DEALING WITH AMBIGUITY: ASSESSMENT OF TOLERANCE FOR AMBIGUITY IN THE CONTEXT OF SCHOOL LEADERSHIP

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ABSTRACT

While the fields of business and medicine have advanced the study of tolerance for ambiguity (TFA), little research has addressed the TFA construct in the field of educational administration, e.g., principals. Research has found that one's tolerance for ambiguity (i.e., how a person tends to respond to uncertain circumstances) can affect one's behavior and in turn influence style of leadership and decision-making. The current research examines the TFA construct in the field of educational administration through the study of a large number of current and prospective principals surveyed with the Norton (1975) MAT-50 instrument, considered a valid and reliable scale for measuring TFA. In the present article, this instrument provides findings that address characteristics of individuals with high and low TFA levels.

OVERVIEW

The school administrator is expected to have the ability to multitask; that is, being able to respond to unexpected situations with timely decision making that addresses campus and community safety, school district policies and practices, as well as professional etiquette. Since the appropriateness of decisions can have a major impact on campus and community members alike, the disposition and preparedness of school leadership is critical. With the increased occurrences of ambiguity within society (Visser, 2003), educators need to better understand the tolerance for ambiguity (TFA) construct in the domain of educational administration. This is especially relevant for higher education professors and top school district administrators, who prepare and develop future and practicing school leaders.

While the literature speaks to the value of understanding how TFA affects school leaders' performances (e.g., Patterson, 2001; Williams, 2006), limited empirical research exists on TFA influence on school administrators' dispositions and their consequential behaviors and decision-making (Kajs & McCollum, 2009). The purpose of this paper is to advance the research of the TFA construct as it applies to current and future school leaders, e.g., campus principals. The present study will analyze and examine survey results of Norton's (1975) MAT-50 instrument used with 333 prospective and practicing principals.

TOLERANCE FOR AMBIGUITY: DEFINED AND DESCRIBED

Ambiguity can occur when there exists vagueness of words, as well as uncertainty and incompleteness of information and structure, where circumstances can have multiple interpretations, sometimes contradictory (Norton, 1975; Visser, 2003). Budner (1962) points out that three major reasons result in situational ambiguity: the newness of circumstances (the lack of familiar signals); the complexity of conditions requiring multiple prompts for deliberation; and the insolvability of the situation due to varying, sometimes contradictory, cues in finding a solution.

The way a person interacts (i.e., the process of perceiving, interpreting, and reacting) with ambiguous situations works to determine one's tolerance for ambiguity (TFA) level (Stoycheva, 2002; 2003). Because of these variables (e.g., perceptions) and other factors (e.g., predictability and variability of situations), the TFA construct is intricate and complex (Benjamin et al., 1996). For instance, a person with a high TFA will tend to view an ambiguous situation as desirable (Budner, 1962); and approach it in a practical, adaptive manner, displaying risk taking and resiliency in the development of alternative responses and solutions to the circumstances (DeRoma et al., 2003; Patterson, 2001; Stoyvecha, 2003; Visser, 2003).

On the other hand, a person with high intolerance for ambiguity (INTFA) will tend to see and construe an ambiguous situation as threatening (Budner, 1962); and approach it in a concrete, stereotype manner, displaying anxiousness and discomfort, and possibly try to avoid the incident (Geller et al., 1993; Stoycheva, 2003).

Grenier et al. (2005) indicate that while the literature tends to equate intolerance for *ambiguity* with intolerance for *uncertainty*, distinction can be made between the two notions; specifically, intolerance for *ambiguity* relates to current circumstances or conditions as a cause of threat, while intolerance for *uncertainty* refers to the prospect of having a negative outcome.

TOLERANCE FOR AMBIGUITY SCALES

The topics of TFA and INTFA can be found in organizational and social behavioral studies (e.g., Bennett et al., 1990; Budner, 1962; Clampitt & Williams, 2000), business literature (e.g., Bakalis & Joiner, 2004; Lamberton et al., 2005; Lane & Klenke, 2004), and medical research (e.g., Geller et al., 1993; Schor et al., 2000; Sherrill, 2005). This literature describes multiple instruments, based on cognitive constructs, which can quantify an individual's TFA and INTFA. A few of these scales include the Scale of Tolerance-Intolerance of Ambiguity by Budner (1962); the AT-20 scale by MacDonald (1970); and the Multiple Stimulus Type Tolerance for Ambiguity Test (MSTAT-I) by McLain (1993).

