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Human factor in time management

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Abstract

Time is the most important resource for leaders. Resources such as personnel, capital or facilities are crucial for leaders, but time is imperative. People's productivity, and hence organizations´ performance are heavily related to their time usage. Therefore, especially leaders should have conscious awareness towards their time personality. Time, however, is not an easy concept to handle for leader or even understand it. It has many different faces towards people. The challenge is that chronological time, where the business and management are done, is not nearly suitable when human relations and leadership are handled. Individuals´ experiences towards time differentiates to one another and different situations are constantly changing the experience of individual. Therefore, quite often, leaders recognize that it is hard to have schedules to match or plans to actualize within an agreed time. Some people fit more easily to same time reality with leader than others. Consequently, it is crucial for leaders also to understand how organization´s members experience their time and how conscious their awareness is. Before it is possible to manage one's own time usage, personal time orientation, biases towards time, situation has to be understood consciously. This article handles research regarding time ontology in leadership and management environment and regarding peoples´ conscious awareness towards time and differences in their time reality. Research is done by developing and utilizing application called Chronos & Kairos which main purpose is to give possibility for thorough research for peoples´ differences when experiencing time. Time ontology for leadership and management environment is presented as well as research and results of differences of people´s time reality. Article argues that people´s conscious awareness towards time differentiates and this issues should be recognized especially in leadership positions. Future research aspects and recommendations are also issued in this paper.

Keywords: Time; Management; Human factor; Leadership; Situationality

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1. Introduction

Peter Drucker [1] starts his article in Harvard business review with the sentence: "Success in knowledge economy comes to those who know themselves, their strengths, their values and how they best perform". In the article, Drucker handles personal management skills and emphasizes consciousness about oneself. Drucker has also observed that "effective executives do not start with their tasks, they start with their time". This way he underlines that time is a limiting factor. [2] Because of the nature of knowledge and managerial work, the difference between either wasting time, or using it wisely, is a matter of effectiveness and results. [2] Hence, the first step to be an effective manager is to learn manage oneself and one of the most crucial issues in it is learn to manage their time usage.

Generally, time is not an easy concept to master. Humans have learned different ways to handle time. It is possible to measure time's duration speed and numerical order with clocks [3], but this is far from really understanding time. There are different points of views to understand time. Newtonian, physics' point of view, towards time is that time is independent of other physical phenomena and absolute. On the other hand, in the general relations theory, it is stated to be as a fourth dimension of space and changes in it are irreversible. For instance, Sorli states that "physical time exists only as a stream of change". [4] There are also different ways to connect time to something what is more easy to realize. Boroditsky proposes that time can be understood as a spatiotemporal metaphors and this causes relations between space and time. However, she also submits that there is no evidence that these metaphors are necessary when thinking of time. [5] Despite the various definitions or metaphors, what is meaningful for managers is that time is a unique resource that cannot be stored, time is perishable, irreplaceable and has no substitute. Demand does not affect time and it has no price or marginal utility curve. One thing above all, when talking about time in modern working life, it is always short of supply, i.e. we are always lacking it. [1][6]

1.1. Time in leadership

Leadership research field is the right field for human factor in time management. Since leadership is at least trying to influence people [7], something that should be felt [8] and changing situations [9] [10] [11]. Holistic concept of man is the recognition that every human is special corporeality as the body and existence as an organism, having own consciousness mind and experience in environment of real world situations [9]. Therefore leadership is craving dynamism and that leadership approaches to where time is recognized should include issue of changing situation.

Leadership approaches which are also noticing time are the background of this research. Approaches scrutinized were: 1) Adaptive leadership [12], 2) Change-centered leadership [13], 3) Contingency theory [14] [15], 4) LAMPE model [16], 5) Leader member exchange theory (LMX) [17] [18], 6) Multiple linkage model of leadership [19], 7) Path goal theory [20] [21], 8) Situational leadership [22] [23], 9) Team leadership [17] [24] [25] and 10) Transformational leadership [26]. All of these approaches are taking into account that there are different situations or time is elapsing or boundary conditions are not similar in every situation.

