



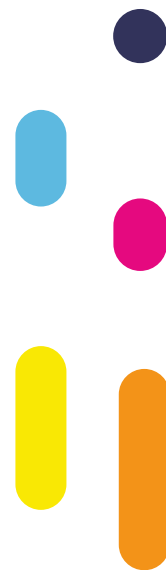
5th International Conference on Time Perspective

Book of abstracts

12th – 16th of July, 2021

Vilnius, Lithuania

Online conference





5th International Conference on Time Perspective

Online event

Book of abstracts

12th – 16th of July, 2021
Vilnius, Lithuania

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Conference website: <https://www.ictp2020.fsf.vu.lt/>

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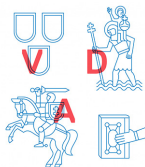
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Contents

Welcome Notes	10
Keynote presentations	12
Coping with Covid Via Time Perspective. <i>Philip Zimbardo</i>	13
Time in Prison as Contested Terrain: Temporal Regime Versus Temporal Resistance. <i>Michael G. Flaherty</i>	15
KĀLA: Classical Indian Philosophy on Perception of Time. <i>Audrius Beinorius</i>	16
Time Perspective: An Historical, Developmental Overview. <i>Frank C. Worrell</i>	17
Transformations of the Photographic Moment: From Silver Salts to the Digital Flow. <i>Agnė Narušytė</i>	18
Symposia	19
Time and Death: Interactions, Systematization, and Applications. Convener <i>Ksenia Chistopolskaya</i>	20
Ordinary and Altered States of Time Consciousness. Convener <i>Marc Wittmann</i>	23
Drawing Past and Future: How Autobiographical Memory Researchers Can Benefit From Being Not Limited to Verbal Report. Convener <i>Veronika Nourkov</i>	27
Timing, Self and Schizophrenia: Insights Into the Passage of Time. Convener <i>Anne Giersch</i>	30
Time In Motion: Behavioral, Electrophysiological and Molecular Effects of Movement Meditation. Convener <i>Tal Dotan Ben-Soussan</i>	33
Imagining Futures: “The Good, the Bad and the Ugly”. Convener <i>Anna Sircova</i>	36
Perspective Measurement: Current Issues and Future Directions. Convener <i>Liz Temple</i>	39

Oral presentations 41

Well-Being in the Pandemic – Test of Time Perspective-Based Interventions. <i>Boštjan Bajec, Alarith Uhde, Bor Vratinar, Kristna Rakinić, Gaja Natlačén, Andreja Avsec, Gregor Žvelc</i>	42
Knowing What to Do in Life: The Effect of Past Negative Time Perspective and a Life Design Intervention. <i>Sabrina Bresciani, Sebastian, Kernbach</i>	43
Time Perspective in Amnestic Mild Cognitive Impairment. <i>Sara Coelho, Alexandre de Mendonça, João Maroco; Sandra Cardoso, Manuela, Guerreiro</i>	44
Future Orientation, Wellbeing, Life Purpose and Academic Performance in Private University Students from Lima-Peru. <i>Erika Jassuly Chalen Donayre, Dora Isabel Paredes de Del Águila, Benjamin Lira Luttgés</i>	45
Correlates of Hope in Academically Talented Youth. <i>Dante Dixson</i>	46
Procrastination-Futurological Practices of Ukrainian Students. <i>Maryna Dvornyk</i>	47
Robotic and Human Time from the Perspective of Natural and Differential Repetition: Teleoperation of the iCub Humanoid Robot. <i>Augusto Francisco, Luigi Penco, Serena Ivaldi</i>	48
Mindfulness and Balanced Time Perspective: Predictive Model of Psychological Well-Being and Gender Differences in College Students. <i>Andrea Fuentes, Cristián Oyanadel, Philip Zimbardo, Melissa González-Loyola, Lening Olivera-Figueroa, Wenceslao Peñate</i>	49
Time Perception in Addiction: Evidence Across Different Addictions. <i>Lazaros Gonidis, Dinkar Sharma, Stauroula Sakarellou</i>	50
Investigating Spontaneous Motor Tempo Online with a Large International Sample. <i>David Hammerschmidt, Clemens Wöllner</i>	51
Time Perspective and Conflict Resolution Styles in Relation to Psychological Distress and Psychological Well-Being in Young Adults. <i>Chiluka Harish, Aruna Rose Mary Kapaneé</i>	52
Mimesis and Temporality: Mimetic Perception and Reduction of Reality. <i>Evelina Januškaitė-Krupavičė</i>	53
Let's Try Something Crazy: Estimation of Future Time Perspective from Data of Survey of Health, Ageing and Retirement in Europe. <i>Antanas Kairys, Olga Zamalijeva, Audronė Liniauskaitė</i>	54
Could We Avoid Time Linearity Imposed by Climate Change? <i>Justas Kažys</i>	55

The Embodiment of Balanced Time Perspective – How Interoception Can Regulate Our Wellbeing. <i>Olga Klamut</i>	56
Present Orientation as a Mechanism for the Victim-Offender Overlap. <i>Sebastian L. Kübel, Jessica R. Deitzer, Willem E. Frankenhuis, Denis Ribeaud, Manuel Eisner, Jean-Louis van Gelder</i>	57
Time and Space estimation: Is There a Time-Space Cognitive Map? <i>Umbelina Leite</i>	58
Personality Traits, Subjective Time, and Motivated Learning Strategies as Determinants of Academic Behaviors among Uruguayan University Students. <i>Tianna Loose, Alejandro Vasquez</i>	59
Examining Associations Between Time Perspective Dimensions and Tobacco Use in Three Samples of American Adolescents. <i>Zena Mello, Laura Finan, Julia Moon</i>	60
Time Perspective as a Source for Metacognitive Coping: Development of the Temporal Coping Inventory. <i>Olaf Morgenroth</i>	61
Three-Dimensional Localization of Personal Resources in Ukrainian Militaries. <i>Kateryna Myronchak</i>	62
Assessing Psychosocial Barriers and Facilitators of Covid-19 Vaccine Uptake in the United States. <i>Lening A. Olivera-Figueroa, Alexander Unger, Julie Papastamatelou</i>	63
Predictability of Time Perspectives on Adaptive and Maladaptive Stress Coping Styles of Puerto Ricans Living in Mainland United States and the Island of Puerto Rico. <i>Lening A. Olivera-Figueroa, Julie Papastamatelou, Alexander Unger, Gladys J. Jimenez-Torres, Nanet M. Lopez-Cordova</i>	64
The Matter of Time. <i>Patricia Olynyk</i>	65
Serenamente: A Mindfulness-Based Time Perspective Program for Chilean Adolescents. <i>Cristián Oyanadel, Lening Olivera</i>	66
The Way in Which Time Perspectives Influence German Business Leadership Through Self-Efficacy. <i>Julie Papastamatelou, Alexander Unger, Lening A. Olivera-Figueroa</i>	67
Experimentation of Time Management Supports. <i>Jean Luc Pilet</i>	68
Construct Validity of Occupational Future Time Perspective in Indonesia. <i>Debora Purba, Hilda Elsa Putri, Luthfia Putri Rizki, Aulia Elma Rabbika</i>	69
Teachers' Subjective Theories of time management: The Chilean Context. <i>Danielle Ramos, Cristián Oyanadel; David Cuadra-Martinez, Pablo Castro-Carrasco, Ingrid González</i>	70

The Illusion of Time Control – Comparison of the Relationship Between Time Perspective, Personality Traits and Job Satisfaction in Diverse Remote Working Environment. <i>Sanda Šalma, Kristīne Mārtinsone, Ervīns Čukurs</i>	71
Teenager’s Time Spent with Digital Devices, Their Symptoms of Digital Addiction and Well-Being. <i>Riin Seema, Mati Heidmets, Kenn Konstabel, Ene Varik-Maasik</i>	72
Temporal Perspective in Organizational Studies: A Dynamic Approach to Individual Differences at Work. <i>Joanna Sosnowska, P. Kuppens, F. De Fruyt, J. Hofmans</i>	73
Prison Time Experience – a Semantic Differential Study. <i>Kinga Tucholska, Małgorzata Wysocka-Pleczyk, Bożena Gulla, Przemysław Piotrowski, Stefan Florek, Martyna Sekulak, Kaja Głomb</i>	74
Spatial Metaphors of Inmates’ Time Experience. <i>Kinga Tucholska, Martyna Sekulak, Kaja Głomb, Bożena Gulla, Małgorzata Wysocka-Pleczyk, Przemysław Piotrowski, Stefan Florek</i>	75
Do Time Perspectives and Mindfulness Lead to Life Satisfaction? A Cross-Cultural Study. <i>Alexander Unger, Lening A. Olivera-Figueroa, Julie Papastamatelou</i>	76
Visionary Leadership, Future Temporal Focus, and the Reduction of Uncertainty and Stress. <i>Wendelien van Eerde</i>	77
The Asymmetry of Temporal Depth. Initial Psychometric Properties of a Spanish Version of the Temporal Depth Index. <i>Alejandro Vásquez-Echeverría, Lucía Alvarez-Nuñez</i>	78
Factors of Time Perception While Waiting: An Experience Sampling Study. <i>Isabell Winkler</i>	79
Measuring How Time Comes to Mind: The Time Consciousness Scale. <i>Isabell Winkler</i>	80
Integration of the Different Views on Time: Connections Between Time Perspective and Time Perception. <i>Joanna Witowska, Marc Wittmann</i>	81
Time Thieves, Enhancers, and Reflections: Examining Experiences of Leisure Time and Technology Use Through Reflective Time Tracking. <i>Anna Young</i>	82
Workshops	83
Time Scholars’ and Clinicians’ Personal Experience of Time: Do We Practice What We Preach? New Discoveries During the Pandemic and Beyond. <i>Elena Kazakina</i>	84
Mindful Embodiment of Balanced Time Perspective – a Time to Relax in the Here and Now. <i>Olga Klamut</i>	85

Art presentations 86

The Society of Campers in the Sea and the Sun. <i>Irena Alperytė</i>	87
Reaching for the Sky. <i>Olga Ast</i>	88
Animated. <i>Arturas Bukauskas</i>	89
Here Then, There Now. <i>Dovile Dagiene</i>	90
Static Time – Giuseppe Penone’s Artistic Strategies. <i>Deima Katinaitė</i>	91
Awareness. <i>Cristián Oyanadel, Philip Zimbardo, Lening Olivera-Figueroa</i>	92

Posters 93

Time Perspectives of Different Objects. <i>Boštjan Bajec, Kristna Rakinić, Gaja Natlačén</i>	94
Life Course as a Tool for Comprehending Experiences in the University Environment. <i>María del Rocío Guzmán Benavente, Karla María Reynoso Vargas, Paola Berenice Gurrola Domínguez, Cosme Francisco Maldonado Rivera, Oliverio Leonel Linares Olivas</i>	95
Ethnic Identity and Time Perspective in Latinx American Adolescents. <i>Betsy Paredes Centeno, Lena Azzouz, Julia Moon, Erick Romero, Zena R. Mello</i> ...	96
How Archetypes Influence Our Perception of Time. <i>Kristina Dryza</i>	97
Morningness-Eveningness Preference, Time Perspective and Passage of Time Judgement. <i>Marco Fabbri, Alessia Beracci, Monica Martoni</i>	98
Present Hedonistic Orientation and the Behavioral and Mental Responses During COVID-19 Pandemic. <i>Eve Isham, Sara Lomayesva</i>	99
Time Perspective Orientation and Emotion Regulation. <i>Svetlana Klimanova, Anna Trusova, Anton Gvozdetskii</i>	100
The Impact of a Time Perspective Educational Course on Students’ Intellectual Styles, Locus of Control, and Subjective Well-being. <i>Tat-Yeung James Kuan</i>	101
Perceived Racial/Ethnic Discrimination and Occupational Expectations in STEM among Asian American and Latinx American Adolescents. <i>Jules Kutner, Julia Moon, Zena R. Mello</i>	102
Time Perspective and Sexual Orientation. <i>Umbelina Leite</i>	103

Time Perspective Predicts Levels of Anxiety and Depression During the COVID-19 Outbreak: A Cross-Cultural Study. <i>Luigi Micillo, Pier-Alexandre Rioux, Esteban Mendoza Duran, Sebastian L. Kübel, Nicola Cellini, Virginia van Wassenhove, Simon Grondin, Giovanna Mioni</i>	104
Time After Time: The Test–Retest Reliability of the Adolescent and Adult Time Inventory. <i>Julia Moon, Colleen Hoff, Zena, Mello</i>	105
Time Perspective and Mental Health Outcomes in American Young Adults. <i>Julia Moon, Laura Finan, Colleen Hoff, Zena Mello</i>	106
Short version of the Zimbardo Time Perspective Inventory for the Chilean Population: An International Comparison. <i>Lening Olivera-Figueroa, Cristián Oyanadel, Wenceslao Peñate, Ignacio Jofré-Oliden</i> . .	107
Future Anxiety Measurement: Factor Structure & Psychometric Characteristics of the Dark Future Scale (DFS) in Uruguay. <i>Victor Ortuño, Joaquín Díaz, Alexas Murnikovas, Richard Rodriguez</i>	108
The Role of Slow Time in the Context of Fast Time. <i>Milda Pivoriūtė, Karolina Poškauskaitė</i>	109
Effects of the Production Rate of Linguistic Stimuli on the Perception of Elapsed Time. <i>Miria Plastira, Marios Avraamides</i>	110
Using the Zimbardo Time Perspective Inventory to Measure the Future Time Orientation of Homeless People. <i>Han Ravensbergen, Joel Anderson</i>	111
Proposal for the Cultural Adaptation of the Zimbardo Time Perspective Inventory for the Puerto Rican Spanish Dialect. <i>Ana M. Gutiérrez Ruiz, Lening A. Olivera-Figueroa, Gladys J. Jimenez-Torres, Nanet M. Lopez-Cordova, Cristián Oyanadel Véliz</i>	112
Time to Prepare for Retirement: Time Perspective Relationship with Financial and Career Retirement Preparation. <i>Raimonda Sadauskaitė</i>	113
Temporal Perspective and the Appreciation of Short Movies. <i>Catherine Savard, Joanie Drouin</i>	114
Individual Differences in Time Perspective and Mindfulness Affect the Perception of Waiting Time. <i>Oksana Senyk, Marc Wittmann</i>	115
Is Time Money? An Investigation of the Association Between Time Perspective and Socioeconomic Status in American Adolescents. <i>Jesse Simnegar, Julia Moon, Zena Mello</i>	116
Time Perspective Profiles and Positive Gaming Moments. <i>Alarith Uhde</i>	117
Time Perspectives in Human-Computer Interaction. <i>Alarith Uhde</i>	118
How Are Time Perspectives and Personality Traits Related to Temporal Satisfaction with Life? <i>Joanna Witowska, Paweł Łowicki, Oliwia Maciantowicz</i>	119

Welcome Notes

Dear participants of the 5th International Conference on Time Perspectives,

On behalf of the Organizing and Scientific Committees, we warmly welcome you to the 2021 International Conference on Time Perspectives. And I would like to add “in the beautiful city of Vilnius”, however I can’t. So, let us welcome you to this online platform.

The decision to organize the Conference in Vilnius was made in the year 2019. We were excited about the possibility to invite you all to Vilnius: to the courtyards and halls of Vilnius University, to cobblestone streets of Old Town included in the UNESCO World Heritage list, to many art galleries, to green spaces and parks, and to the baroque palaces and churches which gave Vilnius the name of Rome of the North. However, the pandemic forced us to postpone the Conference and to organize it online. We hope that you will be able to experience at least some of the charm of live conversations or even find some new and effective ways to communicate the research results and ideas related to time perspectives despite the online mode.

Let us invite you to a five-day journey through the astonishing keynote, oral and poster presentations, symposiums, workshops, and art presentations. We hope that you will have a productive and fun-filled time at this very special Conference.

The organization of the Conference, especially in these disrupted times, is a tremendous task. Therefore, I want to thank all members of the Organizational and Scientific Committees, volunteers, staff of Vilnius University for all the hard work necessary for the Conference.

On behalf of the Organizing and Scientific Committees

Antanas Kairys, Assoc. Prof. Dr.

Chair of Organizing Committee

Vilnius University

Lithuania

Dear Time Enthusiast,

It is with great pleasure we are welcoming you to the 5th International Conference on Time Perspectives! We are living in a very special time and we would like to use this forum to reflect on it from various perspectives.

The COVID-19 pandemic has brought into focus the importance of subjective time experience for all of us. What were our experiences with time during this and other crisis situations marked by a high level of uncertainty? During lockdowns, quarantines, and other periods of isolation, some have experienced a slowing or stoppage of time, while others have sensed a speeding-up; common to both groups is a sense of a foreshortened future in the face of rapidly changing facts and predictions, making planning for the future seem less salient or even less possible. Research indicates that people respond to a foreshortened future by focusing much more on the present, which is perceived as more manageable.

This Conference is not solely dedicated to COVID-19 effects, but looks at various approaches to the concept of time across various social disciplines. We aim to combine research, its applications, but also touch upon the arts. The pandemic brought in its edits to the timing and format of the Conference, however despite those we hope that you will enjoy the diversity of approaches and will come out enriched in various ways and perhaps with more questions, than answers, but as Kurt Vonnegut was saying, we “live and learn”.

Warmly,

Anna Sircova, PhD

Head of the Board

Time Perspective Network

Denmark



Keynote presentations

Philip Zimbardo has been a Stanford University professor since 1968 (now emeritus), having taught previously at Yale, NYU, and Columbia University. He is currently an emeritus professor at the Palo Alto University. P. Zimbardo has been given numerous awards and honors as an educator, researcher, writer, media contributor, and for service to the profession of psychology. He has been awarded the Vaclav Havel Foundation Prize for his lifetime of research on the human condition. P. Zimbardo has been President of the American Psychological Association, President of the Western Psychological Association, Chair of the Council of Scientific Society Presidents, and Chair of the Western Psychological Foundation. He is author of hundreds of journal articles, other professional publications and textbooks. His recent books include *The Lucifer Effect: Understanding How Good People Turn Evil* (2007), *The Time Paradox: Reconstructing the Past, Enjoying the Present, Mastering the Future* (with John Boyd, 2008), *The Time Cure: The Dynamic New Treatment For PTSD* (with Richard and Rosemary Sword, 2012), and *Man Interrupted: Why Young Men Are Struggling and What We Can Do About It* (with Nikita Coulombe, 2016). P. Zimbardo currently leads The Heroic Imagination Project, exploring and encouraging the psychology of everyday heroes.

Coping with Covid Via Time Perspective

Philip Zimbardo

(Professor emeritus at Stanford University and author of Zimbardo Time Perspective Inventory, books “The Time Paradox”, “The Time Cure”, founder and president of the Heroic Imagination Project, USA).

The year 2020 will undoubtedly be etched in our collective memories as one of—if not the most—difficult in our lifetimes. For millions of individuals, it will have been especially devastating as a year of loss through no fault of their own; loss of loved ones, livelihoods, and homes. The year 2020, like the “perfect” vision metric, can represent the goal of clarity, and like being fitted with corrective eyewear after suffering myopic vision for so long. In 2020, we can plainly see things that, for some of us, were perhaps too fuzzy to place in focus or hold our interest previously.