MEASURE OF AMBIGUITY TOLERANCE (MAT-50)

One scale in particular was found to provide a strong measure in quantifying TFA. This instrument, the *Measure of Ambiguity Tolerance* (MAT-50) developed by Norton (1975), underwent a series of reliability studies with the most recent full version having an internal consistency estimate of .88 and a test-retest reliability estimate of .86. Moreover, Benjamin et al. (1996) have listed an alpha of .89 for the MAT-50. Validity evidence for the MAT-50 has also been established. Norton (1975) presents theoretical arguments and empirical evidence to support content and criterion-related validity evidence. Hypothesized correlations with such variables as attitudinal rigidity, dogmatism, and intolerance for ambiguity were supported in Norton's work. Hence, the MAT-50 scores correlating with the scores from the other measures also establish a nomological network (Cronbach & Meehl, 1955) in support of the measure's construct validity.

Norton's (1975) latest version of the MAT-50 included 61 statements in eight (8) subscales (i.e., philosophy, interpersonal communication, public image, job-related, problem-solving, social, habit, and art forms). The final scale from Norton (1975) used a set of self-response options for each item as follows: "YES! YES *yes* ? no NO NO!" (p. 618). Each option was the respondent's indication of how descriptive the particular item was of them. Due to Norton's very unconventional and otherwise unused scaling method, a more recent and widely used scale was presented with the items in the present study. The summated rating scale in this study uses response options from 1 to 7, where 1 indicates "not at all true of me" and 7 indicates "completely true of me." Consequently, each participant designates how true each statement is about them. With the new scale for Norton's TFA instrument, the results herein indicate performance of the measure with the new scale in a previously unstudied group of people, namely, prospective and current school leaders.

PURPOSE

Using Norton's *Measure of Ambiguity Tolerance* (MAT-50) instrument, this study examines the TFA construct in the context of school leadership by sampling a large group of aspiring and practicing school leaders. Using descriptive statistics the results will describe the subscales and the overall instrument, including calculated reliability coefficients for each subscale. Correlations will be provided among multiple participant variables including TFA, Grade Point Average (GPA), school administrator experience, and teaching experience. The application of the independent t-test will contrast highest and lowest TFA scorer outcomes so to compare GPA, school administrator experience, and teaching experience of participants.

METHOD

PARTICIPANTS

There were a total of 333 people sampled for this study. All 333 participants reported their gender. There were 256 females and 77 males in the sample. Of the 328 participants who reported ethnicity, 157 were White, 89 were African-American or Black, 68 were Hispanic, Latino, or of Spanish origin, four (4) were Asian, and one (1) was Native Hawaiian or Other Pacific Islander. The mean age of the 326 participants who reported it was 33.5 years (SD = 7.5). The mean graduate GPA of the sample was 3.59 (SD = .79) on a 4-point scale; 48 participants did not report their GPA. Three hundred thirty-two participants' reported teaching experience with a mean of 88.1 months (SD = 61.1). Of the 28 participants with administrative experience, the mean was 3.6 months (SD = 19.5).

MEASURE

As indicated earlier, the Measure of Ambiguity Tolerance (MAT-50) has an adequate level of content validity, good construct validity, and strong criteria-related validity, and high internal reliability (r = .88) as well as test-retest reliability (r = 86) (Norton, 1975). Studies of the instrument have consistently shown evidence of good reliability (e.g., Benjamin et al., 1996).

PROCEDURES FOR ANALYSIS

The analysis of the data includes descriptive statistics of each item, each subscale, and the overall scale. Reliability coefficients (Cronbach's Alpha) are provided, as well. Additionally, correlations among TFA, GPA, school administrator experience, and teaching experience are presented. Lastly, t-tests comparing the highest and lowest TFA scorers are used to compare GPA, school administrator experience, and teaching experience.

