Exploring the Relationships between Individual and Organizational Factors and Individual Ability to Identify Opportunities for Organizational Improvement

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Abstract

This paper explores the effects that individual and organizational factors have on the ability of employees to recognize opportunities for improvement (OFIs) in their workplace environment. This research rests on the general assumption that a critical element of continuous improvement is recognizing the need for it. Without the recognition of opportunities to improve there can be no subsequent courses of action for the improvement process.

The original research in this area was conducted by Del Rio (1996). Using a measurement instrument developed by Del Rio, who used the Delphi Technique, the study involves measuring one's ability to recognize OFIs while also addressing key personal and organizational factors. Findings of the statistical analysis supported the general hypotheses that one's level of formal education, years of work experience, and experience with a quality award-winning company are statistically significant in predicting the ability of employees to recognize OFIs.

The implications of these results suggest that organizations could benefit by training their employees in Baldrige criteria, applying for an award, and giving strategic positions to employees with significant education and experience.

Keywords

Baldrige award, Criteria for Performance Excellence, Employee involvement, MBTI, Performance excellence, Personality, TQM, Quality, Workforce ???

1. Introduction

Organizations face continuously increasing competition and challenges from globalization and economic competition to increasing societal pressures and environmental challenges. Like this one, many recent journal articles begin with some statement of how organizations must improve their ability to compete in a highly competitive and dynamic marketplace (e.g., Abdullah, Uli & Tari, 2009; Jafri, 2010). It seems there is no end in sight. This is not a new idea, Deming (1986) proposed organizations "improve constantly and forever the system of product and service, to improve quality and productivity, and thus constantly decrease costs" (p. 23).

High performing organization are not immune to this continuous challenge. According to Latham (2008), the Baldrige Award Recipients (BAR) Consortium members are focused on two questions: (a) how to maintain the gains in performance in a constantly changing environment and (b) how to achieve even higher levels of performance. In addition these organizations face internal challenges such as employee turnover. To address the management dilemmas related to the workforce, the BAR group identified research questions focus on identifying the most effective approaches: (a) to recruit, hire, train, and motivate employees with an aptitude and passion for organizational performance excellence; (b) to get new employees to embrace the culture of continuous improvement and performance excellence; (c) to educate a pool of future employees who quickly add value to a high-performance organization; and (d) to create a structure that rewards long-term contributions to overall organization performance.

Several researchers have found a link between employee involvement and organization results (e.g., Hue, Chin, Sun & Xu, 2000). According to de Luque, Washburn and Waldman (2008) followers' extra effort does have a positive impact on organization performance and visionary leadership had a positive impact on the level of extra effort. Others have proposed that organizations must use the potential of their employees to constantly innovate and improve the organization (e.g., Jafri, 2010). As Simons, Pelled & Smith (1999) point out, a process is necessary to leverage the benefits of workforce diversity and improve organizational performance. Encouraging employee engagement has been the focus of many recent articles (e.g., Harter, Schmidt & Hayes, 2002), however, little attention has been paid to the capability of these engaged employees to identify opportunities for improvement

(OFIs). This research study builds on the original work of Del Rio (1996) and examines individual and organizational factors associated with the individual's ability to identify OFIs.

Evans and Ford (1997) propose that organizations need to develop the workforce in order for it to help make the necessary improvements to achieve the strategic goals and objectives. Several researchers have found that involved employees can help improve organization performance (Kauffman, 2010; Hatch and Dyer 2004; Harter, Schmidt & Hayes, 2002). In addition, Hatch and Dyer (2004) found "that managing the selection, development, and deployment of human capital can significantly improve learning by doing and firm performance" (p. 1173). Involvement and empowerment requires some level of independence and autonomy trust (Psychogios, Wilkinson & Szamosi, 2009; Pun, Chin & Gill, 2001; Zhang & Bartol 2010). However, empowerment and trust only work if the workforce is competent and capabie. According to Latham (1995) "empowerment is a combination of motivation to act, authority to do the job, and the enablement to get it done" (p. 66). It is the enablement or capability of the workforce that is the focus of this study. Del Rio (1996) investigated seven individual factors, however, only three of these individual factors were significantly related to the individual's capability to identify OFIs: (a) education level; (b) position or level in the organization; and (c) personality. This study tests these three individual factors in a different context and two additional factors: work experience in years and experience working in a quality department. In addition to individual factors, the organizational environment influences the employees motivation to become involved and use their creativity to help the organization improve (Jafri, 2010).

Research Question 1: Is there statistical evidence of a relationship between the ability of employees to recognize OFIs and some individual factors such as years of formal education, years of work experience, personality type, position in the organization and experience working in a formal quality department?