For many of us, we were forced to “stay put” becoming homebound for months on end. It was especially challenging for those of us living alone to be isolated for a full year. We now know that aloneness led to high anxiety and depression, along with increased drug use. Among couples, spouse abuse was rampant. Zoom education did now work well for those young students with Attention Deficit Hyperactivity Disorders (ADHD), many of whom, especially minority students, fell behind their grade level.

It became a time of “giving up” for many people everywhere. It is likely that in this past year external circumstances dominated your life choices. But if you feel there is nothing

to rejoice about, you may be in a present fatalistic time zone. It is critical to realize that portions of your life are NOT controlled by fates outside of your ability to change, modify, or temper what is not working for you so that you can always create a better reality. Make your mind matter most. Down with temporal negatives, up with temporal positives.

But as this hellish year winds down, even though it may seem too lofty a goal to reach, we each can personally take responsibility and set ourselves up to build a better and brighter future. And now is the perfect time to reset our psychological time clocks wisely and well.

The presentation covers highlights such as the effects of enforced social isolation, a review of the past year, the idea of enjoying the present, making plans to move forward, the brighter future via BTP and adopting a BTP to overcome the pandemic's negative psychological forces.

Michael G. Flaherty is a professor of sociology at Eckerd College in Saint Petersburg, Florida. He is the author of *The Textures of Time: Agency and Temporal Experience* (Temple University Press, 2011) and *A Watched Pot: How We Experience Time* (New York University Press, 1999). His newest book, *The Cage of Days: Time and Temporal Experience in Prison* (with K. Carceral). M. G. Flaherty is a deputy editor of *Social Psychology Quarterly*. He serves on the editorial board of the international journal *Time & Society*. He was the President of Society for the Study of Symbolic Interaction, Chair of Outstanding Recent Contribution in Social Psychology Award Committee, Social Psychology Section, American Sociological Association, and held many other positions in professional organizations. He specializes in social psychology, time and temporal experience, qualitative methods, and ethnomethodology. M. G. Flaherty is the author of multiple journal articles, books, book chapters, and keynote speeches.

Time in Prison as Contested Terrain: Temporal Regime Versus Temporal Resistance

Michael G. Flaherty

(Eckerd College and University of South Florida, USA)

In this presentation, I draw from a decade-long ethnographic study of time and temporal experience in prison. My primary informant served more than thirty years in twelve different penitentiaries. I draw from his personal experiences as well as his observations of and interviews with fellow convicts. In addition, I have collected data from more than fifty convict memoirs. Our book, *The Cage of Days: Time and Temporal Experience in Prison*, will be published in December by Columbia University Press. Those who design and run penitentiaries engage in institutional forms of temporal agency. They aim to impose totalitarian predictability on the way prisoners experience time. More often than not, they succeed: prisoners are subject to a strict temporal regime; they perceive time as an excruciating burden; they strive to disregard the long-term future; and, in cyclical fashion, they learn to mark time without the use of clocks or calendars. Moreover, prisoners pursue extensive, though largely ineffectual, forms of „time work“ or temporal agency. They attempt to reclaim temporal autonomy, and they enact various types of resistance in an effort to bring about temporal compression – the perception that time (i.e., their sentence) has passed quickly. The time work of prison administrators is meant to create temporal structure, whereas the time work of prisoners is meant to create temporal anti-structure. It turns out that these dialectical processes are equally agentive because they are equally sociological. Agency is rooted in choice, but the choices we make in social interaction are constrained by our circumstances. I conclude by observing that temporal agency is always conditioned by its social location.

Audrius Beinorius is a Lithuanian philosopher, orientalist (specialist of Indology, Buddhist studies, and Comparative Studies), translator. A. Beinorius has written more than 90 scientific papers in English, Lithuanian, Polish, and Russian, has published four monographs, made many translations from Sanskrit, Pali, Russian, English, French, German. The main scientific fields of prof. A. Beinorius are the Perception of Indian culture in the West, Indian philosophy, Indian religious history (Buddhism and Hinduism), Indian astrology and cosmology, Cultural Psychology, Postcolonial Studies, Methodologies of Comparative Religion Studies, Classical Indian psychology, Western Esoteric Movements in India (Theosophy and Freemasonry). He is a founder and former director of Confucius Institute at Vilnius University, was the director of the Center of Oriental Studies at Vilnius University, Editor-in-chief of the academic journal *Acta Orientalia Vilnensia*, Professor of Asian religions at Tartu University, Estonia.

KĀLA: Classical Indian Philosophy on Perception of Time

Audrius Beinorius

(Vilnius University, Lithuania)

Since ancient times, Indian philosophers have been developing very sophisticated descriptions and elaborated analyses of the concept of time. Even meditations on time were often prescribed as a method for reaching beyond destructive time to the timeless reality. During the presentation, a number of questions about the Indian understanding of the nature of time will be discussed. Namely, how time was conceived and personified in Hindu mythology and religion? How time was perceived and defined in ancient Indian texts on astronomy and time-keeping? How Indian philosophers discussed the problems of perceptual time and temporal perception? Is time real and can it be an object of visual perception? If time is an object of perception, why is it perceived not as an independent entity, but only as a qualification of perceptible objects? Is perception of empty time conceivable apart from perception of actions? How various Indian philosophical schools (Nyāya, Vaiśeṣika, Yoga, Vedānta, Buddhists) analyse the two most important constituents or characteristics of time—the perception of duration and of succession? Why some, as Nāgārjuna (2nd century AD), deny the existence of the present time and—consequently—deny perception of the present? How, by explaining away the fact of unity and continuity of consciousness in line with their doctrine of the momentariness, the Buddhists deny the ‘specious present’ and hold that time is a perpetual flux of discrete impressions and a cluster of successive presentations. Similarities and differences between philosophical schools regarding the epistemological description of the present, future and past times will be presented as well.

Frank C. Worrell is a professor in the Graduate School of Education at the University of California, Berkeley. His areas of expertise include academic talent development/gifted education, at-risk youth, cultural identities, scale development and validation, teacher effectiveness, time perspective, and the translation of psychological research findings into school-based practice. He was an editor, co-editor and member of the editorial boards of several journals. F. C. Worrell received multiple awards from different professional organizations. He is the author of more than 200 articles and book chapters. Book publications include *Achieving College Dreams: How a University-Charter District Partnership Created an Early College High-School* (2016; co-edited with Rhona S. Weinstein), *Talent Development as a Framework for Gifted Education: Implications for Best Practices and Applications in Schools* (2018; co-edited with Paula Olszewski-Kubilius and Rena F. Subotnik), and *The Psychology of High Performance: Developing Human Potential into Domain-Specific Talent* (2019; co-edited with Rena F. Subotnik and Paula Olszewski-Kubilius). F. C. Worrell is the 2021 President-Elect of the American Psychological Association (APA).

Time Perspective: An Historical, Developmental Overview

Frank C. Worrell

(Berkeley University, USA)

In 1939, Lawrence K. Frank wrote “all human conduct ... is conditioned by the time perspectives of the individual (p. 294). Frank’s claim about the importance of time perspective as a construct was not unique. Other theorists in the same time period (e.g., Hulett, 1944; Lewin, 1935, 1939, 1942) also commented on the importance of this construct. For example, Lewin (1953) noted that an individual’s behavior does not depend entirely on present circumstances but is also dependent on expectations for the future and memories of the past. And Erik Erikson (1950, 1968) included time perspective constructs in his lifespan theory of psychosocial functioning. In this presentation, Dr. Worrell will present an historical overview of research on time perspective using development as a metaphor. The presentation will begin with the birth of time perspective as a psychological construct, and move on to time perspective’s youth when the focus was almost entirely on future-oriented variables such as optimism, consideration of future consequences, perceived life chances, and hope. Time perspective research matured into adolescence with a focus on (a) multiple time periods (signaled by the introduction of the Zimbardo Time Perspective Inventory; Zimbardo & Boyd, 1999), (b) different facets of time perspective (e.g., time attitudes, temporal focus), (c) valid measurement of time constructs, (d) non-traditional time constructs (e.g., altered states of consciousness, prospection), and (e) the application of time perspective theory and constructs to societal concerns (e.g., Fieulaine, 2019). He will conclude with some thoughts about where time perspective research needs go to transition from adolescence into emerging adulthood.

Agnė Narušytė is an art critic and curator interested in contemporary photography and art and linking photography, philosophy, and psychology. She is an associated professor at the Vilnius Academy of Arts. A. Narušytė curated the photographic collection of the Lithuanian Art Museum, photography exhibitions at the Center for Contemporary Art, Vilnius Picture Gallery, and compiled several exhibition catalogs and photography albums, also lectured at the Vilnius Academy of Arts and Edinburgh Napier University (UK), edited the foreign culture page of the Lithuanian cultural weekly “7 meno dienos” and created programs on culture for the Lithuanian National Television. She published three monographs: *Aesthetics of Boredom in Lithuanian Photography* (2008), *Lithuanian Photography 1990–2010* (2011; in Lithuanian) and *Camera Obscura: History of Lithuanian Photography 1939–1945* (2016 in Lithuanian; with Margarita Matulytė).

Transformations of the Photographic Moment: From Silver Salts to the Digital Flow

Agnė Narušytė

(Vilnius Academy of Arts, Lithuania)

Digital photographic images have spread across culture, and it is impossible to bypass the digital turn in the discussions on acceleration and the present. According to the philosopher Peter Osborne, this ‘post-photographic culture’ is the ‘representational form’ of the ‘fictional presentness’ and the stasis of the contemporary. Contemporaneity is heterogenic and composed from differences joined into the ‘disjunctive unity’ of ‘live present’. Each moment frozen in photographs represents the ‘annihilation of temporality by the image’ as well as the disruption of the temporal structure of modernity and nature (Anywhere or not at all: *Philosophy of Contemporary Art*, Verso, 2013, pp. 24–25). Yet the digital flow of photographs also annihilates the pastness of the moment, thus complicating our perception of time further. It gives new functions to the textures of past technologies and disrupts the link between the image and reality. Photography becomes a ubiquitous presence in all areas of culture, a seam connecting different media, experiences and realities and accelerating the exchange of meanings. Thus, photography not only represents contemporaneity, but also (per)forms it. Artists use it to create complex time-images of contemporaneity as a reflection on temporality. These transformations will be explored by analysing recent photographic works of several Lithuanian artists: *Interiors* (2010–2014) by Jurgita Remeikytė, *Shaman* (2012) by Algirdas Šeškus and *Ocean* (2017), by Akvilė Anglickaitė.

Symposia

Title of symposium:

Time and Death: Interactions, Systematization, and Applications

Convener: **Ksenia Chistopolskaya***

(Eramishantsev Moscow City Clinical Hospital, Russia)

* Corresponding author: ktchist@gmail.com

Symposium abstract: Attitudes toward time and death are tightly intertwined, as death means the end of individual time. This became the topic of study for 3 researchers. Olga Mitina will present her findings on TP and death attitudes from Uzbekistan; specifically, she found strong relations between Present Hedonistic, Past Positive and fear of the consequences of death for personality and death avoidance, as well as between Past Negative and escape acceptance of death. Ksenia Chistopolskaya will present her systematization of fears and attitudes towards death from the position of self-continuity, on the basis of regression analysis. Specifically, she analyzed the loadings of positive and negative time perspectives and hardiness subscales on each and every death concept, and thus distinguished adaptive, maladaptive and defensive attitudes toward death. Timofei Nestik will speak on the application of these death studies: his work is about attitudes to global risks and how attitudes toward death impart them. He found that adaptive death attitudes reinforce the need for cooperation, while maladaptive and defensive attitudes toward death reinforce fatalistic ignoring of global risks. These studies impart understanding that death attitudes are formed in individual history and show the need to acknowledge these attitudes in psychotherapy and social planning.

Keywords: self-continuity, time perspective, DBTP, climate change, attitudes to global risks, social generativity, fears of death, death attitude, resilience, hardiness, proactive coping

Discussant: **Jonte Vowinckel**

COMMUNICATION 1

Attitudes Toward Death and Self-Continuity: Adaptive, Maladaptive and Defensive Views on Death in Students

Ksenia Chistopolskaya* (Eramishantsev Moscow City Clinical Hospital, Russia),

Sergey Enikolopov (Mental Health Research Center, Russia)

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Death means the end of individual time, that's why time perspective and, in broader terms, self-continuity influence the way people view death. Our objective was to distinguish

adaptive, maladaptive and defensive attitudes toward death on the basis of individual time orientations, DBTP, and hardiness. Our respondents were 967 students (457 males, aged 17-37); they answered ZTPI, Hardiness Survey, Death Attitude Profile Revised and Fear of Personal Death Scale. The analysis of the regression models, in which the DVs were the scales of DAP-R and FPDS, and IVs – scales of ZTPI and HS, allowed to distinguish adaptive, maladaptive and defensive attitudes toward death in these young adults. As adaptive we counted those scales, which had the loadings of positive time orientations and hardiness, which were the Fear of consequences of death for personality, Fear for family and friends, Neutral Death Acceptance, as maladaptive (with the loadings of negative TPs) – Escape Acceptance of Death, Fear of being forgotten. Fear of Death, Death Avoidance, Approach Acceptance of Death, as well as Fear of transcendental consequences, Fear for body revealed themselves as defensive attitudes. The applications of these findings are broad – from counseling and psychotherapy to management of fears in social context.

Keywords: self-continuity, time orientations, DBTP, hardiness, death attitudes, death fears

COMMUNICATION 2

Time Perspective and Attitudes Toward Death

Olga Mitina* (Lomonosov Moscow State University, Russia),

Margarita Bondareva (Sankt-Peterburg State University, Russia)

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This study was aimed at identifying the correlations between the personal time perspective and attitudes toward death. 670 participants living in Uzbekistan of different ethnicity and religiosity (both gender, age 17 – 63) took part in this study. 3 instruments were used: “Death Attitude Profile Revised”, “Fear of personal death”, ZTPI. We conducted a correlation analysis between the ZTPI scales and the components of the attitude to death. People, who focus on the Present Hedonistic and Past Positive, fear the consequences of death for personality and try to avoid the topic of death. Such people usually live in the present, enjoying the moments lived in life. Death in this case will put an end to all the joys of life, which are very significant for them. It is also worth noting the direct weak connection of the Past Negative with the acceptance of death as an escape. Such results, in our opinion, are due to the fact that negative events that happened in the past put a strong imprint on the subsequent perception of life; sometimes the only way to cope with this kind of experience is through the perception of death as a way to avoid own suffering.

Keywords: ZTPI, Past Positive, Past Negative, Present Hedonistic, death attitudes, death fears

COMMUNICATION 3

Attitude to Global Risks, Responsibility for Future Generations, and Fears of Personal Death Among Russian Young Adults

Timofei Nestik* (Institute of Psychology of the Russian Academy of Sciences, Russia)

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The results of a study conducted among Russian students ($N = 521$), devoted to the study of the relationship between fear of death, attitude to global risks, social generativity, and proactive coping strategies, are presented. Responsibility for future generations is directly related to person's assessment of her ability to influence the future and helps overcome a fear of death by supporting the belief that prosocial behavior contributes to well-being in the afterlife. In accordance with the terror management theory (Solomon et al., 1991), it is shown that the attitude towards death makes the greatest contribution to the orientation towards a return to traditional religious values and control over citizens to prevent a global catastrophe. The adaptive attitudes towards death (neutral acceptance of death, fear of the loss of self-fulfillment and fear of the consequences to family) reinforce the belief in the need for cooperation to anticipate and prevent global risks, as well as the willingness to participate in disaster prevention. The maladaptive and protective attitudes toward death (acceptance of death as an escape, death avoidance, fear of the loss of social identity, fear of self-annihilation) reinforce apocalypticism and fatalistic ignoring of global risks. The attitudes to global risks associated with resilience and proactive coping are highlighted. The findings indicate that a reminder of death in the news about global risks may shift public opinion towards conservative attitudes.

Keywords: climate change, attitudes to global risks, social generativity, fears of death, death attitude, resilience, hardiness, proactive coping

Title of symposium:

Ordinary and Altered States of Time Consciousness

Convener: **Marc Wittmann*** (Institute for Frontier Areas of Psychology and Mental Health, Germany)

* Corresponding author: wittmann@igpp.de

Symposium abstract: A recent conceptual framework suggests that physiological changes of the bodily self, the basis of our feeling states, form an internal signal to encode the duration of external events in the time range of several seconds. Fluctuations in conscious awareness between the extreme states of flow and boredom already reveals that the senses of time and the bodily self are modulated together. This relation is even more strongly evident in altered states of consciousness (ASC) induced with different psychological or psychopharmacological induction techniques. A peak experience as reached in such states can occur as culminating in feelings of 'no self' and 'no time'. This symposium aims at presenting the scope of time experiences and the underlying neural mechanisms. Alice Teghil will talk about her latest research showing how time perception is based on interoceptive awareness and insula cortex processing. Marc Wittmann will exemplify how an altered sense of time and self can positively affect psychiatric syndromes. Federico Alvarez and colleagues will provide empirical evidence on the relationship between flow states and subjective time. Cyril Costines presents an analysis of how the sense of time and self are radically changed in states of deep meditation in very experienced meditators.

Keywords: interoception, timelessness, selflessness, flow, meditation

Discussant: **tbc**

COMMUNICATION 1

How Does It Feel to Be on the Verge of a Blackout?

Cyril Costines* (University of Magdeburg, Germany)

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According to highly experienced meditators, a sense of emptiness may occur during mediation, accompanied by timelessness, selflessness and blissful awareness (Metzinger, 2018). Similar phenomenological reports are found in people with ecstatic epilepsy, describing the phenomenal content experienced prior to the epileptic loss of consciousness

(Picard & Craig, 2009). Paradoxically, however, the ability to report retrospectively a selfless state presupposes the instantiation of an autobiographical self-model during that state, while its instantiation is a condition of impossibility for that state (i.e., refrigerator light problem). Drawing from the idea of minimal phenomenal experience (Metzinger, 2018) and an interview with the Buddhist lama Tilmann Lhündrup Borghardt on the phenomenology of emptiness (Costines, Borghardt & Wittmann, manuscript in preparation), this talk introduces a new (oxymoron-like) concept dealing with the abovementioned logical problem: Inspired by the informal term blackout for temporary loss of consciousness, a luminous blackout is a transitional configuration of consciousness on the threshold between experience of absence (i.e., wakeful state sans intentional content) and absence of experience (i.e., no consciousness tout court). The phenomenology of luminous blackout is characterized by the absence of a superimposed spatio-temporal structure of phenomenality (i.e., structural emptiness), while the mere phenomenal field is experienced as luminous.

