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On a Career Ladder: Critical Thinking Demands and Development

White Paper

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On A Career Ladder:
Critical Thinking Demands and Development

Critical thinking is essential in most jobs. The results of the following US study show how critical thinking is increasingly important when moving up the nursing career ladder. The results also show the increase in demand for critical thinking skills is not fully met by higher levels of education or additional work experience typical of advanced nursing positions. Implications for training are discussed.

Introduction

Imagine a new nurse monitoring a patient for side effects who has mistaken the patient's hives for adolescent acne. What would happen if a Director of Nursing failed to appropriately weigh family concerns, patient symptoms, and reports from the nursing staff? Alternatively, consider the benefits of a home health aide recognising a client change of condition and reporting their observation to a case manager. These scenarios show the impact of critical thinking specific to the nursing profession, but examples of critical thinking can be generated for every job in every industry.

Though business owners and human resource professionals recognise the need for employees to solve problems and think critically, a deficit in these skills persists throughout the talent pipeline. Critical thinking skills required for nursing occupations has been studied for more than 30 years (Riddel, 2007). For high-stakes occupations, errors in decision making can have a dire effect on patients' lives.

The purpose of this paper is to evaluate the importance of critical thinking along the continuum of a nursing career ladder, explore the extent to which education and work experience contribute to the development of critical thinking skills across a sample of nursing professionals. The results and implications for training and development also will be addressed.

Critical thinking, like adaptability, communication, or discipline, supports more advanced skill development (Clark, LeFebvre, Burkum, & Kyte, 2013). In academic literature, critical thinking has been defined as the ability to evaluate evidence and arguments independent of one's prior beliefs and opinions (Baron, 1991). Unlike reading or maths, critical thinking has been regarded as a meta-cognitive skill (Kuhn, 1999; Simpson & Courtney, 2002). In "Skills to Pay the Bills" the United States Department of Labor (USDOL) identifies problem solving and critical thinking as "the ability to use knowledge, facts, and data to effectively solve workplace problems." Academic institutions are increasingly emphasising the role of critical thinking skills in curriculum, teaching methods, and program evaluation (Staib, 2003), but a shift in raw critical thinking skill development is still evolving for organisations and employers.

The critical thinking construct has a rich history in research and practice. Across all the conceptualisations of critical thinking, most authors agree that critical thinking involves problem solving, requires evaluating facts without emotional bias, and applies to all work settings. Watson and Glaser originally conceptualised critical thinking as a set of cognitive skills (1980). Their framework included the following critical thinking abilities to

- draw inferences based on given information,
- recognise unstated assumptions in statements or assertions,
- determine logical conclusions from given evidence or premises,
- weigh evidence and draw logical conclusions based on given evidence, and
- distinguish between strong and weak arguments based on relevance.

Now known as the RED Model, critical thinking is defined by an individual's ability to Recognise Assumptions, Evaluate Arguments, and Draw Conclusions (Watson & Glaser, 2012).

Critical thinking has been associated with job performance as well as increased creativity (Paul & Elder, 2006). Stanovich and West found that, in some cases, higher critical thinking skills appeared to reduce bias in decision making (2008). Specific to nursing, higher critical thinking skills are associated with improved clinical judgment (Alfaro-LeFevre, 1999) and, therefore, improved patient outcomes (Fesler-Birch, 2005). In a study by Bauwens and Gerhard (1987), the Watson-Glaser Critical Thinking Appraisal was used to predict scores on the nursing National Council Licensure Examination and completion of a baccalaureate nursing program. O*NET is a free online database that contains hundreds of occupational definitions to help students, job seekers, businesses and workforce development professionals to understand today's world of work in the United States. O*NET contains the knowledge, skills, abilities, and other characteristics (KSAO) necessary for many jobs in addition to a rating of the importance of that KSAO according to subject matter experts. O*NET defines this importance as an aggregate of the frequency of skill use and the level of skill required for the job tasks. Critical thinking is especially important in the healthcare industry. A substantial body of research around nursing and critical thinking already exists with statements of the problem describing "a crisis in critical thinking," (Del Bueno, 2005). Educational institutions have emphasised critical thinking by including concept mapping (Wheeler & Collins, 2003) and problem-based learning (Yuan, Williams, & Fan, 2008; Ozturk, Muslu, & Dicle, 2008) into the core curriculum. On the practitioner and employer side, other studies have found evidence based practices like training and development improve clinical-judgment and patient outcomes (Profetto-Mcgrath, 2005).

