

Impact of Tolerance of Ambiguity on Job Performance, Creativity and Decision-making Styles: A study on Indian Software professionals

Chaturvedula S¹, Shruti Raghuraman², Ravindranath K Murthy³

¹Associate Professor, Aviation Psychology, Institute of Aerospace Medicine, Indian Air Force, Bengaluru, India.

²PhD Candidate, Clinical Psychology, Division of Psychiatry and Applied Psychology University of Nottingham, UK.

³Associate Professor, Osmania University, Hyderabad, India.

Email - sowgandhic@gmail.com, shruti.raghuraman@gmail.com, Shirdisainath@gmail.com

Abstract: *The ability to positively channel ambiguity is known as Tolerance of Ambiguity (ToA). In today's economic environment characterized by significant change, ToA is a crucial attribute of employees. This study investigated the effect of ToA among 120 software employees on job performance, creativity and decision-making styles. The results demonstrated that ToA does not have a significant impact on creativity of software professionals, which is in contrast to previous findings. Conversely, the study found that there was a significant effect of ToA on job performance as well as on all four patterns of decision-making: vigilance, buck-passing, procrastination and hypervigilance. Results are discussed in the light of the organizational backdrop of the IT sector in India. Since ToA is a proximal trait, these findings are valuable in encouraging organizational psychologists to develop training programs incorporating ToA modules for employees to help them develop ToA and function efficiently in times of crisis.*

Key Words: *Tolerance of Ambiguity, Creativity, Decision-Making Styles, Job Performance.*

1. INTRODUCTION:

We live in an era that is most significantly characterized by rapid and continuous change. This is especially true at organizational level; with employees at every level perpetually working under the threat of downsizing and corporate re-structuring. K N Kamath, ex Managing Director and CEO of ICICI Bank called this a 'turbulent'; and yet, 'revolutionary' era. With regard to the impact of this dynamic state of affairs on the organization, he believed that "the future will belong to those who can operate with extreme agility in the face of very high levels of ambiguity" [1].

What is ambiguity?

Ambiguity is defined as 'uncertainty about the probabilities with which outcomes can occur' [2]. In organizational psychology, ambiguity is studied with respect to its inevitability; [3] suggest that organizations exist in an ambiguous world where it is part of the normal context of organizational actions.

At a personal level, individuals may face 'role ambiguity' which refers to the lack of specificity and predictability for an employee's job or role functions and responsibility [4]. Shared ambiguities, on the other hand, especially seem to occur during times of radical changes, and in times of recession when the job market becomes difficult – for instance, ambiguity of the future. The contemporary situation around the globe is exactly the same, where the job market is unsteady with many companies are periodically laying off their employees and reducing the intake of people into their companies.

In spite of such a state of affairs, many successful organizations around the globe are able to sustain ambiguity, by acknowledging its presence and thus learning to innovate [5,6]. Ambiguity acceptance leads to positive customer and organizational outcomes and may also play a crucial role in enabling institutional expansion [7,8]. One approach in the direction of acceptance is tolerance to ambiguity which is the focus of the present study.

Tolerance of Ambiguity (ToA)

Norton, 1975 defines the concept of ambiguity tolerance as a "tendency to perceive or interpret information marked by vague, incomplete, fragmented, multiple, probable, unstructured, uncertain, inconsistent, contrary, contradictory, or unclear meanings as actual or potential sources of psychological discomfort or threat"[9].

Kahn et al. (1964) posited that although there are individual differences in terms of a person's ability to tolerate ambiguity, all employees find the state of being uncertain to be stressful [10]. Kagan (1972) argued that the need to reduce ambiguity is a primary determinant of human behavior [11].

The necessity for ambiguity tolerance has been established in both educational as well as occupational settings. An intolerance of ambiguity (both mild and severe) tend to result in reactions of with anxiety and withdrawal from uncertain situations because individuals with low ambiguity tolerance tend to interpret differences,

disagreements, and conflicts as threatening. Failure to be flexible in the transition, mediation, and communication between different and conflicting aspects of an object or situation can cause significant distress to these individuals.

In contrast, high tolerance of ambiguity prompts people to view ambiguity as natural or even desirable and seeks to include, tolerate, and accommodate it [11-14] posit that tolerant individuals should perform well in new and complex learning situations. However, intolerant learners may tend to avoid or give up when encountering ambiguous situations. As organizations become less structured and more fluid, tolerance for ambiguity is likely to emerge as a quality that differentiates effective from ineffective leaders [15]. In fact, an early study by Schere [16] found entrepreneurs to have a higher ToA when compared to non-entrepreneurs.

In the present financial scenario, the software sector in particular, is facing crisis with a rapidly shrinking job market. A report from the Information Technology Association of America [17] finds that future demand for IT workers continues to drop even as companies layoff fewer workers and the overall size of the IT workforce stabilizes. Companies are being shut down unexpectedly or opting to merge or be acquired by larger companies which leaves its employees in a constant threat of changing technologies, knowledge insufficiency and even job insecurity. What was viewed as a lucrative profession during 1997-98 had suddenly taken a nosedive, shrouded in insecurity.