Keywords: Timelessness, selflessness, meditation

COMMUNICATION 2

Flow and Time Perception in Video Games: Estimating the Duration of VR and On-Screen Gameplay Sessions

Federico Alvarez Igarzábal* (Institute for Frontier Areas of Psychology and Mental Health, Freiburg, Germany),

Hans Rutrecht (Department of Psychology, University of Freiburg, Germany),

Shiva Khoshnoud (Institute for Frontier Areas of Psychology and Mental Health, Freiburg, Germany),

Marc Wittmann (Institute for Frontier Areas of Psychology and Mental Health, Freiburg, Germany)

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The flow state studied by Csikszentmihalyi includes the loss of the sense of time as one of its defining characteristics. Despite time loss being so central to flow states, the connection between time perception and flow is still understudied. The study presented here focused precisely on this relation in the context of video game play. Participants ($n = 100$) played the rhythm game Thumper for 25 minutes in one of two conditions: in virtual reality (VR) and on a normal computer screen. Results show that Thumper is flow inducing and that the more flow participants experienced, the less they thought about time and the faster time passed in their experience. Furthermore, objective measures of player performance (e.g. score) were positively correlated with flow states, meaning that the better participants played, the more flow they experienced. Interestingly, there was no difference in flow state between the two conditions. Participants who played the game in VR did report a significantly stronger feeling of presence, which suggests that their flow experience was not directly affected by this factor.

Keywords: Video gaming, virtual reality, flow

COMMUNICATION 3

Interoceptive Processing and Time Perception: a Context-Dependent Account

Alice Teghil* (Cognitive and Motor Rehabilitation and Neuroimaging Unit, IRCCS
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Interoception – namely, the perception and integration of bodily signals – has been proposed as a key mechanism for the representation of time; however, its functional significance for duration processing is still unclear. In a series of studies, we investigated the relation between time perception and processing of endogenous information according to context features. First, we provide meta-analytic evidence that temporal representations derived independently from environmental cues involve specific brain networks. Then, using a novel paradigm assessing interval reproduction with regular or irregular cues, we show that the awareness of visceral sensations selectively predicts reproduction when external cues are not informative about elapsed time. We also show that interval reproduction accuracy in this condition is related to individual variations in the strength of resting-state functional connectivity between brain regions integrating interoceptive and exteroceptive cues, and to variations in intrinsic connectivity of the right insula, considered the primary interoceptive cortex, within a network modulated by individual differences in interoceptive awareness. Finally, we show that impaired interval reproduction with irregular, but not regular cues is related to right insular cortex lesions. These findings suggest that the role of interoception in time perception may be better understood from a context-dependent perspective.

Keywords: interoception, insular cortex

COMMUNICATION 4

How Altered States of Time Consciousness Can Positively Affect Psychiatric Illness

Marc Wittmann* (Institute for Frontier Areas of Psychology and Mental Health, Freiburg,
Germany)

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In altered states of consciousness (ASC) such as in meditative states, as experience in the floating tank, or under the influence of psychedelic drugs, a peak experience can occur which later can be described as culminating in positive, oceanic feelings of ‘selflessness’, ‘of oneness with other people and the world’ as well as ‘timelessness’. In many psychiatric syndromes, individuals show hyper-awareness of the self and of time. Patients are hyper self-aware,

negative affect is high, and time drags. Moreover, those patients feel a loss of connection with other people. The core features of ASC are thus antithetical to psychiatric symptoms. In recent years, scientific reports have accumulated which show positive effects of ASC induction on psychiatric symptoms, i.e. through meditation, exposure to the floating tank, and prominently so with psychedelic substances such as psilocybin, LSD, and ayahuasca. Research is accumulating on the underlying mechanisms of how the symptoms of anxiety, depression, or drug dependence are reduced through induction of ASC. The modulations pertaining to the feelings of self and time are part of this process. Recent empirical evidence is presented and discussed.

Keywords: Timelessness, selflessness, anxiety, depression, meditation, psychedelics

Title of symposium:

Drawing Past and Future: How Autobiographical Memory Researchers Can Benefit from Being Not Limited to Verbal Report

Convener: **Veronika Nourkov*** (Affiliation Lomonosov Moscow State University, Russia)

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Symposium abstract: Typically, scholars assess autobiographical memory by examining unrelated memories that people report in response to cue-words or by the interview method. Alternatively, in a lifeline task participants get a standard sheet of paper with a horizontal arrow line printed across, accompanying by the following instruction: “Consider this paper as representing your past / future / life of a typical person, locate the most important events with respect to the timeline, give brief titles, put the age when each event happened / will happen, and indicate the valence and intensity of the emotions associated with each event by the distance from the arrow to the top (positive) or to the bottom (negative)”. This method provides a holistic perspective on the personal past and future, allowing the visualization of the entire structure of autobiographical memory. When people draw a picture of their past and future they get a chance to express graphically more than it is possible to do through a verbal report, e.g. to structure a temporal sequence of memories and future prospects, to convey relative intensity of emotions, and to control occasional associations. This symposium provides an overview of the empirical findings, which were obtained by the lifeline drawing methodology.

Keywords: Lifeline methodology, autobiographical memory, future thinking, biographical reasoning

Discussant: **tbc**

COMMUNICATION 1

Vicarious Memories in the Personal Past Predict Empathy, but Differently in the Chinese and Russian Samples

Alena Gofman* (Lomonosov Moscow State University, Russia)

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People not only have autobiographical memories of their own personal experiences, but also form and retain vicarious memories of events that happened to other people but perceived as a valuable part of one's own life story (Pillemer, et al., 2015). These memories may be

used to take lessons from other people's experiences and to support empathizing with other people. The study focused on self-reported empathy as assessed by the Interpersonal Reactivity Index (IRI) and the level of vicariousness of memories that were put on lifelines by the younger and older Russian and Chinese participants. The 5-point scale for assessing vicariousness of autobiographical memories was developed. The study revealed that whilst in the Chinese participants (N=96) the scores on empathic concern and perspective taking subscales of the IRI were directly predicted by the number of memories with the medium level of vicariousness, in the Russian participants there were more sophisticated correlations. The younger Russian participants (N=84) demonstrated the negative impact of highly vicarious memories to the predicted scores on the fantasy and empathic concern subscales of the IRI. In contrast, in the older Russian participants (N=64) vicarious memories successfully predicted the increase in scores on perspective taking subscale of the IRI and the decrease in scores on personal distress subscale of the IRI. To sum up, in this age group, the vicarious component of autobiographical memory can be considered as a productive resource for enhancing the cognitive aspect of empathy and reducing the negative side effects of affective empathy on psychological well-being.

Keywords: Lifeline methodology, vicarious memories, empathy, cross-cultural psychology

COMMUNICATION 2

Future in Detail: What Do People Include in the Prospective Lifelines?

Veronika Nourkova* (Lomonosov Moscow State University, Russia)

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It is trivial to state that people are able to imagine possible future events and plans. But it is still much to learn about how this future prospection is organized in terms of the entire structure. What does the future look like through the lens of young people? When does the future start / end? Are there any significant differences between people with short and long future perspective? How many events are anticipated in the future? Which events does the future consist of? Does the personal future look optimistic or pessimistic in comparison with the personal past or in comparison with the universal cultural life script? Is it true that our mental images of the future made of memories? To what extent does the positive past predict the positive future? What is the happiest anticipated event? What is the saddest one? Do people consider a death as a part of their future? We addressed these questions by analyzing 226 sets of lifelines. The participants performed a lifeline task for their childhood, personal past, personal future, and a life of a typical person. It was found that the long future perspective was associated with a shift of the most important anticipated events to the later decades of life. The regression analysis revealed that the graphically expressed positivity of a life of a typical

person predicted an optimistic personal future. The fifth decade of life was attested by the participants as the saddest with surprised recover of a personal well-being in the sixth decade.

Keywords: Lifeline methodology, prospective autobiographical memory, future thinking

Communication 3

In the Search of Happiness: Where Is It on a Timeline? The Data from Eye-Tracking Study

Maria Semenova* (Lomonosov Moscow State University, Russia),

Gleb Vzorin (Lomonosov Moscow State University, Russia)

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This study was aimed to examine biographical reasoning about another individual's life, i.e. an ability to create causal links between one's life experiences and their implications for his/her personal well-being. A prototypical lifeline was composed from the previously obtained data on how people report a life of a typical person. This prototypical lifeline was exposed to the participants (N=33), preceding by the instruction to assess the level of happiness of the person who produced this lifeline. The participants were asked to press a button upon the decision had been made and then used a 7-point scale. The participants were being eye-tracked during the task performance. The results revealed that, in comparison with free exploration of a similar lifeline, the participants spent significantly more time looking at the period of youth, in particular, at the events "first love" and "entering the university". In contrast, they spent less time looking at the later interval of a timeline, in particular, at the events "retirement" and "having grandchildren". The results also indicated that the longer the participants looked at the lifeline during the task, the happier they assessed themselves at the end of the session. Notably, there were no correlations between the time paid to the task and the scores on happiness for the target person. Self-reports were collected afterwards. The most common reported strategy consisted of inspecting the most eventful zone of a lifeline (43%). The second common strategy consisted of matching the eventfulness of the positive (above the timeline) and negative (below the timeline) parts of a lifeline.

Keywords: Lifeline methodology, biographical reasoning, cultural life script, eye-tracking

Title of symposium:

Timing, Self and Schizophrenia: Insights into the Passage of Time

Convener: **Anne Giersch*** (INSERM (French National Institute for Medical Research), France)

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Symposium abstract: Phenomenologists have long reported a breakdown of the experience of time in patients with schizophrenia, with a disruption of the sense of time continuity. They had also proposed that this breakdown originates a disorder of the ‘minimal’ and ‘bodily’ self. Modern approaches explore these hypotheses with both phenomenological and experimental methods. Unravelling the mechanisms underlying the strange experiences of patients reveals that the experience of time continuity, or passage of time, is not the given it seems, but involves a range of sensory discrimination and predictions that structure events in time. Studies further give support to the link between time experience and the sense of self. David Vogel will show how qualitative approaches investigating time help to understand the experience of patients both during and after acute psychosis. Francesca Ferri will summarize her data showing how a difficulty to integrate multisensory information over time relates to self-disorders. Anne Giersch will present complementary findings in the sensory and motor domains further supporting a link between timing and self. As a whole the data presented will give insight in what it takes to feel oneself as being immersed in the flow of time.

Keywords: Passage of time, time flow, time continuity, sense of self, schizophrenia, phenomenology, experimental psychology

Discussant: **Anne Giersch & Francesca Ferri**

COMMUNICATION 1

Perceptual Temporal Sensitivity in Schizotypy and Schizophrenia

Francesca Ferri* (University of Chieti-Pescara, Italy), Marcello Costantini (University of Chieti-Pescara, Italy),

Vincenzo Romei (University of Bologna, Italy)

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The coherent experience of the self and the world, typically altered in schizophrenia spectrum disorders, depends on the ability to integrate sensory information occurring at different points in time. Temporal sensitivity in the sub-second range is pivotal in a broad

range of unisensory and multisensory experiences. Using the Simultaneity Judgement Task with auditory, tactile and audio-tactile stimuli, we found a general reduction of temporal sensitivity not only in patients with schizophrenia, but also in high-schizotypy individuals, compared to healthy controls. We then confirmed this evidence using another task, the Double Flash Illusion (DFI), which assesses the individual temporal sensitivity implicitly, rather than explicitly. Using the auditory-induced DFI, we showed higher proneness to illusions in high-schizotypy individuals, which was fully explained by a significantly reduced temporal sensitivity to integrate sensory information. In a separate study, using the tDFI, we found high-schizotypy individuals to have wider temporal window of illusion, which was associated to slower beta waves. All in all, these results suggest that patients with schizophrenia are characterized by reduced temporal sensitivity in multisensory processing, associated to specific changes of oscillatory pattern. Our results open the door to new early markers for psychosis proneness, at the behavioral and neural levels.

Keywords: Simultaneity judgement, multisensory integration, implicit measures, schizophrenia, schizotypy, experimental psychology

COMMUNICATION 2

Predicting in Time and Sense of Self: An Experimental Approach

Anne Giersch* (INSERM (French Institute for Medical Research), France),

François Foerster (INSERM, France), Sébastien Weibel (INSERM, France)

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Predicting the sequence of future events helps to integrate distinct events in time and reach a sense of time continuity. Reversely, altered predictions may represent an explanation for the disrupted sense of time continuity in patients. To explore time prediction, we verified how patients with schizophrenia and matched controls prepare themselves to process visual information. The more time passes, the better subjects are prepared and the faster they react to visual information. The results showed that patients with bodily self-disorders, as evaluated with phenomenological scales, do not benefit from the passage of time. Second, in a motor task, participants pointed with a haptic device on a virtual surface (producing tactile and kinesthetic feedback). The timing of the sensory (tactile and kinesthetic) feedback was manipulated unbeknownst to the participants. We recorded deceleration duration, a proxy for prediction, and the feeling of control after stable vs. delayed sensory feedback. The results showed that in case of undetectable and multiple delays in the sensory feedback, the feeling of control dropped abnormally in patients with schizophrenia, and deceleration duration increased abnormally. These alterations were correlated with hallucinations. In all the results show how elementary adaptation mechanisms are related to time and self.

Keywords: Time prediction, Schizophrenia, Hazard function, haptic information, feeling of control, sense of self, hallucinations

Communication 3

Disarticulated Time Experience – Time and Temporality in Schizophrenia

David H. V. Vogel* (University Hospital of Cologne, Department of Psychiatry; Research Centre Juelich, Institute for Neuroscience and Medicine (INM-3), Germany),

Christian Kupke (Department of Psychiatry, Society for Philosophy and Sciences of the Psyche, Charité, Humboldt-University Berlin, Germany),

Kai Vogeley (University Hospital of Cologne, Department of Psychiatry; Research Centre Juelich, Institute for Neuroscience and Medicine (INM-3), Germany)

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Alterations in time experience have been argued to underlie the symptoms of schizophrenia. Phenomenological and recent psychopathological research suggest a “fragmented” or “disarticulated” time experience. These observations have been complemented by results from experimental psychology and correspond to current theories on brain mechanisms. In our presentation, we provide a comprehensive exploration of time experience during and after psychosis in schizophrenia. Drawing upon the extensive work of early and current psychopathology as well as recent hypotheses from qualitative research, we propose that acute psychosis may be described as a dis-articulation of the passage of time into fragments determined by fluctuating potentiality and imminence. After remission, some symptoms may relate to challenges in making sense of the past episode and reflect changes in the experience of the structure of time, i.e., integrating past, present, and future. In both cases, the respective alteration in time experience interferes with individual perspective taking and the ascription of personal meaning. We suggest these findings hold significance for a comprehensive diagnostic and therapeutic understanding of schizophrenia and will foster future integrative research on time experience.

Keywords: Time experience, Phenomenology, Psychopathology, Qualitative Research Methods

Title of symposium:

Time in Motion: Behavioral, Electrophysiological and Molecular Effects of Movement Meditation

Convener: **Tal Dotan Ben-Soussan*** (Research Institute for Neuroscience, Education and Didactics (RINED), Paoletti Foundation for Development and Communication, Italy)

* Corresponding author: Research@fondazionepatriziopaoletti.org

Symposium abstract: Different contemplative techniques have been linked to both longer time production and enhanced bodily perception, which in turn is thought to lie at the core of time perception. Yet, the connection between movement meditations and time production has rarely been examined. Consequently, the current symposium, will focus on: (1) the relationship between time production, movement, and coordination, as well as the neuronal and phenomenological mechanisms related to time production in both (2) healthy participants and (3) learning disabilities, and the effects of movement and sitting meditation on both. Finally, a short workshop will be conducted enabling the participants to experience some of the techniques.

Keywords: Time, motion, movement meditation, embodiment

Discussant: **tbc**

COMMUNICATION 1

Time and Developmental Disorders: QMT-Induced Molecular and Cognitive Effects

Tal Dotan Ben-Soussan* (Research Institute for Neuroscience, Education and Didactics (RINED), Paoletti Foundation for Development and Communication, Italy)

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Autism Spectrum Disorder (ASD) impacts on motor control and cognition. Among its core features are impaired social interaction and language as well as timing dysfunctions, which may be attributed to cerebellar dysfunction. In fact, the cerebellum is central in timing and movement coordination, motor learning, attention, and visual orienting. Cerebellar involvement in autism may relate to its role as an oscillator, producing synchronized activity within neuronal networks. Quadrato Motor Training (QMT), a structured training involving sequences of movements based on verbal commands, was found to increase cerebellar oscillatory activity and to improve reading in dyslexics. Additionally, QMT was found to

improve spatial and temporal cognition, as well as to induce changes concerning Brain Derived Neurotrophic Factor (BDNF), which is altered in autism. In this first longitudinal study on the effects of QMT on autism, we examined the cognitive and molecular effects on a 9-year-old child with ASD. Spatial and temporal cognition were measured using the Hidden Figure Test (HFT) and Time Production (TP) tests. Salivary samples for proBDNF analysis were collected before and following the training. The results will be discussed in relation to the importance of sensorimotor activation for cognitive enhancement and improved temporal functions in developmental disorders.

Keywords: Timing, motor control, developmental disorders, Quadrato Motor Trajectory

COMMUNICATION 2

Time Production and Interlimb Coordination in Advanced Quadrato and Aikido

Fabio Marson* (Research Institute for Neuroscience, Education, and Didactics (RINED), Patrizio Paoletti Foundation, Assisi, Italy)

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Meditation has been linked to both longer time production and enhanced bodily perception, which in turn is thought to lie at the core of time perception. Nevertheless, the connection between movement meditations and time production has not been examined. Consequently, in the current study, we examined the effect of Aikido and advanced Quadrato Motor Training (aQMT) on time production. A mixed observational study design was adopted to investigate: (1) whether the extensive practice of movement meditation is associated with longer time production and interlimb coordination efficiency, and (2) the relationship between time production and coordination. Thirty-four healthy adults volunteered, including Aikido, advanced Quadrato Motor Training (aQMT) practitioners, and physically non-active controls. Practitioners of aQMT had significantly longer and more accurate produced durations in contrast to the Aikido and control groups. In addition, longer produced duration was associated with increased coordination efficiency. The current results will be discussed in relation to previous studies linking embodied time and mindful meditation, emphasizing the importance of incorporating movement meditation, especially in the research of time and different models, such as the Sphere Model of Consciousness. Finally, the implications of the study will be discussed in relation to educational, work and contemplative settings.

Keywords: Time production, coordination, Quadrato Motor Training, Aikido

COMMUNICATION 3

The Place of Pre-Existence Technique and Time Slowdown: Correlations and Gender Differences

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Time slowdown in meditative practices has been reported in relation to relaxation and positioning in the here and now, linking time speed and bodily perception. In the current preliminary study we examined gender differences in time speed during the Place of Pre-Existence Technique (PPEt), using a pre-post design. PPEt is a guided meditation, based on the Sphere Model of Consciousness (SMC), that orient practitioners to a neutral perception of past and present, allowing them to envision the future in a state relatively free from autobiographical memories. 280 volunteers (153 females) filled in the Inventory on Subjective Time, Self, Space (STSS) on perception of time, body, and space Pre- and Post-PPEt practice. We found significant increase in relaxation, body, and space perception and these were correlated with greater: (1) perception of time intensity and (2) time slowdown. Moreover, change in time speed was negatively correlated with involvement of emotional and physical dimensions, suggesting that being more embodied physically and emotionally correlate with greater time slowdown. Finally, for males, time slows down more than for females. These results will be discussed in light of different theories of consciousness and embodied cognition, and especially in the framework of the Sphere Model of Consciousness.