RESULTS

The item-level descriptive statistics in Table 1 suggest the scale is good. All of the items use the full scale range indicating minimums of 1 and maximums of 7. Therefore, no floor or ceiling effects are occurring with the use of the scale. Also, most of the item means fall toward the center of the scale with item 60 having the lowest mean, 2.70 (*SD* = 1.50) and item 39 having the highest mean, 6.10 (*SD* = 1.18). There were three highly kurtoic items (i.e., above 2.0). Those were items 1, 30, and 39. However, none of the items were heavily skewed (i.e., above 2.0). Overall, the items performed well in the sample, with the only considerations for revision at the item level being for items 1, 30, and 39 based on elevated kurtosis.

Table 1: Item Descriptive Statistics							
Item	**N**	**Mean**	**SD**	**Min**	**Max**	**Skew**	**Kurt**
1	331	5.95	1.08	1	7	-1.29	2.42
2	332	4.04	1.67	1	7	0.12	-0.89
3	330	5.09	1.41	1	7	0.69	0.05
4	327	5.20	1.66	1	7	-0.70	-0.40
5	330	5.27	1.32	1	7	-0.71	0.25
6	332	4.59	1.57	1	7	-0.37	-0.51
7	331	5.60	1.27	1	7	-0.95	0.75
8	332	4.87	1.41	1	7	-0.36	-0.44
9	332	5.20	1.58	1	7	-0.78	-0.04
10	332	5.32	1.46	1	7	-0.93	0.49
11	331	4.36	1.68	1	7	-0.37	-0.61
12	332	2.87	1.52	1	7	0.71	-0.09
13	332	3.61	1.88	1	7	0.18	-1.13
14	332	3.71	1.80	1	7	0.12	-0.91
15	332	4.39	1.55	1	7	-0.28	-0.60
16	332	3.21	1.57	1	7	0.32	-0.68
17	331	4.18	1.70	1	7	-0.12	-0.90
18	327	5.39	1.38	1	7	-0.90	0.57
19	332	4.77	1.67	1	7	-0.55	-0.52
20	331	3.41	1.88	1	7	0.31	-1.11
21	328	4.57	1.76	1	7	-0.40	-0.74
22	331	3.44	1.78	1	7	0.35	-0.82
23	332	3.54	1.64	1	7	0.24	-0.74
24	329	4.88	1.45	1	7	-0.43	-0.44
25	330	3.50	1.59	1	7	0.17	-0.79
26	332	3.65	1.74	1	7	0.14	-0.98
27	332	4.27	1.56	1	7	-0.22	-0.62
28	332	3.62	1.52	1	7	0.06	-0.70
29	329	4.29	1.56	1	7	-0.05	-0.63
30	331	5.87	1.26	1	7	-1.40	2.13
31	331	5.11	1.73	1	7	-0.85	-0.09
32	332	5.49	1.48	1	7	-1.08	0.77
33	332	4.12	1.77	1	7	-0.14	-0.97
34	332	5.11	1.65	1	7	-0.71	-0.26
35	332	5.58	1.39	1	7	-0.96	0.40
36	332	4.51	1.63	1	7	-0.35	-0.65
37	332	3.87	1.54	1	7	-0.14	-0.81
38	332	3.48	1.67	1	7	0.11	-1.04
39	332	6.10	1.18	1	7	-1.79	3.78
40	332	3.45	2.06	1	7	0.32	-1.25
41	332	3.78	2.37	1	7	0.09	-1.65
42	332	4.03	2.21	1	7	-0.04	-1.48
43	331	5.32	1.91	1	7	-1.02	-0.09
44	332	3.65	2.04	1	7	0.11	-1.30
45	332	5.34	1.66	1	7	-0.98	0.18
46	332	5.55	1.80	1	7	-1.19	0.29
47	331	5.35	1.64	1	7	-0.84	-0.22
48	330	3.93	1.88	1	7	0.03	-1.11
49	331	4.62	1.72	1	7	-0.38	-0.73
50	332	5.76	1.47	1	7	-1.25	0.99
51	329	3.39	1.33	1	7	0.03	-0.15
52	332	4.44	1.99	1	7	-0.24	-1.18
53	331	4.15	1.77	1	7	-0.12	-0.89
54	329	3.70	1.61	1	7	0.19	-0.49
55	329	4.25	2.04	1	7	-0.24	-1.30
56	331	4.63	1.69	1	7	-0.35	-0.58
57	332	4.33	1.72	1	7	-0.19	-0.75
58	332	5.14	1.63	1	7	-0.80	-0.11
59	332	3.10	1.71	1	7	0.50	-0.60
60	332	2.70	1.50	1	7	0.67	-0.08
61	332	3.45	1.97	1	7	0.31	-1.06