The purpose of the present study gains importance in this context and attempts to investigate the impact of ambiguity on the job-performance, level of creativity and decision-making styles on a sample of Indian software professionals. These particular factors were chosen because of their relevance to success and efficiency within an organization.

Job Performance

Job performance has always attracted organizational psychologists due to its role in predicting organizational success [18-21]. The antecedents of effective job performance has thus, been a widely researched field of study.

One of the early studies linking ambiguity and job performance revealed that ambiguity concerning sales manager and customer expectations negatively affected job performance [22]. Empirical studies conducted to investigate the relationship between the presence of role ambiguity and job performance have validated these findings, by discovering that role ambiguity is significantly and negatively related to job performance [23-25] as well as was an important predictor of job performance [26]. A meta-analysis conducted on 169 studies found that role ambiguity was the most negatively related to job performance when compared to other stressors [27].

While these studies demonstrate the relationship between various forms of ambiguity and job performance, it is important to explore how one overcomes the negative impact of this ambiguity at the workplace. With respect to the direct influence of tolerance of ambiguity on job performance, one study by Wiggins & Weslander [28] showed that high tolerance of ambiguity was found in individuals who were rated to be more efficient at their jobs. These results needs to be replicated on different samples in order to validate this finding.

Creativity

The creative process is defined as the emergence in action of a novel relational process from the interaction of a unique organism and its material and circumstantial environment [29]. In the organizational context, it refers to employees' generation of novel and useful ideas [30].

In today's world, organizations are constantly searching for new marketing strategies, new products and services, new manufacturing processes, and new managerial practices to adapt to the rapidly changing environment. The competitive advantage maintained by some companies is by and large, a product of 'Workforce Creativity'. Organizational psychologists have long since been emphasizing the importance of creating favorable work environments to release employees' creativity energy [31,32]. Now, more than ever before, organizations are striving for creativity and innovation in order to survive, grow and adapt [33].

The relationship of creativity to ToA has been theorized about for several decades. Vaughan [34] theorized that ToA is a state of dynamic tension which encourages alternative modes of thinking and problem-solving strategies and acceptance of open-ended situations. This, he posits, is crucial in order to generate and maintain the creative process. Tegano [35] thought of ambiguity tolerance as a 'critical link in operationalizing a measurable and understandable personality trait which is central to creative thinking. A rather succinct description of the combination of traits in a creative personality by Runco [36] included autonomy, flexibility, openness to experience and ToA to name a few.

This theoretical relationship has been widely researched using empirical methods. Schere [16] found higher ToA among entrepreneurs; whose defining quality was 'novelty' or the ability to innovate and create. Recently, these findings have been replicated widely on a variety of populations. High levels of ToA have been consistently found to correlate with greater creativity on school children [37], adolescents [38], child-care adult workers [35], and psychiatric populations [39]. In the organizational context, creativity was seen to significantly and negatively correlate with role ambiguity [40], which is a more indirect way of establishing an association between ToA and workforce

creativity. In contrast, a study on Indian managers found no significant relationship between ToA (as a factor or organizational climate) and creativity [41].

Although the theoretical model linking ToA with creativity has been established on a solid ground, it is important to build on the empirical base in order to validate the model on a relevant organizational sample.

Decision-Making

Robbins [42] in his book, 'Essentials of Organizational Behaviour' suggested the decision-making styles of leaders subject to influence by two axes: ToA and way of thinking. According to his theory, high ToA resulted in Analytic and Conceptual styles of decision-making which consists of searching for more information and alternatives, considering many alternatives out of broad perspective and taking a longer term perspective. On the other hand, low ToA is associated with the Directive and Behavioural styles of decision-making which involves being very direct, focused on the matter (seeing people as resources) on one end while trying to avoid conflicts and trying to find a consensus while relying on the suggestions from others, peers and subordinates on the other end.

Another theory of decision making, the Conflict Theory [43], analyzed the coping patterns used by individuals when faced with important decisions. The theory draws heavily on the psychology of stress and assumes that decisional conflict produces stress. The conflict model identifies four coping patterns. These are -

- a) **Vigilance** – It is the only adaptive decision-making style where the decision maker clarifies objectives to be achieved by the decision, canvasses an array of alternatives, searches painstakingly for relevant information, assimilates information in an unbiased manner, and evaluates alternatives carefully before making a choice.
- b) **Hyper-vigilance** - Due to time pressure, the decision maker searches frantically for a way out of dilemmas and impulsively seizes upon hastily contrived solutions that seem to promise immediate relief. The full range of consequences of choices are overlooked because of emotional excitement, perseveration, and limited attention.
- c) **Buck-passing** – It is one form of defensive avoidance where the individual tends to attribute the responsibility of making a decision or facing the consequences of his decisions to others. It is a maladaptive coping style.
- d) **Procrastination** – It is the other form of defensive avoidance where the decision-making puts off or postpones the act of resolving his conflict and arriving at a decision for the fear of its consequences. Procrastination is also maladaptive as far as decisional coping is concerned.