Keywords: Time perception, Gender differences, Sphere Model of Consciousness, Place of Pre-Existence Technique

Title of symposium:

Imagining Futures: “The Good, the Bad and the Ugly”

Convener: **Anna Sircova*** (Time Perspective Network, Denmark)

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Symposium abstract: In this symposium we are looking into the emerging concept of ‘futurization’ (of thinking, behavior, politics, etc.). We are exploring the differences between the images of the personal future and the global future across various populations: we compare people’s images and what forms them across various age groups and various cultural backgrounds (USA, Denmark and China). Symposium presents various methodology that was developed during this project: the Semantic Differential of Personal and Global Future scale (Sircova et al, in preparation), word association exercise, future scenarios with various time spans, and in-depth interview guide. The symposium discusses empirical representations of future imaginaries and social practices related to futurization of thinking and behavior of an individual. It aims to provide insight into: What are the mechanisms used to see the possible futures? How to bring desired futures closer and turn them into reality? How to incorporate future thinking in our behaviors? How to expand our temporal horizon and develop new cognitive abilities? How to learn to deal with the massive amount of uncertainty and anxiety that this perspective brings? Does such time awareness lead to more sustainable behaviors, decisions, and/or policy-making?

Keywords: futurization, images of the future, personal future, global future

Discussant: **Tim Nestik**

COMMUNICATION 1

The Futures Effect – the Benefits of Futures Thinking for Your Health and Wellbeing

Tom Meyers* (Osteopath M.Sc D.O., private practice, Belgium)

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This talk will discuss the health and wellbeing benefits of futures thinking and its application as a stress management tool to create a good, resilient, evolving, actionable and transcendent (G.R.E.A.T.) future for all. We are living in a fast-changing and challenging world. A world where COVID-19, new emerging technologies and other global challenges like climate change are challenging every aspect of our life including the way we work, live and learn,

our health and wellbeing. These changes and challenges will further increase stress levels and stress is already considered one of the biggest health problems worldwide. Just like successful organisations futurize themselves to stay meaningful and healthy by imagining future scenarios upon which they act in the present, so must people in general be encouraged to futurize themselves and incorporate futures thinking into their decisions, choices and actions to cope, stay healthy and adaptive in a fast-changing world. We recommend the inclusion of futures thinking methodologies in health/stress management techniques, strategies and practices for human flourishing in the flow of evolution.

Keywords: Futurization, well-being, resilience

COMMUNICATION 2

“We Can Control the Climate”: Different Conceptualizations of the Future in the US and China

Juliette Pope* (Time Perspective Network, Denmark), Matt Cho (Time Perspective Network, Denmark), Anna Sircova (Time Perspective Network, Denmark)

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The present study investigated projections into the future and possible scenario development at various levels of psychological distance (Trope, Y. & Liberman, N., 2010). Participants, students from the US and China (19-25 y/o), were presented with five scenarios conceptualizing different temporal horizons - 10, 60 and 1,000 years from now, Super AI, and no future. While both American and Chinese participants showed positive views of the near future, American responses became steadily more negative further into the future while Chinese responses were comparatively more positive. Regarding AI taking over humanity, both groups estimated it happening in about 100 years. Finally, American participants expressed some doubts about the lack of a future but concluded it was important to act as though there will be, while Chinese participants more concretely believed there will not be a future. Both American and Chinese participants hold inconsistent beliefs about the near future, positive and unaffected by climate change, versus the longer-term future, bleak and possibly non-existent. As psychological distance increased, so did negativity. Implications of this study are further discussed in relation to issues of personal motivation, cultural differences and emerging concept of futurization of thinking and behaviour.

Keywords: psychological distance, futurization, future scenarios, cross-cultural difference, temporal horizon

COMMUNICATION 3

Future: Making the Personal Global and the Global Personal

Anna Sircova* (Time Perspective Network, Denmark)

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In this concluding talk of the symposium, various methodologies used while addressing the question of what the future holds will be presented. “Futurization of Thinking and Behavior” project applied mixed-method approach. During our inquiry into the concept of ‘futurization’ and how it is different from the concept of ‘future’, and further exploring the differences across the images of the personal and global future various methods have been developed. Focus group designs, workshop of futurization, word association exercise, future scenarios with various time scapes and Semantic Differential of Personal and Global Future scale (Sircova et al, in preparation) will be presented and discussed. The need to implement futurization workshops in educational setting is argued, as once the emotions were expressed and discussed with others (‘I am not alone, there are other people with similar fears and thoughts’) then the more positive and productive approach to the topic has emerged.

Keywords: futurization, images of the future, methodology, Semantic Differential of Personal and Global Future scale

Title of symposium:

Perspective Measurement: Current Issues and Future Directions

Convener: **Liz Temple** (University of New England, Australia)

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Symposium abstract: The Zimbardo Time Perspective Inventory (ZTPI; Zimbardo and Boyd, 1999) is the most commonly used measure of time perspective. However, a growing body of evidence indicates that the ZTPI is affected by psychometric issues, particularly relating to its reliability and factorial validity (e.g., Crockett et al., 2009; McKay et al., 2015; Sircova et al., 2014). After systematically investigating these issues over the past six years (McKay et al., 2014; McKay et al., 2015; Worrell et al., 2018; Temple et al., 2019; McKay et al., 2019; Perry et al., in press), we have come to the conclusion that a theoretically-driven approach is necessary to facilitate the psychometric assessment of time perspective. Our initial attempt at such an approach led to the creation of a shortened ‘temporal-phrasing’ form of the scale (the 25-item ZTPI-TP; Worrell et al., 2018). While, this scale was found to be promising, it did not fully address our overarching psychometric and theoretical concerns. Consequently, we decided to move beyond the original ZTPI items to develop and test a range of new, theoretically appropriate, items to complement the more robust existing ZTPI items. The development and validation of this new measure will be discussed.

Keywords: ZTPI; time psychology; psychometrics; measurement; theory

Discussant: **Frank Worrell, Zena Mello, Liz Temple & Michael McKay**

COMMUNICATION 1

Identifying and Addressing the ZTPI’s Psychometric Issues

Michael McKay* (Royal College of Surgeons in Ireland, Ireland)

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This presentation will highlight the psychometric concerns of the ZTPI, including a review of the empirical evidence that has raised questions about both the structure and reliability of the ZTPI, before reporting on a revised version of the ZTPI that includes temporally-oriented items. This research includes five samples of adolescents and adults from four countries (Australia, Slovenia, the United Kingdom, and the United States).

Keywords: ZTPI; time perspective; psychometrics; statistical techniques.

COMMUNICATION 2

The ZTPI Temporal Phrasing Revision

Liz Temple* (University of New England, Australia)

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This presentation will discuss the development and validation of a revised version of the ZTPI, including a new set of ZTPI items that are temporally phrased.

Keywords: ZTPI; time perspective; temporal phrasing; psychometrics.

COMMUNICATION 3

The ZPTI and Its Contributions to the Field of Time Psychology

Frank Worrell* (University of California, Berkeley, USA), Zena Mello (San Francisco State University, USA)

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This presentation will focus on the conceptualization of time perspective as a multi-dimensional and multi-temporal psychological construct, including the contributions of the ZTPI to the field. Statistical techniques that are particularly useful for conducting research on time perspective will also be discussed, including cluster analyses.

Keywords: ZTPI; time perspective; statistical techniques.

Oral presentations

Well-Being in the Pandemic – Test of Time Perspective-Based Interventions

Boštjan Bajec* (Department of Psychology, Faculty of Arts, University of Ljubljana, Slovenia),

Alarith Uhde (Experience and Interaction Design Group, Siegen University, Germany),

Bor Vratinar (Institute for Biostatistics and Medical Informatics, Faculty of Medicine, University of Ljubljana, Slovenia),

Kristna Rakinič (Department of Psychology, Faculty of Arts, University of Ljubljana, Slovenia),

Gaja Natlačen (Department of Psychology, Faculty of Arts, University of Ljubljana, Slovenia),

Andreja Avsec (Department of Psychology, Faculty of Arts, University of Ljubljana, Slovenia),

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The Covid-19 pandemic had severe impacts on people's health and well-being. Many countries imposed drastic restrictions on private and social life to reduce infection rates. We studied the efficacy of time perspective-based interventions on well-being in an early phase of the pandemic as a way to counter these negative impacts. In April and May 2020, a sample of 150 respondents reported data about their time perspective and different aspects of well-being (psychological needs, subjective well-being, positive and negative affect, work-family and family-work conflict and job satisfaction). We prepared five email-based interventions consisting of a daily suggestion about how to deal with the pandemic. The first one was based on recommendations by World Health Organization and National Institute of Public Health, and the other four specifically targeted individual time perspectives (past positive, present hedonistic, future positive, and balanced time perspective). The participants were randomly assigned to one of the five experimental groups (general, past, present, future, and balanced) and received daily suggestions for 14 days. After that period, 85 participants responded to our follow up questionnaire about their implementation and evaluation of suggestions received and about different aspects of well-being. Concerning need fulfillment, we found that popularity-influence was affected significantly with general suggestions having the worst and future and balanced time perspective suggestions having the best results. In addition, participants that received suggestions congruent with their time perspective had higher autonomy at the end of the experiment, compared with participants in the general or in incongruent conditions. Moreover, satisfaction with life and work-family conflict were marginally better in congruent than incongruent groups ($p < 0.07$). Finally, our results showed that the experimental groups did not differ significantly in implementing and evaluation of different groups of suggestions and that participant's time perspective did not affect the use of the suggestions, however positive time perspective correlated positively with the overall evaluation of the suggestions.

Keywords: time perspective, well-being, interventions

Knowing What to Do in Life: The Effect of Past Negative Time Perspective and a Life Design Intervention

Sabrina Bresciani* (University of St. Gallen, Switzerland),
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Life design is a challenging and pervasive task. Everyone designs his or her own life – more or less consciously. The relevance of the concept of time is intrinsic in life design, which is indeed a design of our own future (Ferrari, Nota & Soresi, 2010). How does Time Perspective (Zimbardo and Boyd, 1999) affect life design? Can a life design intervention change the effect of Time Perspective on life design?

Departing from traditional one-on-one coaching sessions, we investigate the effectiveness of a life design intervention (28 hours) based on Design Thinking and conducted in large groups (partially based on: Burnett & Evans, 2016). We conduct a pilot study with 26 master students, enrolled in a Swiss Business School, and evaluate their Time Perspective (ZTPI) and series of pre- and post-intervention measures. We find that Past Negative Time Perspective had a significant negative impact on subjects' ability to define what to do in their life ($R^2=.206$; $p=.030$). However, after the intervention, career decidedness significantly increased for all participants ($t=2.87$; $p=.008$), and the effect of Past Negative Time Perspective was not anymore significant ($p=.124$).

The promising initial results seem to indicate that students with a high Past Negative Time Perspective have more difficulties in career decidedness, however, after the life design group intervention, they did not differ from other participants.

We are currently expanding the study to increase the sample and to investigate under which conditions the life design intervention can support vulnerable youth with high Past Negative Time Perspective (in India).

Keywords: Past Negative, Career Design, Life design, Experiment

Time Perspective in Amnesic Mild Cognitive Impairment

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João Maroco (William James Center for Research, ISPA-IU, Portugal);
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Objective: Patients with amnesic mild cognitive impairment (aMCI) have difficulties in experiencing time in relation to duration and succession. The aim of this study is an attempt to understand whether these difficulties extend to time perspective, meaning the importance and attitudes concerning time dimensions and the perceived relation between past, present and future.

Method: Thirty aMCI patients and thirty-three healthy controls underwent Time Orientation and Time Relation circles tests, the Zimbardo Time Perspective Inventory (ZTPI), as well as a comprehensive neuropsychological evaluation.

Results: Patients with aMCI presented no differences in Time Orientation and in ZTPI. However, they tended to perceive the three-time dimensions as unrelated. This decoupling was correlated with poorer performance in the Trail Making Test B and in Digit Span backward, but not with memory deficits, memory complaints or depressive symptoms.

Conclusions: Patients with aMCI have difficulty in relating the time dimensions, probably as consequence of deficits in executive functions.

Keywords: Memory; Cognitive Decline; Executive Functions; Time Orientation; Time Relation

Future Orientation, Wellbeing, Life Purpose and Academic Performance in Private University Students from Lima-Peru

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This study examines the relation between Future Orientation -FO- in work/career and family/marriage domains (Seginer,2009); well-being (WB), life purpose (LP) and academic performance (AP) in 400 Peruvian University students (64% female) enrolled in a counseling program. Participants' mean age was 21.59 years (SD = 2.7). The scales were psychometrically optimal, and alphas ranged from .64 to .89. Psychometric evidence for the hierarchical model of FO couldn't be found (second order factor models did not converge). Considering this, confirmatory factor analysis using weighted least squares mean and variance corrected for the seven first level factors was satisfactory. Results showed that correlations were mainly positive and with a similar pattern among FO/Well Being and FO/Life Purpose ($r=.15$ to $r=.43$), and few negative between FO and academic achievement ($r=-.11$ and $r=-.18$). Correlation between WB and LP was high ($r=.56$). Regressions showed that WB, LP and AP are all significantly predicted by FO sub-components ($rs=.02$ to $rs=.30$) specifically in the work/career domain. Among the subcomponents of FO assessed, the most notable was expectancy which belongs to the motivational dimension of the FO model. Mean comparisons exhibited differences among the participants in some variables. According to these findings we conclude that empirical evidence about the relation between FO, Well-being, Life Purpose and Academic Performance in university students enlighten intervention programs in order to enhance the well-being and academic performance in youngsters enrolled in a counseling program.

Keywords: Future Orientation, Wellbeing, Academic Performance

Correlates of Hope in Academically Talented Youth

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A time perspective construct that has increased in prominence over the past two decades is the construct of hope. According to Snyder's (2002; Snyder et al., 2003) hope theory, hope consists of two associated cognitive-motivational constructs: agency and pathways. Pathways refers to one's "ability to envision routes to one's goals" and agency refers to the belief that "one can accomplish one's envisioned goals" (Dixon et al., 2017). Although hope has been studied in several different populations, there are limited studies in samples of academically talented youth. In 2017, Dixon provided evidence that scores on the Children's Hope Scale (Snyder et al., 1997) were internally consistent and structurally valid in an academically gifted sample. Dixon et al. (2017) also reported that clusters reflecting higher and lower hope based on pathways and agency scores predict educational and psychological outcomes in theoretically consistent ways. In this study, we examined the association between hope and several variables. Participants consisted of 855 students in Grades 7 to 12 (55.2% female) attending a summer program for academically talented youth. They ranged in age from 11 to 18 and the mean GPA was 3.81. Preliminary results showed that agency and pathways were meaningfully and positively associated (i.e., $r^3 .30$) with perceived life chances and adaptive perfectionism and negatively associated with maladaptive perfectionism. Agency and pathways were also positively correlated ($p < .01$) with teacher ratings of effectiveness, but the correlations were $< .30$. The presentation will also include the relationship between hope clusters and these outcomes.

Keywords: academically talented, hope, perceived life chances, perfectionism

Procrastination-Futurological Practices of Ukrainian Students

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The study was conducted in the sample of 99 students in Arts (63) and Medicine (36) aged from 20 to 26 y.o., 38 males and 61 females among them. A mixed strategy of qualitative and quantitative data collection was used. The sequence of research methods usage was as follows: “The scale of general procrastination” by C. Lay in the adaptation of T. Yudeeva; author’s questionnaire “The reasons of personal tendency of tasks’ postponement”; “Motivation for success and failure” by A. Rean; projective drawings “I am the responsible one” and “I am the one who put things off”; “Semantic time differential” (“future time” form) by L. Wasserman; method of motivational induction “Incomplete sentences” by J. Nuttin; and semi-structured interviews with the elements of futurological narrative.

By means of qualitative analysis, there were identified the tendencies of correspondence between procrastination styles and practices for personal future designing. These tendencies were confirmed by the quantitative multidimensional comparison of independent sub-samples (Mann-Whitney test). There were found 7 procrastination-futurological combinations: (1) constructive – 21% of the sample (calm procrastination style – utilitarian focus of futurological designing); (2) conventional – 20% (anxious/vague/habitual procrastination styles – focus on success/compensation/communication in futurological designing); (3) energy-saving – 15% (exhaustion procrastination style – focus on success/compensation/communication in futurological designing); (4) sporadic – 14% (anxious/vague/habitual procrastination styles – focus on communication/probability in futurological designing); (5) stereotyped – 12% (anxious/vague/habitual procrastination styles – focus on moment/warning in futurological designing); (6) trendy – 10% (anxious/vague/habitual procrastination styles – focus on self-statement in futurological designing); (7) communicative – 8% (energetic procrastination style – focus on success/compensation/communication in futurological designing).

Keywords: procrastination, personal futurological designing, temporal practices

Robotic and Human Time from the Perspective of Natural and Differential Repetition: Teleoperation of the iCub Humanoid Robot

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Our work puts forward an interdisciplinary category of (natural and differential) repetition that attempts to analytically apprehend temporal concatenations between humans and technology, especially humanoid Robots (HRs). We focus upon the problem of time that emerges when a humanoid robot called iCub is programmed to be teleoperated as an avatar of the human operator, who is wearing a motion capture suit. HRs are technologies which in this work we define as man-made objects that work to enable communication among social and psychic systems. The aim of humanoid robotics in general is to create human-like entities, which, for example, can “walk”. Nevertheless, the walking process in humans presupposes a long phylogenetic and ontogenetic path. Our human ancestors were probably able to walk after a species evolution of thousands of years. In contrast, HRs have motors which shape actuators controlled by electronic ICs (Integrated Circuits) with embedded software, and high-level nested software controllers, whereby time appears in many layers and scales regarding software and hardware. So, with respect to walking motions, human time experienced in societies seems to be incommensurable with robotic time implemented for HRs. However, despite such different categories of time, humans keep walking while the iCub has been successfully programmed to “walk”. We would like to contribute with an interdisciplinary discussion on how repetition is a possible category for analyzing time in many different systems. For this intent, physical, biological and social time play an essential role within the framework of a system theory.

Keywords: Time, Repetition, Interdisciplinarity, Systems Theory

Mindfulness and Balanced Time Perspective: Predictive Model of Psychological Well-Being and Gender Differences in College Students

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Background: University population represents one of the groups at greatest risk for the development of mental health disorders, and deterioration or abandonment of their academic activities. Mindfulness and Balanced Time Perspective (BTP) are cultivable psychological resources that can promote well-being in college student and help them face stressful situations. The aims of the study were to establish an adjustment model to analyze the relationship between Mindfulness, Balanced Time Perspective (BTP) and Psychological Well-Being (PWB) on college students, and to explore gender differences between the variables. Method: The sample consisted of 380 college students, 220 women and 160 men. Regression analyses were applied. Results: The results indicate that the synergy between Mindfulness and BTP predicts the variance of PWB by 55%. Regarding gender differences, it was found that women have a greater tendency towards Past Positive than men, and men a higher tendency towards Present Hedonistic than women. In addition, in women, a stronger relationship was found between the variables, and consequently, a greater predictive value for PWB (58%), displaying an enhanced disposition to PWB compared to men. Conclusion: Together Mindfulness and BTP promote optimal psychological functioning, and not only alleviate or reduce discomfort. Thus, their promotion and training in universities is especially important given the high prevalence of anxiety and depressive symptoms in college students.