The USDOL state "In a rapidly changing economy that relies on innovation to maintain its edge, it is important that workers have a core of foundation and technical skills that are valued and applicable across occupations. By identifying the competencies that cross industries and industry sectors it become possible to create career paths for entry-level workers and to identify career ladders or lattices to ensure upward mobility." This description of foundational skills emphasises the important role that portability plays in foundational skills. Critical thinking skills are transferable throughout the talent pipeline because rather than being job-specific, critical thinking can be applied to a variety of occupations (Clark, 2015). The Society of Human Resource Management describes career paths or career ladders as forms of career progression including the traditional vertical career ladders and career progression outside the organisation and encore careers. Though the statistics of worker mobility are subject to debate, the general consensus is the average worker has about 4.1 years of tenure with their current employer (Bureau of Labor Statistics, 2008). This rapid turnover of the workforce coupled with the bright outlook and high demand for nursing professionals has created an urgent demand for career ladders within an organisation that can be leveraged to retain talent. A career ladder is important for employee engagement, talent retention, enhancing skills to master a current job, and career satisfaction (USDOL, 2012).

Methods

Participants. The participants took the online version of the Watson-Glaser™ II, May 2014 through April 2016.

Half of the sample indicated they were taking the Watson-Glaser assessment as a job applicant. The other half of the sample took the assessment for professional development. Most of the participants were female (66.1%), and a variety of ethnic backgrounds were represented (61% White, 5% African American, 3% Hispanic, 20% Asian, 3% other or multiracial). The participants ranged in ages from 17 through 69 years old with a widely distributed number of years in their current occupation.

Procedures. Of the original 10,000 plus records, about 10% were from the health care industry with 300 examinees identifying themselves as "medical professionals" in the demographic questionnaire. A categorical variable representing entry, intermediate, and advanced nursing careers was developed using self-reported job title, industry, and occupation. Though it is certainly possible for an employee to start as a hospital janitor and end up as a chief of surgery, the focus of this paper is a more routine career pathway. For the study, entry-level nursing positions include titles such as home health aide, caregiver, Certified Nursing Assistants (CNA), and State Tested Nursing Assistants (STNA), which typically do not require a college degree. Intermediate-level nursing positions include titles such as registered nurse (RN), charge nurse, and staff nurse that typically require at least an associate's degree. The advanced nursing positions include titles such as Director of Nursing, patient care manager, nursing instructor, and clinical specialist, many of which require at least a 4-year college degree or additional certification. One hundred participants were in entry level nursing positions, 145 were in the intermediate group, and 112 were in advanced nursing careers.

A second categorical variable was developed to represent low, middle, and high levels of education, corresponding to no college degree, associate's degree, and bachelor's or graduate degree. Years in the organisation was used as the proxy for work experience and ranges of tenure included less than 1 year of experience in current occupation, 1–2 years, 2–4 years, 4–7 years, 7–10 years, 10–15 years, and 15 or more years. The final dataset included 384 examinees from the pre-identified nursing talent pipeline.

Analysis. A one-way analysis of variance (ANOVA) was used to determine whether there were any significant differences among the means of the nursing career levels. A second ANOVA was conducted to determine the impact of education on critical thinking scores. A third ANOVA was conducted to investigate the impact of work experience on critical thinking skills. Finally, Tukey's Post Hoc Tests were conducted to provide information on which career levels, education levels, and years in occupation levels were significantly different in critical thinking skills.

Results

In Figure 1, O*NET data shows an increase in the importance of critical thinking skills as responsibilities increase with positions. Subject matter experts evaluated the level of complexity and frequency with which critical thinking skills are needed in entry nursing positions at 60%, while intermediate nursing jobs require a higher frequency and complexity of critical thinking skills (72%). Advanced nursing jobs show the strongest demand for critical thinking skills at 76%.

