TIME PERSPECTIVE'S ROLE IN STRESS LEVELS: EMPIRICAL EVIDENCE

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Abstract. *With the continuing development of time perspective, stress can be treated as an important outcome variable considering the current dynamic environment. Although Zimbardo and Boyd (1999), and Boniwell and Zimbardo (2003, 2004) have covered time perspective and its implications for clinical psychology patients, we take their findings and analysis a step forward by discussing balanced time perspectives' role in stress for managers. In this study we investigated the relationship between time perspective and stress, and verified the moderating effect of self-monitoring of the time orientation on the above relationship. We have four factors of stress, namely self-role distance, inter-role distance, role boundedness and personal inadequacy whose levels vary with the time orientation of the person (Pareek , 1997). This study is done with a questionnaire survey. The findings support the hypothesis and pave way for future research, which is also discussed.*

Keyword: Time perspective, balanced time perspective, and stress

INTRODUCTION

Time is a resource which should be 'measured and manipulated in the interest of organizational efficiency and effectiveness' (Bluedorn & Denhardt, 1988). Issues of time and timing are most important to modern management: "where did the time go?" "Time flies" "We must have this ready on time" "Does anybody know what time is it?" "Time is money". "How long will it take?" "I never seem to have enough time!" Time perception of a person is designed by the experiences he or she has in life and can vary depending upon the particular context involved. A person's time orientation can be grounded in his or her past, present or future-orientation, and it has an impact on his/her approach towards all situations in life. In the past, time has been related with money, health, happiness and many other important aspects of human life. If people will be able to achieve flexible temporal orientation, it would ensure that employees will be healthier, happier, self-motivated, performance-oriented; their well-being will be ensured and they would also face less stress. Thus, it is important to study the same, so that organizations can ensure corrective measures are taken to implement right time-orientation in the employees.

LITERATURE REVIEW

Time perspective (TP) is said to have cognitive, emotional and social components (Lennings & Burns, 1998). The formation of time perspective is influenced by several factors, some learned in the process of socialization, such as one's cultural values and dominant religious orientation, kind and extent of education, socio-economic status and family modeling (Lee & Liebeneu,1999). But TP can also be influenced throughout one's life course development by the nature of one's career, economic or political instability, and personal experiences with mind altering substances, traumatic events or personal successes. TP is further regarded as an expression of a person's own system of meanings that allows one to develop a coherent framework for living (Thoms, Warner, & Totleben, 2006). This central aspect of human nature can be shown to affect attention, perception, decision making and a variety of mundane and significant personal actions (Thoms et al., 2006; Zimbardo & Boyd, 1999). TP has the most powerful influence over almost all dimensions of human behavior. It can shape the quality of life of individuals and even the destines of nations, such as when a majority of individuals adopt a biased temporal orientation that overly promotes a focus either on past, or future, or the present.

Zimbardo and Boyd (1999) found that time perspective can be categorized into five factors: past negative (PN), reflecting a negative view of the past; past positive (PP), reflecting a positive sentimental attitude towards the past; present hedonistic (PH), talking about the risk-taking attitude of a person; present fatalistic (PF), being helpless and mostly having a hopeless attitude towards the future and life; and finally, futuristic (F) orientation, allowing people to prepare themselves for their future activities making them cautious of their decisions and actions.

It is proven that present-oriented individuals have a more practical attitude, tending to focus on reality rather than on expectation (Alessio, Guarino, Pascalis, & Zimbardo, 2003; Milfont, Andrade, Belo, & Pessoa, 2008; Zimbardo, et. al., 1999). People oriented towards the hedonistic present are self-indulgent pleasure-seekers and shirk all responsibility they have towards work, to gain pleasure in the present. They love to play sports and enjoy hobbies and are often involved in activities requiring a great deal of energy. At the same time they turn out to be more sensitive and touchy, and become antisocial and aggressive whenever they intend to break the rules. People oriented towards the fatalistic present feel their lives dominated by external forces rather than by their own actions. They let themselves be taken over by fate completely. These people tend to be inclined towards fatalism; they always blame themselves for the failures in life and don't take credit for their own achievements.

Time perspective influences our behavioral actions which include decision making, judgments, etc (Alessio et al., 2003; Milfont et. al., 2008; Zimbardo & Boyd, 1999). In the discussion of past time perspective we find that, "The dominant influence for some comes from the past, from recalling analogous prior situations, with memory of the costs and benefits that attended those decisions. Their recall may be nostalgic and positive or ruminative, traumatic, aversive, and negative, and they may remember accurately or distort the past. Such a focus on the past can significantly affect the interpretation of an individual and response to the current decision situation, even dominating its intrinsic stimulus" (Alessio et al., 2003; Milfont et al., 2008; Zimbardo & Boyd, 1999). If a person becomes grounded in any one of the time perspectives i.e. past, present or future then that serves as a cognitive bias. This bias is then considered as an individuals' dispositional style or individual-differences variable which will predict an individual's response to the choices in life. Thoms and Greenberger (1995) in their contribution explain that some individuals tend to have particularly strong images of them from the past and they recall these events with greater frequency than they think of themselves in either the present or the future. In contrast, other people rarely recall themselves in the past or think of themselves in the present, these individuals tend to think of themselves in the future and place themselves in this context. Timeline orientation is a dimension of thought, not action.