Keywords: Mindfulness, Balanced Time Perspective, Psychological Well-being.

Time Perception in Addiction: Evidence Across Different Addictions

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Despite the increasing volume in the study of addiction there is still little research on addiction and time perception even though addiction theories clearly predict attentional effects towards addiction related stimuli. In order to explore this research gap, we carried out a series of experiments utilizing modified temporal bisection tasks in different forms of addiction. Experiments 1, 2, 3, and 4 employed social media, gambling, alcohol, and smoking related stimuli respectively. Samples included healthy populations and populations with signs of excessive use of said addictions. There was consistent evidence of attentional bias towards addiction related stimuli in the form of temporal underestimation for said stimuli compared to neutral. Furthermore, participants who were excessive users demonstrated better temporal discriminability in the form of lower Weber's ratios scores. These findings have direct implications both for the study of time perception and addiction.

Keywords: Time Perception, Addiction, Attention, Attentional Bias, Arousal, Temporal Discriminability

Investigating Spontaneous Motor Tempo Online with a Large International Sample

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Spontaneous motor tempo (SMT) can be observed in many daily activities such as walking, and it can be defined as preferred tempo for self-paced regular and repeated movements. SMT has been shown to influence time perception, as it may relate to the rate of one's internal clock (Boltz, 1994). In experimental settings, SMT is usually assessed by a finger tapping paradigm. This study aimed at investigating SMT in participants' normal environment by implementing this lab-based paradigm in an online study using a self-developed web application.

In the study, participants' (N = 3,684) main task was to tap their finger on a device of their choice at "a pace that feels most comfortable and natural" to them and "to keep the time between each tap as even as possible". Furthermore, participants filled out sociodemographic and psychophysiological measures (e.g., musical experience, arousal, perceived stress).

The mean SMT of all participants, measured as mean inter-tap interval, was 781 ms (SD = 329). SMT was correlated with age ($p < .001$) and individual arousal ($p < .001$), suggesting that with higher age and lower arousal level, SMT slows down.

The mean SMT was much slower compared to previous lab-based research (500–600 ms, cf. Moelants, 2002), indicating that there might be differences in SMT in individuals' normal environment compared to the lab. Further detailed analyses address effects of city size or potential cultural differences in SMT.

Keywords: preferred tempo, inner timing, tapping, self-paced movement

Time Perspective and Conflict Resolution Styles in Relation to Psychological Distress and Psychological Well-Being in Young Adults

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Background: Young adulthood is a period of social, psychological, economic, and biological transitions, and for many young people, it involves demanding emotional challenges and important choices. The prevalence of symptoms of psychological distress was found to be 34.8% (mild psychological distress), 9.2% (moderate psychological distress) and 8.3% (severe psychological distress) among Indian college students and increasing severity of symptoms was associated with higher morbidity. This study is the first Indian study to examine the time perspective and conflict resolution styles in relation to psychological distress and psychological wellbeing in young adults.

Purpose: The aim of this study was to explore the relationship between time perspective, conflict resolution styles, psychological distress and psychological wellbeing, in young adults.

Method: A cross sectional design was employed. The data was collected from 178 college students (18-21 years range) using questionnaire method. The tools administered were socio-demographic sheet, Zimbardo Time Perspective Inventory (ZTPI), The Kraybill Conflict Style Inventory (KCSI), The Kessler Psychological Distress Scale, and Psychological Wellbeing (PWB 20).

Results: Stepwise regression analysis indicated that time perspective was a significant predictor of psychological distress and psychological wellbeing explaining overall 37% and 25% of variance respectively.

Implication: This exploratory study contributes to the areas of positive psychology, developmental psychology and preventive mental health. The findings of the study indicate the need for developing community-based interventions for young adults that focus on cultivating more balanced time perspective and healthy conflict resolution styles in order to reduce psychological distress and enhance psychological well-being.

Keywords: Time perspective, conflict resolution styles, psychological well-being, psychological distress, young adulthood, India

Mimesis and Temporality: Mimetic Perception and Reduction of Reality

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My research focuses on the ephemerality and temporality of reflection, memory, perception and oblivion resulting from the excess of the images. I explore contemporary art, where reflecting-displaying surfaces are operated. Reflection is positioned as a phenomenological screen that creates an experience of temporality based on impression and spontaneity. The reflective surface as a simultaneous form of fixation reflects the reality around it but does not record or create conditions for retransmitting the same image.

I think that reflection is one of the categories of modernity, acting as an extreme form of mimesis, outside the representation of action, thickening the perceived reality and amplified through the temporal dimension and the excess of the images of the present. The perception of the present is inseparable from the sensory experience of the environment and the reflection of the past in our consciousness. My study is based on the transformation of mimesis, which has become volatile, and reflection is explored not as a direct object of expression but as temporal experience, representation, and iteration of reality.

I reflect on the perception of continuous contemporaneity present, the interplay between consciousness, memory, and imagination, so I aim to state mimesis as a reduction. Creating imitation or similarity, the main parts of it – function, capacity and existence - are refused, but mimetic artworks become continuations of passing Reality in Time. Today mimesis reduces Time to moment, condensed through various reflective surfaces, transfers semantic charge on impressed Perceiver, subtracting a possibility of artwork's repetition from him.

Keywords: Mimesis, temporality, ephemerality, perception, reduction, reflection

Let's Try Something Crazy: Estimation of Future Time Perspective from Data of Survey of Health, Ageing and Retirement in Europe

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Huge longitudinal cross-cultural research studies often provide very important comparative data. However, there is always a downside: number of constructs measured in such surveys is limited due the length of the questionnaire. Time perspective, although often considered as one of the central constructs in understanding human functioning, is rarely measured in longitudinal cross-cultural research. Therefore, we aimed to test weather future time perspective could be identified from data of Survey of Health, Ageing and Retirement in Europe (SHARE). The data were drawn from the SHARE wave 7 (DOI:10.6103/SHARE.w7.700). Responses obtained from 54 552 participants aged 50 and older residing in 27 European countries and Israel were included in the analysis. To identify future time perspective 3 items related to future from different modules were combined in to the index using factor analysis. Personality traits, health (e.g. body mass index), life satisfaction and other variables were chosen to test concurrent validity of future time perspective index. The factor analysis showed that items related to future could be combined in to one variable. Furthermore, higher derived index of future time perspective was correlated with more expressed conscientiousness, greater life satisfaction, and lower body mass index. The results supported the idea that time perspective can be “extracted” from measurements designed to assess other constructs.

Keywords: future time perspective, longitudinal surveys, SHARE

Could we Avoid Time Linearity Imposed by Climate Change?

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The natural science usually identifies the processes in the Earth as cyclical. However, unprecedented environmental change (induced by anthropogenic activity) recently changed everything. Climate historical reconstructions and future projections are prevalingly seen from linear time perspective approach with fixed stopping points (thresholds) which are strongly disagree with nature cycles. Now, our future – scientifically, politically, socially, and economically – is determined by 2100 (the last projected year in the most global climate models). Moreover, our ecological future is determined by 2030 (a huge change in ecosystems will emerge). Even though we have various scenarios and possible actions to avoid (or to fate) the catastrophe, it is not working, because we still experiencing future as linear process. On one hand, everyone could know the exact weather conditions on his anniversary in 2049, on other hand, it is highly possible that in 2049 the world as we know would no longer exist. The dilemma of knowing whether conditions (infiniteness) and, at the same time, knowing that you would not exist (transitory) makes us toothless to act. Further on, climate change is seen as Timothy Morton's 'hyperobject' (with very "big help" of the media) which is too vast in space and time to be fully understood. Therefore, postmodern society have lost the connection to everyday experience and perception of time flow. The time becomes commodity or service and it implies to ignore and forget natural daily, seasonally cycles of nature what makes us even more regressive (linear) for recreating futures.

Keywords: linear time, cyclicity, climate change, future, environment, time perception

The Embodiment of Balanced Time Perspective – How Interoception Can Regulate Our Wellbeing

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The body is available to every human being regardless of demographic. The nature of the human experience, which can be individually measured as personality, in terms of time perspective, is rooted in the body. When cognition does not suffice, the sense of interoception hints subtle signals into our inborn intelligence, acting as a mediator between the conscious and unconscious. The Time Perspective Theory gives a theoretical basis to personality and the why's and how's of behaviour and decision-making, which allows for a deeper sense of insight and understand of Self. Balanced time perspective (BTP) has been found to act as a sense of coherence between time perspective modalities and is regarded as highly adaptive psychological characteristic. This review will articulate current research progress in the fields of interoception and balanced time perspective, and their interconnectedness to each other in terms of mental health and wellbeing. The focus is to lay out the groundwork for potential practical applications and future research in the co-regulatory relationship between embodiment and deepening an individual's balance in time modalities.

Keywords: balanced time perspective, interoception, embodiment, coherence, auto-regulation, coregulation, polyvagal theory, bodymind holicism

Present Orientation as a Mechanism for the Victim-Offender Overlap

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The Victim-Offender Overlap is a robust association consistently found in empirical criminological studies. One common explanation is the self-control theory, which suggests some individuals have a time-stable propensity to focus on the present. This short-term mindset leads them both to situations in which they are likely to offend and be victimized, thereby accounting for the overlap. However, more recent research challenged the stability assumption, showing that life events can alter short-term mindsets. Researchers indeed find that victimization is a crucial life event leading to decreased expectations for the future and inducing adaptive short-term mindsets. As studies also indicate that increased short-term mindsets predict delinquency, the present study aims to investigate whether short-term mindsets explain why victims are more likely to commit crime later. The results consistently show that short-term mindsets (and particularly, risk-seeking) mediate the effect of victimization on later offending. This finding bears an important point of action for future interventions to mitigate delinquency, specifically, by encouraging consideration of the long-term future in victims of crime.

Keywords: dynamic time perspective; longitudinal; consideration of future consequences; decision-making; criminology.

Time and Space Estimation: Is There a Time-Space Cognitive Map?

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Many decision-making depend on how to get to a certain place, to carry out an activity at a certain time. In this study, an errand-planning task was used to investigate how people process time use. University students (n=244) from Brazil, were asked to draw a map of familiar locations on campus, indicating the routes taken, estimated travel time and estimated time for tasks performing. The instrument was based on Gärling's task simulation studies and the Kitchin method of projective convergence for direction design and distance estimation. Students also reported about their decision for choosing task order and the strategy used. Familiarity with the environment, use of time keeping device, awareness and estimation of time passage, responsibility and organization of time were also analyzed. Subjects who estimated time more accurately were more precise in spatial maps drawing, more familiar with space, more responsible and more organized in their time use. Task's time were overestimated. Route's time estimation was more accurate. Most of the strategies of route use were spatial, the circular pattern predominated in the drawings (i.e. the proximity of the locations, total route that minimized the distance), followed by task priority and finally, temporal (the time more appropriate, could control time or not). Also, under the same conditions, subjects used the three strategies: space, time and task priority. Time and space are somehow interconnected. A space cognitive map is a settled construct, is there a same underlying process for time?

Keywords: time estimation, cognitive map

Personality Traits, Subjective Time, and Motivated Learning Strategies as Determinants of Academic Behaviors among Uruguayan University Students

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Introduction: Fostering positive academic behaviors among university students can allow youth do well in school and later in the workforce. This includes achieving high grades and having positive attitudes about the University and the professors. We accounted for three levels of determinants reflecting an etiological framework ranging from distal to proximal determinants: dispositions, subjective time and motives. We aimed to investigate 1) to what extent these determinants relate to academic indicators, and 2) personality as a distal factor, mediated by subjective time or motives.

Methods: Participants were 265 2nd year students. Self-report questionnaires tapped grades, attitudes about the university and professors, traits, subjective time dimensions and motivated learning strategies. Multiple regression analyses were run wherein each set of dimensions determined each academic indicator. Mediation models were run wherein significant relationships between traits and academic indicators were explained by motives or subjective time dimensions. Analyses controlled for sex, field of study and age.

Results: All academic indicators were best explained by motives ($R^2=0.16-0.26$), followed by time perspectives ($R^2=0.10-0.15$), time attitudes ($R^2=0.07-0.15$), personality traits ($R^2=0.08-0.11$) and consideration of future consequences ($R^2=0.03-0.07$). The relationship between conscientiousness and grades was explained by self-efficacy motives. Though the direct effect of openness on attitudes towards professors was negative, the indirect effect through intrinsic value was positive and significant (competitive mediation). Subjective time dimensions did not mediate the relationship between traits and academic indicators.

Conclusions: Collectively findings suggest that specific motivated learning strategies are the most important factor impacting grades and attitudes. When studying subjective time and academic behaviors, time perspectives and attitudes may be the most pertinent measures. Findings suggest that motives, but not subjective time, would explain the relationship between specific traits and academic indicators. Implications of our study could help practitioners aid students improve their grades and feel better within the university setting.

Keywords: time perspective; time attitudes; consideration of future consequences; personality traits; motivated strategies for learning; University students; academic achievement; mediation

Examining Associations Between Time Perspective Dimensions and Tobacco Use in Three Samples of American Adolescents

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We examined associations between time perspective dimensions and tobacco use in American adolescents. Reducing adolescent tobacco use is critical because of the deleterious health consequences (CDC, 2015). Time perspective is a fruitful intervention target given evidence that it has promoted physical health (Hall & Fong, 2003). We conceptualized time perspective as a multidimensional construct. Measures addressed time attitudes (positive and negative feelings about time periods; Worrell et al., 2013), time orientation (relative emphasis placed on time periods; Mello et al., 2013), and tobacco use behaviors. Participants included a high-risk sample of adjudicated youth (Sample 1: $N=124$; $M_{age}=15.54$, $SD=1.69$; 51.61% female) and two general population school samples (Sample 2: $N=777$; $M_{age}=15.82$, $SD=1.23$; 53.41% female; Sample 3: $N=1873$; $M_{age}=15.87$, $SD=1.28$; 52.22% female) in the United States. Poisson regression analyses indicated that across the samples, more positive feelings about time were associated with less tobacco use; conversely, more negative feelings about time were associated with more tobacco use. Further, across the samples, adolescents with a balanced time orientation (i.e., equal emphasis on all three time periods) generally reported less tobacco use than adolescents who emphasized only one or two time periods. Findings highlight consistency in relationships between time perspective dimensions and tobacco use across samples ranging in risk levels. Results are discussed in light of implications for the development of a curriculum based on time perspective that aims to reduce and prevent tobacco use in adolescents with varying levels of risk.

Keywords: time perspective, time attitudes, time orientation, tobacco use, American adolescents, high-risk

Time Perspective as a source for Metacognitive Coping: Development of the Temporal Coping Inventory

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Recently, research on effects of time perspective on subjective well-being and mental health has gained much interest. Following a top-down perspective, it is proposed that experiences in shifting one's temporal perspective stimulates four kinds of metacognitive coping: Impermanence focus, present centeredness, positive temporal refocusing, and negative temporal contrasting. The general objective of the present three studies was to develop and validate a reliable inter-individual difference metric to assess how individuals use these four coping strategies. A total number of N=1325 subjects participated in the studies. In addition to the items designed to measure temporal coping, participants responded to various instruments measuring (a) theoretically related constructs such as time perspective, emotion regulation, attentional control etc. (study 2) and (b) outcomes such as affect, depression, and embitterment (study 3). Exploratory and confirmatory factor analyses confirmed the postulated structure. The internal consistency of the four five-item-scales varied from .76 to .82. The temporal coping strategies covaried with theoretically related constructs in a meaningful way and predicted aspects of subjective well-being. For the strategy negative temporal contrasting results were different compared to the other three strategies. Two types of studies are intended for the near future. First, longitudinal data is needed to further validate the temporal coping strategies. A second objective is to develop and test brief interventions to train people in temporal coping.

Keywords: time perspective, coping, metacognition, emotion regulation

Three-Dimensional Localization of Personal Resources in Ukrainian Militaries

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In order to prevent the negative consequences of war traumas (social disorientation, loss of self-integrity, feeling of despair, devastation, etc.) there is a need to search for personal resources that will assist in the process of constructive healing from the traumatic experience.

The study was conducted in the sample of 9 male soldiers aged from 24 to 33 y.o., who were currently in the war zone and stayed there for at least one year. The main methodological tool was an in-depth semi-structured interview.

If an average person has the ordinary three dimensions of time (past, present, and future), the life of militaries was found to be divided into such dimensions as “life before the war”, “life in the conflict”, and “life after the war in the civilian environment”. The time in war conditions is very compressed. One year of life can be subjectively felt like 10 years of life. Moreover, the retrospective perception of wartime in the individual memory of militaries is often characterized by brightness, clarity, and details. This can be explained by the proximity of death.

By means of thematic content analysis, there were identified 3 groups of personal resources: (1) a resource from the past before the war (good relations with family, pleasant memories); (2) a spontaneous resource localized at the moment of loss experiencing (e.g., the appearance of God faith in atheists); (3) a resource with a focus on the future (e.g., dreams and reflections on life after the war, fantasizing about something important and meaningful, setting plans for the future).

Keywords: loss experiencing, militaries, wartime, temporal resources.

Assessing Psychosocial Barriers and Facilitators of Covid-19 Vaccine Uptake in the United States

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This study examined psychosocial barriers and facilitators of Covid-19 vaccination in the United States. Participants were recruited through the online platforms Prolific and Google Forms (N=236, Men=101, Women=133, Other=2, Mage=31). To assess predictor variables, we administered the Zimbardo Time Perspective (TP) Inventory-Short, the Consideration of Future Consequences (CFC) Scale and the COVID-19 Conspiracy Beliefs questionnaire, differentiated in two indexes: hoax and bioweapon. The outcome variable was a Theory of Planned Behavior_index (TPB_index). Regression analyses revealed that men scored higher on the TPB_index ($\beta = -.137$, $B = -.210$, $SE B = .094$, $t = -2.248$, $p = .026$), Past Positive (PP) predicted decreased TPB_index scoring ($\beta = -.230$, $B = -.220$, $SE B = .075$, $t = -2.912$, $p = .004$), Past Negative (PN) predicted increased TPB_index scoring ($\beta = .310$, $B = .217$, $SE B = .070$, $t = 3.085$, $p = .002$), Deviation from Balanced Time Perspective (DBTP) predicted decreased TPB_index scoring ($\beta = -.278$, $B = -.262$, $SE B = .087$, $t = -3.008$, $p = .003$), CFC increased TPB_index scoring ($\beta = .181$, $B = .138$, $SE B = .050$, $t = 2.770$, $p = .006$), and the hoax_index predicted reduced TPB_index scoring ($\beta = -.302$, $B = -.152$, $SE B = .032$, $t = -4.735$, $p = .000$). Thus, PP, DBTP, and belief in Covid-19 as a hoax function as Covid-19 vaccination barriers, whereas PN and CFC facilitate Covid-19 vaccination. Therefore, conspiracy beliefs, CFC and TP should be addressed on Covid-19 vaccination health promotion campaigns.

