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TEMPORAL EXPERIENCE AND THE COMPONENTS OF AGGRESSION

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Abstract
In this research we investigated the relationship between the components of temporal experience and the elements of aggression identified by Buss and Perry (1992). Furthermore, we hypothesized that the temporal variables will constitute predictors for the aggression variables. Thus we construed regression models in order to investigate the magnitude of influence of the temporal variables on the aggression ones. A sample of 147 individuals, 72 males and 75 females participated in the study. The obtained results indicated that specific temporal elements influenced each of the four aggression components.

Keywords: temporal experience, physical aggression, verbal aggression, hostility, anger

Introduction

According to a number of researchers, for example Yonge (1974), the perception of time and its subjective experience may offer valuable information for the understanding of normal and pathological behavior. Wallace & Shapiro (2006) maintain that the various categories of psychological disorders are characterized by a limitation of the temporal perspective which entails a weak extension beyond the present or an attenuated perspective. Shmotkin & Eyal (2003) argued that the personal way in which time is comprehended may be an essential element which influences the wellbeing of adults and elderly adults. The subjective perception of time represents a fundamental aspect of conscious thought and voluntary behavior. Dubé, Jodoin, & Kairouz (1998) consider that the temporal dimension of human experience represents an essential factor for

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understanding the way in which people evaluate the quality of their own lives. It has been reported in the literature that the personal way in which time is represented on the mental level is considered to be the primary context through which humans understand and attribute significance to their life experience.

The personality trait of aggression consists of four subtraits: (a) physical aggression and (b) verbal aggression (involve hurting or harming others) – represent the instrumental or motor component of behavior; (c) anger (involves physiological arousal and preparation for aggression) – represents the emotional or affective component of behavior; and (c) hostility, (consists of feelings of ill will and injustice) – represents the cognitive component of behavior (Buss & Perry, 1992).

The authors show that physical and verbal aggression correlated strongly, for both represent instrumental behavior. These two subtraits only weakly correlated with the cognitive component (hostility). Anger correlated strongly with the other three elements. Buss and Perry (1992) conclude that anger is a kind of psychological bridge between the instrumental components and the cognitive component. Furthermore they explain that after anger has cooled down (since it is a high-arousal state that diminishes over time), there is a cognitive residual of ill will, resentment, and perhaps suspicion of others' motives, hence the link between anger and hostility.

Since the elements of psychological time play such an important role in the life of the individual we considered that it should significantly relate to aggressive behavior. Thus we hypothesized that the elements that constitute personal temporal experience would represent important predictors for each of the four elements of aggression.

Methodology

Objective

The scope of this study was to identify the specific elements of temporal experience that play a role in aggressive behavior. More specifically we were interested in whether certain components of the temporal experience were individually related to certain facets of aggressive behavior.

Method

Participants

The study was carried out on a sample of 147 participants, 72 males (mean age 33.97 years; σ=11.9) and 75 females (mean age 30.83 years; σ=11.43). The sample was balanced in terms of social status, marital status and level of education. All subjects participated voluntarily.

Instruments

The different components of temporal experience were measured by several instruments. The Temporal Experience Questionnaire – adapted for the Romanian population (Roşeanu & Răşcanu, 2008) identifies four aspects of temporal experience: (1) *time management*; (2) *long term personal objectives*; (3) *procrastination*; and (4) *present time pressure*. The Temporal Structure Questionnaire – adapted for the Romanian population (Roşeanu, IN PRESS) identifies (1) *perceived significance in the use of personal time* and (2) *perceived structure in the use of personal time* as elements of temporal experience.

The last aspect of the temporal variable was *perceived control over personal time* which was measured with the Perceived Control over Time subscale of the Time Management Behavior Scale (developed by Hoff Macan, 1994). Validity studies regarding this instrument revealed satisfactory validity and fidelity coefficients (Hoff Macan, 1994).

Aggressive behavior was assessed with the Buss and Perry (1992) Aggression Questionnaire. This instrument identifies four aspects of aggression: (1) *physical aggression*; (2) *verbal aggression*; (3) *hostility*; and (4) *anger*. The authors established high validity and fidelity coefficients for the instrument and consider it to be extremely efficient for measuring individual components of aggression.