Future-oriented people show great concern about the consequences of their actions, are self-responsible and super achievers. They are also ready to put a great deal of effort and ingenuity into their work, as they seek long-term gratification. These people are usually safe from emotional risks and tend to look after their health, thus avoiding long-term negative consequences: they stick to keep-fit schemes. They are good at avoiding temptations and distractions and devote most of their energies and actions to the achievement of a goal (Alessio et al., 2003; Milfont et al., 2008; Zimbardo et al., 1999). However, these people are unable to enjoy the present. One of their biggest aspirations is to increase their efficiency so as to do many things at a time.

Finally, past-oriented people act and decide in response to recurrent situations of their past experiences. These people do not take chances; they tend to be conservative, as they are not attracted to novelties. Myths and rituals have an impact in their lives and they are often more prejudiced than future-oriented people owing to their distrust of anything or anyone different. People who are grounded in past positive have a stability factor which also helps them in having knowledge about self which is a positive feature (Alessio et al., 2003; Milfont et al., 2008; Zimbardo et al., 1999). If they had positive experiences in the past, they rejoice in recalling them despite their present unhappiness. Any negative experiences in past would affect their present life.

Balance is defined as "the mental ability to switch flexibly among TPs depending on task features, situational considerations, and personal resources rather than be biased toward a specific TP that is not adaptive across situations" (Boniwell & Zimbardo, 2004).The idea of a "balanced TP" is being promoted as one which is most psychologically and physically healthy for individuals and optimal for societal functioning. The future focus gives people a vision which allows them to imagine themselves as high achievers, the past (positive) provides traditional roots and also gives a sense of self, and the present (hedonistic) focus enhances peoples' daily life where they tend to have fun and enjoy the present. People need all the time orientations at different times to realize fully their human potential.

Balanced time perspective (BTP/balanced TP) allows people to shift focus from one time perspective to the other in different situations; depending upon the action they need to take they can shift their focus (Boniwell et al., 2004). People while spending time with their family and friends enjoy completely as they have a common past and they value it. While they take a day off they enjoy the activities they do and forget about the work that has to be done. However, it has been observed that while working or studying one must have future time perspective to be more productive in the task being performed. Indeed, when work is to be done and valued, the balanced TP person may get into the flow of enjoying being productive and creative—a present hedonistic state for a future focused activity. That is when work becomes play as the worker becomes engaged with the process of the activity and not only with a focus on the product of her or his labors.

Flexibility and switch ability are essential components of a balanced TP; "the optimal time perspective depends upon the demands of the situation and its task and reward structure" (Epel, Bandura, & Zimbardo, 1999). These researchers argue that among the unemployed living in homeless shelters and experiencing pressure to find other affordable accommodations, it may be better to be present-oriented when dealing with an acute crisis. While future TP allows a greater degree of self-efficacy and fosters one's optimism for future gains, present orientation may be more effective in allowing oneself to be open to finding immediate solutions to current challenges. While evidence seems to suggest that temporal flexibility is important for dealing with extreme circumstances, it fails to explain why such flexibility is important in dealing with the hassles of everyday life. However the optimality of a balance between time perspectives is important; otherwise, people who move into the future should reconcile with their past experiences while staying grounded in the system of meanings derived from the present.

Knowledge and understanding of time perspective can be a used as a tool in psychological counseling. An insight into how clients think and feel about their past, present and future experiences and about their connectedness and disconnections serves as a starting point for therapeutic explorations. The concept of balanced time perspective can also be fruitfully implemented in an organizational context (Boniwell & Zimbardo, 2004). It is our belief that the current pressures being experienced by workers in offices and factories around the world will not be resolved by more time-management techniques. Normative experience is that within about six months following a time-management training program, participants revert to their own practices of time management. We believe this happens for two reasons. First, these programs are promoted by management and essentially are designed to make workers more future-oriented, more productive, and less wasteful of company time. But much of the sense of time pressure and work urgency comes from workers who are already overly future-oriented. They need very different time training. Secondly, most time management techniques are not tied to the actual psychology of peoples' understanding of time. The construct of time perspective has a potential to provide a theoretical underpinning for time management interventions. One should be able to switch to different time-orientation as required; accordingly interventions must be designed based on an understanding of workers' TP profiles. This would help them recognize the TPs associated with them which are dominating. This ability can be useful in reducing, and ideally preventing, occupational stress. They can also be invaluable in solving the eternal dilemma of balancing the dialectic of work and play/leisure, or of work as a source of personal engagement versus a source of job burnout (Maslach & Leiter, 2008).

Drake, Duncan, Sutherland, Abernethy, and Henry (2008) suggest that a balanced time perspective would let the person flexibly transit among the temporal orientations that are appropriate to the situation. However, some individuals may use a particular orientation too much, and other orientations may be used less than the other; this leads people to become biased in their time perspective. For example, present oriented people enjoy the moment, undistracted by past worries or future anxieties, but then they are not able to delay gratification and plan a path to realistic goals. They are not concerned about the warnings against their current behavior which may have negative outcomes in the future. People with high future orientation are good at setting and achieving goals and planning strategies for meeting long-term obligations. They may also be able to restrain themselves from engaging in tempting behaviors because of an increased ability to articulate a set of negative consequences more clearly, as well as visualize and formulate future goal states that then shape current judgments and decisions. Those with high past-orientation are able to appreciate and honor traditions and previous obligations and review memories that may have a positive influence on current decisions, but they may also be conservative in their maintenance of the status quo and reluctant to experience the unfamiliar or deal with change (Drake et al., 2008).