Keywords: Time Perspective; Consideration of Future Consequences; Conspiracy Beliefs; Theory of Planned Behavior; Covid-19; Vaccination

Predictability of Time Perspectives on Adaptive and Maladaptive Stress Coping Styles of Puerto Ricans Living in Mainland United States and the Island of Puerto Rico

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Aim and Background: We investigated the predictability of Time Perspective (TP) on the adaptive and maladaptive stress coping styles of healthy and treatment-seeking Puerto Ricans living in Connecticut, as well as in Puerto Rico (PR). **Methods:** 138 adults (mean age = 47.44, SEMage = 1.05) from Connecticut and 199 adults (mean age = 40.33, SEMage = 4.94 years) from PR participated. Adaptive and maladaptive coping were measured through the Brief COPE inventory. TP was measured through a Spanish 15-item version of the Zimbardo TP Inventory, the Deviation from Balanced TP (DBTP) and the Deviation from Negative TP (DNTP) coefficients. Two regression analyses were conducted on adaptive or maladaptive coping as outcomes; the five TPs (Past Positive, Past Negative, Present Hedonistic, Present Fatalistic, and Future), DBTP, and DNTP as main predictors; and age, gender, state (Connecticut or PR), mental health conditions, alcohol use, drug use, and medical conditions as controlling variables. **Results:** Adaptive coping was predicted by DNTP ($\beta = 1.542$; $p = .008$) in Puerto Rican populations, particularly in those characterized by a lack of mental health conditions ($\beta = -.473$; $p = .010$). Maladaptive coping was predicted by DBTP ($\beta = .458$; $p = .017$) and Present Hedonistic ($\beta = .364$; $p = .002$) in Puerto Rican populations, particularly in those characterized by alcohol use ($\beta = -.375$; $p = .012$) and drug use ($\beta = 1.162$; $p = .000$). **Conclusions:** These results support TP theory, since they suggest that Balanced TP influences adaptive coping, whereas Negative TP influences maladaptive coping.

Keywords: Time Perspective; Adaptive; Maladaptive; Stress; Coping; Puerto Rico

The Matter of Time

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This presentation discusses four time-based media artworks by four artists: Victoria Vesna, Alexa Velez, collaborators Adam Hogan and Laura Stayton, and the presenter, Patricia Olynyk. Each of the works feature projective or immersive environments that reframe the human experience of natural environments and shift perceptions of time.

Dark Skies responds to the omnipresence of obtrusive artificial light in urban environments. The title is an astronomical reference that recalls an extended view into deep space and time, a unique perceptual and psychological experience. This video and spatialized sound installation reveals two distinct timeframes on the 24-hour clock simultaneously, while offering an evocative soundscape that sonically articulates the ambiguous space between micro and macro worlds.

Noise Aquarium responds to data that demonstrate how different noise sources influence microscopic marine organisms. Noise Aquarium spotlights animated 3D-models obtained with scientific imaging techniques of the diverse plankton spectrum.

Before, After explores fragility and trace through motion picture film and atmospheric electrical signals. Using film reels, damaged frames, splice tape marks, scratches, sprocket damage, and decay on 16mm/35mm film from restoration projects, the artists evoke the cosmos through the creation of a score that engages the ionosphere and space by using custom VLF antennas and receivers.

Ocean Noise offers an affective immersive experience of the sound of ocean waves crashing. This deceptively evocative soundtrack later reveals it has been produced in a sound-recording studio using large, plastic bags—a nefarious source of ocean pollution—which are cleverly crumpled and manipulated by the artist to maximum effect.

Keywords: Immersive Art Environments, Media Arts, Sound Art, Time-Based Art

Serenamente: A Mindfulness-Based Time Perspective Program for Chilean Adolescents

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In the context of growing evidence about the relevance of the time perspective for well-being and mental health, since 2012 psychological interventions have been documented based on the idea of achieving a balance in the time perspective as an indicator of better Health. Time Perspective Therapy (TPT) is an intervention that examines the temporal profile of the participants and fosters awareness of temporal dimensions and their influence on people's decisions and attitudes. Since then, efforts have been made to evaluate its applicability for therapeutic purposes and in clinical settings. This work presents an adaptation of the TPT within the framework of public policies for suicide prevention in Chilean adolescents. The original idea of TPT is complemented with mindfulness practices for teens, in order to expand the dimension of the present and promote hope, beyond a purely hedonistic vision. This presentation describes the program, called Serenamente and its components. The program consists of 8 group sessions, one per week, and includes support material and activities to do at home. It concludes on some results of the program and discusses the relationship between mindfulness and time perspective, a topic with increasing research.

Keywords: Time Perspective, Time Perspective Therapy, Mindfulness, Adolescents

The Way in Which Time Perspectives Influence German Business Leadership Through Self-Efficacy

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Aim and Background: We tested if Time Perspectives (TPs) and the Deviation from the Balanced Time Perspective (DBTP; Stolarski, Bitner, & Zimbardo, 2011) have an effect on four types of Leadership Styles (LS) (i.e., Transformational, Transactional, Management-By-Exception and Laissez-Faire LS). A higher General Self-Efficacy (GSE) of managers could influence the Transformational and Transactional LS. Moreover, we investigated if GSE mediates the influence of TP and DBTP on LS. **Methods:** Former MBA-students, now employed in the middle management of German corporations were recruited ($n=78$, $Mage=40.5$ years; $SD=10.3$). We have used the ZTPI (Zimbardo and Boyd, 1999), the Multifactor Leadership Questionnaire (MLQ) by Felfe and Goihl (2002) and the General Self-Efficacy-Scale by Jerusalem and Schwarzer (1981). **Results:** Past Positive had no significant effect on any of the four considered LS ($p = .305$). Present Hedonistic increased ($\beta = 0.198$ (5, 65), $p = .035$) and Past Negative reduced the Transformational LS ($\beta = -0.251$ (5, 65), $p = .031$). Present Fatalistic reduced the Transformational ($\beta = -0.283$ (5, 65), $p = .022$) and Transactional LS ($\beta = -0.08$ (5, 67), $p = .010$), but increased the Laissez-Faire LS ($\beta = 0.329$ (5, 66), $p = .051$). F enhanced the Transformational ($\beta = 0.218$ (5, 65), $p = .031$) and Transactional LS ($\beta = 0.268$ (5, 67), $p = .012$). The DBTP reduced the Transformational and Transactional LS. The mediator role of GSE was confirmed for the Transformational and Transactional LS. **Conclusion:** Corporations could introduce training programs, for enhancing a BTP in managers.

Keywords: Time Perspective; Deviation from the Balanced Time Perspective; DBTP; Self-Efficacy; Leadership; German Business

Experimentation of Time Management Supports

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In a previous research project (Pilet, Acier; 2018; Time Perspective Congress, Nantes) we identified that young adults in professional reintegration programs have difficulties with time management. Now we present the subsequent experimentation. During three years, we wanted to help these young adults fight off fatalistic present, negative past, temporal rupture and low self-esteem. We developed some worksheets to help these young adults define objectives, prioritize actions, anticipate obstacles and resources. This year, we organized three remediation sessions with a psychologist, in order to further work on their answers from the worksheets. The trainer could then address these time management points during regular class time. As a way to reinforce learning, a “toolkit” of methodological worksheets will be given at the end of the training course. Every year, two surveys on temporal abilities (ZTPI, TCT-5D) were used at the beginning and at the end of the training course to evaluate the process. In 2019 and 2020, we found that young adults who were provided specific time management supports, relative to the control group, had strengthened their ability to be concentrated on the present. So, they avoided tuning out from concrete reality. Also, they remained less focused on the negative past and less fatalistic. In June 2021, we hope that these first results will be corroborated. These years of experimentation helping troubled young adults have shown that, for the majority of them, it is possible to improve their temporal abilities and thereby facilitating their social reintegration.

Keywords: Questionnaires (ZTPI, TCT-5D), Young Adults, Remediation Process, Assessment

Construct Validity of Occupational Future Time Perspective in Indonesia

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Occupational future time perspective (OFTP) has been conceptualized differently by researchers, whether it is a one-dimensional construct or two-dimensional construct. In the study, we validated the Zacher and Frese (2009) two-dimensional construct of OFTP in Indonesian context. Data were collected from various organizations in Jakarta and Makassar, Indonesia (N = 668). Contrary to Zacher and Frese's contention, we found that one-dimensional construct fits the data well compared to two-dimensional construct. We also measured several other variables to examine the predictive validity of OFTP. OFTP was found to be positively related with affective commitment and work engagement, and negatively related with stress and perceived job complexity. Further theoretical and practical implications are discussed.

Keywords: affective commitment, construct validity, job stress, occupational future time perspective, perceived job complexity, work engagement.

Teachers' Subjective Theories of Time Management: The Chilean Context

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Review of recent literature shows that time perspective (TP) studies in education environments are scarce and more focused on students' TP rather than teachers'. Moreover, investigation on teachers' TP is mostly descriptive or quantitative. Regarding time management investigation in educational environments, recent studies has focused more on student samples than teachers, which has generated a research gap on this field of study. The present research aims to understand and contrast the Subjective Theories of time management of teachers of basic and secondary education in three regions in Chile. 48 teachers were interviewed – 16 per region – and were selected a priori considering 3 categories: the regions where they worked, years of experience (more than 15 years or less than 15 years of work experience) and educational stage (basic or secondary education teachers). The study had a qualitative approach, with thematic and subjective theory (ST) analysis. Among the most relevant themes that emerged in the reconstructed ST that impact teachers' time management, it was found that they attribute their time management skills to external factors, such as little work experience, lack of training, lack of time or lack of control of their times. In line with that, it was found that most of the teachers had present-fatalistic TP, which is also related with the sense of lack of control and resignation. Nevertheless, when comparing different groups of teachers, it was found that teachers with less than 15 years of experiences were more future oriented, while the most experienced teachers had present-fatalistic TP.

Keywords: time perspective; time management; subjective theory; teachers.

The illusion of Time Control – Comparison of the Relationship Between Time Perspective, Personality Traits and Job Satisfaction in Diverse Remote Working Environment

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Time plays an important role in organizational life. Research shows that remote work increases job satisfaction, performance and feelings of commitment to an organization among employees (Allen et al., 2015). Understanding one's time perspective might be also beneficial in increasing job satisfaction.

The aim of this study was to assess differences of relationship between time perspective, personality traits and job satisfaction in diverse remote work environment by controlling the gender and age. The study was conducted within the National Research Program "Challenges and solutions of Latvian State and Society in an International Framework (INTERFRAME-LV)".

A sample (N=120, age 24-60) was recruited across IT organizations in the Baltic states where employees can choose to be fully or partially remote and work from a home office, co-working space or other location. The data pack combined questions of Swedish version of Zimbardo Time Perspective Inventory (S-ZTPI, Carelli & Wiberg, 2011), Job Satisfaction Survey (JSS, Spector, 1985) and HEXACO-60 (Ashton & Lee, 2009).

Prognostic findings of this study indicated that there are differences among gender and age in terms of relationship between time perspective, personality traits and job satisfaction. Moreover, there might be different results depending on the amount of remote work employees are implying in their business rhythm.

The final study results will be presented during the conference, guiding to possible interventions to affect outcomes of job satisfaction in diverse remote working conditions. Remote work is here to stay, and it is important to explore if and how employees are affected by it.

Keywords: job satisfaction, personality traits, remote work, time perspective

Teenager's Time Spent with Digital Devices, Their Symptoms of Digital Addiction and Well-Being

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Teenagers spend increasingly more time with digital devices and the internet. This presentation describes a study with 4493 Estonian students aged 11–19, in spring 2020. We asked for teenagers' time spent using digital devices outside of school, symptoms of digital addiction and well-being indicators. We created a scale for psychoeducational assessment of teenagers' behavior and feelings towards digital devices: Digital Addiction Scale for Teenagers (DAST). We used the mixed research framework (Onwuegbuzie, Bustamante, & Nelson, 2010). Half of the study sample was collected before the coronavirus crisis and the rest of it during the first month of the distance learning period. Those students who use screens the longest, have the highest digital addiction scores and the lowest level of well-being, while students who use digital devices less than other students, have the lowest digital addiction scores and the highest well-being. The results support the theory that the border between healthy and addictive use of digital devices lies where the use of digital devices becomes all-embracing, and the overuse of digital devices disturbs important areas of life and the person's health suffers.

Keywords: Screen time, teenagers, digital addiction, well-being

Temporal Perspective in Organizational Studies: A Dynamic Approach to Individual Differences at Work

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Traditionally, research has conceptualized personality and organizational behaviors as general, stable predispositions and tendencies. Recently, however, the focus has shifted towards momentary changes in how people think, feel and act at work (McCormick, Reeves, Downes, Li, & Ilies, 2018; Podsakoff, Spoelma, Chawla, & Gabriel, 2019). In line with that, we developed Personality Dynamics model, a novel framework that captures a temporal dimension of personality changes at work (Sosnowska, Kuppens, De Fruyt, & Hofmans, 2019; Sosnowska, Hofmans, De Fruyt, 2019a, 2019b). The model describes dynamic patterns of change over time, using three parameters: baseline, variability, and the swiftness of return to the baseline. In this work, we will review how the model can be applied to the repeated measure of data on personality and/ or organizational behaviors, using empirical examples from experience sampling and laboratory data. We will also provide an overview of study designs and statistical models necessary to obtain a reliable assessment of dynamics of personality and organizational behaviors (Sosnowska, Kuppens, De Fruyt, & Hofmans, in press). For example, we will discuss the Bayesian Hierarchical Ornstein-Uhlenbeck model, a statistical model based on a stochastic, continuous-time process that captures the dynamics of within-person changes on the latent level (Oravec, Tuerlinckx, & Vandekerckhove, 2016). Finally, we will discuss theoretical and practical contributions of the dynamic approach and the future of research on the role of temporal dimension at work.

Keywords: Personality, dynamic systems, organizational behavior

Prison Time Experience – a Semantic Differential study

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The knowledge on the way time is experienced by inmates serving the term of imprisonment is scarce and hardly coherent. It is a natural consequence of, among others, the difficulties in conducting research in penal institutions that stem from prisoners' distrustful attitude towards researchers, and from cognitive deficits that manifest when questionnaire techniques are applied. Therefore, devising research methods that can both be easily applied and contribute to enriching the knowledge on intramental temporal experiences poses a considerable challenge. We propose a semantic differential-based research method called Prison Time, which was made with the above-mentioned criteria in mind, making it applicable in research on inmates. The study with this 15-item tool was conducted on a group (N= 161) of men serving time in Polish prisons (Mage= 35.18, SD = 7.41). The experience of time served was found to be greatly diversified. The factor analysis revealed a two-factor structure accounting for 49.1% of the variance, with Cronbach's alpha reliability coefficients greater than 0.74. The Perceptual-Formal Dimension reflects formal aspects of perceiving time—time's pace, dynamics, and changeability. The Emotional-Valence Dimension captures both the emotional load and assessment related to experiencing the time of imprisonment. The identified factors reached satisfactory levels of internal consistency and were linked to other variables in a psychologically comprehensible way further supporting the validity of their identification. With good indices on reliability and validity, the measure is likely to be used by both academics and practitioners interested in subjective attitude to time as experienced in prison.

Keywords: subjective time, meaning of time, prison, semantic differential

Spatial Metaphors of Inmates' Time Experience

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In the study, we examined how male inmates (N = 32) experience selected aspects of time e.g., time meaning, range, frequency, orientation, and time relation. To explore how time is experienced, we referred to spatial metaphors which conceptualize time in simpler categories basing on spatial relations. Materials and instruments used in the study: semi-structured interview, the Lines Test by Cottle, and the Adolescent and Adult Time Inventory by Mello and Worrell. Due to the specificity of the group and the conditions of its functioning, we paid special attention to how the subjects experience the present. The results were compared with other studies which used the same methods in other populations. The group differs in some aspects of the time experience: in the way of defining time and determining the extent of personal and historical time. The respondents also adopt a different temporal orientation than the one observed in the general population and perceive relationships between periods differently. However, the studied group does not vary in how often they think about specific time categories. It is discussed that the way time is experienced may be influenced by specific conditions of prison isolation, in which time serves as a method of discipline.

Keywords: psychological time, spatial metaphor, inmate

Do Time Perspectives and Mindfulness Lead to Life Satisfaction? A Cross-Cultural Study

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Background and aims: We assessed the cross-cultural role of Time Perspectives (TPs), the Deviation from Negative Time Perspective (DNTP) and mindfulness (MAAS) on life satisfaction (LS). **Methods:** The sample consisted of psychology undergraduate students ($n=867$, $M=20.19$, $SD=3.417$) of four countries: United States (US), Spain, Poland, and Japan. We used a 17-item short version of the Zimbardo Time Perspective Inventory (ZTPI), the Mindful Attention Awareness Scale (MAAS), and the Satisfaction with Life Scale (SWLS) in all four countries. **Results:** Regression analyses showed that Past Negative predicted decreased LS in the US ($B=-.585$, $SE B=.229$, $t=-2.560$, $p=.012$), Poland ($B=-.476$, $SE B=.097$, $t=-4.930$, $p<.001$) and Japan ($B=-.402$, $SE B=.136$, $t=-2.963$, $p=.003$). Past Positive predicted increased LS in Spain ($B=.387$, $SE B=.059$, $t=6.514$, $p<.001$) and the US ($B=.382$, $SE B=.193$, $t=1.985$, $p=.050$). The DNTP predicted increased LS in Spain ($B=.321$, $SE B=.142$, $t=2.253$, $p=.025$), and decreased LS in Poland ($B=-.244$, $SE B=.117$, $t=-2.083$, $p=.039$). Mindfulness predicted increased LS in Spain ($B=.402$, $SE B=.075$, $t=5.372$, $p<.001$), the US ($B=.338$, $SE B=.130$, $t=2.599$, $p=.011$), and Poland ($B=.256$, $SE B=.095$, $t=2.690$, $p=.008$), whereas in Japan Mindfulness surprisingly predicted decreased LS ($B=.262$, $SE B=.101$, $t=-2.580$, $p=.011$). Mediation analyses revealed that in our data DNTP does partially mediate the relationship between Mindfulness and LS in Japan (reversed), Spain, and Poland, but not in the US. **Conclusions:** Overall, this study shows that the association of TP, mindfulness and LS differs across the investigated countries as a function of culture.

Keywords: Time Perspectives; Deviation from Negative Time Perspective; DNTP; Mindfulness; Life Satisfaction; Cross-Cultural

Visionary Leadership, Future Temporal Focus, and the Reduction of Uncertainty and Stress

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We show the results of two survey studies in two companies ($n = 425$) and ($n = 226$) in which we tested whether visionary leadership, aimed at providing a future that is clear for their employees, is negatively related to stress through the reduction of uncertainty. In a mediation model, we predicted visionary leadership to be negatively related to stress through reduced uncertainty, over and above the temporal focus on the future of the employee. Contrary to previous research, we found no relation between future focus and stress in both samples. Both studies show that having a visionary leader is more important to uncertainty and stress than one's own future temporal focus.