1.2. Experience of time

Time can be divided into two categories: subjective time and objective time. [27] Objective time is same for everybody and it can be understood as chronological time, business time, where the speed of changes is same for every organization. Subjective time is heavily relativistic and the speed of it is dependent on many different factors. These factors are e.g. a person's way to utilize and sequence time, feeling, [27], a person's cultural background [28], situation, time pressure [29], lack of sleep [29] [30], personal traits [31] or planning personality [32] These are all examples of factors which affect a person's experience of time and are biasing experience from objective time.

A good concept for perceiving the difference between chronological time and experienced time is to be found from the ancient Greeks. According to Czarniawska [33], the Greeks divided time according to gods named Chronos (the god of time) and Kairos (the god of proper time). The difference between these two gods was that when Chronos measured time in mechanical intervals and Kairos "jumped and slowed down, omitted long periods and remained in others". In fact, the Greek word Kairós means time, place and circumstances of a subject.[33] The "Kairos" time is something that everybody has experienced. It is the proper time that people are living and feeling.

Everybody has experienced e.g., at some point of their life, a feeling of timelessness [34], i.e. "time flies". This, in extreme cases, can cause a phenomenon called flow, where person is completely focused and motivated. [35] On the other hand, everybody has experienced feelings when time has nearly stopped when doing something unpleasant or boring.

More satisfying situation make feeling towards time more positive and vice versa [27].Turnbull founded that executives appeared to maximize their time utilization in a hectic situation by packing every moment of the day with very intensive activities. Turnbull also states that this level of hecticness will imbalance the time spent on organizational duties or with the family. Leaders use compression as coping with the acceleration in organizational life, i.e. dealing with the shortening time frames. This means leaving things out and trying to get to the essence of things. [6] Sabelis founded that this mindset might speed up the acceleration by "implying that rational reduction of information, emotions and alternatives is necessary to reach organizational and individual goals." This might lead to a situation where attention to activities quality, creativity, open-mindeness, innovations and empathy is reduced. [36] If we compare this kind of compression of time to Drucker's [2] suggestion, where people "have to feel that we have all the time in the world", it is easily seen that it might affect decisions. Studies show the balance of personal life and work is the most or second most important attribute of the job and that many would change their job if it will improve the balance between work-time and self-time [37].

Person's development is also found to be a factor which makes time to be a positive thing. [27] Development activities are connected with job satisfaction and whether a person is future- or present-oriented. Development activities are always activities whose pay-offs will come in the future. If a person does not receive enough time for discretionary activities and rest and sleep, it may lower self-control and the possibility to behave unethically will raise [30]. Sleep-deprivation can be very harmful in time-pressured activities [29]

Personal traits of time abusers into four main categories: perfectionist, preemptive, people pleaser and procrastinator. [31] Strengthened with idea of Oncken & Wass [38] regarding delegating skills. People seemed to be characteristically optimistic towards schedule predictions. Optimistic future orientation biases planned schedule more than not so optimistic orientation. [32] Long term vision reduces biases effects compared to short term vison [27].

Jönsson [39] proposes that before people can manage their time, they have to work with the concept of time through a four-step metaphor. The first step is to recognize that time cannot be either accepted or denied. The second step is to find systematic ways to become aware of your time and its use. In the third step you have own thoughts and ideas of time and you in the middle of it, but you are also able to describe them. In the final, fourth step, you can master the concept of time as the possibility to compare and analyze your thinking of time with other methods and thinking processes. The fourth step should be achieved before more demanding processes can be successfully utilized. [39]

After Jönsson´s [39] fourth step it is possible to try handle time with way that Drucker describes in his three process time management model [1]. Drucker divides time management into three different processes: recording time, managing time and consolidating discretionary time into bigger sections. Discretionary time would be the ultimate goal to achieve in time management [1].Oncken & Wass [38] provide model for boss-imposed time, system-imposed time and self-imposed time for division model for time usage. Other models are also provided by Bandiera et al. [40] regarding time spent with outsider or insiders, Oshagbemi [41] regarding time spent in deskwork, meetings, giving or receiving information and regarding by different locations e.g. home, office and regarding by company time is spent, Tengblad [42] how big portions work is done i.e. how long periods leaders are able to concentrate to task at hand. Also divisions to self-time, interactional time and organizational time [6], clock time, organic time, strategic time, spasmodic time [44], entrepreneurial time and time as cooperation [45] Oshagbemi [41], Tengblad [42] and Bandiera et al. [40] also studied how long working weeks or days leaders do. This should also be recognized when managing time or making own time management model as Burt et al. [43] still to be kept in mind that time is limiting factor and not tasks. Therefore both, leadership and management issues should be looked through the lenses of time. Figure 1 illustrating time ontology developed for managerial use and for a background to time management research.