A balanced time perspective (BTP) is the state and the ongoing process of being able to switch flexibly between these time frames as most appropriate to the demands of the current behavioral setting (Zimbardo & Boyd, 1999). In an optimal balanced time perspective, the past, present and future components should blend and flexibly engage, depending on a situation's demand and our needs and values (Boniwell & Zimbardo, 2004; Keough, Zimbardo, & Boyd 1999;). To further discuss BTP's implications, organizations that have a positive outlook would help in resolving current work pressures. So, the employees would be given time-orientation training, in such a way that workers are more future-oriented, more productive, and less wasteful of company time. The employees falling high in future-oriented time perspective would require a different training program than others who would fall in the category of other time perspectives. The focus of time-orientation technique can shift from advocating generalized time orientation strategies—like take time off, or put more focus on one's work—to develop interventions based on an understanding of workers' TP profiles. This would help in recognizing the associated internal states and TP cognitive biases that unconsciously dominate workers. This would also be greatly useful in reducing and ideally preventing occupational stress. A dilemma can be resolved through correct balance between work and pleasure or work and burnout (Maslach et al., 2008).

In this study, we tested the influence of time perspective on persons stress level. The contribution made by our study is to confirm the statement by Zimbardo and Boyd (1999), Boniwell and Zimbardo (2004), and Drake et al. (2008) that people with balanced time perspective will lead a more optimal life physically and psychologically. We provide empirical evidence to prove that time perspective does affect stress levels of an employee in an organization. Depending upon the time-orientation, a person has varied levels of stress; we also wanted to see whether balanced time perspective leads to reduced level of stress. This study hopes to provide the evidence to the questions which seem to suggest that temporal flexibility is important for dealing with stressful circumstances. Finally, it would be of guidance to the organizations to help their employees to avoid stress in order to perform better; this can be achieved through correct training which would make the employees understand how to be flexible in their temporal orientation of time to achieve or lead an optimal life.

It is assumed that people do not fool themselves, that they learn from past mistakes, and that they make reasonably accurate predictions of the consequences of their choices. Furthermore, people are assumed to follow their preferences rather than acting erratically or mindlessly (Hirata, 2004). The actual meaning of the concept of utility is rarely spelled out, but it is usually taken to be similar to "happiness" or "satisfaction." As such, it is not necessarily to be understood as materially egoistic behavior or as aiming at superficial pleasure only, but rather as an encompassing experience of satisfaction from various sources (including "psychic income").

CONCEPTUAL BACKGROUND AND HYPOTHESES

Stress in an organization could arise out of task and role ambiguity, role conflict and self-role incongruence. Anyone in an organizational position of responsibility experiences such conflict. Role is a fundamental unit in the organization as they are performed by interconnected positions for achieving organizational goals (Katz & Kahn, 1966). The complex and dynamic environment in which organization have to exist, adapt themselves and grow, adds to further stress at work. These environmental forces include: globalization, rapid technological advancements, their adoption in organizations and consequent changes in the nature of jobs and the demands made on employee skills; increased employee expectations about the quality of work-life and incongruence between these expectations and the received organizational outcomes or benefits; changes in organizations in terms of downsizing, resizing, mergers, expansions, closures, etc., affecting employment security, social relations at work and upward mobility (Harigopal, 1995). As business environments and organizations grow more competitive and complex, stress at work is also bound to increase. "Stress is basically an adaptive response, moderated by individual differences that are a consequence of any action, situation, or event that places special demands on a person" (Ivancevich, Matteson, & Preston, 1982).

Zimbardo & Boyd (1999) said that our responses differ individually because of our time orientation; so stress should be affected by the temporal orientation of a person as that also influences his/her behavior. Zimbardos' Time Perspective Inventory (ZTPI) is also known for predictive utility in health risk behaviors. Thus, we can say that stressful behavior can be affected by or predicted by the time-orientation of a person.

Role conflicts lead to stress (Katz et al., 1966). A person with balanced time perspective is proposed as a more positive alternative to living life as he would be adaptive, depending on external circumstances and optimal in terms of psychological and physiological health. Role is the position one occupies in a social system. Katz and Kahn (1966) mention that office is essentially a relational concept, defining each position in terms of its relationships to others and to the system as a whole. A role is defined by the role occupant and role senders. This definition is vital for the organization; an organization can be defined as a system of roles.

A job is stressful to the extent to which it provides the conditions for poor fits either with environment or task. Job stress or poor person-environment fit in the job environment can lead to several types of strain and may finally lead to ill health (Cryer, McCraty, & Childre, 2003).