In investigating the subscale and overall TFA scores (see Table 2), the highest mean comes from the Philosophy subscale, whereas the lowest mean comes from the Public Image subscale. That is, the sample tolerates ambiguity best with regard to philosophy and least with regard to public image. All of the subscale scores and the overall mean score fall above the expected scale mean of 3.5. This indicates one of two things. Either the scale is producing scores at the high end and needs to be adjusted, or the sample generally has higher than expected TFA.

It is apparent from the reliability estimates (Cronbach's Alpha), given in Table 2, that the subscales lack reliability when they stand alone. However, cumulatively, the overall scale scores have a good level of reliability at .88. This reliability estimate for the overall scale scores matches that given by Norton (1975). Clearly, the subscales should not be used independently when measuring TFA. Rather, the overall scale scores should be used, as they are a highly reliable overall indicator of TFA.

Table 2.
Overall Scale and Subscale Descriptive Statistics

Scale	N	Alpha	Mean	SD	Min	Max	Skew	Kurt
Overall Scale	332	.88	4.39	.58	2.80	6.21	-0.01	0.23
Philosophy	321	.47	5.10	.70	3.00	7.00	-0.15	0.01
Interpersonal Comm.	331	.65	4.53	.99	1.80	7.00	-0.29	-0.08
Public Image	332	.67	3.73	1.21	1.00	6.75	0.00	-0.51
Job Related	321	.57	4.47	1.01	1.60	7.00	-0.23	-0.25
Problem Solving	324	.78	4.19	.95	1.22	6.33	-0.06	-0.09
Social	331	.65	4.82	.80	2.56	7.00	-0.24	0.00
Habit	326	.71	4.52	.90	1.69	6.54	-0.33	-0.07
Art Forms	325	.35	3.93	.70	1.33	5.78	-0.33	0.81

The overall scale scores are approximately symmetrical and very slightly kurtoic. The histogram in Figure 1 reveals that the very low and high ends of the scale are not overly used – so much so that when items are summed and averaged, no overall scale scores fall at the extreme ends of 1 and 7. However, the lower end of the scale is less often used than the higher end. This may be indicative of a group that has high TFA, or items may need to be adjusted to produce a fuller use of the entire scale, which incorporates more scorers at the lower end.

Table 3 shows correlations among the TFA subscales, overall TFA scores, GPA, time as a school administrator, time as a teacher, and age. The statistically significant correlations among all of the subscales are expected, given that the scores from the overall scale should be used, rather than individual subscale scores. The most noteworthy correlations in the scale are between age, overall TFA, and three of the TFA subscales. In particular, there is a small, though statistically significant negative correlation between age and overall TFA. In other words, in

general, the younger the participants the more tolerant of ambiguity they were. This can be stated inversely, such that the older the participants, the less tolerant they were of ambiguity. When examining the subscale correlations this inverse relationship between TFA and age is most notable for Interpersonal Communication, Public Image, and Social TFA. Seemingly, in regards to social attributes such as communication and image, TFA was lower for the older participants.