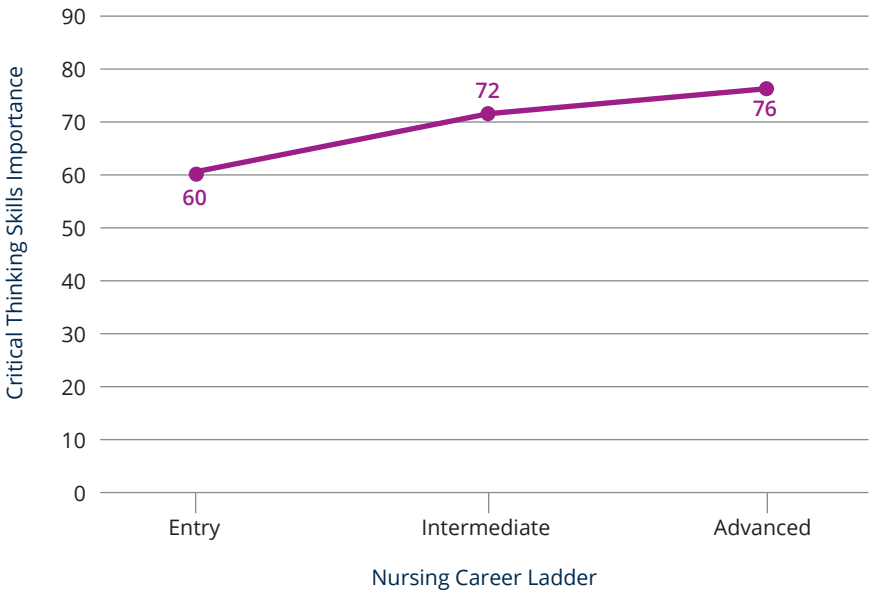

*Figure 1. Importance of critical thinking skills for entry, intermediate, and advanced nursing positions from O*NET database*

As shown in Figure 2, there was a significant difference between job level and critical thinking skills. ($F[2, 381] = 26.122$, $p < .05$). As expected, comparisons using the Tukey Post Hoc Test indicated the mean score for those in entry level nursing positions (e.g., home health aides, CNA) was significantly lower than for those in intermediate nursing jobs (e.g., RN, staff nurse), which were, in turn, significantly lower than those in advanced nursing positions (e.g., Director of Nursing, Nursing Instructor).

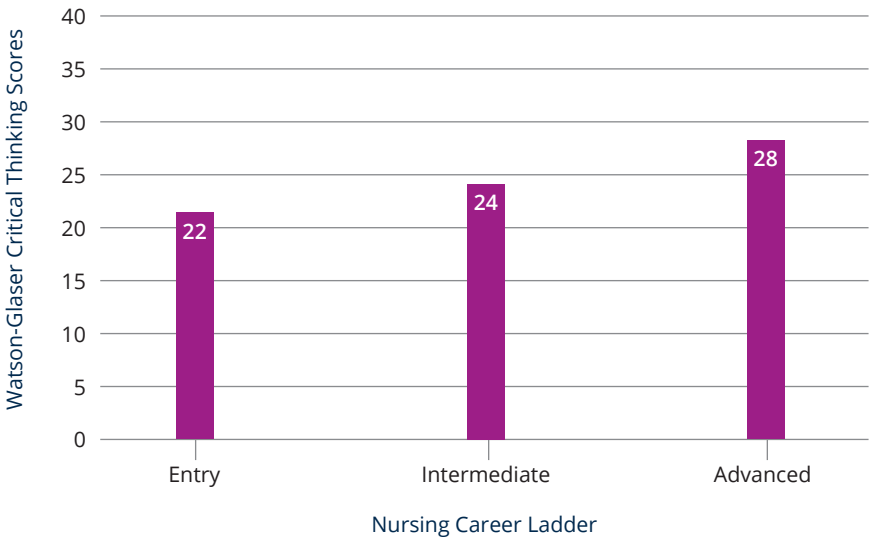

Figure 2. Average Watson-Glaser critical thinking scores for entry, intermediate, and advanced nursing positions

After establishing the importance and level of critical thinking skills for each step, it is important to evaluate what drives the increase in skills observed. To answer this question, this paper focuses on two common sources of skill improvement: college or other academic training and work experience. Just as critical thinking skills required increase along the career ladder, educational requirements also increase. As shown in Figure 3, individuals who have obtained a bachelor's degree or graduate degree have significantly higher critical thinking scores than employees with only a high school diploma or associates degree ($F[2,354] = 57.904$, $p < .05$).