Mann [44] suggests that individual differences in tolerance for stress are an important determinant in the choice of coping patterns. Ambiguity (either role or task) is known to be a significant contributor to workplace stress [4, 45, 46]. Theoretically, it follows that ToA (an important form of workplace stress) could be a determinant in the choice of coping patterns in employees. This study is a preliminary investigation into the purported correlation between the various decision-coping patterns and ToA.

Based on the literature reviewed, it can be seen that ToA tends to significantly impact various personal and organizational variables. However, on the basis of a review of earlier research and the importance assumed by these variables viz., job performance, creativity and decision making in an organizational context, the scope of the current study is delimited to these variables in relation to ToA.

2. METHOD:

This study was carried out to examine the impact of ToA on job performance, creativity level and decision-making styles of the software professionals.

Sample

A two stage random sampling technique was employed to select the sample of software professionals. The questionnaires were administered to 270 employees. While 267 questionnaires were returned, only 120 booklets are found to be adequate for analysis in the study.

The average age of the employees in all the eight organizations was 27 years (ranging from 22 to 32 years); the average company tenure was 7.05 years (ranging from 1 to 16.5years). There were 43 women (35.85%) and 77 men (64.16%) in the sample.

Materials

A rapport was built with all participants before test administration after obtaining informed consent to participate in the research study. The following measures were administered to all the participants –

- Budner's Scale of Tolerance-Intolerance of Ambiguity [12]: A self-reporting 16-item scale that focuses on identifying ToA in employees at the workplace.

- Melbourne Decision Making Questionnaire II [47]: A 22-item instrument measuring four patterns for coping with decisional conflict based on the Janis and Mann Conflict Theory [48].

The following measures were administered to the supervisors of the same group of participants

- Job Performance Scale: It consists of 6 items to which supervisors familiar with the work performance of the employees provided their evaluations on the employees job performance [49].
- Employee Creativity: It is a 13-item scale to measure creativity in which supervisors who were familiar with the employee's work behaviour indicated how characteristic the items were of employee [50].

3. RESULTS:

Cluster Analysis

In order to study the impact of ToA on the three variables, the scores of 120 executives on the Budner's Scale of Tolerance-Intolerance of Ambiguity is subject to cluster analysis. On the basis of the results obtained, the professionals are categorized into 3 groups: high, moderate and low ToA. Low scores on the tolerance-intolerance scale of ambiguity indicate high ToA and high scores on this scale indicate low tolerance of ambiguity. The results pertaining to this analysis are shown in the table below.

Table 1

Mean, S.D. of the subjects (n=120) on Tolerance of ambiguity

Sl. No.	ToA Category	n	M	S.D	Minimum scores	Maximum scores
1.	High	32	36.91	4.45	29	44
2.	Moderate	46	59.39	2.81	55	65
3.	Low	42	73.67	2.59	67	78

Between Group Differences

To test the significance of differences among the three groups on each of the three variables viz. Job performance, creativity and decision making styles, One-Way Analysis Of Variance (ANOVA) was employed. The results of the analyses are discussed below.

Tolerance of Ambiguity and Job Performance

Table 2

F-value for comparing the job-performance scores among the high, moderate and low tolerance of ambiguity group

	Sum of Squares	df	Mean Square variance	F
Between groups	1727.301	2	863.650	83.926**
Within groups	1203.999	117	10.291	
Total	2931.3000	119		

**p<0.01

Table 2 shows a highly significant F-value (p<0.01) which indicates that there is a significant difference in the mean job performance scores of the subjects belonging to the three groups of tolerance of ambiguity. Post-hoc analyses revealed that all the pair-wise comparisons of job performance scores on the three groups of tolerance of ambiguity were found to be significant at 0.05 level.

Tolerance of Ambiguity and Creativity

Table 3

F-value for comparing the creativity scores among the high, moderate and low tolerance of ambiguity groups

	Sum of Squares	df	Mean Square	F
Between groups	69.589	2	34.794	0.576
Within groups	7072.378	117	60.448	
Total	7141.967	119		

The results indicate that there is no significant main effect of ToA on creativity levels, i.e., the mean creativity scores of the subjects belonging to high, moderate and low tolerance of ambiguity are not significantly different from one another.

Tolerance of Ambiguity and Decision-Making styles

The results pertaining to the differences among the three groups of tolerance of ambiguity on each of these decision-making styles are dealt with separately.

Vigilance

Table 4

F-value for comparing the scores of vigilance style of decision-making among the three groups of tolerance of ambiguity

	Sum of Squares	df	Mean Square	F
Between groups	377.064	2	188.532	64.701**
Within groups	340.928	117	2.914	
Total	717.992	119		

**p<0.01

Table 4 indicates a significant main effect of ToA on vigilant decision-coping patterns ($p<0.01$). This indicates that there are significant differences in the mean vigilance style of coping scores of the participants belonging to different groups of ToA.