Figure 1.
Histogram of Overall Scale Scores
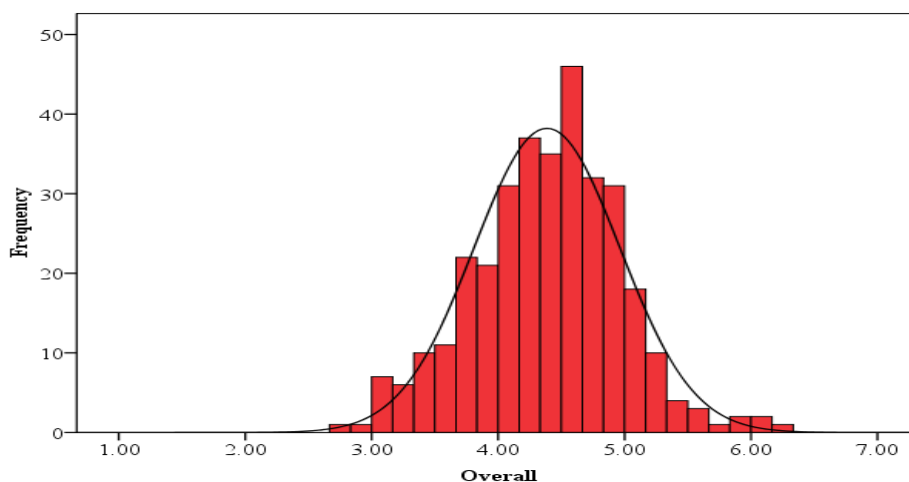
Carrying a step further the analysis of the relationship between age, time teaching, time as an administrator, GPA, and overall TFA independent t-tests were used to analyze two groups of participants. Those two groups were established using a method for identifying high and low TFA created by Norton (1975). By Norton's criteria, those individuals scoring over one-half of a standard deviation above the mean have high tolerance (in this sample a score of 4.97, equivalent to 16.87% of participants) and those individuals scoring under one half of a standard deviation below the mean have low tolerance (in this sample a score of 3.81, equivalent to 16.57% of participants). The remaining 66.56% of participants would be describe as middle tolerance, but are not included in the high versus low analysis. The independent t-test analysis is presented in Table 4.

Using Norton's (1975) criteria for defining the high and low TFA groups, participants with low TFA were statistically significantly older ($M = 36.8$, $SD = 7.5$) than participants with high TFA ($M = 32.3$, $SD = 6.6$, $t = 3.0$, $p = .00$). Also, participants with low TFA were marginally statistically significantly more experienced as teachers ($M = 109.9$, $SD = 65.8$) than participants with high TFA ($M = 85.2$, $SD = 60.1$, $t = 1.9$, $p = .06$). Additionally, participants with low TFA were marginally statistically significantly more experienced as school administrators ($M = 3.3$, $SD = 11.2$) than were participants with high TFA ($M = .03$, $SD = 2.0$, $t =$

1.8, *p* = .07). Lastly, there was no statistically significant difference between the TFA groups on the GPA measure. Overall, a higher TFA level occurs with younger and less professionally experienced participants.

Table 3. Correlations between TFA Scales, Age, Time Teaching, Administration Time, and GPA												
Measure	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	.67**	.27**	.08	**-.14****	.01	**-.15****	**-.16****	-.09	-.06	**-.12***	-.07	-.09
2. Time Teaching		.12*	.12*	-.07	-.03	-.07	-.03	-.06	-.05	-.01	-.04	-.01
3. Administration Time			.00	-.02	-.02	-.02	.00	-.04	.00	-.01	-.03	.02
4. GPA				-.02	-.02	-.11	.12*	.01	-.03	-.00	.05	.02
5. Overall TFA					.37**	.54**	.57**	.61**	.73**	.70**	.78**	.45**
6. Philosophy						.22**	08	.14*	.22**	.27**	.34**	.24**
7. Interpersonal Comm.							.27**	.28**	.33**	.27**	.29**	.13*
8. Public Image								.48**	.43**	.43**	.24**	.18**
9. Job-Related									.53**	.46**	.35**	.25**
10. Problem Solving										.43**	.49**	.28**
11. Social											.45**	.25**
12. Habit												.39**
13. Art Forms												-
* Significant at .10 ** Significant at .05												

Table 4. T-tests of Low versus High TFA Groups					
Measure	**Group**	**M**	**SD**	**t**	**p**
Age	Low	36.8	7.5	3.0	.00
	High	32.3	6.6		
Teaching Time	Low	109.9	65.8	1.9	.06
	High	85.2	60.1		
Admin. Time	Low	3.3	11.2	1.8	.07
	High	0.3	2.0		
GPA	Low	3.5	.84	-.23	.80
	High	3.6	1.0		

CONCLUSIONS

This empirical study revealed that tolerance for ambiguity (TFA) was lower for the older study participants, most notably in social attributes such as interpersonal communications and public image. Results indicated higher levels of TFA were found among the younger and less experienced professionals as compared to the older and more experienced professionals. Thus, since the younger, less experienced professionals were found to be more tolerant of ambiguity; they would tend to be more open to various possibilities when solving dilemmas, based on TFA research (e.g., DeRoma et al., 2003; Patterson, 2001; Stoyvecha, 2003). They are likely to deal better with vague language, partial information, tasks with little structure, and multiple perspectives in problem solving (Norton, 1975; Visser, 2003; Williams, 2006). These results are contrary to previous research results that did not find TFA variations based on age (Clampitt & Williams, 2005).