Keywords: future temporal focus, leadership, stress, uncertainty

The Asymmetry of Temporal Depth. Initial Psychometric Properties of a Spanish Version of the Temporal Depth Index

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Temporal depth refers to one of the dimensions of time perspective and refers to the time horizon traditionally considered by individuals when they think about their past and their future. To assess temporal depth, Bluedorn in 2002 proposed the Temporal Depth Index (TDI). The TDI is a scale of six items that are answered with 15 response options that indicate a concrete time period. Three items assess past time depth and three future time depth, while two are short term, two medium term and two long term (one for each temporal region). The objective of this study is to present initial psychometric information of the Spanish version of the TDI translated and adapted by our research team.

Participants were 322 adults (209 women) of ages ranging from 18 to 75 years old. They were both university students or general population convened through the snowball method. Participants completed sociodemographic questionnaires, IPT adapted to Spanish as well as other measures of temporal psychology.

Results suggest that, as expected, mean time horizons are longer as the type of term grows (short, medium and long). On the other hand, there is an asymmetry of temporal depth, where the time horizons are longer for the past (≈ 57 months) than for the future (≈ 37 months). Use of other temporal response options were marginal ($\approx 1\%$). Internal consistency was good for the subscales of future and past ($<.70$). Shorter time horizons were associated with greater present hedonism and fatalism (effects that tended to be small).

Keywords: temporal depth, time perspective, validation

Factors of Time Perception While Waiting: An Experience Sampling study

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Waiting is something we do quite a lot: waiting for a train to go, the start of a meeting or the end of a pandemic. Mostly, people know how to subjectively shorten their waiting times by using something to distract themselves. Also, prominent models of time perception predict the waiting experience by the amount of attention to time and the individual arousal level. However, do these factors hold, when it comes to predict the perceived passage of time in real waiting situations? In the current study, we used an experience sampling method to investigate real waiting situations. Over a duration of two weeks, we asked our participants to complete a short online survey whenever they experienced a waiting situation of 5 minutes up to two hours. The participants rated how fast time had passed and how long the waiting period had felt. Also, they evaluated a lot of characteristics of the waiting situation as well as their inner states. 78 participants experienced altogether over 500 waiting situations. Indeed, the most important factor of the passage of time was how much the participants were able to distract themselves from time. Nevertheless, also the perceived fairness of the waiting situation as well as participants' ability for temporal metacognitive control play an important role. By contrast, negligible was how comfortable the waiting environment was evaluated, how much control the participants believed to have in the waiting situation and how important the event the participants waited for was.

Keywords: passage of time, waiting

Measuring How Time Comes to Mind: The Time Consciousness Scale

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The ability to consciously perceive time is a universal characteristic of all human beings. Time consciousness may be seen as the basis of other temporal cognitions like the duration estimation of ongoing or past events, the anticipation of the duration of future events, temporal planning, punctuality and even the subjective impression of the speed of time during different situations. However, humans differ in various aspects concerning temporal cognitions, including age, specific personality factors as well as certain mental disorders like depression and attention deficit disorders. In all prominent models of human time perception attention towards time (or to temporal aspects of the stimuli) is an important precondition necessary to create valid temporal judgments. I will present the reliability and validity of a recently developed scale measuring the core part of temporal cognitions: Time consciousness. The scale consists of five stable factors: (1) Awareness of Time (measuring the individual focus on time in daily situations), (2) Time Orientation (measuring how strongly individuals adjust their lives to time devices), (3) Time Estimation (measuring the accuracy of individual's time estimates), (4) Anticipation of Durations (measuring the ability to anticipate the duration of events), and (5) Dependency to Alarm Clocks (measuring how strongly individuals rely on alarm clocks in order to wake up at the right time of the day). Within three studies using German samples ($N = 341$), we obtained high internal-consistency values for the five subscales (Cronbach's Alpha between 0.80 and 0.90) and a good model fit for a confirmative factor analysis. Correlations with the Big Five personality traits, the factors of Time Perspective (Zimbardo Time Perspective Inventory; ZTPI), chronotype, self-regulation, impulsivity, mindfulness and punctuality will be reported.

Keywords: time perception, consciousness, punctuality

Integration of the Different Views on Time: Connections Between Time Perspective and Time Perception

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Psychological time reflects a number of constructs including an attitude towards the past, present, and future called time perspective, the subjective passage of time and the estimation of duration. Since the various conceptualizations and research paradigms concerning psychological time have rarely been integrated, in the present study we aimed to integrate above mentioned approaches taking executive control into account. We assessed 99 participants who took part in the study. The main part of the procedure was a real waiting task. Providing a story for why they had to wait, participants were individually shut into an empty room for 7.5 minutes and afterwards asked to report their impressions regarding the experience of time, i.e., duration estimation of waiting, passage of time, thinking about time. Then, participants performed an auditory duration reproduction task, an executive control task and filled out the Zimbardo Time Perspective Inventory and a questionnaire regarding passage of time judgment concerning past life intervals. The results show that some aspects of psychological time are intercorrelated. None of the time orientations is correlated with duration estimation of the waiting task. However, correlations were found between Past Negative, Present Hedonisms, Future Negative and passage of past life intervals. The most exciting result show that less accurate time reproduction was more pronounced at lower level of executive control and a less balanced time perspective. The current study is an attempt to perceiving research on time in a more comprehensive way connecting its different aspects and using a wide range of methodological approaches.

Keywords: time perspective, time perception, waiting situation, executive control

Time Thieves, Enhancers, and Reflections: Examining Experiences of Leisure Time and Technology Use Through Reflective Time Tracking

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Background: Time is a finite resource that individuals use every day regardless of whether they are aware of how they spend it. As a resource, time is commonly allocated to different categories of life, such as work and leisure time. This qualitative study aimed to examine the common category of leisure time, with a particular focus on the role technology plays in individuals' engagement in leisure activity.

Method: Eight participants (students and young professionals in their 20s and 30s) were first interviewed to explore how they define and experience leisure time and technology use within leisure. Next, participants engaged in a week-long time journaling exercise to track their leisure time and any thoughts and feelings that arose through the process. Finally, in a follow up interview, participants reflected on their experiences keeping the time journal and any insights or desires for change that were prompted by the experience. Inductive thematic analysis was used to construct four themes: 1) time tracking increasing time awareness, 2) multi-faceted experiences of leisure time, 3) technology and quality of leisure, and 4) meaningful leisure time.

Implications: Implications for further research and application in the fields of coaching psychology and positive psychology are discussed. This study motivated and informed current PhD research investigating evidence-based time awareness approaches that can be used to support individuals to better understand themselves and each other by recognizing how time habits and time values influence health, happiness, and wellbeing.

Keywords: time tracking, time-use, leisure time, technology use, time journal, habits, time values, thematic analysis, coaching psychology

Workshops

Time Scholars' and Clinicians' Personal Experience of Time: Do We Practice What We Preach? New Discoveries During the Pandemic and Beyond

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My workshop offers a group discussion format to facilitate self-reflection and self-examination of our own experience of past, present and future in order to better navigate personal and professional challenges and life transitions. The workshop also reviews the potential of personal observations to formulate new ideas for research and clinical work. The COVID-19 pandemic became an unexpected, widely shared life-changing event. The pandemic appears to have affected communal sensitivity to time. As time scholars, what did we notice and learn about ourselves and others during this year? How did our knowledge of time help us during this difficult period? Temporal self-awareness is essential in grasping our own temporal biases, whether in the consultation room or research lab (Kazakina, 2015, 2017, 2018). This workshop explores how our life experiences and time perspectives shape our research interests and clinical work. We also examine how we can apply time research and clinical discoveries to our own lives. Can we deal more competently with interpersonal conflicts that often arise from the “temporal mismatch” - contrasting differences in time perspectives of individuals and social groups? As “time experts” how do we utilize the healing power of balancing time perspective to manage multiple stressors, cope with uncertainty and increase well-being? The impact of age and developmental tasks is taken into consideration while addressing our experience of time and the life choices we make with a special emphasis on the pandemic-related challenges.

Keywords: Temporal self-awareness; Time experts; Temporal mismatch; Life transitions; Personal and communal experience of time; COVID-19 pandemic.

Mindful Embodiment of Balanced Time Perspective – a Time to Relax in the Here and Now

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As a psychologist, researcher, and yoga teacher, I will guide you through an hour of deep relaxation, weaving this workshop between bodily cognitive awareness and letting go into the present moment. Using a holistic array of techniques ranging from yin yoga, mindfulness, polyvagal co-regulation and visualization, we will take a break from the stimulation of the conference and come back to ourselves, which will allow for a deeper integration of all of the knowledge and new information surrounding us. There is no need for preparation and no such thing as a level of expertise to join- all you need is your body and mind and the willingness to let go.

Keywords: sensory activation, mindfulness, embodiment, interoception, balanced time perspective, relaxation techniques

Art presentations

The Society of Campers in the Sea and the Sun

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The article presents information on the 58th Venice Art Biennale, the challenges of implementing its Lithuanian pavilion, and perspectives on disseminating this artistic piece – the Sun and Sea. The pavilion was first shown in Italy in 2019. For the first time in the history, it was awarded the Golden Lion. The article is a case study based on a series of in-depth interviews that show how this type of project can be used as a role model of a ‘society of campers,’ burning their bodies and souls in the sun. The article employs theories of liquidity by Zygmunt Bauman and John Keynes. Bauman indicates two possible scenarios, distinct but interrelated, and a contrasting counter-scenario in our lives. Bauman’s second scenario, the flight to the community, leads to ghettoization. The creators are concerned about the liquidity of our planet and our society. After the premiere institutions from all over the world wished to invite this artwork. Over the next few years, the opera will reach audiences in Norway, Sweden, Spain, Switzerland, Iceland, the United Kingdom, the United States, Russia, Australia and elsewhere. According to Erich Fromm, “each individual must go ahead and try his luck,” when “he had to swim or sink” – “the compulsive quest for certainty” takes off, the desperate search for “solutions” able to “eliminate the awareness of doubt” begins – anything is welcome that promises to “assume the responsibility for ‘certainty’” (Bauman, 2000: 20). The search for unity in our difference is attempted to find in this article.

Keywords: Venice Biennale, opera, ecology, liquidity, unity of humankind.

Reaching for the Sky

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The human desire to create a perfect environment through the fabrication of artificial realities has altered entire landscapes and has even disrupted our relationship to the night sky. Stars have always dominated our natural surroundings, connecting us to the Universe and Eternity. Most of us, however, can no longer see them outside of a planetarium due to urban light pollution. The sky, like nature's last bastion, has fallen prey to our desire for the artificial. I argue that this affects our experience, perception and understanding of Time. Ancient societies closely watched the sky, and their life followed the movement of the stars. Different parts of the sky were associated with seasonal activities and were connected with specific deities and their distinctive purpose, influence and offering of special protections. I'm going to contemplate our complex relationship to the sky and the time perspective of tribal societies, connecting this with the space race in the 1950s-60s, as representing a critical period of fulfilling our dream of breaking away from the Earth and from its natural cycles, and culminating in contemporary developments such as the Starlink satellites recently launched by SpaceX. Our ambition to reach for the sky has concealed it from our view. What kind of psychological impact does this have, and can a re-connection with the night sky help us make our relationship to the natural environment more emotional, caring, and attentive? Additionally, I can create a poster and/or an art installation on the subject.

Keywords: visualization of time, night sky, light pollution, time perception

Animated

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What is or is no longer animation in changing representations of reality? What knowledge does it provide in virtual, augmented, mixed realities? Liberating its concept from the temporarily absorbed film field (as time-based art) is likely to encounter chaotic interplay of concepts.

But choosing animation as an independent research apparatus for entity realism (Hacking) its possible purposefully to focus on animation as a hardware-based procedure for imaginative queries to reality. Manipulation on Time becomes an essential method in this procedure.

In this case, it is worth exploring “animating” in immersive media as the totality of apparatus accesses to reality that allow us to observe possible object change, investigate unusual parameters such as its “opportunity” and follow unusual methods such as “intuition”.

Keywords: Animatic apparatus, immersion, virtual reality, animation

Here Then, There Now

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HERE THEN, THERE NOW presents an artistic research on time and place that focuses on the eight-minute delay before sunlight reaches the surface of Earth. In every photograph that captures sunlight two exposures of the paper negative are made with an eight-minute gap between them. The resulting images are experiments in representing the irreversible flow of astronomical time, through the limited means provided by flat photographic surface.

Keywords: time; place; sun; art; research; minutes; earth; photography; flow; surface; realities; representation

Static Time – Giuseppe Penone’s Artistic Strategies

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This report will discuss Giuseppe Penone’s artistic strategies in culturing nature. Penone’s creative project discloses as a paradox: objects of imprisoned memory conceal dynamic perception of time. Involuntary processes – growth, aging, life and death obtain visual form, are captured in installations and sculptures made of trees. Material objects serve as a medium not only in the powerful transcendence of nature, but in visualization and exposition of temporal continuity, static time reveals as a sum of times: lifetime of a tree and a human being.

Keywords: Static time, temporal continuity, memory, Giuseppe Penone, culturing nature, sculptures, trees.

Awareness

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“Awareness” is a theater performance by undergraduate students of Psychology, which has been videotaped and subtitled in English. Different metaphors on the relevance of time and awareness of it are represented. This text has been inspired by the book *the paradox of time* (Zimbardo & Boyd, 2008), and has obtained the centenary extension fund of the University of Concepción, Chile. This year the performance will be presented to children (8-12 years old) of low-income and vulnerable schools.

Keywords: Time Awareness, theater performance, children, low-income schools.

Posters

Time Perspectives of Different Objects

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In our research we were dealing with time perspective of different objects. We conducted 41 in-depth interviews about perception of prenatal past, past, present, future, and future after death of a person. Analysis of interviews revealed that participants have common tendencies to be oriented on different time horizons of different objects – one's self, relatives, friends, community, humanity and nature – and those orientations can be to some extent independent. For all of the objects there is a possibility to be oriented towards positive, negative, both or none of the aspects of different time horizons. When dealing with one's self time perspective important aspects that were found were one's health, career, finances and relationships. Another important finding was that one's self present can be – at least in Slovene language – understood as present moment and as identity present, so it is possible that present time perspective should be divided to momentary and identity present time perspective. Interviews also revealed that some of our participants believe that events repeat so circular time perspective may exist and further research on this topic is needed.

Keywords: time perspective, self and others, prenatal time perspective, future after death perspective, circular time perspective

Life Course as a Tool for Comprehending Experiences in the University Environment

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In this paper we show the methodological value of life course as a tool for comprehend experiences in academic environment. We conceive life course as a synthesis of trajectories that allow us to highlight key moments and milestones in people's lives. We show two examples to outline biographical-phenomenological events. One of them derived from work with women university professors; the other, with undergraduate students. Methodological development consisted of gathering, analytical axes construction, information sequencing, time units structuring, and graphic-symbolic representation. In the first example we show the tool's usefulness in the creation of the analytical categories; in the second, its potential to reconstruct evolutionary processes. In both, pathways analysis allowed to understand some conditions of inequality, inequity and vulnerability. We concluded life course goes beyond its technical use, as long as it strengthens the interpretive work to get into people's sense of life. Its heuristic, flexible and open capacity recreates lifetime processes, in paradigmatic terms, responds the needs of a research that is constructed in an artisanal way.

Keywords: lifeline, phenomenological-biographical approach, subjectivities, temporalities and sense of life

Ethnic Identity and Time Perspective in Latinx American Adolescents

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We examined associations between ethnic identity factors (exploration and commitment; Phinney, 2006) and time perspective dimensions (positive and negative feelings about the past, present, and future and frequency of thought about these time periods; Mello, 2019) in Latinx American adolescents. Exploration includes learning more about one's ethnic group, whereas commitment refers to one's sense of belonging to their ethnic group (Phinney, 2006). Many Latinx American adolescents live in marginalized communities where substance abuse and school dropout rates are high (Yunyu et al., 2020). Despite this, a prior study showed that stronger ethnic identity resulted in greater optimism in Latinx American adolescents (Oyserman, 2008), suggesting that ethnic identity may also be associated with time perspective (feelings and thoughts about time). To address this topic, we examined the following research question: How is ethnic identity associated with time perspective in Latinx American adolescents?

Participants included 322 Latinx American adolescents ($M_{age}=15.82$, $SD_{age}=1.23$). Measures included the Multigroup Ethnic Identity Measure-Revised (Phinney & Ong, 2007) and the Adolescent and Adult Time Inventory (Mello & Worrell, 2007). Correlations indicated that exploration and commitment were positively associated with positive feelings about time ($r_s=.21$ to $.28$, $p_s<.001$) and that commitment was negatively associated with negative feelings about the present ($r=-.14$, $p<.05$). Correlations were greater for positive time feelings than negative time feelings. Further, exploration and commitment were positively associated with frequent thoughts about the present and future ($r_s=.13$ to $.18$, $p_s<.05$). Overall, findings indicated that ethnic identity and time perspective were associated in Latinx American adolescents.

Keywords: ethnic identity, exploration, commitment, time perspective, time feelings, time frequency, Latinx American adolescents

How Archetypes Influence Our Perception of Time

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Archetypes are a symbolic language of the universe and are a map to help us read life. They are said to be psychic power patterns dwelling in the deeper layers of the unconscious. They are a system of living consciousness. These universal patterns of power drive us. These patterns become verbs, not nouns, which penetrate and influence the quality of our lives. They enable us to access deeper levels of insight, wisdom and creative energy that exist beyond the limits of the rational, linear mind.

They also influence our relationship to time. For example, the Victim often time warps us to the past, the Mystic stays in present time - the eternal now - while the Visionary is future-oriented. Archetypes also invite us to align with a timing that does not solely come from the mind: a mixture of chronos (quantitative, linear time as years, hours, seconds), kairos (qualitative, numinous time as moments) and cosmos (the movement of the planets and the timing and character of historical and future events). I will explore how an understanding of time and archetypal co-ordinates are necessary for us to activate and engage our destiny.

Keywords: kairos, chronos, cosmos, archetypes, light, shadow, patterns, psyche

Morningness-Eveningness Preference, Time Perspective and Passage of Time Judgement

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Recent studies show an association between circadian typology and time perspective while little is known about the effect of circadian typology on the subjective passage of time judgments. In the present study, we assessed the relationship between circadian typology, time perspective and passage of time. A sample of 222 participants (53.20% of females), ranging in age between 19 and 60 filled in the Zimbardo Time Perspective Inventory (ZTPI), the reduced version of the Morningness-Eveningness Questionnaire (rMEQ), their sleep habits during weekdays and weekend and the Dickmann Impulsivity Inventory (DII) for assessing their time perspective, chronotypes, social jetlag, and functional/dysfunctional impulsivity respectively. The passage of time judgment (POTJ) was measured using a modified version of pictorial timeline presented in 5 different moments. Also, participants judged how different temporal expressions were related to the past, present and future along a 7 points Likert scale. After confirming the association between eveningness and present-hedonism orientation and morningness and future-orientation, we found that evening-types produced larger scores for future expression and produced larger overestimation of the passage of time. The circadian typology effect on the subjective judgment of the passage of time expressed in minutes was also defined by gender. The multiple regression analysis on this passage of time was predicted by the Deviation from Balance Time Perspective, present-fatalism orientation and functional impulsivity. The circadian typology, as biological basis, influenced not only the culturally and environmentally determined time perspective but also the subjective passage of time, suggesting a different pulse rate of internal pacemaker.