The organizational environment is shaped by the systems, leaders and culture. A system of quality and performance excellence practices focuses on improving organizational capabilities (Wayhan, Khumawala & Balderson, 2010). In addition, knowledge management as part of these systems enhances the ability of the organization's ability to improve (Hung, Lien, Fang & McLean, 2010). Employee involvement and innovation are influenced by the organization environment (Marke, Harris, Lind, Busck & Knudsen, 2010; Fotopoulos, Psomas & Vouzas, 2010). As Ghoshal and Bartlett (1994) note, organizational learning and improvement are influenced by the level of trust, cooperation and discipline found in the organizational environment. Leaders interact with the formal system and together influence the level of voluntary effort employees are willing to invest in the organization. As de Luque, Washburn and Waldman (2008) found leaders who are more visionary as opposed to autocratic experience increased employee involvement and effort. Pun, Chin & Gill (2001) found that the sharing of power increases discretionary effort and employee involvement.

Baldrige recipient application summaries describe many improvement examples and the associated results - favorable trends. In addition, many of the Baldrige recipients have an internal support system to help employees at all levels with the various improvement initiatives associated with the Baldrige-based improvement process. While there is anecdotal evidence that organization that use the Baldrige CPE experience increased employee involvement and overall improvement, unfortunately, there is little formal research on the use and implementation of the Baldrige CPE (Evans, 2010). Del Rio (1996) investigated six organizational factors including size, span of control, specialization, task variability, work load pressure and job satisfaction. None of these factors were found to have a significant relationship with employee capability to identify OFIs. This study explores two new organizational factors: (a) the presence of a formal internal support organization and (b) the impact of the organization's use of the CPE to improve performance.

Research Question 2: Is there statistical evidence of a relationship between the ability of employees to recognize OFIs and organizational factors including the presence of a formal quality department and the use of the Baldrige CPE?

2. Individual Factors

The relationship between the level of education and an employee's ability to identify opportunities for improvement seems obvious. Education and training to develop the workforce is a central part of any organization performance improvement effort (Abdullah, Uli & Tari, 2009) and is an explicit part of the Baldrige Criteria for Performance Excellence (NIST, 2009). Hue, et al. (2000) found that organizations with higher levels of employee education had

better TQM practices and results. However, the research on the relationship between education and employee involvement is mixed. Ornoy (2010) did not find a relationship, however, Pun, Chin & Gill (2001) did find a connection between education and training and employee involvement. There is evidence that higher levels of education are associated with leadership styles that promote employee involvement and innovation (Hambrick 1984; Psychogios, Wilkinson & Szamosi, 2009; Ekaterini 2010).

Those with graduate education have been exposed to the upper levels of Bloom's taxonomy which include: analysis, synthesis and evaluation (Bloom, 1956). These upper levels include skills such as troubleshooting situations, developing solutions and evaluating those solutions. The skill seem directly related to the individual's capability to identify opportunities for improvement and help the organization develop and implement plans for improvement. Consequently it is not surprising that Del Rio (1996) found that there was a significant relationship between the level of an individual's education and their ability to identify OFIs.

Hypothesis 1: There is a difference in the mean OFIs identified by those with a graduate education vs. those without a graduate education.

The experiences that comes with age contribute to the development of the individual. However, it seems there is wide variation on how experience influences an individual's development including the nature of the experiences and the individual. As Ekaterini (2010) found the older and thus more experienced an employee the less likely they are to engage in improving the organization and embrace new and innovative technologies. Ornoy (2010) did not find a relationship between age and attitudes toward participation. In a study comparing the internal development of employees with firms that hired experience from competitors, Hatch and Dyer (2004) found that those that hired experience from other firms experienced significant performance losses.

Consequently, It may depend on the particular organization and their focus on engaging employees and training and development on quality improvement tools and techniques. Del Rio (1996) did not find a significant relationship between an individual's years of experience or their age and their ability to identify OFIs. However, it is possible that the type of experience will influence the individual's ability to identify OFIs. Del Rio's study focused on the automotive industry and students. Consequently this study tests this hypothesis again with a different population.

Hypothesis 2: There is a correlation between one's years of work experience and the number of OFIs identified.

While not a new idea, it has been proposed that managers in the current complex and dynamic global environment will need to develop their right brain skills and abilities in order to succeed today and in the future (Agor, 1984). Researchers have investigated the relationships between the Myers-Briggs Type Indicator (MBTI) and participative management practices conducive to TQM (Mani, 1995; Yen, Krumwiede & Sheu, 2002; Andersen, 2000). Yen, Krumwiede & Sheu (2002) found a relationship between an individual's Intuitive (N) score on the MBTI and organization characteristics conducive to TQM. In addition, Andersen (2000) findings suggest that Intuition (N) is related to organizational effectiveness. Consequently it is not surprising that Del Rio (1996) found a significant relationship between an individual's Intuitive MBTI score and their ability to identify OFIs.

Hypothesis 3: There is a correlation between one's Intuitive score on the MBTI and the number of OFIs identified.