Self-role distance indicates conflict between the self-concept and the expectation from the role, as perceived by the person. For example, an introvert, who is fond of studying and writing, may develop a self-role distance if he accepts the role of a salesman and comes to realize that the expectations from the role include meeting new people and being social; he will be stressed (Pareek, 1997). In this case a futuristic time perspective person would think about his/her goal and perform the role. Similarly, other perspectives would have different influences, but if the person has the ability to be flexible in his temporal orientation, then he would not be under any stress.

- **Hypothesis 1:** The self-role distance would be low if the person has balanced time perspective i.e. the temporal orientation moderates the required relationship.

Inter-role distance is when an individual occupies more than one role; there are bound to be conflicts between them. For example a working mother plays various roles. In such a case the lady has to take decisions which would be best suited to the situation (Pareek, 1997).

• **Hypothesis 2:** The inter-role distance stress would be low if the person has balanced time perspective i.e. the temporal orientation moderates the relationship.

Personal inadequacy makes the person feel that he does not have enough knowledge, skills or training to undertake a role effectively, or that he has not had time to prepare for the assigned role, which will lead to stress. Persons who are assigned new roles without adequate preparation or orientation are likely to experience personal inadequacy (Pareek, 1997). Present fatalistic reflects hopeless, helpless attitude towards life and future; it is positively related with depression, aggression and anxiety (Zimbardo & Boyd, 1999). Similarly for past negative, it is also attributed to same characteristics. So, if people are high on past negative or present fatalistic, their self analysis would be negative.

• **Hypothesis 3:** Present fatalistic and past negative both will be positively related with personal inadequacy.

Role boundedness makes the individual feel highly obligated to the expectations of the significant role senders, and he sacrifices his own interests, preferences, values, comforts, etc.; he may be said to be role bounded (Pareek, 1997). Role boundedness behavior is completely opposite to the behavioral characteristics of the present-hedonistic person, as he values hedonistic pleasures, enjoys high intensity activities, and seeks thrills and new sensations.

• **Hypothesis 4:** Role boundedness would be negatively related with present hedonistic.

METHOD

Participants: The data were collected through random sampling in a B-School, India, to identify the general stress level between people with balanced time perspective and people with high orientation towards a particular time perspective. To calculate balanced time perspective, low, moderate and high time perspective (TP) scores were obtained by dividing TP scores for each of the five factors as close as possible to the 33rd and 66th percentile, resulting in three groups. According to Zimbardo's theory, low scores on past negative (PN) and present fatalistc (PF), moderate to high on past positive (PP), futuristic (F) and present hedonistic (PH) constitute a balanced time perspective (BTP) person.

Measures: We administered the surveys by taking a random sample from MBA students. To find the time perspective, we used Zimbardo's Time Perspective Inventory (ZTPI) and to calculate role stress the General Role Stress (GRS) Scale from Udai Pareek's Training Instruments in HRD & OD, 2nd edition.

ZTPI: We used Zimbardo and Boyd (1999) time perspective inventory scale in order to find out the people with balanced time perspective. It is a five-point likert scale, with responses ranging from very uncharacteristic of you to very characteristic of you in nature. The scale has been analyzed for reliability and validity. It helps us find out whether the person is futuristic, grounded in present or past as per the time perspective dimensions discussed.

GRS Scale: It helps us to identify people under self-role distance (SRD), inter-role distance (IRD) and person inadequacy (PI) stress (Pareek, 1997). Also if people feel highly obligated to the expectations of the significant role senders, and they sacrifice their own interests, preferences, values, comforts, etc., they may be said to be role bounded (RB). Personal inadequacy is where the respondents feel that they do not have enough knowledge, skill or training to undertake a role effectively, or that they have not had time to prepare for the assigned role, they may experience stress. Similarly, self-role distance indicates conflict between self-concept and the expectations from the role, as perceived by the respondent. Finally, inter-role conflict is where people may experience a conflict between their tendency to live as a person and as a role occupant. It is also measured on a five point likert scale where responses ranges from you never feel this way to you always feel this way. The ratings given to these items are added to give a score that ranges from 0-48 i.e. an index of GRS (Pareek, 1997).

Factor Analysis:

SPSS statistical package (version 13.0) was used to analyze the data. Principal component factor analysis was used to get more variance explained from the derived factors with orthogonal design. Also, varimax rotation under orthogonal design was run to spread the total variance and to get uncorrelated factors of all the reasons and features of the time perspective factor structure with eigen values greater than 1. Moreover, while running the factor analysis the following criteria were kept in mind: (Hair et al., 1995):

a. No loading less than 0.50 on a factor.
b. Reliability of the factor is not less than 0.50.

The last criteria 'b' was used to arrive at a stable and conceptually sound factor structure. It has been pointed out that factors not having sufficient items loading on them should be looked at critically (Hair et al., 1995; Pett, Nancy, & Sullivan, 2003). It makes sense theoretically to exclude some items from factor analysis that explain least variance with disparate loading on the derived factor and use it as an independent factor for further analysis.

Multiple Regression analysis:

A multiple regression analysis was used to check the explanatory power of independent variables i.e. time perspectives upon the dependent variable i.e. stress discussed above. The following equation is tested through regression analysis:
Stress = f (Time perspective factors)

Data Analysis

The results of factor analysis show that there are five underlying factors existing on Zimbardo Time Perspective Inventory (Zimbardo et al., 1999).
Table 1 shows the KMO and Bartlett's test result. For KMO, thumb rule is that it should be greater than 0.5 and in our case it is 0.52. The Bartlett's test of sphericity is significant at 1% level of significance.

