Do What They Say, Not What I Teach: A Strategic Look at the Information Systems Skills Gap

Joseph Kasten, Townsend School of Business, Dowling College, Oakdale, NY, USA

ABSTRACT

There has been a great deal of research conducted to examine the alleged gap between the knowledge and skills taught to students regarding the tools used to design and implement information systems and those tools actually required in industry. However, not as much effort has been put into determining the actual use of those tools. This research examines what tools and procedures are actually being utilized in the creation of information systems in industry. Utilizing semi-structured interviews, a much different view of systems design procedures emerges than what students are led to believe are actually used. The prevalence of “home-grown” processes, or sometimes no definable processes at all, can have a serious impact on employee productivity and, ultimately, a system’s ability to fulfill its strategic objectives.

Keywords: Information Systems, Information Systems Skill Gap, Information Technology Education, Information Technology Industry, Information Technology Strategic Alignment, Systems Analysis and Design

INTRODUCTION

Many of the readers of this journal are, like me, both teachers and researchers in the field of information systems (IS). As an IS faculty member, we are often called upon to teach some manner of IS system design and development course. Many of us will actually request this course as part of our course load because we feel it is both a fun and rewarding teaching experience, not to mention the fact that it is one of those courses that often leads directly into a job for the student as a systems analyst or another similar title. In my institution, the systems analysis course is taught in two semesters, the second of which acts as a sort of capstone, thus allowing the introduction of many other topics, making it an even more desirable course to teach.

The discussion over the content of these courses continues unabated and will continue to do so. Discussions over waterfall vs. agile methodologies, relational vs. object-oriented database design, and technical vs. “soft” skills are part of what makes this field interesting. It is impossible to cover all of these topics and each faculty must decide what to include and what to leave out. Eventually, the student must graduate and become a member of the IS community. There are many studies that examine the

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“skills gap” between what is taught and what industry needs. These will be reviewed in the next section. However, a slightly different issue is how the concepts are applied in industry as opposed to how they are taught. This paper addresses that issue and the strategic importance to the firm of this "usage gap."

As we progress through the systems analysis course, many of us who have industry experience find ourselves telling our students about how the text will show them how systems should be designed and built, but the reality is that the tools and techniques covered in class or in the text sometimes (or often) go unused. We tell the student that time, budget, and organizational culture constraints might restrict the formal application of, for example, process modeling or use cases. However, we are usually only able to rely on personal experience or other anecdotal evidence. There is no research that explores how the IS industry actually operationalizes the concepts learned in school. Moreover, we must also consider the effect that this potential mismatch of knowledge and application has on the strategic usefulness of information systems. These are the concepts explored in this research.

LITERATURE REVIEW

This research falls squarely in between two distinct streams of literature. First, there are the inquiries that have been made into the gap between what new IS professionals bring to their first assignments from the education. The second are the studies that explore the potential strategic benefits of IS to the firm. The space between the two bodies of literature is where the current study fits. These two streams of literature are reviewed in this section as well as their relationship to the current study.

When reviewing the studies that explore what is commonly known as the “skills gap,” a few common themes emerge. The predominant theme calls for the need for business skills to be a part of the new graduate’s toolkit. It is no longer the case that IS workers are relegated to their caves to work in solitude for hours on end on a specific coding problem. Cappel (2001) identified this fact at a point in time when IS departments were just starting to find their strategic footing. Lee and Han (2008) extended this concept when they noted that the need is no longer for programmers, as was the case in previous decades, but rather for developers. The difference between the two terms is more than semantics. Developers, to use the authors’ approach are responsible for much more than proper coding. Developers are concerned with the success of the application, and in order to create a successful application the needs that drive it must also be understood. This requires knowledge of not just how a system works, but also why it provides value. These business skills are especially important for those who become systems analysts (Lerouge, Newton, & Blanton, 2005). Though the title might vary between organizations, the functionality of this position is to orchestrate the creation of the new system by blending the needs of business and the users with the technical capabilities and constraints of the development staff. Since this position is a popular target for many IS graduates, this skill set is a particularly important one to study.

Some studies have extended these findings to consider the many “soft” skills necessary to succeed in the current IS environment. Soft skills might include various types of interpersonal skills such as empathy or leadership, communication skills such as asking effective questions or public speaking, or even skills that are seemingly unrelated to the known needs of the business such as the ability speak other languages. While some studies looked at the role of these soft skills in the actual hiring of IS professionals (Litecky, Arnett, & Prabhakur, 2004), many of the papers reviewed focused on the precedence of these soft skills over technical skills (e.g. Fang, Lee, & Koh, 2005). Soft skills are, according to the authors, a more important and harder to find knowledge area for most new IS graduates. Their importance is linked to the increasing prevalence for IS professionals to work in teams that include people from outside
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