ALTERNATIVE EXPLANATIONS OF STUDY RESULTS

A variety of reasons exists to explain study results that levels of intolerance for ambiguity (INTFA) are higher with older, more experienced people. One explanation could be that, with age, fewer incidents appear ambiguous, possibly due to having dealt with more situations. Thus, perceiving incidents as not being ambiguous, one may become habituated to respond in firm and conclusive manners. However, in the present study, there was no test or measurement of how ambiguous particular happenings are perceived to be. Rather, there was a measure of the participants' internal tolerance levels for ambiguous situations. A subsequent study could be conducted where participants receive descriptions of a variety of professional incidents and are questioned regarding how ambiguous they perceive the particular episode. An example of a process that could be used is the REACT model, which stands for *recognizing, evaluating, adjusting, choosing, and tracking*, where executives' decision making activities in risk management situations are studied (Clampitt & Williams, 2004; MacCrimmon & Wehrung, 1986). In this type of process activity, measures of age and TFA could be used again, to gauge relationships among levels of perceptions for ambiguity, tolerance for ambiguity, and age. It is feasible that lower TFA results would occur when incidents are perceived as being unambiguous.

A second explanation for the results could be related to older professionals' resistance to or avoidance of cognitive dissonance, and how this influences an individual's tolerance for ambiguity. Festinger (1957) suggests a relationship exists between a person's ambiguity intolerance and "low tolerance for dissonance" (p. 267). Likewise, Shaffer et al. (1973) notes the likelihood "that individuals differing in ambiguity tolerance will differ in the ways they attempt to reduce cognitive inconsistencies" (p. 224).

An individual experiences cognitive dissonance or conflict when one finds inconsistencies between two or among many psychological representations or beliefs (Cooper,

2007). This uncomfortable tension motivates an individual to try to lessen this cognitive dissonance or conflict in order to achieve consonance, similar to a person's motivation to reduce hunger (Clampitt & Williams, n.d.; Festinger, 1957; Matz & Wood, 2005). There are multiple approaches to reduce or eliminate dissonant beliefs or opinions, e.g., changing one's opinion or behavior to the dissonance (Festinger, 1957; Festinger & Carlsmith, 1959). Brehm & Cohen (1962) have indicated that an individual is apt to avoid a choice in proportion to the probability the specific choice will create a cognitive conflict. Thus, a person may avoid (or demonstrate caution in) acquiring new information to reduce dissonance (Festinger, 1957).

In the context of lifelong learning/ongoing professional development; older educators may be more inclined to avoid (be cautious in) obtaining new or updated information so to forego cognitive dissonance experiences. The process of learning where information is assimilated and accommodated (Driscoll, 2005) is a practice that results in cognitive dissonance; and a tolerance for ambiguity in sorting out information to provide cognitive balance (Wicklund & Brehm, 1976; Matz & Wood, 2005).

A third explanation for the findings could be the relationship between age and resistance to change because of the uncertainty (i.e., ambiguity) change brings. Clampitt and Williams (2005) indicate that uncertainty can generate feelings of vulnerability or apprehension that can result in the distortion or misrepresentation of perception as well as information, thus producing multiple results, one of which is resistance to change. Moreover, along with age, gender and ethnicity may be connected with change. The study of Fernandez and Pitts (2007) has suggested that females and Whites (versus males and ethnic minorities) are less likely to be advocates of change. With the majority of participants in this study being females (77%), mostly White, the association of gender and ethnicity with resistance to change could be especially pertinent.

