

What Do We Need to Teach About Knowledge Work?

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Abstract: Knowledge work is work in which the primary product is information that is continually interpreted and circulated across organizational boundaries. This paper examines the teaching practices necessary in a climate of knowledge work.

Much ink has been shed and many pixels have been devoted to discussions about *knowledge work* – work in which the primary product is knowledge, information that is continually interpreted and circulated across organizational boundaries. Such discussions have taken many forms: hagiographies that make enthusiastic promises about the liberating effects that knowledge work is producing for our economy and society (Zuboff & Maxmin 2003); critiques which often focus on the disparity between those enthusiastic promises and the concrete effects of knowledge work (Gee, Hull & Lankshear 1996; Longaker 2006); research studies that describe the new skills and abilities that are highlighted in knowledge work (Gonzalez & Mark 2004; Czerwinski, Horvitz, & Wilhite 2004); and innumerable how-to books that teach knowledge workers to manage their time, projects, resources, and learning (e.g., Allen 2003; Senge 1994; Stone 2006).

In this white paper, I take a *postcritical* stance (Selber 2004). That is, rather than critiquing the effects of knowledge work, I ask: what do we need to teach in order to equip our students to survive and thrive in knowledge work? Below, I first outline some characteristics of knowledge work, then describe learning objectives that can be built into writing courses in order to prepare students to survive and thrive in a knowledge work environment.

What are the Relevant Characteristics of Knowledge Work?

Knowledge work's primary product is knowledge, which is circulated across and through organizations. Knowledge work tends to be organized in distributed, heterogeneous networks rather than in modular hierarchies such as those Marx described (1990). Whereas modular organization encouraged "silos" with rigid hierarchical separations and few connections, knowledge work encourages

proliferating connections across trades, fields, and disciplines, connections across which texts circulate. These connections lead to more flexibility and collaboration within networked organizations, but also more communication problems: workers from historically separated activities suddenly must interact, collaborate, and learn enough of each others' social languages and genres to work together. Complexities become more difficult to manage, and everyone needs to learn a little about everyone else's work.

Consequently, workers managers and managers alike have a difficult time with knowledge work as opposed to modular work. Familiar texts such as organizational charts no longer accurately represent or demarcate actual relationships. Sensible rules (such as strictly regulated contact points across organizational sections) are – necessarily – ignored. Trying to force knowledge work into a modular work configuration tends to sharply reduce agility; once workers are internetworked through phones or computer networks, the traditional modular work configuration decays. Trying to force a modular work configuration by limiting these channels, in many cases, unacceptably constrains the ability to interact and prosper in knowledge work.

In his substantial writings on management, Peter Drucker (2003) calls for “a universally educated person.” That doesn’t mean a polymath, and “in fact, we will probably become even more specialized. But what we do need – and what will define the educated person in the knowledge society – is the ability to understand the various knowledges” (p.294). In the knowledge society Drucker describes, “the new jobs require a good deal of formal education and the ability to acquire and to apply theoretical and analytical knowledge. They require a different approach to work and a different mind-set. Above all, they require a habit of continual learning” (p.305). Whereas their predecessors could count on an end to learning and a steady career path, knowledge workers must be entrepreneurial about developing and determining their own careers, largely through self-directed learning and relearning (p.326). As specialists, they also require an organization to provide essential continuity: “It is only the organization that can convert the specialized knowledge of the knowledge worker into performance” (p.308).

As Drucker implies, knowledge work involves substantial collaboration across boundaries, and consequently it requires horizontal as well as vertical learning. Traditionally, universities have focused on teaching and learning expertise *vertically*, in terms of the stages a person passes as she becomes more expert in a specific domain: starting out as a neophyte, then progressively gaining more expertise until she becomes an expert. This focus on vertical learning allows students to gain a deep understanding of their own discipline and to build on the established knowledge of that discipline. This focus on vertical expertise particularly made sense when the majority of students could look forward to lifelong employment in organizations whose units were strictly separated.

But there is also a *horizontal* dimension to expertise: people must be able to “operate in and move between multiple parallel activity contexts” that “demand and afford different, complementary but also conflicting cognitive tools, rules, and patterns of social interaction” (Engeström, Engeström & Kärkkäinen 1995, p.319). Vertical learning involves crossing field, trade, and disciplinary boundaries in order to collaborate and develop crossfunctional, interlinked work. Horizontal expertise has become much more important lately, as organizations have become less modular and more networked, and as lifelong employment has given way to frequent shifts in employers and careers (Zuboff & Maxmin 2003). Unfortunately, horizontal expertise—and boundary crossing in general—tends to be far less supported, both formally and informally.

What Skills are Needed for Knowledge Work?

Knowledge work poses particular challenges for writing teachers. On one hand, knowledge work is substantially about producing and circulating texts, texts that become boundary objects (Star & Griesemer 1989) as they circulate through different parts of the organization and are rearticulated in different trades, disciplines, and fields – so writing instruction becomes a far more important skill. On the other hand, knowledge work demands different *sorts* of texts, and it also demands different ways of *thinking* about how those texts are produced, received, and managed. Even as texts multiply, they change.