Post hoc analyses revealed that participants with low ToA differed significantly in their level of vigilant decision-making when compared to those with both high as well as moderate ToA ($p<0.05$). On the other hand, participants with high and moderate levels of ToA did not differ significantly from each other on vigilant coping patterns. This suggests that subjects with moderate and high tolerance of ambiguity have shown greater tendency to adopt vigilance style of decision-making compared to low tolerance of ambiguity group.

Buck Passing

Table 5

F-value for comparing the scores of buck passing style of decision-making among the three groups of tolerance of ambiguity

	Sum of Squares	df	Mean Square	F
Between groups	78.899	2	39.449	8.981**
Within groups	513.901	117	4.392	
Total	592.800	119		

**p<0.01

It can be observed from the above table that the F-value is found to be highly significant ($p<0.01$). This indicates that the participants belonging to the three groups of tolerance of ambiguity are found to be significantly different in their adoption of the buck passing style of decision making.

Pair wise comparisons reveal that high and moderate groups as well as moderate and low groups differed significantly from each other in adopting the buck passing style of decision making ($p<0.05$). Further, participants with high tolerance of ambiguity have shown significantly higher tendency to use buck-passing style of decision than those with low tolerance of ambiguity.

Procrastination

Table 6

F-value for comparing the scores of procrastination style of decision-making among the three groups of tolerance of ambiguity

	Sum of Squares	df	Mean Square	F
Between groups	305.867	2	152.934	33.417**
Within groups	535.458	117	4.577	
Total	841.325	119		

**p<0.01

The above table shows that there is a significant main effect of ToA on the levels of procrastination among software professionals ($p < 0.01$). Participants with low tolerance of ambiguity have a higher mean procrastination score followed by the subjects with moderate tolerance of ambiguity while the high tolerance of ambiguity group has the least mean score.

Post-hoc analyses were conducted to make pair wise comparisons of the groups which revealed significant differences at all levels of analyses. Thus, participants with low ToA differed significantly from both high ($p < 0.01$) as well as moderate ($p < 0.05$) ToA groups. Participants with high ToA also differed significantly from the moderate ToA group ($p < 0.05$).

Hyper-vigilance

Table 7

F-value for comparing the scores of hyper vigilance style of decision-making on the three groups of tolerance of ambiguity

	Sum of Squares	df	Mean Square	F
Between groups	612.985	2	306.493	98.027**
Within groups	365.815	117	3.127	
Total	978.800	119		

** $p < 0.01$

It can be observed from the above table that F- value is found to be highly significant ($p < 0.01$) which indicates that the difference in the mean scores on hyper-vigilance style of decision making of the subjects belonging to the high, moderate and low tolerance of ambiguity groups are found to significantly different from each other.

Post-hoc multiple comparison tests reveal that high and moderate groups, moderate and low groups as well as high and low groups all differed significantly in adopting the hyper vigilant style of decision-making ($p < 0.05$).

The implications of the above results are discussed in the next section.

4. DISCUSSION:

Ambiguity is ubiquitous. "...the Great Recession has indeed relaxed its grip on American life ... (and) has been replaced by something that might be called the Great Ambiguity — a time of considerable debate over the clarity of economic indicators and the staying power of apparent improvements." [51]. Globalization has ensured that the phenomenon has seeped into the Indian economy and professional sphere as well. Fortunately, it is believed that the personality trait that can combat the negative consequences of ambiguity; i.e., ToA, can be learned or developed. Author Tim Kastelle believes that the single most important management skill is to develop ToA [52]. Business school alumnus Jenn Bender writes about how ToA was among the most important things she learnt on her course [53] which suggests that it is regarded as a vital human factor in the organization. Huber [54] put forth an experiential leadership approach for teaching ToA to business students as she believes it is the 'key element in preparing students for success in the fast-paced and often chaotic business world. Banning [55] found that the case method of teaching improved ambiguity tolerance in management students compared to a control group. These are all examples of how ToA can be developed or increased among human personnel as it has clearly made its mark as an indispensable trait to survive successfully in the professional world.

By understanding how ToA can impact one's occupational status, the need for this trait can be further established in organizational psychology literature. This will lead its incorporation into the syllabi of business schools and other training procedures as greater number of personnel and organizational psychologists are realizing its value. Thus, the aim of this study was to illustrate the impact of ToA on crucial occupational variables such as job performance, creativity and decision-making styles on a sample of software professionals in India. The results obtained from the study demonstrate the importance of developing ToA in students and employees as it is a precursor for individual career and organizational growth and success. The above dependent variables were chosen as they are important attributes of an employee in order to put him on the path to successful performance at the organizational level. The implications of the results with respect to each variable will be separately.