Traditionally, those occupying higher levels in the organization enjoyed more freedom and empowerment than those at lower levels. However, as Gutiérrez, Torres & Molina (2010) points out, participative management practice, common to high performing organizations, the level in the organization may have less impact on an individual's ability to identify OFIs. Given the systematic methods most organizations use to select employees for promotion, it seems logical that those in higher level positions would be more capable of identifying OFIs. Ornoy (2010) found that those with more seniority have more positive attitudes toward participation. This did not seem to impact the results found by Del Rio (1996). Del Rio found a significant relationship between an individuals level or position in the organization and their ability to identify OFIs.

Hypothesis 4: There is a difference in the mean OFIs identified by those working at a management level vs. those working at a non-management level.

Job rotation and enhancement has been a common practice among organizations for decades. With the rise in

popularity of Six Sigma methods and practices many organizations have developed an internal "army" of green and black belts to increase the success of these efforts (Moosa & Sajid, 2010; Jones, Parast & Adams, 2010). It seems logical that those individuals who are trained and experienced as green and black belts would be capable of identifying more OFIs than those individuals without similar experience. Del Rio (1996) did not investigate whether an individual's experience working in a quality department was related to their ability to identify OFIs. However, it is included in this study due to the popularity and associated expense of these practices.

Hypothesis 5: There is a difference in the mean OFIs identified by those who have worked in an actual Quality organization vs. those who have not.

3. Organizational Factors

While quality departments have been an integral part of organizations for decades, their numbers and level of involvement in organizational improvement efforts have increased since the quality crisis of the 1980s. The success of six sigma projects and Baldrige-based organization transformations seem to depend on wide spread training, development and support from internal and external experts. In a personal conversation with David Spong, the now retired leader of two Baldrige transformations (Boeing Airlift and Tanker and Boeing Aerospace Support), when asked what a leader should do first he responded, "find a Debbie." This was a reference to Debbie Collard his right hand executive on both journeys. The ultimate goal of these support organizations is to embed improvement methods and practices throughout the organization (Flynn, Schroder & Sakakibara, 1995; Moosa and Sajid, 2010). This begs the question, are employees in organizations that have improvement support departments better at identifying OFIs than those individuals who work in organizations without a formal support department?

Hypothesis 6: There is a difference in the mean OFIs identified by those working at a company with a formal Quality support organization vs. those who don't have such an organization in their company.

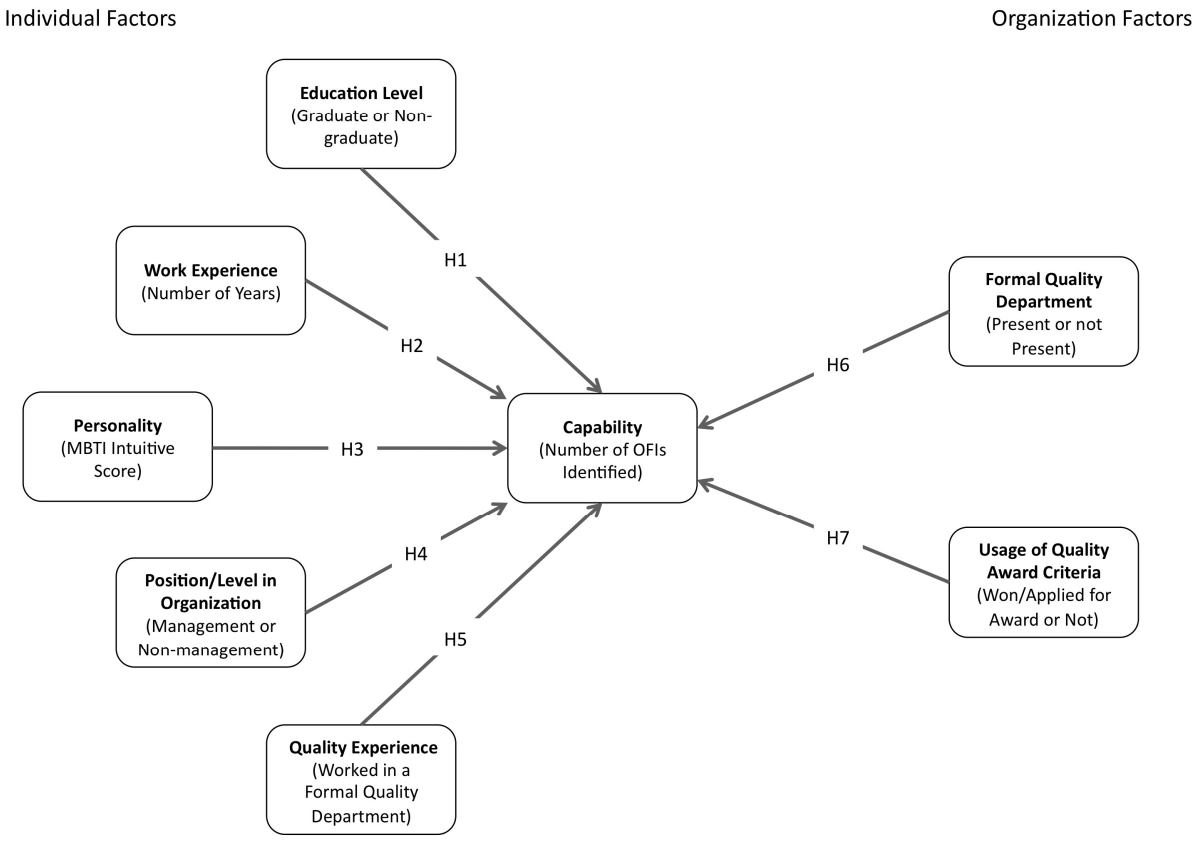
As Evans (2010) notes, the Baldrige award has been a powerful influence on the performance of organizations world-wide. Strong evidence has been found that companies that have won awards as a result of implementing an effective total quality management (TQM) program do significantly better than those companies who do not implement total quality management (Hendricks & Singhal, 1997). This improvement in performance is measured by a change in the median income of 107%. Hendricks and Singhal also found that changes in the ratios between income to assets, to sales, and to employees were higher by 20% than the control group. This seems to be a strong indicator that continuous quality improvement and total quality management programs have a positive affect on the profitability of a firm. In addition, the underlying systems model and concepts have been validated by several studies (e.g., Wayhan, Khumawala & Balderson, 2010; Flynn & Saladin, 2001).