Procedure

The participants responded to the questionnaires in accordance with the criteria of administration of each instrument. The participants were instructed to respond as sincerely as possible and it was made clear to them that there were no "right" or "wrong" answers. Also it was specified that the participants shouldn't mark their name on the response sheet thus full anonymity may be

assured. In this case we assumed that the participants will be less likely to respond in a socially desirable manner. The instruments were administered in groups in paper-pencil format. The data was analyzed with SPSS version 15.

Results and discussion

Our objective was to identify the individual associations between the components of temporal experience and the elements of aggression. Since we used several instruments to assess the temporal variable, first, we were interested in establishing the extent to which all of the measured components of this variable were grouped under the same general factor. Thus we ran a principal components exploratory factor analysis on the measured temporal elements.

The results indicated (table 1) that two temporal factors were responsible for 72.93% of the variance. The first factor (explaining 53.27% of the variance) was the actual temporal experience factor which we were interested in; it contained the following temporal elements: (1) procrastination (negative loading); (2) long term personal objectives; (3) perceived significance in the use of personal time; (4) perceived control over personal time; and (5) present time pressure (negative loading).

Table 1. Factor loadings of the temporal elements

	Component	
	1	2
Procrastination	-,841	
Long term personal objectives	,813	
Perceived significance in the use of personal time	,783	
Perceived control over personal time	,770	,418
Present time pressure	-,766	
Perceived structure in the use of personal time		,888
Time management		,883

The second factor was a specific time structuring factor which we considered to be of less importance to our objective in this study. This factor was composed of the time management and perceived structure in the use of personal time elements. In a previous study by Roşeanu and Răşcanu (2006)

these elements were shown to be of situational nature and thus not a part of the person's specific behavioral pattern. In conclusion, based on these arguments, we further analyzed only the first temporal factor's relationship with the aggression components.

We used hierarchical regression analysis in which the five temporal experience components were considered the predictor variables and the aggression elements were considered the criterion. Thus four regression models were obtained, one for each of the aggression elements.

In the case of physical aggression our results suggest that only procrastination and long term personal objectives are of predictive and explanatory value (table 2). The other temporal elements seem to be of no importance for this component of aggression.

Table 2. Model summary for the regression model for physical aggression

Model	R	R^2	Std. Err.	R_{change}	F_{change}	df1	df2	P F_{change}
1	.221[a]	.049	6.98	.049	7.46	1	145	.007
2	.388[b]	.150	6.62	.101	17.18	1	144	.000
3	.406[c]	.165	6.59	.015	2.48	1	143	.117
4	.408[d]	.166	6.60	.001	.219	1	142	.641
5	.413[e]	.171	6.61	.005	.823	1	141	.366

[a] Predictors: (Constant), Procrastination;
[b] Predictors: (Constant), Procrastination, Long term personal objectives;
[c] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time;
[d] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time;
[e] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time; Present time pressure.
DV: Psychical aggression

In fact, only one of the two previously identified temporal factors seems to play an important role in determining physical aggression. The coefficients table for the regression model revealed that procrastination does not have a significant influence on physical aggression after the influence of long term personal objectives was removed from the equation (table 3). This last temporal element however, has an influence of 14.5% on physical aggression (large

effect). Also, we observe that there in a negative relationship between these variables.

Table 3. Coefficients for the regression model for physical aggression

	Unstd. coeff.		Std. coeff.	t	p	Zero order correlation
	B	Std. Err.	β			
Constant	34.27	5.57		6.146	.000	
Procrastination	-.662	.725	-.099	-.912	.363	.221
Long term personal objectives	-2.843	.686	-.452	-4.145	.000	-.381

It seems that the more a person has drawn up a set of realistic long term personal objectives the less likely it is for that person to engage in physical aggression. It is possible that having such objectives helps the person keep things (occurring events) in perspective and thus she is able to avoid manifesting behaviors that might put those objectives in jeopardy. In this case these objectives may play the role of buffer between anger and physical aggression. The person may get angry due to some undesirable event but then will avoid resorting to violence because she may think that manifest aggression may prevent obtaining the personal objectives in the long run.

It is also likely that individuals who are able to elaborate and keep in their minds a set of long term personal objectives are more rational, have better discipline and are less volatile people in general. Thus these basic personal characteristics may be then responsible for their ability to refrain from physical aggression.