Table 1: KMO and Bartlett's Test Results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	000.52
Bartlett's Test of Sphericity	
Approx Chi-Square	724.34
Df	406
Sig.	000.00

Items are assessed on a 5-point Likert scale according to "how characteristic" each statement is of the respondent. After checking the factor loadings on each variable from the pilot study we conclude that future time perspective (FTP) questions include: "I believe that a person's day should be planned ahead each morning"; "Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play"; "I am able to resist temptations when I know that there is work to be done." The past positive perspective (PP) scale has following statements: "On balance, there is much better to recall than bad in my past"; "It gives me pleasure to think about my past." Present hedonistic category included the following statements: "I try to live my life as fully as possible, one day at a time"; "I make decisions on the spur of the moment"; "It is important to put excitement in my life"; "I take risks to put excitement in my life"; "I find myself getting swept up in the excitement of the moment.". For past negative, we have following statements which had high factor loadings: "Painful past experiences keep being replayed in my mind"; "The past has too many unpleasant memories that I prefer not to think about"; "I think about the bad things that have happened to me in the past." Finally, present fatalistic is explained by following statements "I like my close relationships to be passionate"; "Things rarely work out as I expected."

Initial results show that 78% of the total variance is explained by the above-mentioned factors.

The reliability of the factors has also been checked and for each factor Cronbach's alpha value is greater than .5

Table 2: Multiple Regression Analysis Results

Dependent variable→ Independent variable↓	SRD	IRD	RB	PI
Intercept	0.10	0.91	1.95*	0.42
PH	0.16	-0.25**	-0.22**	0.02
PN	0.46†	0.21*	0.25†	0.30†
PF	0.29†	0.08	-0.09	0.35†
F	-0.08	0.11	0.43†	-0.07
PP	-0.01	0.27*	-0.01	0.08
Adjusted R-square	0.38	0.14	0.34	0.29
F-stat value	8.23†	3.99†	7.18†	5.78†

Note:
† denotes 10% level of significance
* denotes 5% level of significance
** denotes 1% level of significance

As we can see in Table 2, the result for self role distance (SRD) indicates that past negative (PN) and present fatalistic (PF) have significant impact on SRD at 1% level of significance. The result for inter-role distance (IRD) shows that PN significantly impacts IRD but at 5% level of significance and PH significantly impacts at 10 % level of significance. For role boundedness (RB), two variables PN and F significantly impact RB at 1% level of significance and PH impacts at 10 % level of significance. Finally for the personal inadequacy (PI), the results indicate PN and PF have significant impact on PI at 1% level of significance.

DISCUSSION

The factor analysis results show that there exist five factors namely past negative (PN), present fatalistc (PF), past positive (PP), futuristic (F), and present hedonistic (PH). The factor analysis results correspond to the Zimbardo time perspective theory.

Further, to prove/verify the hypotheses, multiple regression analysis was used. The results support our hypothesis that role boundedness has a negative relation with present hedonistic i.e. if present hedonistic will increase by one unit then role boundedness will decrease by 0.22 units which supports Hypothesis 4.

Also, a person with high present fatalistic and high past negative would feel personally inadequate; results also show 1% significance for both, where personal inadequacy will change by 0.30 units with one unit change in past negative and personal inadequacy will change by 0.35 units with one unit change in present fatalistic. This supports our Hypothesis 3.

For Hypothesis 1 and Hypothesis 2, we needed to segregate the data of balanced time perspective for which we need large sample size, but as of now the results show that PN and PF have positive impact on self role distance. And PN and PP have positive impact on IRD but PH has negative impact on IRD, which we need to further analyze with the balance time perspective data to reach a conclusion.

CONCLUSION

To our knowledge, although past research has linked time perspective with stressful behavior, there has been no published research investigating the connection between stress and balanced time perspective. Moreover, there has been no published research examining how self-monitoring of time perspective might moderate the effect on stress. Our study thus adds to time personality-stress research by exploring the relationship between stress and time perspectives. When people consider that time must bring benefit to them, they will choose activity which will reduce their stress level and avoid decisions which would lead to stress.

In a practical scenario the results of this research suggest that time perspective has effect on individuals' stress level. We can help people to balance their time perspective so that they can reduce their stress level and lead a harmonious life. Less stress also implies high productivity. Encouraging employees to engage in balanced time perspective will improve performance as stress level can be reduced.

In the future studies we can test the first two hypotheses with greater sample size. In this study we did find that there is a relationship but we could not prove the hypothesis due to the lack of appropriate sample size. Also, we used only exploratory factory analysis; someone can validate the study by using confirmatory factor analysis too.

On the whole, temporal orientation is a multidimensional concept that describes the perception of time among individuals. Time perception is structured by life experiences and can vary depending upon the particular context involved. Whether a person is past-, present- or future-oriented has been shown to influence his/her approach and reaction to stress. Because the management of stress is based on achieving some future state, stress provides a context in which an individual's time perspective may be particularly influential (Brown & Segal, 2008; Keough et al., 1999).