Organizational and personal learning and improvement concepts are integrated throughout the CPE including the specific category requirements, core values and concepts, scoring scales and the award process feedback reports (NIST, 2009). Blackburn and Rosen (1993) identified eight human resource practices common to Baldrige award recipients including employee participation, empowerment and training focused on quality. Given the emphasis on organization improvement and learning it seems logical that individuals who work for organizations that use the CPE would perform better at identifying OFIs than those who do not.

Hypothesis 7: There is a difference in the mean OFIs identified by those whose companies have won or applied for a major Quality award vs. those whose companies have not.

This paper explores seven hypotheses related to the capability of the individual to identify opportunities for improvement. Of these seven hypotheses, the first five are focused on individual characteristics and the last two on organizational characteristics (Figure 1).

Figure 1



4. Research Approach

Due to the lack of empirical studies in this field, this study is essentially exploratory. The research design builds on and replicates Del Rio (1996) which recommends the factors and results be tested on different industries. Del Rio (1996) administered case scenarios to employees in an automobile plant as well as college students, asking that each participant determine as many opportunities for improvement (OFIs) as possible. The responses were compared to an answer key generated via the Delphi Technique, and the score was computed as the number of matched responses.

In replicating some of his efforts, one of Del Rio's case scenarios was administered to employees throughout the Jacksonville, FL area as well as to graduate and undergraduate students. Each respondent also took the portion of the MBTI Assessment that measures one's personality on the Intuitive-Sensing scale. In addition, they were asked a series of questions that addressed their education level, position within their respective companies, years of experience, and backgrounds in total quality management.

This study examines the link between the ability to recognize OFIs and several personal and organizational characteristics, some of which Del Rio tested and found to be significant. Also explored was the novel issue of whether or not a subject's experience with a performance excellence oriented organization affected his or her ability to recognize OFIs.

To test the seven hypotheses, samples were chosen from a cross-section of organizations and environments. The sample consisted of 16 randomly chosen employees of Jacksonville, FL based companies that have won the Florida Governor's Sterling Award for Quality and/or the Malcolm Baldrige National Quality Award (These employees

worked at the award-winning company throughout the application process), and 34 employees of companies that have not won or applied for a quality award (randomly chosen from a student population).

The independent variables for each hypothesis are:

H1 - Whether or not the responded has a graduate degree (Appendix B, question 21).

H2 - The number of years of work experience of the respondent (Appendix B, question 23).

H3 - The number of intuitive responses chosen from the MBTI, with a maximum score of 20 (Appendix A, questions 1 through 20).

H4 - The management level of the respondent, management or non-management (Appendix B, question 22).

H5 - Whether or not the respondent has ever worked in a formal Quality organization (Appendix B, question 25).

H6 - Whether or not the respondent's employer has a formal Quality organization (Appendix B, question 24).

H7 - Whether or not the respondent's employer has ever applied for or won a Malcolm Baldrige National Quality Award (Appendix B, question 26).

The dependent variable for all seven hypotheses is the number of OFIs a respondent identified from a one-page case scenario, with a maximum score of 17 (Appendix C).

5. Results

Null Hypothesis 1: There is no difference in the mean OFIs identified by those with a graduate education vs. those without a graduate education. This hypothesis was tested using the independent samples t-test.