As seen from the figure 1 everything is linked to the conscious awareness of the manager in the spirit of Holistic concept of man [9]. If manager doesn´t possess conscious awareness of his own time reality and his own human
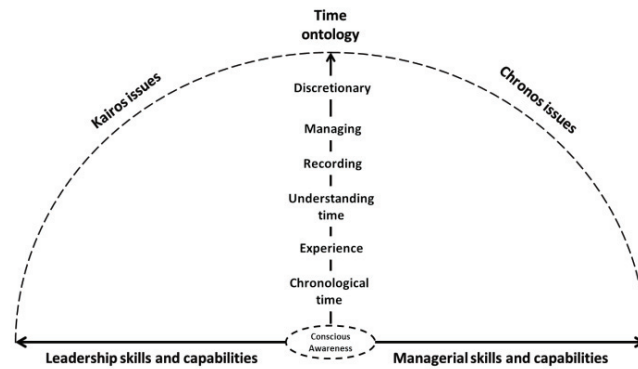
Fig. 1. Time ontology in managerial context.

factors in it, there might be some difficulties lurking in the forms of personal time management or in the organizations time management in either side, leadership or management. Therefore time is shown as a Kairos, "proper", experienced time in leadership and as a Chronos, even, mechanical, intervals in managerial side in the ontology.

2. Research

Since research´s purpose was to find out that every person possess unique time personality, statements were formed so that they will give a comparable picture about categories and features which reveal persons´ time personality in certain moment. Research was made by Evolute application called Chronos & Kairos, specially designed for this by corresponsive author of this article. Respondents answered for propositions so that they chose level from analogic answering scale for two point of views, current situation and desired target situation. Scales for answers were e.g. never, sometimes, usually and always but there were no steps, so that the slides could be adjusted freely.

All answers for propositions were handled as integers variables valued between 0 and 1. Respondents´ linguistic answers were formed to integers by fuzzy logic. Fuzzy logic is used in order to process linguistic data in computational, numerical ways. Fuzzy sets are ways to represent vagueness in linguistics. [46] These systems possess powerful reasoning capabilities. Fuzzy logic is used in the application to handle the imprecise information which is the nature of information in the human decision-making processes. There is also natural fuzziness in the evaluation processes of individuals. [47] Fuzzy logic controllers usually consist of four modules: fuzzification, interface, rulebase and defuzzification. [48]

2.1. Time features and time personality

Time ontology was constructed so that it includes different (n=24) features and categories (n=9) under these six main points which are shown in figure 1. These categories are divided under two main classifications: 1) managing time and 2) experiencing time. For assessing these, research contains 168 propositions which evaluate respondents´ current status and their target in future. Difference between current status and target status will reveal whether person wants to add or lessen features. Figure 2 revels these features.

Study was executed in 2013 – 2014 and consisted of 102 different respondents. Respondents were students, professors and specialists from Tampere University of Technology and Turku University of Applied Sciences, managers and experts from companies. Age variety was 19-69 and both genders were presented. Respondents answered to 168 propositions so that they set their present feeling and future target feeling to each propositions. Research was made by utilizing Co-Evolute research tool Evolute and closer statistical analysis was made by SPSS.

Figure 2 is illustrating results from whole tested group as in creative tension. Creative tension is considered to be peoples´ desired development direction and the felt importance how much it should be developed. Creative tension is difference between target status and current status.

As seen from figure 2 features are arranged so that largest positive creative tension is on the top of figure and largest negative creative tension is on the bottom of the figure. It is seen that motivation, gaining awareness of time´s value for human, having more thinker time and development possibilities are the top 4 what people felt that they will need more. On the other hand people needed to lessen their procrastination, workload, perfectionism and people pleasing features for most. Figure 2 also shows what have been magnitude of the different features. E.g. even that motivation as mediocre has been very high in current status, respondents have felt that they need motivation even more. Even that figure 2 is illustrating whole studied group, it could also be seen as an example of mixture of these features and it can be seen as persons´ specific time personality. Every individual has their own mixture and these are handled in next chapter.

