a very small share (3.4%) of this research, however, appears in

mainstream public administration journals (Moon, Lee, & Roh, 2014). Research on IT is marginalized in public administration and management (Buffat, 2015; Hood & Margetts, 2010; Pollitt, 2011). IT's absence from the 2009 NASPAA standards also indicates the lack of importance given to IT competency in public administration education. We hope this *JPAE* issue will spur further conversation about whether and how to include IT and e-government training in public administration schools.

There are at least four reasons why we should care about including IT in public administration education. First, IT is a *large force* reshaping the public sector, to borrow Alasdair Roberts's (2014) wording. The change has not been instantaneous—it has evolved in spurts since World War II. Computers were adopted for increasing efficiency in accounting and financial operations in the 1950s. Payroll, budgeting, tax billing, and inventory management were among the early areas where the impact of computers on work became noticeable. The introduction of the personal computer in the 1980s transformed public offices, including a myriad of applications for word processing, accounting, design, and enterprise management. Computers became the means of increasing internal organizational efficiency, but with mixed results.

The Internet, which has grown by leaps and bounds since the 1990s, is arguably one of the most significant innovations affecting the 21st century. It is transforming our daily lives in ways we have yet to fully comprehend. Communication costs have decreased and wireless devices have proliferated. E-mail has supplanted snail mail; social media platforms have become pervasive; online transactions are routine; and data management using cloud computing is a hot topic, as are big data. The disruptive effects of the Internet are evident in the so-called sharing economy, where mobile devices have enabled peer-to-peer services. The digital economy has both destroyed jobs and created new ones. The effects are palpable in public organizations, where routine jobs are being phased out.

The Internet has enabled new means of internal organizational management (e.g., through cloud computing) and new means of public engagement (e.g., social media). The technological diffusion has been very quick, rapidly changing the landscape. Consider that, since its invention, the mobile phone took only about 25 years to reach half of the world's population (comparatively, it took over 50 years for land lines to reach half of the U.S. population). If public administration schools ignore the rapid growth and diffusion of IT, we will be in danger of becoming outdated and outmoded very soon. Public organizations are themselves accused—sometimes unfairly—of being behind the times in terms of IT. Public administration students should be trained to be competitive in the job market. They need to understand the prospects and problems of using technology to increase an organization's internal efficiency and effectiveness and to engage the external constituents it serves.

The second reason that public administration schools should include IT education is that the use of IT in public organizations is rife with problems. Public agencies are vast repositories of sensitive digital data that they collect to fulfill their mission. The information is often in the public domain, but there are privacy considerations. Cybersecurity is a major concern. These issues are not only technical but also managerial. Although federal, state, and local governments spend billions of dollars on IT projects, many such projects have not been successfully implemented. The U.S. Government Accountability Office (2015) has singled out "Improving the Management of IT Acquisitions and Operations" as a high-risk category, and examples of IT project failures abound. The most recent glaring debacle was the launch of the Affordable Care Act website, HealthCare.gov. The problems of these projects are far from technological; rather, the problems are related to management, planning, and oversight. Addressing such issues is the domain of public administrators, not technical experts. If adequately trained, public administrators should be

able to work in coordination with technology specialists to address project management issues.

The third reason to include IT education in the public administration curriculum is that without adequate IT training, our graduates will not be prepared for the modern workforce. We will have trained students who cannot compete in the marketplace of the digital world, where the skills required are rapidly changing. Whereas computer education was the emphasis of NASPAA's 1985 ad hoc committee, such education is too basic for the present generation. The millennial and forthcoming generation are growing up in a world of ubiquitous digital devices—tablets, smartphones, and wearables. Texting and social media are taken for granted. Several educators have pondered what a public administration IT course should cover; clearly, the subject matter must be dynamic, responding to the rapidly changing technological environment. This *JPAE* issue offers glimpses into the topics of the future (such as big data) as well as those that are already prevalent (such as geographic information systems).

The fourth reason to teach IT in public administration schools involves the important role that such programs play in society. The 2009 NASPAA standards rightly emphasize the *public service* values in the accreditation process. Public service is what distinguishes public administration from other fields such as business administration or information science. Business schools prepare their students for success in the private sector (though many work in the public and nonprofit sectors); and, despite debates about how to include IT (e.g., Navarro, 2008), it is a skill area required for accreditation by the Association to Advance Collegiate Schools of Business. Information science students are field specialists in technology, working across many sectors. That business and information science students graduate with better technological preparedness should concern us regarding the employment prospects of public administration graduates. At the same time, business and information science schools are not adequate training grounds for maintaining public values.

As the digital world evolves, so too will the nature of the demands for preserving public service values. For example, in the ongoing debate about the benefits and problems of the sharing economy, public administration students can play a key role in maintaining the public interest. We should adequately prepare our students to be engaged in preserving public service values in the digital world.

The articles in this *JPAE* issue raise many of the above questions in the context of the 2009 NASPAA standards. The articles complement each other and provide insights about the scope of IT in the public administration curriculum from different perspectives. The first three articles discuss the divide between IT competencies required in the marketplace and what is taught in public administration schools. In the first article, P. Cary Christian and Trenton J. Davis report their findings from a content analysis of Master of Public Administration (MPA) program curricula and surveys of alumni and the government employers of graduates in Georgia and Florida. They find that very few programs offer IT as a core or elective course; of those that do, many focus on geographic information systems (GIS). Their survey analysis of the MPA alumni shows that many did not acquire IT skills from their MPA program—they had to obtain such skills on the job or independently. Both alumni and employers generally agreed that computer literacy is necessary and that MPA students should be exposed to information policies and procedures, records retention, and system security.