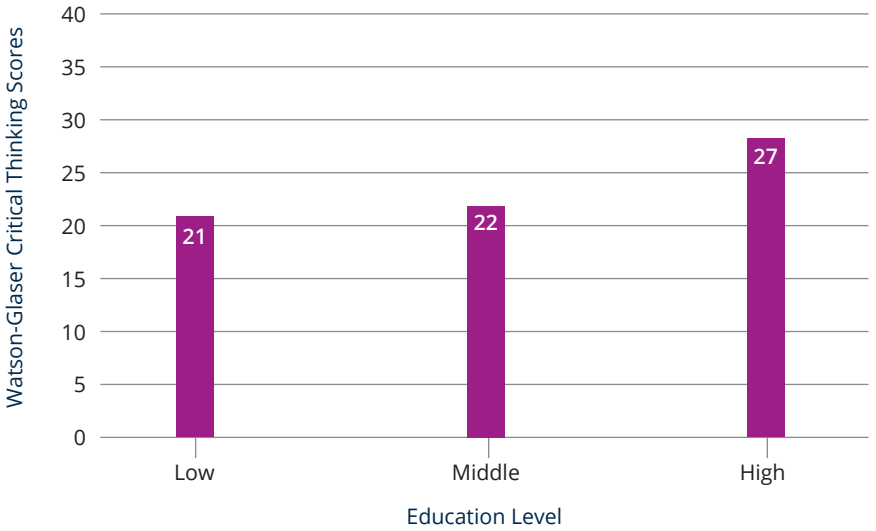

Figure 3. Average Watson-Glaser critical thinking scores for low, middle, and high education levels

As shown by the blue arrow in Figure 4, the middle education group (e.g., associate's degree, 3–4 years of college) had lower critical thinking scores than the those in intermediate-level nursing jobs (M1=21.93, SD1=5.131, M2=24.10, SD2=6.141). This finding suggests a skills gap.

Some steps on the nursing career ladder do not require additional formal education, such as moving from an RN to an RN supervisor position. Though an additional degree may not be required, the demand and importance of critical thinking skills significantly increases between intermediate and advanced career levels (M1 = 24.10, SD1 = 6.141, M2 = 27.84, SD2 = 6.229), as shown by the green arrow in Figure 5. These results indicate a gap between the skills used in the current position and those typically used in the next step up the ladder. Employers need to identify these increases in critical thinking skill demands between career steps to improve training and development programs.

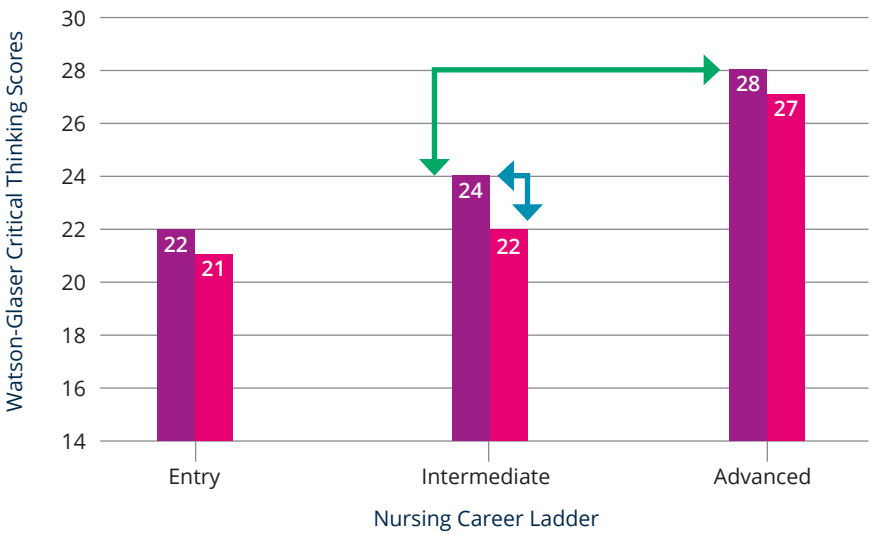

Figure 4. Average Watson-Glaser scores in a nursing career ladder by education level and job level

Job

Degree

To evaluate the effect of nursing experience on critical thinking skills, an additional ANOVA was conducted for years in occupation. As Figure 5 shows, the only group that showed significantly higher critical thinking skills was the group with 7 to 10 years of tenure ($F [6,351] = 2.844$, $p < .05$). This finding is especially troubling given the expected tenure of the average American worker the Bureau of Labor Statistics (4.1 years) has suggested.

Figure 5. Average Watson-Glaser critical thinking scores across occupational tenure

Summary

The results of this study indicate that formal education and experience meet some of the demand for building critical thinking skills among nurses, but further assessment, training, and skills development are needed. In a survey of 400 human resource professionals, critical thinking skills were considered the most important skill for workers in the 21st century (Chartrand, Ishikawa, & Flander, 2013). Best practices in hiring and retaining talent in any organisation are to assess critical thinking skills in the hiring process and to monitor skills development to provide training opportunities. Organisations can optimise their success in hiring and training by using the Watson-Glaser as a recruitment tool. Identifying potential employees' critical thinking skills early may enable employers to keep talent within the organisation by providing appropriate opportunities for skill development and career growth.

The Society of Human Resource Management (SHRM) reports that employees who are offered training as a part of their career path are more engaged and less likely to leave their organisation (2015). To meet the needs of 21st century work for nurses and most other occupations, organisations should make critical thinking training a part of their learning and development programs.

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