Getting Recent Graduates to the Point Where They Know What They Don't Know

Michael Kosicek, Indiana University of Pennsylvania
Jeremy St. Pierre, Kennametal Inc
John Lipinski, Indiana University of Pennsylvania

EXECUTIVE SUMMARY

As new graduates enter the workplace, they have been educated in the latest theories. However, once entering the workplace, it is rare that activities simply go according to plan. New graduates often overthink the issues and fail to understand why their plans did not work. In other words, they don't know what they don't know. A key skill is learning the Deming cycle, PDCA (Plan/Do/Check/Act). Drawing from the academic literature focusing on knowledge management and training, the authors devise a model and recommendations to help management quickly acclimate new employees to the company, build their skill set, and make them valuable contributors to the firm.

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INTRODUCTION

While earning a university degree, students focus on success. Earning as close to a 4.0 is seen as a marker of success and as such the "best" students rarely encounter failure during their formal education. However, research has shown that failure is a better source of learning than success (McGrath 1999; Sitkin, 1992). This creates a challenge for businesses. As students enter the workplace, they are entering a world of uncertainty. The problems that they encounter will rarely have a textbook solution and they will likely encounter situations where their managers and coworkers are equally perplexed. It is not easy to learn from failure. Ucbasaran et al. (2013) state that failure represents an opportunity to learn, but in a context where it is difficult to do so. However, extensive research has shown that it is an effective tool (Byrne & Shepherd, 2015; Cope, 2011; Madsen & Desai, 2010; Minniti & Bygrave, 2001).

Expert information processing theory (Baron & Henry, 2010; Mitchell et al., 2007) suggests that traumatic experiences leading up to failure are a simple and generalizable learning context. When individuals enter a situation where failure is a distinct possibility, they will fight to avoid failure. This fight will act as a teaching device (Lipinski et al., 2013), forcing individuals into a cycle of trial and error which will lead to the creation of knowledge and expertise. Thus, we suggest that one can use the tenets of the deliberate practice model as developed in the expert-performance literature (Charness et al., 2005). Ericsson et al. (2007) suggest that the development of genuine expertise requires struggle, sacrifice, and honest, almost painful, self-assessment.

Even on the job, senior managers and experienced coworkers may not know the answer to many problems that a new hire will encounter. Building early career success requires one to develop the skills and acumen to solve complex problems as new hires fight to avoid failure (Cope, 2011).

THEORY DEVELOPMENT

Expert Information Processing

Von Hayek (1937) suggest that the acquisition of human knowledge depends on explanations that render data into information. Shiffrin and Schneider (1977) and Lachman et al. (1979) build on that idea to suggest that humans process information through a framework where types of processing are differentiated (e.g., automatic versus controlled). Such processing makes the data usable when solving problems.

Expert information processing theory has its roots in Degroot (1946) who suggested a linkage between expert task performance and visual memory/visual perception using the mastery of chess as an example. However, formal theory development began in 1973 with Chase and Simon (1973) who observed that experts are different cognitively, specifically in how they process information. Their work led to the observation that skilled memory explains expert performance (Chase & Ericsson, 1982) and that differences between experts and novices exist based on the learning process endured by the experts (Glaser, 1984).

Rather than natural talent or accumulated knowledge, such as classroom learning, researchers (e.g., Barton & Pretty 2010; Ericsson, 2005) have suggested deliberate practice, engaging in real world activities rather than formal instruction, as the primary factor leading to the development of expert level cognitive systems. Deliberate practice will lead to a cognitive system consisting of both an expert level knowledge base and an expert-level problem-solving process. The process includes a repetition of the desired skills and using ongoing feedback from coaches (e.g., managers and mentors) who translate the requirements of the learned skill domain into expert mental representations that constitute expertise in that domain. Along the way, there will be much trial and error, but the errors will be analyzed by coaches, corrected, and used as a teaching tool with which individuals will progress from being rank amateurs and progressively gain knowledge and skills that will lead to expert level performance over time.

Individuals who are new to a domain (e.g., a new job) learn the basic requirements (Rubin de Celis & Lipinski, 2007). For most individuals, once these basic requirements meet a satisfactory level, the learning rate slows, performance plateaus, and subsequent time spent in the domain does little to improve performance (Baron & Henry, 2010, Ericsson, 2006). To avoid this, continuous improvement demands a specialized program tailored to continually challenge the individual and reveal problematic elements of performance (Ericsson et al., 1993). These elements include intensity, duration, and content. Through intense practice of a sufficient situation, skills become more automated and long-lasting (Ericcson, 2006). The growth of expertise is maximized when learners engage in self-reflection and are given honest assessments of their performance outcomes (Baron & Henry, 2010).

FAILURE

In fighting through adversity, increased arousal, and psychological drive, increased motivation to adopt and pursue a task or goal, and increased allocation of effort to information processing that is associated with adversity (Ocasio, 1995) will result in learning. This process will encounter much failure and require several adjustments. Effort will be expended to overcome adversity, but the effort will often result in failure. The key is to fail forward, to learn from the experience, adjust, and use the knowledge acquired during previous attempts to formulate new ways to attack the problem rather than simply accept failure and move along. Cardon and McGrath (1999) suggest that individuals tend to blame failure either on innate ability (a helplessness response) or on their level of effort (a self-mastery response). If one relies on innate ability, it leads to giving up. If one instead focuses on increasing level of effort, the individual creates additional expertise through increased trial and error. Organizational learning scholars argue that negative emotions that often accompany failure lead to a search process, learning, and adaptation (Cyert & March, 1963; Kiesler & Sproull, 1982; Morrison & Robinson, 1997). However, there is a risk that the negative emotions associated with failure can constrain cognitive processes, restrict decision making, and limit the number of options considered (Barker & Mone, 1998; D'Aunno & Sutton, 1992). Thus, it is important for the management and mentors of an organization to encourage the former response to failure, to use it as an opportunity for advancing knowledge versus a source of frustration.