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Book Review
"THE HR SCORECARD: Linking People, Strategy, and Performance"
By Brian E. Becker, Mark A. Huselid, Dave Ulrich
Harvard Business School Press, Boston, 2001, 235 pages, ISBN: 1578511364

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Human capital is the driving force behind the success of any organization in this modern knowledge-driven economy. So, as a source of competitive advantage for today's organizations, the human resource strategies are a key differentiator. The investments that are made in the name of HR development are increasingly being held accountable to justify. In this context, the book by Becker, Huselid and Ulrich has come out with an innovative concept called HR Scorecard that highlights the role of HR as a strategic asset. The authors provide a measurement system which links HR to firm performance. Building on the concept of balanced scorecard of Kaplan and Norton, the authors here have elaborated the idea of HR scorecard with the objective of highlighting HR's role in a firm's performance. The authors on the basis of a decade long study of HR aspects of almost 3000 firms concluded that the firms with more effective HR management systems consistently outperform their competitors.

"HR as a strategic partner—the measurement challenge" argues the case of HR in business organization and how we can ensure that HR can measure or demonstrate how exactly they create value for their organization. Firms having high performance work systems (HPWS) are much more likely to have developed a comprehensive, systemic HR management system. A strategic HR role is the firm's "HR architecture", which is composed of the function, the system and employee behaviors. The role of HR as an asset can be visible only when aligned with the organization's strategy implementation system. Further, authors introduce a seven-step model for implementing HR's strategic role. This is the major contribution of this book. But the model has certain flaws. The model involves steps to develop various measures to be adopted for measuring HR's strategic influence. But evaluating HR scorecard is also necessary, though the authors seem to be less interested in that. One cannot assume its measures and relationships to stay same always; so HR scorecard needs to be evaluated.

There are some essential architectural elements that are required to be included in a HR scorecard besides highlighting its benefits. The elements are High Performance Work System (HPWS), HR system alignment, HR deliverables and HR efficiency measure. The first two are called leading indicators, and the latter two are the lagging indicators for HR's performance. HPWS focuses on individual change, but an organization can be high performing itself. How can this scorecard be related to organizational change? Again strategy implementation requires organizational change and not merely individuals' change within the system.

The HR deliverables are again of two categories: performance drivers which are core, people related capabilities and enablers which reinforce the performance drivers. The final component is the HR efficiency measure (also called doables).

The next part of the book, explains cost benefit analysis for HR interventions. They introduce a three-step process for determining ROI. Firms should identify potential costs, then identify potential benefits and finally calculate the ROI of the program with an appropriate index. Here authors could have included few of the indexes, rather than leaving the audience to refer to a financial management book.

The next section "the principles of good measurement" is devoted to how proper measurement can be done. To explain how firms formulated ways to measure casual linkages, the authors have given live examples of GTE and Sears. This enables reader to align the concept with practice.

There are two dimensions of alignment that the HR architecture must attain, to become a strategic asset. They provide two type of alignment—internal and external. Internal alignment is the degree to which HR is perceived to be valued strategic partner and external alignment is the degree to which HR provides HR deliverables. This implies that HR should endeavor to be valued and should measure its effort. HR can further focus on enabling other functions in the firm to be of value. Furthermore, based on a multidimensional scaling technique called Galileo, a metric is developed called the Systems Alignment Map (SAM). It provides a visual summary of how the human dimension of the organization can be aligned to the firm's larger strategic goals and the HR system.

In addition to the five dimensions prescribed by the Michigan studies including knowledge of business, personal credibility, delivery of HR practices, management of change and culture, new competency in strategic HR performance management is needed for modern day professional needs. In the final part of the book, guidelines for implementing an HR scorecard are provided.

To illustrate various concepts to make understanding of the concepts and its applicability easier, they have used real life cases of companies. The authors use the example of Sears and GTE Corporation (who managed to achieve great transformations by aligning their HR with the larger organizations strategy) throughout the book.

The authors of this unique book deserve all credit for coming up with an innovative measure for linking people, strategy and performance. It is a thought provoking guide for HR professionals providing insight into an area of high significance in the modern economy. But at times it seemed that HR focuses on merely proving its own worth rather than driving organization-wide strategy implementation. They could have better highlighted the cause of HR by focusing on contribution made to entire organization, and not just only to itself.

Book Review

Don Sull (2009). The Upside of Turbulence: Seizing Opportunities in an Uncertain World (New York: Harper Collins Publishers), pp. 276, U.S. $ 27.99, (h/b), ISBN 978-0-06-177115-6.