Table 1 – Results of Hypothesis Test 1 (t-test for independent samples)

Group Statistics

	Education Level	N	Mean	Std. Deviation	Std. Error Mean
Number of OFIs Identified (max 17)	No graduate education	30	1.93	2.132	.389
	Graduate education	20	3.60	2.501	.559

Independent Samples t-Test

	t	df	Sig. (2-tailed)
Number of OFIs Identified (max 17)	-2.526	48	.015

With a sig. value of .015 which is less than .05, the null hypothesis is rejected (Table 1). It can be concluded that there is a significant difference in the mean OFIs identified by those with a graduate education vs. those without. Those with some graduate education identified an average of 3.60 OFIs as compared to 1.93 by those without a graduate education, which may be an indicator that those attending graduate school are more attuned to looking for improvement opportunities in their organizations or possibly that they learn to become attuned as a result of their studies.

Null Hypothesis 2: There is no correlation between one's years of work experience and the number of OFIs identified. This hypothesis was tested using the test for correlation (Table 2).

Table 2 – Results of Hypothesis Test 2 (Correlation test)

Correlations

		Years of Experience
Number of OFIs Identified (max 17)	Pearson Correlation	.429**
	Sig. (2-tailed)	.002
	N	50

**. Correlation is significant at the 0.01 level (2-tailed).

With a sig. value of .002 which is less than .05, the null hypothesis is rejected. It can be concluded that there is a significant correlation between one's years of work experience and his/her ability to identify OFIs. The correlation coefficient of .429 is moderately strong and indicates that those with more years of experience were able to identify more OFIs than their counterparts with less experience. This makes sense since seeing an opportunity for improvement in a job situation is something that is enhanced by years of experience on the job.

Null Hypothesis 3: There is no correlation between one's Intuitive score on the MBTI and the number of OFIs identified. This hypothesis was tested using the test for correlation (Table 3).

Table 3 – Results of Hypothesis Test 3 (Correlation test)

Correlations

		Intuitive Score
Number of OFIs Identified (max 17)	Pearson Correlation	.015
	Sig. (2-tailed)	.513
	N	50

With a sig. value of .513 which is greater than .05, the null hypothesis is not rejected. There is insufficient evidence to conclude that one's Intuitive score on the Myers-Briggs test is an indicator of one's ability to identify more OFIs. Whether it means that the ability to identify OFIs is not a matter of intuition or that the Intuitive scale doesn't reflect the skills needed to identify OFIs is uncertain.

Null Hypothesis 4: There is no difference in the mean OFIs identified by those working at a management level vs. those working at a non-management level. This hypothesis was tested using the independent samples t-test (Table 4).

Table 4 – Results of Hypothesis Test 4 (t-test for independent samples)

Group Statistics

	Management Level	N	Mean	Std. Deviation	Std. Error Mean
Number of OFIs Identified (max 17)	Non-management	38	1.95	1.986	.322
	Management	12	4.67	2.535	.732

Independent Samples t-Test

	t	df	Sig. (2-tailed)
Number of OFIs Identified	-3.866	48	.000

(max 17)			

With a sig. value of .000 which is less than .05, the null hypothesis is rejected. It can be concluded that there is a significant difference in the mean OFIs identified by those in management vs. those in non-management jobs. Management-level employees identified an average of 4.67 OFIs as compared to 1.95 by non-management employees, which may be an indicator that management is more focused on quality improvement since they are paid to run the business and look for ways to make it run more efficiently and effectively.

Null Hypothesis 5: There is no difference in the mean OFIs identified by those who have worked in an actual Quality organization vs. those who have not. This hypothesis was tested using the independent samples t-test (Table 5).

Table 5 – Results of Hypothesis Test 5 (t-test for independent samples)

Group Statistics

	Worked in Formal Quality	N	Mean	Std. Deviation	Std. Error Mean
Number of OFIs Identified (max 17)	NO	40	2.40	2.489	.394
	YES	10	3.40	1.955	.618

Independent Samples t-Test

	t	df	Sig. (2-tailed)
Number of OFIs Identified (max 17)	-1.180	48	.244

With a sig. value of .244 which is greater than .05, the null hypothesis is not rejected. There is insufficient evidence to conclude that working directly in a formal Quality organization contributes significantly to one's ability to identify OFIs. Those working in the company outside of the organization were still attuned to the goal of quality improvement.

Null Hypothesis 6: There is no difference in the mean OFIs identified by those working at a company with a formal Quality organization vs. those who don't have such an organization in their company.
This hypothesis was tested using the independent samples t-test (Table 6).