Job Performance

Being good at one's occupation is crucial to one's position, longevity and worth at the workplace. Cognitive ability, job knowledge, education and work experience are all the fundamental factors that have been established to

directly or indirectly impact job performance [56,57]. Personality variables have emerged as equally accurate predictors of job performance as illustrated by a wide array of meta analyses conducted over more than two decades [59-62]. From these reviews, it is seen that the personality construct most commonly utilized for its relationship to job performance is the five factor model of personality which consists of the personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Of these, conscientiousness has unanimously emerged as the most robust predictor of optimal job performance but as Hurtz & Donovan [62] note, the relationship between personality and job performance is more complex than zeroing in on one single attribute.

This preliminary study was conducted with the aim to examine the role of a lesser known, yet key personality variable in impacting job performance; ToA. It was seen that job performance was significantly impacted by ToA at all three levels, i.e., low, moderate and high ToA. This suggests that individuals with low self-reported ToA were found to be rated as performing least well by their supervisors when compared to those with moderate ToA. Software employees with high ToA were found to exhibit the highest job performance as rated by their supervisors. These results are in line with the findings of Wiggins & Weslander [28] which strengthens the case for improving ToA among the workforce in order to elicit the most optimal levels of performance from them.

These results bear tremendous significance to the population in the study. In what has quickly turned into a global Information Technology hub (India), software professionals have to consistently exhibit high levels performance in order to ensure that they don't face 'the bench' or worse yet, pink slips. In this high pressure environment, the workforce seems lost; unable to find their role in the organization while often experiencing insecurity about their tasks at hand. It is important that these employees are equipped with the psychological resources to overcome these ambiguous feelings. By making sure new recruits develop their ToA, there are increased chances of them using these skills to combat the pressures of the dynamic work environment and perform up-to the mark.

Creativity

Creativity is no longer domain of largely right-brained individuals. The shift from primarily industrial societies to information societies has led to an emphasis on multi-skilled, multi-dimensional and creative individuals at the workplace [63]. The ability to think of novel ideas, innovate and depart from the norm are all valuable to success in nearly every vocation. Grabe, Colby & Bell [64] examined the effects of local workforce creativity on remuneration and found high returns to creativity in urban workforces. Territorial Observations [65] found that economically successful regions tend to have high levels of creative workers among their working population. This attests to the fact that creativity is a crucial psychological attribute to ensure both personal as well as organizational success.

The essence of creativity lies in the ability to be flexible and think out of the box. This essentially describes the attributes of a person who can be productive in the face of ambiguity. Thus, it seems natural that creativity stems from the ability to be tolerant of ambiguity. This is evident from a review of literature that has explored the relationship between creativity and ToA. However, the results of this study do not validate previous findings which have established a positive correlation between these variables. Scores on a creativity measure are not significantly different for different levels of ToA which suggests the lack of a relationship between the two variables in the current sample.

One possible explanation for this is that in this study, creativity is measured based on supervisors' ratings of employee's creative behaviors. This may not present a very accurate picture of the employee's creativity as these ratings may not be objective and free of bias. The studies reviewed in this article that found a significant correlation between ToA and creativity have used self-reported measures of creativity which might reflect the employee's creativity more precisely. The one study that used the same measure of creativity found a significant relationship between role ambiguity and levels of creativity. The difference in the dimension of ambiguity being studied could have led to the discrepant findings between the aforementioned study and the present study.

Moreover, these studies were not conducted in an organizational context. The only study reviewed in this article that investigated the level of creativity and ToA at the workplace found no significant relationship between the two variable [41] which was replicated in this study. It could be that in an organizational environment, the level of creativity at the workplace is not heavily influenced by ToA. Further research using self-report measures to assess creativity on such samples must be carried out to explore this line of thought.

In light of the above explanations, the findings in this study are certainly interesting and provide fodder for future research in order to contribute to the body of organizational behaviour literature.

Decision-making styles

The workplace can be a high stress-inducing environment; especially with regard to the importance attributed to accurate and informed decision-making at all levels of the hierarchy. The Conflict Theory [43] delineates four distinct styles of decision making on an adaptive-maladaptive dichotomy: vigilance (adaptive), buck-passing, procrastination and hyper-vigilance (maladaptive). How does ambiguity (a source of stress in the workplace) and the extent of tolerance for it impact one's distinct style of decision-making?

This study found that ToA has a significant effect on each of the four decision-coping patterns. In all three maladaptive patterns of decision-making, the scores of all three ToA groups differed significantly from one another while on vigilance scores, high and moderate ToA groups differed from the low ToA group. These results suggest that employees low on ToA have the greatest tendency to adopt two of the three maladaptive decision-making patterns; namely, procrastination and hyper-vigilance. They are also the least prone to adopting the adaptive style of vigilance. This group is significantly different from the other two groups on three decision-making patterns which suggest that having a low ToA is distinctly related to decision-making patterns in some way. However, this preliminary analysis does not reveal either causation not prediction of one variable from the other. The simple fact that low ToA is associated with a high tendency to choose maladaptive patterns of decision-making suggests that ToA plays a crucial role in coping with decisional stress.