Next we focused our attention of verbal aggression. There were only two temporal elements of importance for this criterion variable, perceived control over personal time and perceived significance in the use of personal time (table 4).

Table 4. Model summary for the regression model for verbal aggression

Model	R	R^2	Std. Err.	R change	F change	df1	df2	P Fchange
1	.049[a]	.002	3.77	.002	.342	1	145	.559
2	.088[b]	.008	3.78	.005	.771	1	144	.381
3	.235[c]	.055	3.70	.048	7.210	1	143	.008
4	.293[d]	.086	3.65	.030	4.707	1	142	.032
5	.294[e]	.086	3.66	.001	.100	1	141	.752

[a] Predictors: (Constant), Procrastination;
[b] Predictors: (Constant), Procrastination, Long term personal objectives;
[c] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time;
[d] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time;
[e] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time; Present time pressure.
DV: Verbal aggression

The coefficients table revealed that if the other predictor variables were removed from the equation long term personal objectives may play a statistically significant role in the case of verbal aggression (table 5). However, the very low correlation coefficient between these two variables persuaded us to ignore this statistically significant finding.

Table 5. Coefficients for the regression model for verbal aggression

	Unstd. coeff.		Std. coeff.	t	p	Zero order correlation
	B	Std. Err.	β			
(Constant)	20.87	4.16		5.017	.000	
Procrastination	-.180	.437	-.051	-.412	.681	.049
Long term personal objectives	.931	.415	.280	2.244	.026	.017
Perceived significance in the use of personal time	-.934	.511	-.211	-1.826	.070	-.174
Perceived control over personal time	-.202	.093	-.259	-2.170	.032	-.180

Furthermore we have observed that perceived significance in the use of personal time does not have a statistically significant influence on verbal aggression if the other predictor variables are removed from the equation. The only predictor variable that has any individual influence on verbal aggression is perceived control over personal time. However, its influence is only of moderate size, 3.24%.

Since the relationship between these variables is negative we consider that those persons who perceive a low control over the use of their personal time will have a higher tendency to engage in verbal aggression. It is possible that individuals who perceive a low control over their personal time also perceive a low controllability of their external and internal resources (in general). Thus, due to this underestimation of self and their surroundings they are less likely to engage in active coping and are more likely to react only verbally, mostly in a negative manner.

In the case of hostility, results show that procrastination, long term personal objectives and perceived significance in the use of personal time play an important role (table 6). The coefficients table shows a different picture however (table 7).

Table 6. Model summary for the regression model for hostility

Model	R	R^2	Std. Err.	R change	F change	df1	df2	P Fchange
1	.236[a]	.056	5.57	.056	8.578	1	145	.004
2	.311[b]	.097	5.47	.041	6.545	1	144	.012
3	.453[c]	.205	5.15	.108	19.493	1	143	.000
4	.456[d]	.208	5.16	.003	.474	1	142	.492
5	.457[e]	.208	5.18	.001	.099	1	141	.754

[a] Predictors: (Constant), Procrastination;
[b] Predictors: (Constant), Procrastination, Long term personal objectives;
[c] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time;
[d] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time;
[e] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time; Present time pressure.
DV: Hostility

It seems that only perceived significance in the use of personal time exerts a statistically significant influence on hostility after the other predictor variables have been removed from the equation. This influence is of large magnitude 19.45%. Also, we observe that the relationship between the predictor and criterion variable is a negative one. Thus the more a person

perceives significance in the use of her personal time, the less likely it is for her to manifest hostility.

Table 7. Coefficients for the regression model for hostility

	Unstd. coeff.		Std. coeff.	t	p	Zero order correlation
	B	Std. Err.	β			
(Constant)	41.07	5.319		7.723	.000	
Procrastination	-.754	.602	-.141	-1.252	.213	.236
Long term personal objectives	-.683	.561	-.135	-1.217	.226	-.310
Perceived significance in the use of personal time	-2.994	.678	-.446	-4.415	.000	-.441

Time is perceived as a precious resource. Thus, it is possible that if people consider that they are using this valuable resource in a significant manner and are not wasting it they will feel better and will respond in a more positive way to occurring events (even less desirable ones). On the other hand, if a valuable asset such as personal time is perceived as being wasted then hostility may grow towards others who are considered responsible for this waste or even towards the self (for wasting time or for allowing for this waste).