Table 6 – Results of Hypothesis Test 6 (t-test for independent samples)

Group Statistics

	Formal Quality Org	N	Mean	Std. Deviation	Std. Error Mean
Number of OFIs Identified (max 17)	NO	27	0.93	1.107	.213
	YES	23	4.57	1.996	.416

Independent Samples t-Test

	t	df	Sig. (2-tailed)
Number of OFIs Identified (max 17)	-7.784	48	.000

With a sig. value of .000 which is less than .05, the null hypothesis is rejected. It can be concluded that there is a significant difference in the mean OFIs identified by those who work in a company with a formal Quality organization vs. those in a company without such an organization. Those working with Quality organizations identified an average of 4.57 OFIs as compared to 0.93 by those in companies without Quality organizations. This

makes sense since companies with a formal Quality organization are rallied around preparing for a performance excellence award and continuous quality improvement, and most employees are exposed in some way to the concept of improvement.

Null Hypothesis 7: There is no difference in the mean OFIs identified by those whose companies have won or applied for a major performance excellence award vs. those whose companies have not. This hypothesis was tested using the independent samples t-test (Table 7).

Table 7 – Results of Hypothesis Test 7 (t-test for independent samples)

Group Statistics

	Quality Award	N	Mean	Std. Deviation	Std. Error Mean
Number of OFIs Identified (max 17)	NO	32	1.22	1.263	.223
	YES	18	5.06	1.955	.461

Independent Samples t-Test

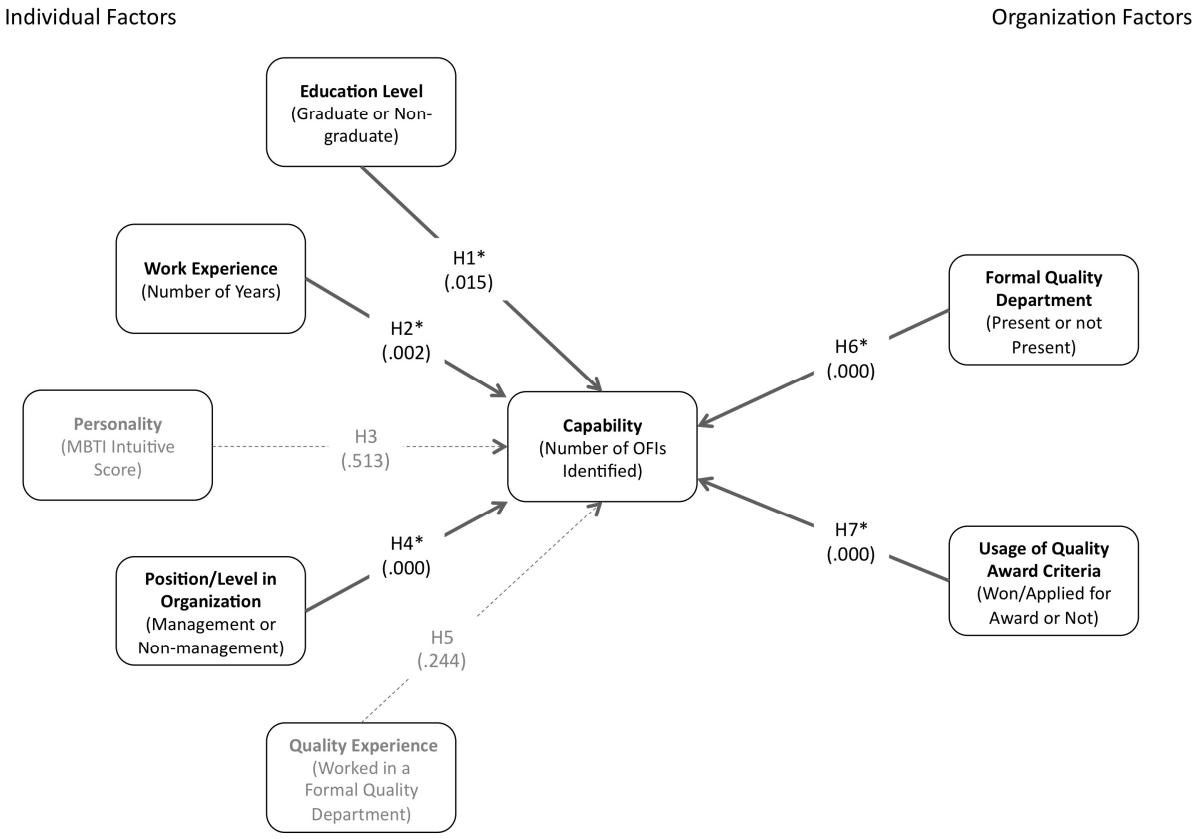
	t	df	Sig. (2-tailed)
Number of OFIs Identified (max 17)	-7.494	48	.000

With a sig. value of .000 which is less than .05, the null hypothesis is rejected. It can be concluded that there is a significant difference in the mean OFIs identified by those who work in a company that has applied for or won a major performance excellence award, such as the Malcolm Baldrige National Quality Award or a Baldrige-based award such as the Florida Governor's Sterling Award. Those from award applicant companies identified an average of 5.06 OFIs as compared to 1.22 by the others. This makes sense since employees in companies using the CPE are more focused on continuous quality improvement than any other, as that is critical to their award application.