Having high ToA is associated with the lowest tendency to adopt two of the three maladaptive decision-making patterns, i.e., procrastination and hyper-vigilance followed by the moderate ToA. One of the reasons for procrastination could be the lack of structure and clarity regarding one's task/role. Instead of making the 'wrong' decision due to not being fully-informed about the situation or not being able to tactfully handle ambiguity, an employee low on ToA might choose to put off making the decision for when the ambiguity is resolved or for when he has more information at hand. On the other hand, those high on ToA are able to cope with the ambiguity and come up with a way to handle it effectively; which allows them to make decisions more easily.

Hyper-vigilance could be the signature style of low ToA employees because they experience extreme agitation and anxiety due to ambiguity. This could lead them to frantically choose a decision in an effort to suspend the ambiguity. On the other hand, high tolerant individuals do not let the situation take control of them. They are able to manage the ambiguous situation without it inducing unnecessary stress which results in their low levels of hyper-vigilance.

This study also revealed some surprising findings. Employees with moderate ToA display the highest tendency to display vigilant styles of decision-making (although non-significant) and the lowest tendency to engage in buck-passing. This is an interesting finding that shows that having high ToA does not automatically result in the highest tendency to adopt adaptive styles of decision-making.

More importantly, in this sample, high ToA does not mean that one is least prone to buck-passing. In fact, it results in the highest tendency to display buck-passing followed by low ToA and finally, moderate ToA. This shows that buck-passing is a unique style of decision-making in which having moderate ToA is associated with the lowest tendency to choose this maladaptive style of decision-making.

Buck-passing is a form of defensive avoidance wherein the individual attempts to deflect responsibility for his active decision-making. From the definition, it seems logical that those low on ToA would choose to evade the task of making active decisions and assume responsibility for it as they are unable to manipulate their environment efficiently enough to make logical sense. On the contrary, the reverse has been found on this sample. The precise psychological mechanisms that lead high ToA employees to engage in greater buck-passing when compared to low and moderate ToA employees are still unclear. Research that focuses directly on the relationship between buck-passing tendencies and ambiguity tolerance in the workforce needs to be addressed.

5. CONCLUSION:

The present study was conducted to highlight the importance of elevated levels of ambiguity tolerance among the workforce in order to maximize their potential in the best interest of the organization. In a sample of software professionals, ToA was seen to be associated strongly with superior job performance and a tendency to engage in adaptive decision making while low ToA was strongly associated with maladaptive decision-making styles such as

procrastination and hypervigilance. Creativity was not found to be related to ToA in this particular sample which may be investigated in future studies using more accurate measures. In the current financial and occupational climate, every employee looks for ways to attain job security while the organization tries to stay afloat. In light of this, organizations would benefit greatly by hiring employees who manifest high levels of ToA or by training existing personnel to develop and enhance their ToA levels in order to ensure that they go on to become assets to the organization and contribute to its success.

6. ACKNOWLEDGEMENT: The authors would like to thank Ms Padma V, M Phil Economics from Osmania University Hyderabad, for her contributions to this paper. The author also thanks Ms. Sonali Shahin for her support in completing the paper.

REFERENCES:

1. K.V. Kamath, Leading in turbulent times, Retrieved from www.thehindubusinessline.in:praxis/pr0304/03040160.pdf, 2002.
2. S.P. Curley, J.F. Yates, and R.A. Abrams, Psychological Sources of Ambiguity Avoidance, *Organizational Behavior and Human Decision Processes* 38, 1986, 230-256.
3. R.L. Daft, and K.E. Weick, Toward a Model of Organizations as Interpretation Systems, *Academy of Management Review*, 9(2), 1984, 284-295.
4. R.L. Kahn, D.M. Wolfe, R.P. Quinn, J.D. Quinn, and R.A. Rosenthal, *Organizational stress: Studies in role conflict and ambiguity*. New York: John Wiley, 1964.
5. D.E. Meyerson, 'Normal' ambiguity? A glimpse of an occupational culture. In P.J. Frost, L.F. Moore, M.R. Louis, C.C. Lundberg, and J. Martin, *Reframing organizational culture*, Newbury Park, California: Sage Publications. 1991, 131-144.
6. D.E. Meyerson, and J. Martin, Cultural change: An integration of three different views, *Journal of Management Studies*, 24, 1987, 623-647.
7. J. Best, Ambiguity and uncertainty in international organizations: A history of debating IMF conditionality, *International Studies Quarterly*, 56, 2012, 674-688.
8. M. Hagen, and S. Park, Ambiguity acceptance as a function of project management: A new critical success factor, *Project Management Journal*, 44, 2013, 52-66.
9. R.W. Norton, Measurement of ambiguity tolerance. *Journal of Personality Assessment*, 39, 1975, 607-619.
10. J. Kagan, Motives and development, *Journal of Personality and Social Psychology*, 22(1), 1972, 51-66.
11. E.L. Brunswik, Intolerance of ambiguity as an emotional and perceptual personality variable, *Journal of Personality*, 18(1), 1949, 108-143.
12. N.Y.S. Budner, Intolerance of ambiguity as a personality variable, *Journal of Personality*, 30(1), 1962, 29-50.
13. M.E. Comadena, Brainstorming groups: Ambiguity tolerance, communication apprehension, task attraction, and individual productivity, *Small Group Behaviour*, 15, 1985, 251-264.
14. D.H. Jonassen, and B.L. Grabowski, *Handbook of Individual Differences, Learning and Instruction* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1993).
15. M. Lane, and K. Klenke, The ambiguity tolerance interface: A modified social cognitive model for leading under uncertainty. *Journal of Leadership & Organizational Studies*, 10, 2004, 69-81.
16. J. Schere, *Tolerance of ambiguity as a discriminating variable between entrepreneurs and managers*. Proceedings. New York: Academy of Management, 1982.
17. J. Durrett, *Workforce Survey*. National IT Workforce Convocation, Arlington, VA: Information Technology Association America. 2003, 1-25.
18. D. Katz, The motivational basis of organizational behaviour. *Behavioral Science*, 9, 1964, 131-146.
19. K.R. Murphy, Dimensions of job performance. In R.F. Dillon, and J.W. Pellegrino, *Testing: Theoretical and applied perspectives*, New York: Praeger, 1989, 218-247.
20. W.C. Borman, and S.J. Motowildo, Expanding the criterion domain to include elements of contextual performance. In N. Schmitt, and W. Borman, *Personnel selection in organizations*, San Francisco, CA: Jossey-Bass, 1993, 71-98.

21. J.P. Campbell, The role of theory in industrial and organizational psychology. In M.D. Dunnette, and L.M. Hough, Handbook of industrial and organizational psychology, Palo Alto, CA: Consulting Psychologists Press, 1990, 687-732.
22. D.N. Behrman, W.J. Bigoness, and W.D. Perreault, Sources of job related ambiguity and their consequences upon salespersons' job satisfaction and performance. *Management Science*, 27, 1981, 1246-1260.
23. D.J. Abramis, Relationship of job stressors to job performance: linear or an inverted-U? *Psychological Reports*, 75, 1994, 547-558.
24. L.P. Fried, R.A. Kronmal, A.B. Newman, D.E. Bild, M.B. Mittelmark, J.F. Polak, et. al., Risk factors for 5-year mortality in older adults: the Cardiovascular Health Study, *Journal of the American Medical Association*, 279(8), 1998, 585-92.
25. N. Smith, Ten years after, *The Geographical Journal*, 177(3), 2011, 203-207.
26. S. June, and R. Mahmood, The relationship between role ambiguity, competency and person-job fit with the job performance of employees in the service sector SMEs in Malaysia, *Business Management Dynamics*, 1, 2011, 79-98.
27. S. Gilboa, A. Shirom, F. Yitzhak, and C. Cooper, A meta-analysis of work demand stressors and job performance: examining main and moderating effects. *Personnel Psychology*, 2008, 227-271.
28. J.D. Wiggins, and D.L. Weslander, Effectiveness Related to Personality and Demographic Characteristics of Secondary School Counselors, *Counselor Education and Supervision*, 1986.
29. C.C. Rogers, Towards a theory of creativity. *ETC: A Review of General Semantics*, 11, 1984, 249-260.
30. T.M. Amabile, The social psychology of creativity: A componential conceptualization, *Journal of Personality and Social Psychology*, 45, 1983, 357-376.
31. T.M. Amabile, A model of creativity and innovation in organizations. In B.M. Staw and L.L. Cummings, *Research in Organizational behavior*, Greenwich, CT: JAI Press, 10, 1988, 123-167.
32. R.W. Woodman, J.E. Sawyer, and R.W. Griffin, Toward a Theory of Organizational Creativity, *Academy of Management Review*, 18(2), 1993, 293-321.
33. M.D. Mumford, and D.K. Simonton, Creativity in the workplace: People, problems and structures, *The Journal of Creative Behaviour*, 31, 1997, 1-6.
34. T.D. Vaughan, The balance of opposites in the creative process, *Gifted Education International*, 3, 1985, 38-42.
35. D. Tegano, Relationship of tolerance of ambiguity and playfulness to creativity, *Psychological Reports*, 66, 1990, 1047-1056.
36. M. A. Runco, *Creativity. Theories and themes: Research, development and practice*, Amsterdam: Elsevier, 2007.
37. T. Tetenbaum, and J. Houtz, The role of affective traits in the creative and problem-solving performance of gifted urban children, *Psychology in the Schools*, 1978.
38. F. Zenasni, M. Besancon, and T. Lubart, Creativity and tolerance of ambiguity: An empirical study, *The Journal of Creative Behaviour*, 42, 2008, 61-73.
39. M. Grube, Tolerance of ambiguity, art therapy and psychiatric illness, *Psychiatrische Praxis*, 29, 2002, 431-437.
40. Y.-T. Tang, and C.-H. Chang, Impact of role ambiguity and role conflict on employee creativity. *African Journal of Business Management*, 4, 2010, 869-881.
41. V.S. Chauhan, U. Dhar, R.D. Pathak, and D.M. Pastonjee, *Organisational climate, tolerance of ambiguity and learned helplessness as correlates to managerial effectiveness and creativity*, Ahmedabad: Indian Institute of Management, 1999.
42. S.P. Robbins, *Essentials of organizational behavior* (Upper Saddle River, NJ: Prentice Hall, 1943).
43. I.L. Janis, and L. Mann, *Decision Making: A Psychological Analysis of Conflict choice, and commitment* (NY, US: Free Press, 1977).
44. M. Mann, Has globalization ended the rise and rise of the nation-state? *Review of International Political Economy*, 4(3), 1997, 472-496.
45. E. Chang, and K. Hancock, Role stress and role ambiguity in new nursing graduates in Australia, *Nursing and Health Sciences*, 5, 2003, 155-163.