Finally, in the case of anger, almost all of the temporal variables were shown to be of importance. The only temporal element which did not emerge as influential was long term personal objectives (table 8). Again, the coefficients table revealed a different aspect on the relationship between the temporal and aggression variables (table 9).

Table 8. Model summary for the regression model for anger

Model	R	R^2	Std. Err.	R change	F change	df1	df2	P Fchange
1	.225[a]	.051	5.37	.051	7.766	1	145	.006
2	.275[b]	.075	5.32	.025	3.826	1	144	.052
3	.433[c]	.187	5.00	.112	19.717	1	143	.000
4	.476[d]	.227	4.90	.039	7.190	1	142	.008
5	.529[e]	.280	4.74	.054	10.527	1	141	.001

[a] Predictors: (Constant), Procrastination;
[b] Predictors: (Constant), Procrastination, Long term personal objectives;

[c] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time;
[d] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time;
[e] Predictors: (Constant), Procrastination, Long term personal objectives, Perceived significance in the use of personal time, Perceived control over personal time; Present time pressure.
DV: Anger

The inspection of the coefficients table reveals that only perceived significance in the use of personal time and present time pressure exert statistically significant influence on anger when the other predictor variables are removed from the equation. The individual influence of perceived significance in the use of personal time on anger is 5.8% which is considered a medium effect. The relationship between these variables is negative which indicates that more significance a person perceives in the use of her personal time the less likely it is for her to manifest anger.

The specific influence of present time pressure on anger is 5.38% which is a medium effect as well. The relationship between these variables is positive however. This implies that the more a person perceives that time is pressuring her the more anger she will experience.

Table 9. Coefficients for the regression model for anger

	Unstd. coeff.		Std. coeff.	t	p	r_0	r_{sp}
	B	Std. Err.	β				
(Constant)	32.62	6.124		5.326	.000		
Procrastination	-1.04	.569	-.204	-1.83	.069	.225	-.131
Long term personal objectives	.390	.546	.080	.714	.476	-.270	.051
Perceived significance in the use of personal time	-2.23	.664	-.347	-3.37	.001	-.427	-.241
Perceived control over personal time	-.241	.124	-.212	-1.94	.054	-.403	-.139
Present time pressure	1.47	.455	.282	3.24	.001	.406	.232

As in the case of hostility the relationship between anger and perceived significance in the use of personal time is easily explained. The

more a person considers that she is using a valuable resource such as personal time in an important (significant) manner the better she will feel and anger is less likely to appear (she will be content with herself and occurring events). It is an interesting result that this temporal element has a much greater influence on hostility than on anger. Perhaps this is due to the fact that perceived significance in the use of personal time and hostility are both of cognitive nature.

Present time pressure may induce anger in the same manner as any pressure situation does. In general, a pressure situation implies high arousal which is a breeding ground for anger. Thus, if the organism is already in a state of high arousal due to the fact that time is insufficient for the completion of a certain task the setting is ready for the appearance of the feeling of anger. All that the organism needs now is for the arousal to be perceived by the brain and be labeled in a particular manner.

Conclusions

In the present study we investigated the extent to which the components of temporal experience play a major role in the four elements of aggression identified by Buss and Perry (1992). First, our results indicated that physical aggression was greatly influenced by long term personal objectives. Thus it seems that these objectives play the role of buffer between occurring events and the expression of physical aggression. Second, it was shown that verbal aggression was only moderately influenced by perceived control over personal time. On the basis of this result we concluded that a perception of reduced control over the use of personal time is a characteristic of people who rather react verbally and not get involved in active coping strategies.

Hostility was shown to be greatly influenced by perceived significance in the use of personal time. It would seem that individuals who consider that they use the time resource in a significant manner feel better and thus are less hostile and feel less anger. This last aggression variable was also influenced by the mentioned temporal variable, only to a much lesser amount. Finally, we observed an influence, a moderate one however, of perceived time pressure on the feeling of anger. This is of no surprise since time pressure is characterized by a high level of physical arousal. This arousal needs only to

be perceived and labeled by the brain in order for anger to emerge as a genuine feeling.

We consider that the findings reported in this paper are of great importance for educational and community psychologists or any professionals that deal with the phenomenon of aggression. These findings suggest possible means of handling the different components of aggression by addressing the client's temporal experience.

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