6. Findings

According to the results, three individual and two organizational factors proved to be significantly related to the individual's ability to recognize OFIs (Figure 2). The individual factors included: (a) education level; (b) years of work experience; and (c) position or management level. Both organizational factors, working for a company with a formal quality department and experience working in a performance excellence award winning organization were also significantly related to the individual's ability to identify OFIs.

Figure 2



*Significant

Given that an individual with a graduate education has demonstrated the ability to work at the higher levels of Bloom's taxonomy, it seems logical that person would be better able to analyze a scenario and identify OFIs than an individual without a graduate education. This finding is consistent with the findings of Del Rio (1996) and suggests that a workforce characterized by employees with higher levels education will be better prepared to help the organization continuously improve than workforces with lower education levels. Organizations may be able to develop the workforce with specific training and support the workforce with internal experts to mitigate this factor.

While Del Rio (1996) did not find a significant relationship between the extent of experience and the ability to identify OFIs in the automotive industry, this study suggests that the relationship between experience and OFI identification may vary with the context (organization, industry, individual, etc.). More research is necessary to determine the impact of other factors on this relationship.

Given the systematic methods and criteria used by many organizations to promote individual within the organization it is not surprising that individual in higher positions (e.g., management) in the organization are more skilled at identifying OFIs. This finding was consistent with Del Rio (1996). This suggests that organizations that use more participative management methods consistent with performance excellence may need to provide additional training and support to enable individuals at lower levels to effectively help with organizational improvement.

While Del Rio (1996) found a significant relationship between the MBTI Intuitive score and the number of OFIs identified, the findings in this study do not confirm this relationship. Given the mixed results, more research is needed on this factor to determine if an individual's preference for Intuitive decision-making is related to their ability to identify OFIs.

While a bit surprising, the findings did not support the notion that individual with experience working in a formal quality department are significantly better at identifying OFIs than those without this experience. One possible explanation is the organizations with formal quality departments had successfully transferred their specialized knowledge throughout the organization as Moosa and Sajid (2010) suggest.

Individuals who worked in organizations with formal quality departments identified more OFIs than individuals working in organizations without a quality department. This finding suggests that organizations with formal quality support departments have employees who are more capable at identifying OFIs in the organization than those without these support departments. This is encouraging given the popularity and expense associated with staffing and maintaining this capability.

Given that organizational and personal learning and improvement are integral parts of the Baldrige CPE, it is not surprising that individuals who work for these organizations are significantly better at identifying OFIs than those working for organizations that do not use the CPE. In fact, the identification of OFIs is a key part of the CPE assessment process. This finding adds to the evidence from previous research on the benefits of using the Baldrige CPE (e.g., Alexander, Jares & Latham, 2007; Jacob, Madu & Tang, 2004; Evans & Jack, 2003; Hendricks & Singhal, 1997).

7. Limitations and Recommendations

This study, while building on previous research, is an exploratory study based on a relatively small sample. Given the significant findings derived from a limited sample size, it is recommended that further testing be done on the impact of the individual and organizational factors on one's ability to recognize OFIs.

The focus of this study was on the individual's capability to identify a quantity of OFIs. The quality and significance of the OFIs identified was not analyzed or evaluated.

The findings of this study are limited to correlations. Further study is needed to determine the direction of the relationships and other factors that influence these relationships.

While there was a significant relationship between the individual's experience and the number of OFIs identified, it is not clear why the OFI scores for employees with 11-21 years of work experience were reduced.

Just the act of applying for a quality award and focusing on continuous quality improvement may raise the employees' awareness of OFIs.

The parabolic curve may be the result of sampling error or it may have significant merit. ????

8. Conclusion

This paper explores seven factors with the potential to influence an individual's ability to identify opportunities for organizational improvement (OFIs). The results suggest that five of these factors are significantly related to an individual's ability to identify OFIs. Three individual factors including: (a) graduate education; (b) years of experience; and (c) level or position in the organization were significantly related to the number of OFIs identified. Organizations can use this information to inform the development of improvement strategies related to the recruitment, development and management of a workforce to better support organization improvement necessary for the achievement of the organization's overall strategy.

Both organizational factors, the presence of a formal quality support organization and the organization's use of the Baldrige Criteria for Performance Excellence (CPE) were significantly related to an individual's ability to identify OFIs. These findings suggest that the money and effort spent on a quality support staff and the use of the CPE are producing benefits in the form of OFIs which are a prerequisite to improvement. Conclusions supported by previous research on performance excellence and six sigma.

Organizations face many internal and external economic, societal and environmental challenges. These challenges require the continuous examination and improvement of the organization's operations, management practices and strategies. Leadership and management practices and processes focused on enabling and engaging the entire workforce are necessary if we are to as Deming (1986) proposed, "put everybody in the company to work to accomplish the transformation" and succeed today, tomorrow and in the future (p. 24).