46. K. Fairbrother, and J. Warn, Workplace dimensions, stress and job satisfaction, *Journal of Managerial Psychology*, 18, 2003, 8-21.
47. L. Mann, P. Burnett, M. Radford, and S. Ford, The Melbourne Decision Making Questionnaire: An Instrument for Measuring Patterns for Coping with Decisional Conflict, *Journal of Behavioral Decision Making* 10, 1997, 1-19.
48. I.L. Janis, and L. Mann, Coping with Decisional Conflict, *American Scientist*, 64, 1976.
49. L.J. Williams, and S.E. Anderson, Job Satisfaction and Organizational Commitment as Predictors of Organizational Citizenship and In-Role Behaviors, *Journal of Management*, 1991.
50. J. Zhou, and J.M. George, When Job Dissatisfaction Leads to Creativity: Encouraging the Expression of Voice, *Academy of Management Journal*, 44, 2001, 682-696.
51. P.S. Goodman, Divergent views on signs of life in the economy. Retrieved from The New York Times: http://www.nytimes.com/2010/01/05/business/economy/05econ.html?pagewanted=all&_r=0, 2010.
52. T. Kastle, The fundamental problem in management. Retrieved from <http://timkastle.org/blog/2011/10/the-fundamental-problem-in-management/>, 2011.
53. J. Bender, Building tolerance for ambiguity creates opportunity. Retrieved from New Sector Alliance: <http://www.newsector.org/blog/2013/05/23/building-tolerance-ambiguity-creates-opportunity>, 2013.
54. N. Huber, An experiential leadership approach for teaching tolerance for ambiguity. *Journal of Education for Business*, 79, 2003, 52-55.
55. K.C. Banning, The effect of the case method on tolerance for ambiguity, *Journal of Management Education*, 27, 2003, 556-567.
56. J.E. Hunter, Cognitive ability, cognitive aptitudes, job knowledge, and job performance. *Journal of Vocational Behavior*, 29, 1986, 340-362.
57. T.W. Ng, and D.C. Feldman, Human capital and objective indicators of career success: The mediating effects of cognitive ability and conscientiousness. *Journal of Occupational and Organizational Psychology*, 83, 2010, 207-235.
58. M.R. Barrick, and M.K. Mount, The Big Five personality dimensions and job performance: A meta-analysis, *Personnel Psychology*, 44, 1991, 1-26.
59. R.P. Tett, D.N. Jackson, and M. Rothstein, Personality measures as predictors of job performance: A meta-analytic review. *Personnel Psychology*, 44, 1991, 703-742.
60. M.K. Mount, and M.R. Barrick, The Big Five personality dimensions: Implications for research and practice in human resources management, In K.M. Rowland, and G. Ferris, *Research in personnel and human resources management*, Greenwich, CT: JAI Press, 1995, 153-200.
61. J.F. Salgado, The five factor model of personality and job performance in the European community, *Journal of Applied Psychology*, 82, 1997, 30-43.
62. G.M. Hertz, and J.J. Donovan, Personality and job performance: The Big Five revisited, *Journal of Applied Psychology*, 85, 2000, 869-879.
63. V. Driscoll, Creativity: The key to a successful workforce, *Economic Summit IV*, 2003, 1-5.
64. T. M. Grabe, K. Colby, and K.P. Bell, The Effects of Workforce Creativity on Earnings in U.S. Counties, *Agricultural and Resource Economics Review*, 36, 2007, 71-83.
65. Territorial Observations. Territorial Dynamics in Europe: The Creative Workforce. Retrieved from Espon: http://www.espon.eu/main/Menu_Publications/Menu_TerritorialObservations/CreativeWorkforce.html, 2011.