So what can we do to prepare our students? Based on the above, I argue that we need to teach our students these skills to prepare them to thrive in knowledge work environments:

Rhetoric. Knowledge workers need to become *strong rhetors*. Rhetoric, which is too often glossed as “lying,” is the study of argumentation and persuasion (Aristotle 1991) – and net workers sorely need to understand how to make arguments, how to persuade, how to build trust and stable alliances, how to negotiate and bargain across boundaries. Rhetoric was deployed in modular work, but in more limited ways due to the silos and compartmentalization that characterized that form of work organization (Alberts & Hayes 2003). In knowledge work, which is intricately and unpredictably connected, with everyone on the border, workers could find themselves doing this rhetorical work with nearly anyone.

Time management. And because everyone is connected, because black boxes are in short supply and of short duration, anyone can potentially lay claim to another’s time. Networks overlap and can be reconstituted unexpectedly, and the result is heavy work fragmentation. Workers must be able to adopt or adapt ways to deal with work fragmentation, including genres and rules that allow them to create their own stable transformations for prioritizing, organizing, and achieving work. That might involve learning popular time management techniques (Allen 2003) or participating in online communities that face similar problems (Spinuzzi 2003, Ch.6); they certainly will involve examining, evaluating, adapting, and adopting the local innovations that coworkers have developed.

Project management. Similarly, when everyone is potentially interconnected, border-crossing is constant and collaboration across functional groups becomes more pervasive. Consequently, workers must take on more of the work that used to be done by managers: planning projects, developing strategic and tactical understandings of their projects, becoming aware of the other projects in which their collaborators are embroiled. They need to become aware of and manage the “working spheres” (Gonzalez & Mark 2004) in which they operate, the overlapping work activities that largely share the same tools but different rules, communities, and divisions of labor.

Adaptability. Workers must be ever more adaptable. Being on the border means having to learn horizontally as well as vertically, having to understand others’ work and social languages and genres, having to forage expertly for information (Amidon 2005; Senge 1994; Tuomi-Gröhn, Engeström, & Young 2003). It also means learning how to assess sources and arguments, learning how to determine who to trust and when, learning how to persuade others to lead one through the hidden passes of the organization. It means opportunistically adapting technologies for one’s own use and purposes (Sumner 1997), and discarding them when they no longer fit. Adaptability, to put it in a nutshell, means being agile enough to splice new components into a relatively stable system.

Black-boxing. Black-boxing (Latour 1999) – loosely speaking, the procedure of drawing complex assemblages together under a relatively simple interface and conceptual rubric – is a vital but often neglected part of knowledge work. The black boxes we inherit from modular work, such as divisions depicted in organizational charts, teams assembled by managers, and communication systems and knowledge bases, are constantly being opened in knowledge work. If managers try to “lock” these black boxes, the boxes will leak, or else work will grind to a halt. Instead, students must develop ways to produce stabilizing regimes. Let’s call these sorts of black boxes “liaisons,” “APIs,” and “aggregations.”

- *Liaisons* are workers or positions that develop to provide stable connections across groups. For instance, Nardi & O’Day’s “gardeners” (1999) and Zuboff & Maxmin’s “advocates” (2003). Managers can look for, cultivate, and support such relationships.
- *APIs*, like the application program interfaces used in programming, consist of routines, protocols, and tools that allow simple interactions to generate complex effects. APIs in knowledge work might include genres and other boundary objects. When managers see APIs fail, they should concentrate on either improving or substituting the API. That is, managers should learn to trace the genres (Spinuzzi 2003), the regular information flows, and see if they are being transformed easily and well.
- *Aggregations* are bottom-up characterizations of large sets of information, enabled by “applications that aggregate individual

work practices in order to depict relations among the work of group members” (Hart-Davidson, Spinuzzi, & Zachry, in press). They are enabled through infrastructure that might include “tagging,” in which individuals characterize parts of a large data set for their own use. Tags start out as idiosyncratic, but a “folksonomy” or emergent set of shared categories typically emerges as a second-order effect (Hart-Davidson, Spinuzzi, & Zachry, in press). This sort of infrastructure trades control over characterization for insight into emergent understandings of work.

Strategic thinking. Above, I advocated project management skills for workers, not just the managers who have traditionally learned them; workers now need to achieve “top-sight” almost as much as managers do. Without resources for strategic thinking, workers can become bogged down in a reactive tactical stance. Since workers are forging their own unpredictable and largely uncontrollable connections, managers who control strategic information too tightly can find that workers have routed around them and left them behind. More than ever, managers must provide a persuasive vision for each project and sufficient feedback for workers to see – and take ownership of – that project. And workers must be able and equipped to take these projects on.

Training. And that brings us to training. Too often, workers receive support for *vertical* learning through multiple channels – formal training, documentation, schooling, etc. help them to master their trades, fields, and disciplines. But support for *horizontal* learning, learning across workplace boundaries, is restricted to informal, contingency-oriented channels (Tuomi-Gröhn, Engeström, & Young 2003). Managers should find ways to support , and workers should be prepared to achieve, horizontal learning across boundaries, through formal as well as informal training and materials. And writing instructors should particularly focus on supporting continuing learning of the sorts of skills that I mentioned above: rhetoric, time management, project management, and adaptability.

Conclusion

Knowledge work involves changes in organizational structures, changes that make the skills outlined here far more important. Collaboration, planning, self-directed learning, and self-mediation are vital, and should be reconceived in the curriculum. I hope that this white paper has provided some starting points for that work.

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