Appendix

Appendix A – Survey Myers-Briggs Type Indicator

1. Are you more
   (A) realistic than speculative
   (B) speculative than realistic
2. Is it worse to
   (A) have your "head in the clouds"
   (B) be "in a rut"
3. Are you more attracted to
   (A) sensible people
   (B) imaginative people
4. Are you more interested in
   (A) what is actual
   (B) what is possible
5. In doing ordinary things are you more likely to
   (A) do it the usual way
   (B) do it your own way
6. Writers should
   (A) say what they mean and mean what they say
   (B) express things more by use of analogy
7. Facts
   (A) "speak for themselves"
   (B) illustrate principles
8. Are visionaries
   (A) somewhat annoying
   (B) rather fascinating
9. Common sense is
   (A) rarely questionnable
   (B) frequently questionnable
10. Children often do not
    (A) make themselves useful enough
    (B) exercise their fantasy enough
11. Are you more frequently
    (A) a practical sort of person
    (B) a fanciful sort of person
12. Are you more likely to
    (A) see how others are useful
    (B) see how others see
13. Do you go more by
    (A) facts
    (B) principles
14. Are you more interested in
    (A) production and distribution
    (B) design and research
15. Are you more likely to trust your
    (A) experience
    (B) hunch
16. Do you feel
    (A) more practical than ingenious
    (B) more ingenious than practical
17. Do you prize more in yourself
    (A) a strong sense of reality
    (B) a vivid imagination
18. Are you drawn more to
    (A) fundamentals
    (B) overtones
19. In writings do you prefer
    (A) the more literal
    (B) the more figurative
20. Is it harder for you to
    (A) identify with others
    (B) utilize others

Appendix B - Demographics / Background Questions

21. Do you have a graduate degree?
_____YES / NO

22. What is your current level in your company?
(A) Management
(B) Non-management

23. How many years of work experience do you have? _____

24. Does your company have a formal Quality organization? _____YES / NO

25. Have you ever worked in a company's Quality organization? _____YES / NO

26. Has your company ever applied for or won a major Quality award (i.e., Baldrige or Sterling)? _____ YES / NO

Appendix C - Case Scenrio

Read the following case scenario. Then write down as many opportunities for improvements (OFIs) in the company. These OFIs could be just a bullet list of specific problem areas or recommendations for improvement. Use extra paper as needed.

John Peters was recently appointed as plant manager at MASADA, a very important manufacturing company with over 20 years of operating in Texas. Peters has worked for MASADA for the last 14 years, during which time he managed to climb the organizational ladder all the way up, from maintenance technician to his current position.

Peters grew up "on the wrong side of the tracks" and never completed his professional studies (he only completed five semesters of the mechanical engineering program). However, those facts had never been an obstacle for him to reach his current position. He used to remark that "there is no such thing as an unreachable goal." He pushed orders as hard as he pushed himself.

In the process of improving the plant, Peters decided to construct two basketball courts next to the plant's parking lot and to install two ping-pong tables in the cafeteria. In discussing this with his Human Resources manager, Peters was told that he would be throwing the company's money away and that a "spotty work force" was not among the most important priorities in the personnel department. Peters argued that this opinion was "irrational and insensitive." "My common sense and experience in dealing with people," said Peters, "tell me that employees will respond favorably to having a place to relax, to escape from the monotony of their job."

As usual, Peters did it his way: the basketball courts were constructed and the ping-pong tables were installed. A few weeks later, the Human Resources manager decided to talk with several of the employees about it. When he asked, "How do you like the new basketball courts and the ping-pong tables?", these were the responses more frequently mentioned:

A. "If the company has money to do that, how come they can't afford to give me a raise?"
B. "It doesn't matter to me one way or another since I don't like sports."

Possible OFIs for Case Scenario (used for scoring)

1. Define improvement priorities based on needs of employees.
2. Improve quality and quantity of communication between management and operations.
3. Use a more participative (less autocratic) managerial style.
4. Promote a culture of continuous improvement.
5. Review the company's compensation program periodically to improve workers' morale.
6. Encourage team work at all levels of the organization.
7. Train the Plant Manager in areas such as HR Management, Decision Making and Planning.
8. Promote a culture of health and encourage the practice of sports.
9. Cease the practice of making decisions based solely on "feelings."
10. Define and promote organizational goals common to all employees.
11. Plan carefully and monitor the use of scarce financial resources.
12. Improve the communication process between the Plant Manager and his staff collaborators.
13. Delegate improvement projects to the appropriate functional departments.
14. Explore the motivation of the Plant Manager, calling his attention to the deficiencies of the company.

15. Implement motivational programs to increase the level of participation of employees.
16. Have periodic meetings with employees to inform about improvement projects (potential & on-going).
17. Develop a plan for improvements and promote it among all employees before implementation.

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