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What is turbulence? What are turbulent markets? What must firms do to seize opportunities in these markets? And, most importantly: What are the strategic approaches required to do so? These then are the four questions that Don Sull sets out to address in this book. Sull was educated at Harvard University and has served as a McKinsey consultant. He is presently a faculty at the London Business School, where he is in charge of executive education. This book is an attempt to take forward a theme that Sull has developed in his previous books on strategy, where the main focus was on the notion of "active inertia" (which forces firms to do "more of the same" rather than innovate in the wake of tumultuous changes in the business environment). Sull's early set of strategic insights were developed while serving as a McKinsey consultant with U.S. Steel. He was deeply influenced by the sad fate of the tyre companies in Akron, Ohio which resulted from not being able to sufficiently anticipate the role that radial technology would play in the manufacture of tyres when they were first introduced by Michelin. Sull therefore can't help but ask these questions: What is it that makes it possible for some firms to respond dynamically to challenges and emerge as winners? And, even more importantly: Why are most stuck with active inertia? In order to answer these questions, Sull developed a research methodology of working with "matched pairs" of companies in a given industry comprising both the emerging and developed markets. The pair of companies that he invokes in his methodology would include both a successful company and a less successful company. The idea was to isolate those attributes of companies that did well, and ask to what extent these attributes were specific to a context, and to what extent they could be extrapolated into a general theory. The key terms in Sull's approach to strategy include "turbulence, dynamism, complexity, and competition". This book, then, is an attempt to understand the relationship between these terms, and formalize the findings into a general strategy which firms can apply, if necessary, in specific contexts.

There are eleven chapters in the book - the first few recapitulate Sull's previous work that culminated in the notion of active inertia, and what firms must do to re-invent themselves. The main difference here is that Sull not only invokes the notion of "mental maps" that are built into strategic frameworks, but also poses the question of how certain we can be of the validity of these frameworks given the exponential increase in the levels of change and turbulence in the contemporary world. In order to think-through this problem, Sull invokes the work of Karl Popper, the renowned philosopher of science, who introduced the analytic difference between "verification" and "falsification" in testing the validity of scientific theories. Popper's contention was that no number of verifications will prove the validity of a theory decisively. It is therefore more important to attempt to falsify rather than attempt to verify a theory; and, furthermore, regard all theories as providing us at best with "provisional knowledge" of the empirical phenomena that it seeks to describe. The takeaway from Popper then for entrepreneurs is that they should conduct strategic experiments in order to let the flaws, if any, in their frameworks, i.e., "business plans" emerge as early as possible and then make course corrections quickly. It is, needless to say, not possible to verify the validity of a business plan; it is at best possible to falsify it in terms of what will work or will not work in specific contexts. Sull therefore sets out his suggestions on how firms must experiment with the presuppositions and propositional structure of their business plans before moving on to draw lessons from the work of Thomas Kuhn, who also worked in the philosophy of science but disagreed with Popper on the nature of scientific work. Kuhn, for instance, introduced the important difference between “normal science” (which is the work that scientists do every day without reflecting upon their epistemological axioms or presuppositions), and the problem of “paradigm shifts”, which is related to the changes that come to pass when new frameworks are invoked to explain empirical phenomena. So it is not as though scientific theories are falsified at once since those who are committed to a framework will look for alternative explanations only when an “anomaly” or a series of anomalies emerge(s). When scientists decide to work within a theoretical framework, it is analogous to making a long-term investment; this is why falsification in the Popperian sense, even when epistemologically possible, does not lead to instantaneous change, but requires the emergence of several anomalies to usher in a new framework. It takes the scientific community a lot of time to change their patterns of theoretical investments given the residues of the older paradigm. So, like firms that work with obsolete strategic approaches, scientific communities are also subject to the problem of active inertia given that a framework is often a collection of inter-connected theories rather than a single theory which can always be either decisively verified or falsified. It is therefore important to be alert to the uncertainty that will be introduced in both scientific theory and management theory when anomalies emerge.

Scientists therefore have to be proactive in thinking-through the need to construct theories that actually represent what constitutes the structure of the physical world and, analogously, that of socio-economic phenomena without getting bogged down by legacy systems in place. The significance of invoking Popper is also important for Sull because of the problem of epistemological and ontological commitments in the context of scientific theories. For Popper, the essence of the scientific mind was “under-commitment”; for Kuhn, it was “over-commitment”. Sull however argues that while a commitment to a strategic framework is inevitable, it is important to *optimize commitments effectively* rather than swing between the problems of too little and too much. It is easy to misunderstand Sull’s argument since most readers may be unable to distinguish between commitment to frameworks in general and a specific framework in particular. What Sull is advocating is the notion of commitment in the structural sense of the term—what strategic framework an executive commits to will vary depending on the needs and requirements of his particular firm and the environments in which it operates. But, irrespective of which framework is invoked, the firm must spend a certain amount of effort, money, resources, and time to make it work. The question however that a firm must ask is this: What is the level of commitment that is optimal now? And, how will the *optimization of commitment* make it possible to navigate the socio-economic turbulence in the world in which we live? Sull therefore sets out the symptoms of active inertia along with advice to CEOs on what they must do if they find that they have picked up some of these symptoms. He also discusses some “common anomalies” and “anomaly pitfalls”, and the learning from the study of such anomalies for the strategic frameworks in place. What this form of learning requires then is a kind of *epistemological vigilance* and the willingness to calibrate the levels of commitment to a scientific or strategic framework or a particular course of action according to the needs of the situation. It is much more cost-effective to make small mistakes quickly in order to generate a much-needed knowledge of the world that can serve as a guide to further action rather than get stuck within frameworks that are not responsive to the increasing levels of “turbulence, dynamism, complexity, and competition”. So while mental maps and frameworks are necessary, they are not sufficient; since ultimately decision-makers must take responsibility for what they do and how they lead.