Resistance to change has been defined by Zander (1950) as "Behavior which is intended to protect an individual from the effects of real or imagined change" (Dent & Goldberg, 1999, p. 34). Burke (2002) has pointed out that people do not naturally oppose change, but "resist the imposition of change" (p. 93); thus, threatening one's comfort zone, especially since people want familiarity and predictability (Davidson, 2002; Hartzell, 2003). Moreover, administrators who hold a prevention orientation (i.e., focused concern for responsibility and safety) versus a promotion orientation (i.e., focus on the attainment of accomplishments) tend to be more conservative in a strategic change process, wanting to ensure stability and continuation in any change situation (Taylor-Bianco & Schermerhorn, 2006). In addition, research has shown that the record of success for change processes is surprisingly low (Taylor-Bianco & Schermerhorn, 2006).

Research has identified major factors attributed to an individual's resistance to change (and thus maintain the status quo) related to one's social attributes (e.g., interpersonal communications and public image) with supervisors, colleagues, employees, and the community at large. These key factors include one or more of the following: (1) substantive changes in the job description, e.g., required skills; (2) job displacement, perception of not having job security;

or decline in financial security; (3) interference of social arrangements/associations, e.g., possible resistance to change by employees; trade-offs in the planning process that can result in winners and losers; (4) reduction of personal and professional status; (5) lack of higher management commitment and support (e.g., resources) for organizational change; (6) organizational structure that inhibit change (e.g., existing hierarchical structure can hinder required teamwork approach); (7) emergence of immediate needs (e.g., student enrollment, teacher turnover) redirecting financial and personnel resources away from a long-term, change process; (8) issues of continuity and stability of leadership when conducting a course of action for change; thus, possible failure of the plan; and (9) psychological risks or threats, e.g., fear of possible new demands, lack of control, redundancy, uncontrollable conflicts, and failure; avoidance of conflicting and anxious situations, as well as cynicism (Baker, 2007; Burke, 2002; Clampitt & Williams, n.d.; 2005; Dent & Goldberg, 1999; Fernandez & Pitts, 2007; Fernandez & Rainey, 2006; Hartzell, 2003; Johannsen, 2004; Pardo del Val *&* Fuentes, 2003; Riccucci et al., 2004; Stock, R. 2001; Taylor-Bianco & Schermerhorn, 2006; Senge, 1990; Thompson et al., 1999).

FURTHER RESEARCH STUDY

Further development of this study could be the possible association between (in)tolerance for ambiguity and (in)tolerance for dissonance, suggested by Festinger (1957) as he conjectured the possible ways to examine dissonance. In describing (in)tolerance for dissonance, he states, "One would expect a person with low tolerance for dissonance to see issues more in terms of 'black and white' than would a person with high tolerance for dissonance who might be expected to be able to maintain 'grays' in his cognition" (Festinger, 1957, p. 267). Shaffer et al. (1973) indicates that it is reasonable to typify a dissonance as having a component of ambiguity; thus, it is possible that people having different levels of ambiguity tolerance will differ in approaches as they attempt to diminish cognitive dissonance or inconsistencies. In conjunction with this study, it may be beneficial to look at the connection of the Personal Uncertainty Scale (Clampitt & Williams, n.d.) and/or Personal Uncertainty Management Scale (Clampitt & Williams, 2005), since the Personal Uncertainty Scale was found to be significantly correlated with the Intolerance of Ambiguity Scale by Budner (1962) (Clampitt & Williams, n.d.). Moreover, the work of Stone and Cooper (2001) provides support in exploring the relationship of cognitive dissonance and types of self-attributes (e.g., self-esteem) with tolerance for ambiguity characteristics (e.g., self-confidence), using the Self-standards Model of Cognitive Dissonance framework (Stone & Cooper, 2001).

Another topic of study could include research on the relationship of motivational factors, especially idealism, with the variables of age, professional experience, risk tolerance levels, because of the association between idealism and risk-taking (Taylor-Bianco & Schermerhorn, 2006); since risk-taking has been linked to ambiguity tolerance (DeRoma et al., 2003; Stoyvecha,

2003). For example, the Reiss Profile of Fundamental Goals and Motivation Sensitivities (Reiss & Havercamp, 1998) is a psychometric instrument that provides an analysis of personality where individuals indicate what motivates their behavior. This profile has shown to possess concurrent and criterion validity, as well as good internal and test–retest reliability (Havercamp & Reiss, 2003).

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