2.2. Data in the research

As figure 2 is combined results from whole group, also differences and similarities between respondents are especially interesting in this research. Differences and similarities are studied by SPSS statistics analysis program. Every respondent´s every answers for every propositions were compared to every other respondents answers by three different cases: current status, target status and creative tension. Creative tension in this was calculated by target status variable subtracted with current status variable. Research data was consisting 102 respondents´ 168 answers for current status and 168 answers for target status. All together data mass consisted 34 272 variables as shown in equation 1, where *x* is number of variable and *n* is number of respondents.

$$x = n \cdot 2 \cdot 168 \tag{1}$$

All of these three cases were analyzed by Pearson´s product moment correlation and Spearman´s rank correlation coefficient. Because of capacity of used SPSS, Spearman´s correlation analyses were done only with 100 respondents. Pearson´s correlation analyses were done with whole data mass including 102 respondents. The number of different comparisons is *N* calculated as in equation 2, where *n* is number of respondents.
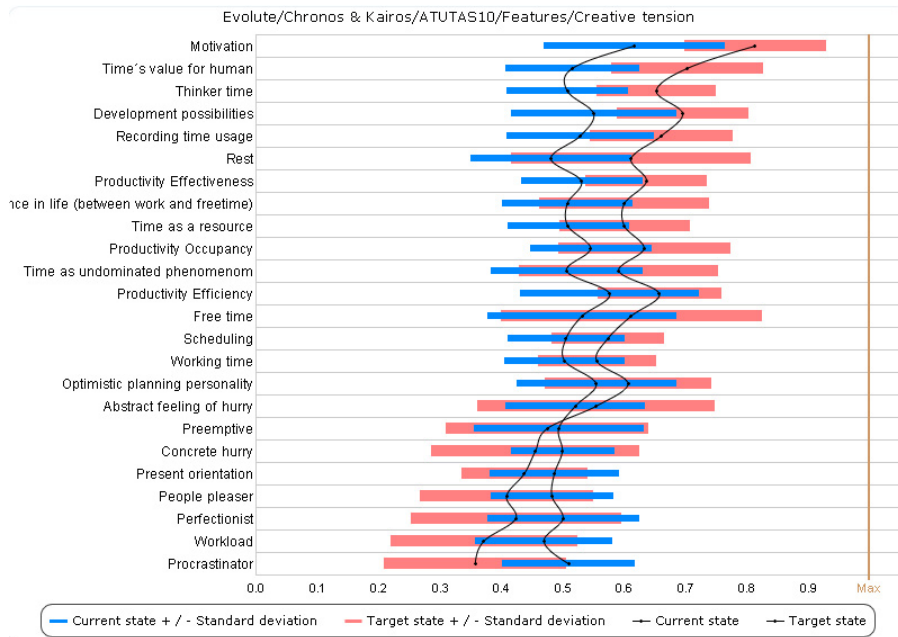
$$N = \frac{n \cdot (n-1)}{2} \tag{2}$$

Fig. 2. Creative tension with +/- variance.

Research was thereby consisted by three cases of Pearson´s analysis where there was 5151 comparisons between respondents and three cases of Spearman´s where there was 4950 comparisons.

2.3. Differences and similarities between respondents

Statistical significance was tested against the null hypothesis. The null hypothesis in every case was: "There are correlation between respondents´ answers." Table 1 is illustrating the results of these six cases tested. First column is implicating very significant positive correlation, second column significant positive correlation, third column is implicating very significant negative correlation and the fourth column is implicating significant negative correlation between respondents´ answers in each tested case.

Table 1. Number of statistically significant correlations in tested cases.

Cases tested	Positive correlation $p < 0,01$	Positive correlation $0,01 < p < 0,05$	Negative correlation $p < 0,01$	Negative correlation $0,01 < p < 0,05$
Current status Pearson´s analysis	1242	495	33	36
Target status Pearson´s analysis	2798	1491	0	2
Creative tension Pearson´s analysis	2538	915	7	15
Current status Spearman´s analysis	1137	463	30	39
Target status Spearman´s analysis	2655	652	0	0
Creative tension Spearman´s analysis	2257	319	32	24

As shown in table 1 there is distinctive gap between statistically significant positive correlations and negative correlations. Very significant positive correlations are prevailing clearly all cases. Also significant correlation has distinctive gap between negative correlations. The direction of the results is very clearly shoving that positive correlations are found from respondents´ answers. Table 2 is illustrating percentage of different correlations compared to all comparisons made in test cases.