What then is required to ensure that strategic frameworks retain a sense of dynamism without lapsing into something static? The answer is to develop a sense of “agility” both in terms of leadership style and in terms of the firm’s ability to respond to fast moving situations. Sull explains clearly what he means by agility by invoking the three types in which it is usually manifest. This is a general notion since it encompasses a range of domains and is not specific to businesses as such. The case study that accompanies the invocation of agility is itself, I would think, an example of theoretical agility on the part of Sull. The study pertains to the formalization of aerial combat by John Boyd, a fighter pilot and flight instructor for the U.S. Air Force, who wrote a riveting study of aerial combat in 150 pages. This manual, which is titled Aerial Attack Study, has become a mandatory source for training fighter pilots. It was written in response to the sense of wonder that Boyd experienced in trying to answer this simple question: How are we to explain the extraordinary hit-rate of the F-86 Sabre, which was the main strike aircraft of the U.S. Air Force over the Russian MiG which had much superior features and technology? The answer, needless to say, is linked to the problem of agility. Boyd identified three crucial attributes, which gave the F-86 a competitive advantage; these included a "bubble canopy", "full hydraulic controls", and "greater autonomy" in how the plane will fly. And, most importantly, the agility required for maximizing these opportunities. What these fighter pilots did furthermore was not to avoid turbulence; instead they actively sought out turbulence in order to convert them into opportunities. Boyd's formalization of the basic modalities of aerial combat then becomes the prototype of agility, for Sull, in the domain of strategic theory. Sull is also interested in the learnings from the approaches that characterize the U.S. Marine Corps as set out by Albert Gray in a text titled Warfighting, which is also preoccupied with the strategic agility required to negotiate turbulence. Here the assumption is that battle plans usually don't survive contact with the enemy; and therefore, is important to differentiate between a plan that is easy to implement in peace time and a strategic "plunge" that is more appropriate during combat. The learning for entrepreneurs here is that in turbulent environments they cannot anticipate all possible contingencies and must seek resort to strategic agility as the way forward. They must learn the modalities of reconnaissance and probes along with the maneuvers required to "pass surfaces and swarm gaps" in order to "finish strong". The learning from the notion of taking anomalies and agility seriously is not reducible to speed, but is linked to the challenges of effective timing.

Sull, needless to say, provides a description of the three forms of agility by differentiating between "operational agility", "portfolio agility", and "strategic agility". What this basically means is that in order to keep the "mental map" fluid and not static, the decision-maker must be willing to learn from any or as many sources as possible without making a fetish of the source. Each of these forms of agility is accompanied by advice on what a firm must do in each of these contexts along with the names of the firms that have in fact succeeded in doing so. Sull's advice also takes note of the locus in the firm's hierarchy from which an individual might act depending on whether he is a leader, follower, or a member. Agility then is not just a requirement for the CEO, but for all the members of the firm. What after all is the point of having an agile general if the officers and soldiers are not willing to be agile in battle? Boyd, as Sull points out, is only continuing with the tradition that recognizes the need for agility in the literature of strategic studies and strategic management (as represented in the works and strategic approaches of "Sun Tzu, Napoleon, and the architects of the German blitzkrieg"). Boyd however was not just a military philosopher, but also somebody who took the work of theorists like Karl Popper and W. Edward Deming seriously. What Popper and Deming (who is synonymous with the Quality movement) emphasized was the need to recognize the cognitive import of learning through "iterative loops"; which, in the case of Boyd, was termed the "OODA Loop". What this acronym stands for is Observe, Orient, Decide, and Act. Sull's contribution then is to formalize the "agility loop" as a further development on Popper's "experimental loop", the "Deming cycle", and "Boyd's OODA loop". He also builds upon the notion of "co-designing" with customers. This is a strategy that is used not only in the iterative approach to new product development, but also in the notion of "stage investment" that is deployed by venture capitalists to fund new ventures (depending on which "round" of the funding or development process that a firm or an entrepreneur finds himself in).

The essence of the effective leader in turbulent economies then is not only agility, but an optimal commitment to building agile organizations. But, needless to say, while agility is necessary, it is not sufficient. Sull therefore introduces the notion of strategic “absorption” by invoking an interesting case study of the clash between Muhammad Ali and George Foreman in 1974 at Kinshasa. These renowned boxers used different strategies. Ali deployed agility; Foreman used absorption. While it is not possible to win all battles using either of these strategies, it is nonetheless important for strategists to list the learnings from such strategic encounters. What Sull sets out to do then is to demarcate the circumstances when agility is required and those when absorption is needed. He then sets out to “deconstruct” this opposition and creates a new strategic approach that is neither fully about agility nor about absorption, but about “agile absorption”. This new approach will fortify a firm’s approach to strategy by incorporating the approaches of both Ali and Foreman in a deadly combination that would redefine these approaches as loci which either Ali or Foreman can occupy in response to the competitive dynamics that characterize turbulent or emerging economies. Sull comes to this conclusion after listing separately the pros and cons of having a strategic approach that is characterized by only agility or absorption, and argues that the ability to switch strategic positions effectively between these loci is what will generate competitive advantage for firms in the years to come. Or, as Sull puts it, in his concluding line, “I hope that the insights in this book help managers throughout the world balance agility with absorption to seize the upside of turbulence”.