For failure to be a tool for learning, first, the struggle to improve must take place in a real world processual context (Ericsson, 2006). Second, the process demands a high level of intense commitment (Charness et al., 1996; Ericsson & Charness, 1994). Third, it is seen as a consuming and interactive experience (with input from managers and mentors) (Ericsson, 2006). Fourth, it requires more than simply hard work. It requires intense focus on addressing weaknesses that have been identified by the manager or mentor. The manager or mentor observes the defects or flaws and provides feedback to help the individual improve their performance. It is an iterative process.

PDCA

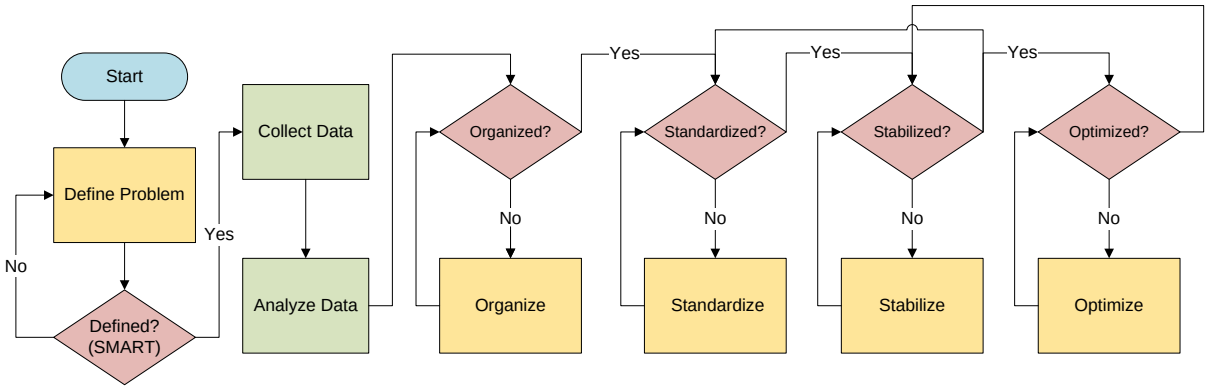
A model that brings all these aspects together is the Deming Cycle, also known as the PDCA (Plan Do Check Act) cycle developed by W. Edwards Demin in the 1950s. Per the Deming Institute, it is a systematic series of steps for gaining valuable learning and knowledge for continual improvement of a process (Deming Institute, 2017). PDCA was integral to the Japanese TQC and QC circle activities. Deming introduced his PDCA cycle for learning and improvement in the United States in 1986 (Moen & Norman, 2006). When Deming introduced PDCA to the United States, he changed the "C" to an "S" because he believed that "check" was a word of caution and meant "hold back" to US managers, so often one may see PDSA being used, where "study" is used in place of "check." However, the principle remains unchanged.

FIGURE 1: PDCA CYCLE

Based on the understanding that failure is an effective teaching tool, we recommend PDCA be implemented as a primary management tool that companies introduce and mentor to new hires.

The desire to please often results in action before adequate thought as to outcome. It is critical that managers instill the need to make a plan with specific, measurable, achievable, related, and time-bound goals prior to execution (i.e., SMART objectives). Equally important is encouragement to properly reflect on the outcome of the activities completed prior to planning the next iteration or worse moving straight to further execution. A new hire must learn, and their manager must fully support mastery of the PDCA tool before assignment to the more challenging task of continuous improvement.
Continuous improvement adds the additional PDCA loops of organization, standardization, stabilization, and optimization with each new loop building on the previous.

FIGURE 2: PDCA LOOPS



We believe that Deming's PDCA serves as a model to develop expert information processing and encourages new employees to learn from their failures, thus failing forward. Over time, with the guidance of managers and mentors, new employees will gain the awareness of the challenges of their chosen profession, realize that real world problems will often contain an element of mystery, but develop a methodology to develop a process that leads to more informed, better outcomes. They will eventually get to the point where they know what they don't know, but will have the knowledge, skills, and abilities to intelligently attack their professional challenges.

As soon-to-graduate students begin the job search, they are exposed to different companies' cultures when they visit websites, talk to recruiters, and during initial interviews. Much more is learned about an entity's culture once they accept a position and participate in the orientation process.

If a company has a formal employee development program or process, it is revealed/discussed during one of the stages indicated above. For some companies, these programs may be company-wide, whereas others may be isolated to business units, divisions, or even departments. For many, their level of success with the firm may very well depend on the developmental support offered to individual employees.

It is natural to make mistakes, often stemming from not knowing what you don't know. Young people make mistakes. Typically, young people learn from their mistakes if they are allowed to continue and make iterative attempts. Companies that proactively promote learning, growing, and contributing have developed programs that limit the mistakes by controlling and influencing the behavior, thereby providing the exposure to what they don't know. Learning from 'controlled failure' is a valuable tool.

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