The second article, by Aroon P. Manoharan and James McQuiston, is based on content analysis of IT course syllabi across public administration schools. The authors find that the courses typically cover e-government (service provision and e-procurement), GIS, privacy, infrastructure, and cybersecurity and pay relatively less attention to emerging topics such as social media, big data, cloud computing, and crowdfunding. The article provides a useful analysis of what IT topics are taught and identifies gaps in coverage. Marcus D. Mauldin's

brief note following this article reinforces the findings of the first two articles using a different method—content analysis of the curriculum information gleaned from program websites. He finds that the majority of programs do not offer IT concentrations, core courses, or electives.

In the third article, Anna Ya Ni and Yu-Che Chen propose a conceptual model of IT competence for public managers that comprises three dimensions: its components (knowledge, skills, and personal attributes); a focus on performance (at individual, organizational, and professional levels); and public service duty (of a general public manager or an IT manager). The model allows the authors to distinguish between the IT competency required of a general public manager versus a specialist public manager. They outline the differences in learning outcomes for public managers, which could serve as a guide for designing IT curricula based on audience requirements.

The fourth article, by Alan R. Shark, describes how two professional managerial and leadership development initiatives, the Certified Public Manager program (CPM) and the federal Senior Executive Service (SES), incorporate IT competency. The CPM program, geared toward state and local government senior managers, focuses on strategic information management and suffers from problems similar to NASPAA programs (lack of qualified faculty, diffuse subject matter, etc.). The SES is designed for senior public administrators in federal agencies and includes some technology aspects, especially those related to e-government laws (e.g., the 1996 Clinger-Cohen Act).

The next two articles discuss the coverage of substantive technologies in the public administration curriculum. Ines Mergel examines the role of big data in public affairs education, and Nancy J. Obermeyer, Laxmi Ramasubramanian, and Lisa Warnecke examine the importance of teaching GIS. Mergel's article is timely in dealing with a cutting-edge topic. Big data are created through online interactions between government entities and the public (e.g., social media, government apps). She highlights the importance of expanding public management skills while managing big data. These skills relate to ethics, technology, process innovations, organizational and institutional changes, and analytical skills. Mergel then suggests specific teaching modules, complete with readings and cases, for big data courses in public affairs programs.

Obermeyer, Ramasubramanian, and Warnecke examine how U.S. public administration programs teach GIS. Based on a survey of programs, the authors note that despite the increasing importance of GIS in the public sector, the technology is not well integrated into the public administration curriculum. Current programs often lack GIS capabilities and need to work across disciplinary boundaries to offer GIS courses, which has implications for how the credits are shared between the different units. The authors recommend that public administration programs consider hiring interdisciplinary faculty who can teach GIS courses.

The seventh article, by Sukumar Ganapati and Christopher G. Reddick, examines the impact of the 2009 NASPAA standards on IT course offerings in public administration schools. The authors surveyed the NASPAA principal representatives and analyzed the NASPAA database of self-studies. Their analysis shows that IT and e-government are not given adequate importance in the public administration curriculum in general, especially in schools accredited under the 2009 NASPAA standards. Schools have limited faculty resources, and the IT courses get short shrift. Because the 2009 NASPAA standards fail to emphasize IT, many schools may not even include it and associated topics as part of the curriculum conversation.

The final article, by Mete Yildiz, Cenay Babaoğlu, and Mehmet Akif Demircioğlu, brings an international dimension. The authors focus on the current state and future prospects of graduate e-government education in public administra-

tion in Turkey. Based on surveys with e-government instructors and on content analysis of graduate program websites and e-government course syllabi, the authors highlight several challenges faced by public administration departments in teaching e-government courses. These challenges include the limited availability of Turkish teaching materials, difficulties in accessing reliable and timely data on e-government initiatives that can be used as case studies, threats to long-term sustainability of e-government courses, and the ongoing need to keep the curriculum up-to-date due to the ever-changing nature of technologies. As NASPAA's international accreditation efforts grow, the experiences of Turkey and other countries are relevant for how NASPAA deals with the growth of IT.

Our hope is that the articles in this issue will spur further dialogue about the scope of IT in public administration education. As many of the authors discuss, the NASPAA standards play a key role in the ability to offer IT courses. Because the 2009 NASPAA standards do not address IT, there is a real danger that accredited schools will not offer courses in the topic. The NASPAA standards should recognize the imperative of teaching governance and public service in the digital world. Toward this end, as happened in the 1980s, we propose that NASPAA form an ad hoc committee to examine the scope of IT in the public administration curriculum. The committee could further review the state of IT coursework offerings, the content of such offerings, and the challenges of offering these courses. The committee could also interact with public administration alumni and their employers, including professional associations such as the American Society for Public Administration, the International City/County Management Association, and so on. These interactions would provide useful input about the need for IT in the workplace and how public administration IT coursework should be designed. It would be a mistake for us public administration educators to be complacent in the face of the quickly evolving digital world.

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