Table 2. Percentages of correlation between respondents compared to all comparisons.

Cases tested	Positive correlation $p < 0,01$	Positive correlation $0,01 < p < 0,05$	Negative correlation $p < 0,01$	Negative correlation $0,01 < p < 0,05$
Current status Pearson´s analysis	24,1 %	9,6 %	0,6 %	0,7 %
Target status Pearson´s analysis	54,3 %	28,9 %	0 %	0 %
Creative tension Pearson´s analysis	49,3 %	17,8 %	0,1 %	0,3 %
Current status Spearman´s analysis	23,0 %	9,4 %	0,6 %	0,8 %
Target status Spearman´s analysis	53,6 %	13,2 %	0 %	0 %
Creative tension Spearman´s analysis	45,6 %	6,4 %	0,6 %	0,8 %

From table 2 it is clearly seen that positive correlations in target answers is remarkably high. In Pearson´s and Spearman´s analysis very significant and significant positive correlation was founded from 83,2 % and 66,8 % of all compared respondents, respectively. Also creative tension was positively correlated in both, Pearson and Spearman, tests with 67,1 % and 52,0 % shares. Current status´s percentages for very significant or significant correlation were not so high with 33,7 % and 32,4 % amounts where first is results from Pearson´s test and later one from Spearman´s analysis. Also interesting issue is that there are some signs that small amount, less than 1 %, of comparisons are indicating significant or very significant negative correlation in current status, but none in target status, as an exception of 2 comparisons in Pearson´s test.

From the results it could be shown that even when respondents´ targets were remarkably correlative there are still 16,8 % of respondents whose comparisons are not fitting to linear correlation, but more interesting is that there are almost a third, 33,3 % who are not fitting for rank correlation.

Different current situations of respondents has even more variation. Roughly two thirds of compared situations (66,3 % in Pearson´s and 67,6 % in Spearman´s tests) are not correlating statistically.

Here is to be stated that these results didn´t take account how these differences or similarities are occurring. Since this research is done only by basis of comparisons it is not explaining or even identifying which respondents caused correlation or lack of correlation.

3. Discussion

Time is an abstract and hard issue to understand but it is something that everybody recognizes. In many cases it is overlooked too easily and its fundamental basics are forgotten. Time is the most important resource for managers. It is something that cannot be dominated but can be exploited well if one's own experienced time is understood correctly. This study bonds time and leadership together in managerial context. The time ontology and application´s structure´s features provides a clear way for managers to benefit from time and see where to start in order to develop themselves in time management.

There is possibility to recognize leaders´ conscious awareness towards time by using statements developed in this research. Propositions are combined into bigger meanings via features and these features are revealing how leaders are feeling towards time and how aware leaders are towards these feelings. Even thou this is highly personal, and often quite strongly biased and phenomenon should always be scrutinized individual by individual, there are also signs for larger guidelines in time management.

This research pointed out quite clearly that there are similarities between people´s future aims regarding features that are exposing their time personality and desired development direction for them. Research also revealed that there are significant similarities in people´s situations, but even more clearly that people´s situations are not similar. Therefore every individual should assess their unique situation, unique time personality, personal aims and targets and made conscious, scrutinized decisions by which means s/he is going to develop the situation e.g. what are the features that need most of the attention.

3.1. Future research issues

After these research results more precise comparisons should be researched further. Even that this research was consisting very heterogenic respondents, some similarities were still quite strong. All respondents were graduated from university or were university students. Also almost all of the respondents were Finnish. Would there to be found better correlations if research would be repeated so that respondents would be only e.g. technology industry middle management or CEOs? Could there be found significant amount of negative correlations or more lack of any correlation, if research would be repeated between different cultures, social groups and education levels? These and many other issues should be further researched. Future research issues could also be cases where leaders´ time features are linked to features from other ontologies in managerial environment, such as leadership styles, leadership activities, management systems, emotional intelligence or innovativeness to mention a few. These interconnections may reveal even more and fruitful development possibilities in organizations.

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