Keywords: Circadian Typology; Time Perspective; Passage of Time; Impulsivity; Internal Pacemaker.

Present Hedonistic Orientation and the Behavioral and Mental Responses During COVID-19 Pandemic

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One of the early responses to mitigate the spread of COVID-19 was to reduce or cancel group activities, and to mandate a stay-at-home order. These resulted in an increased concerns on mental health. Among measures that capture one's mental well-being, the Present Hedonistic (PH) perspective reflects stable mental health and life satisfaction. In addition, PH has also been associated with openness to pleasurable experience. Due to the pandemic restrictions, some of the experiences were limited, and might have significantly impacted the mental health of individuals with a PH orientation. In the current study, we examined the relationship between PH perspective and mental health (depression, anxiety), personal beliefs (free will and moral foundation), and pandemic-related experiences (e.g., the perceived speed of time passage, social connection) during the first year of the pandemic. Respondents (young to middle-aged adults; primarily college students in the United States) were surveyed during the mandatory lockdown (April and May, 2020) and after the lockdown order had been lifted (November, 2020). The data trend suggests that in general, lower PH perspective is associated with higher depression and anxiety (negative correlation); and that PH perspective level correlates with the belief in free will. There was no relationship between PH and the perceived passage of time, moral foundation, nor social connection. The results will also be discussed in the context of the period of survey administration. This may help better our understanding of how different degrees of PH orientation may respond differently at various time points of the pandemic.

Keywords: present hedonistic, free will, moral, depression, anxiety, pandemic, COVID

Time Perspective Orientation and Emotion Regulation

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The goal of the study is to explore how the subjective perception of time might be related to individual's strategies of emotion regulation and emotion difficulties. 120 participants (86 males (71%), average age 41.92 ± 8.13 y.o. ($M \pm SD$), average duration of the disease 10.82 ± 8.18 years) were recruited from the pool of patients undergoing detoxification treatment for alcohol use disorder. Time perspective was measured using Zimbardo Time Perspective Inventory. Emotion regulation was assessed using three methods, representing 3 different models of emotion regulation, Emotion Regulation Questionnaire, Difficulties in Emotion Regulation Scale, and Cognitive Emotion Regulation Questionnaire. The results of the statistical analysis suggested multiple significant correlations between ZTPI subscales and the measures of emotion regulation. The lack of effective emotion regulation strategies ($p=0.001$) and tendency to catastrophize ($p=0.017$) significantly predicted Past Negative orientation ($F(2,108)=14.66$, $p=0.00$, $R^2=0.214$). Strategy to refocus on positive ($p=0.03$), consider things in perspective ($p=0.013$), and tendency for catastrophization ($p=0.016$) in addition to difficulties with maintaining goal-directed behaviors ($p=0.047$) and the lack of emotional clarity ($p=0.001$) significantly predicted Present Fatalistic orientation ($F(5,105)=9.98$, $p=0.00$, $R^2=0.32$). Similar prediction models were observed for other ZTPI subscales. The results suggest that emotion regulation and time perspective constructs are different but overlapping concepts. Interaction between the constructs and its theoretical and practical applications are further discussed. This research study was supported by Russian Humanitarian Science Foundation grant (16-06-01043).

Keywords: ZTPI, Emotion regulation

The Impact of a Time Perspective Educational Course on Students' Intellectual Styles, Locus of Control, and Subjective Well-Being

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Intellectual styles refer to individual preference for ability utilization and information processing. Although this construct appears to be vastly different from time perspective, literature suggests important conceptual links between the two. For example, certain styles and time perspectives have been found to be correlated with two psychosocial developmental outcomes—locus of control and subjective well-being. However, very few studies have examined the relationships between intellectual styles and time perspectives directly. This research aims to: 1) explore the relationships between time perspectives and intellectual styles; 2) determine if a time perspective based educational course could help students develop and optimize their time perspective profile, and at the same time, develop more effective intellectual styles, internal locus of control, and higher levels of subjective well-being.

Four hundred and fifty-one secondary school students took part in this research, of which 149 students participated in the intervention. Findings show that thinking styles were closely related to time perspectives. Students with a more balanced time perspective profile possessed successful intellectual styles (i.e., preferred using a wider range of styles, especially the creativity-generating Type I thinking styles). Positive time perspectives generally made positive contributions to internal locus of control and subjective well-being, when compared with negative time perspectives.

The intervention successfully optimized students' profiles with the desired changes in the Present-Hedonistic, Past-Negative, and Present-Fatalistic time perspectives. It also led to significant improvement in students' internal locus of control and subjective well-being. Students receiving the intervention also had an increased preference for utilizing the external style.

Keywords: Time perspective; thinking styles; locus of control; subjective well-being; intervention

Perceived Racial/Ethnic Discrimination and Occupational Expectations in STEM among Asian American and Latinx American Adolescents

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Perceived discrimination based on race refers to the perceived negative, differential attitudes and treatment by others due to race (Assari, 2019). In the United States, Asian American and Latinx American adolescents have reported experiencing high rates of racial/ethnic discrimination (Sanchez et al., 2018), with the former group reporting greater discrimination from their peers than from adults (Greene, 2006). Occupational expectations refer to the perceived likelihood of obtaining a particular career (Gottfreson, 2002). Past research has shown that occupational expectations predicted career attainment (Chung et al., 1996) and were associated with future social mobility in adolescents (Rojewski, 1995). There is limited research that has examined the association between perceived racial/ethnic discrimination from peers and occupational expectations in Science, Technology, Engineering, and Math (STEM) among Asian American and Latinx American adolescents. To address this topic, we examined the following research question: How is perceived racial/ethnic discrimination from peers associated with occupation expectations in STEM among Asian American and Latinx American adolescents?

Participants were 179 Asian American and Latinx American adolescents ($M_{age}=16.06$, $SD_{age}=1.33$). Measures included the Adult and Peer Discrimination Measure (Way, 1997) and the Career Expectations scale (Mello, 2016). Among the sample, 65% of the participants indicated an interest in a STEM career. Results showed that among Asian American and Latinx American adolescents, perceived racial/ethnic discrimination from peers was negatively associated with occupational expectations in STEM, $t(168)=2.74$, $p<.05$. Findings have implications for future research on policy and supportive factors for racial/ethnic minority adolescents experiencing discrimination based on their race/ethnicity.

Keywords: perceived racial/ethnic discrimination, occupational expectations, STEM, Asian American adolescents, Latinx American adolescents

Time Perspective and Sexual Orientation

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Sexual minorities (eg, lesbian, gay, and bisexual individuals) are a higher risk group for sexually transmitted diseases and mental health disorders. Also, they suffer more violence and discrimination than heterosexual individuals. The time perspective is a construct that has been related to a variety of human experiences. In this study, Time Perspective Profile of individuals who identify themselves as heterosexual with non-heterosexuals was compared. Brazilian university students (n = 305) responded to an online survey with a short version of the Zimbardo Time Perspective Inventory of 18 items, with future-negative scale (Košťál and colleagues). The majority were women (55%), single and without children (97.7%). 67.5% reported heterosexual identity and other Non-heterosexual identity: homosexual (11.8%), Bisexual (17.4%), Pansexual (2.3%) and Asexual (0.7%). Results showed a great significant difference in all ZTPI scales between the two groups. The nonheterosexual group had higher scores in the past-negative, present- hedonistic, present-fatalistic and future- negative. In contrast, they showed lower scores in the past- positive and future- positive. Some evidence applying the ZTPI to analyze risky health behaviors has found that those individuals with a profile demonstrated by the individual nonheterosexual, confirming their vulnerability. Thus they are inclined toward the future risky behaviors, and lower mental health.

Keywords: ZTPI, sexual orientation, university students

Time Perspective Predicts Levels of Anxiety and Depression During the COVID-19 Outbreak: A Cross-Cultural Study

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The COVID-19 outbreak and governmental measures to keep the population safe had a great impact in many aspects of society. The impact on people's wellbeing has been widely reported in the literature, affecting sleep, raising the levels of anxiety, depression and stress and impacting our perception of time. Time is indeed one of the most important constructs in our lives, the one around which we structure our existence. We aimed to investigate whether time perspectives, chronotype, and personality traits were associated with the levels of anxiety and depression in six different countries: Argentina, France, Greece, Italy, Japan and Turkey. To test our hypotheses, we used the Hospitalized Anxiety and Depression Scale, the Zimbardo Time Perspective Inventory, the reduced version of the Morningness-Eveningness Questionnaire and the ten-item version of the Big Five Inventory. Particularly, the regression analyses showed that negative attitudes toward the present and the past – Present Fatalistic and Past Negative perspective - were predictors of the levels of both anxiety and depression in most of the countries we analyzed. The Big Five personality traits and chronotype had rather small incremental explanatory power for the prediction of anxiety and depression levels.

Keywords: Time Perspective, Anxiety, Depression, Covid-19

Time After Time: The Test–Retest Reliability of the Adolescent and Adult Time Inventory

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The Adolescent and Adult Time Inventory (AATI; Mello & Worrell, 2007) was developed to measure multiple time perspective dimensions and time periods (i.e., past, present, and future). The dimensions include time feelings (positive and negative feelings about each time period), time frequency (frequency of thoughts about each time period), time orientation (relative importance placed on time periods), and time relation (perceived relationship among time periods). Though prior studies have demonstrated the psychometric validity and internal consistency of the inventory (McKay et al., 2020; Worrell et al., 2013), test–retest reliability has yet to be examined. To address this gap in the literature, we examined the following research question: Do the AATI measures of time perspective dimensions yield reliable scores across time?

Participants were 178 American individuals aged 18 to 52 years ($M_{age} = 22.69$, $SD_{age} = 5.00$). Time perspective dimensions were measured with the AATI at two time points separated by two weeks. Correlational analyses showed that time feelings subscales had high test–retest reliability ($r_s = .77$ to $.85$, $p_s < .001$). Time frequency items had moderate test–retest reliability ($r_s = .40$ to $.60$, $p_s < .001$). For time orientation and time relation, chi-square tests showed that responses from the two time points were associated with large effect sizes (Cramér's $V_s = .50$, $.33$, $p_s < .001$). Overall, findings indicated that the AATI demonstrated test–retest reliability and provided strong support for the use of the AATI to assess time perspective.

Keywords: time perspective, psychometrics, test–retest reliability, time feelings, time frequency, time orientation, time relation

Time Perspective and Mental Health Outcomes in American Young Adults

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We examined associations between young adults' time perspective dimensions (positive and negative feelings about the past, present, and future and frequency of thought about these time periods; Mello, 2019) and mental health outcomes (depression, anxiety, and rumination). Research on time perspective and mental health among young adults is important given the rates of depression and anxiety in this group (NCHS, 2020a, 2020b) and the potential for time perspective to be a fruitful intervention target (Hall & Fong, 2003; Mello, 2019). Further, despite the high comorbidity of depression and anxiety (Lamers et al., 2011), there is a lack of research that investigates their unique associations with time perspective. To advance literature, we addressed the following research question: How are time perspective dimensions associated with depression, anxiety, and rumination in American young adults?

Young adults ($N=337$; $M_{age}=22.74$, $SD_{age}=5.59$) completed a survey battery comprising the following measures: Adolescent and Adult Time Inventory (Mello & Worrell, 2007), Center for Epidemiologic Studies Depression Scale (Radloff, 1977), Generalized Anxiety Disorder Scale (Spitzer et al., 2006), and Ruminative Responses Scale (excluding items with depression content; Treynor et al., 2003). Multivariate analyses were conducted, with models predicting anxiety controlling for depression (and vice versa). Findings indicated that positive and negative feelings about the past, present, and future were associated with anxiety ($M|\beta|=0.20$, $ps<.05$) and rumination ($M|\beta|=0.30$, $ps<.05$) in theoretically expected directions. Frequent thoughts about the past were positively associated with greater depression, anxiety, and rumination ($\beta s=0.24$, 0.14 , 0.42 , $ps<.05$).

Keywords: time perspective, time feelings, time frequency, mental health, depression, anxiety, rumination, young adults

Short Version of the Zimbardo Time Perspective Inventory for the Chilean population: An International Comparison

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Time perspective has been a topic of growing interest in the academic world, due to the relationship that has been established between this variable and elements such as subjective well-being, self-esteem, anxiety, stress, among others. The widely used instrument for its measurement, the Zimbardo Time Perspective Inventory [ZTPI], has been translated and adapted for use in various countries, including the construction of short versions. The present study proposes a brief version for the Chilean population with a sample of 829 people (46.6% men, mean age = 29.33, SD = 13.48). Making a comparison with 6 other foreign short versions available. The proposed version has 15 items, 3 for each of the 5 factors of the original version. A confirmatory factor analysis was carried out to check the adequacy of the model, obtaining a good fit, similar to that found by other studies. It is proposed to continue studying and improving the psychometric properties of this version, highlighting the importance of taking into account differences due to cultural factors

Keywords: Time perspective, ZTPI, cross-cultural differences, instrumental study

Future Anxiety Measurement: Factor Structure & Psychometric Characteristics of the Dark Future Scale (DFS) in Uruguay

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Future Anxiety (FA) refers to a state of apprehension, uncertainty, fear and concerns about unfavorable changes that may take place in the personal future. This negative state is caused by cognitive representations about possible adverse situations in the future. The Dark Future Scale (DFS) is a five-item instrument developed to measure Future Anxiety.

The purpose of this study is to explore the factor structure and psychometric properties of a Uruguayan adaptation of DFS.

The sample is composed by 865 participants (651 women, 75.8%, 208 males, 24.2%) with ages between 18 and 66 years old ($M = 25.66$, $SD = 8.53$).

Through an Exploratory Factor Analysis, a one-dimension factor structure was found, reporting 60% of total explained variance. All items presented high factor loadings ($\lambda \geq .55$) and the obtained reliability was good ($\alpha = 0.83$, $\omega = .84$). Using Confirmatory Factor Analysis with Diagonally Weighted Least Squares (WLSMV) estimation, the same factor structure was achieved with good model-fit ($CFI = .91$, $TLI = .99$, $WRMR = .62$).

Correlations with relevant psychological phenomena were calculated in order to explore convergent-discriminant validity: self-esteem ($\tau = -.39$), consciousness ($\tau = -.23$), emotional stability ($r = -.32$), openness to experience ($\tau = -.21$), satisfaction with life ($\tau = -.27$) and negative future time perspective ($\tau = .25$).

The obtained results in this exploratory study, allow us to assert about DFS good factor structure and psychometric characteristics. Future studies should test the instrument with specific samples and with a more varied set of variables.

Keywords: future anxiety, subjective temporality, factor analysis

The Role of Slow Time in the Context of Fast Time

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In the post-industrial Western world, people who are not able to keep pace with the high-speed society often feel that they have lost control of their lives. They experience time as a source of external coercion, and therefore they look for ways to manage it and take over the control of it. The goal of this paper is to reveal the role of slow time in the context of fast time (or high-speed society), based on the results of a qualitative study which was conducted in 2019. It included interviews with 18 individuals who: (a) subjectively felt they had survived a fast-time phase that lasted at least half a year; (b) such lifestyle was exhausting, and it adversely affected their psychological well-being and quality of life in general; (c) at some point in their life, they have deliberately decided to slow down their pace of life and try to live on the principles of slow time. The analysis of the experiences of fast time and slow time lifestyles revealed fundamental differences, which were summarized using the metaphors of „death culture“ or „self-hatred“ vs. culture of „creativity“ and „self-care“, expressed by the research participants. It can be argued that fast time experiences and their negative impact to mental and physical health have brought people to more meaningful, higher quality, freer and more authentic lives. According to the study participants, such life can only develop in the context of slow time.

Keywords: acceleration society, high-speed society, time pressure, fast time, slow time, sociology of time

Effects of the Production Rate of Linguistic Stimuli on the Perception of Elapsed Time

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In this study we examined whether the exposure to speed-altered audio clips of speech-like stimuli can distort systematically the subjective sense of time. Participants listened to stimuli of varying durations and speeds and reproduced their durations. Results revealed that both speed and actual duration influenced the length of reproduced durations. In particular, participants reproduced durations as larger when they listened to fast compared to slow speech-like stimuli of the same actual duration. In addition, the reproduced durations of long stimuli deviated more from their veridical durations compared to those of short stimuli. Notably, a significant interaction indicated that the effect of speed was greater for stimuli of short than of long actual durations. We argue that listening to fast speech-like stimuli speeds up the pacemaker component of an internal clock leading to overestimation of the actual duration. The implications of these findings for the theories of time perception are discussed.

Keywords: Time perception, speech rate, perceived duration, speed, reproduction task

Using the Zimbardo Time Perspective Inventory to Measure the Future Time Orientation of Homeless People

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Although qualitative research as well as clinical anecdotal evidence has demonstrated their dominant time perspective to be the here and now, homeless individuals do not score low on Future Time Perspective (FTP) when the Zimbardo Time perspective Inventory (ZTPI) is employed. We hypothesize that this unexpected finding results from homeless individuals' living circumstances being such that they have little need or opportunity to adopt a time perspective that extends further into the future. Given their situation, the salient timeframe for answering questions about FTP is limited to the near-term future. To test this hypothesis, we are currently surveying 40 homeless individuals, using a modified 17-item ZTPI. It was translated into Dutch, edited to B1 language level and vetted with a focus group consisting of previously homeless people. The same process was applied to the questionnaire for testing the connection with the Future Self Questionnaire (FSQ). We expect that in the modified ZTPI this population will score equal to a control group on FTP but significantly lower on FSQ. If confirmed, this would lend plausibility to the idea that the difficulties with self-management found in this population are linked less to a diminished FTP than a disconnect with their future self. This would suggest, in turn, the relevance of further research into effective, autonomy-promoting interventions, for individuals for (recurrent) homelessness, that are focused on strengthening the connection to the future self by building time-travel skills, empathy with future self, and increased future self-continuity.

Keywords: Zimbardo Time Perspective Inventory; Future Self Questionnaire; Homeless individuals; Autonomy-promoting Interventions

Proposal for the Cultural Adaptation of the Zimbardo Time Perspective Inventory for the Puerto Rican Spanish Dialect

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Time perspective is a flexible multidimensional, emotional, cognitive and social process that assigns conscious human experiences to temporal orientations in the past, present, and future. These temporal perspectives serve as personality traits. To study this concept Zimbardo and Boyd developed the “Zimbardo Temporal Perspective Inventory” (ZTPI). This instrument categorizes human experiences in temporal perspectives; Past Positive, Past Negative, Present Hedonistic, Present Fatalistic and Future. Currently the ZTPI has been adapted to Spanish in Spain, Mexico, Chile, Argentina and Colombia. Some words do not have the same meaning in all Spanish-speaking countries. Therefore, the objective of the study is to culturally adapt the ZPTI to the Spanish of Puerto Rico (PR). The study methodology consists of translating the original version of the ZTPI into Puerto Rican Spanish. The translation will be done by a psychologist. This translation will be reviewed by a committee of evaluators. Any postulates that pose difficulty will be modified to overcome the limitations encountered. The translation will be accessible to people with a low level of literacy, maintaining the idea of the postulates. The committee will discuss the findings and accepted changes to the translated document. A freelance translator will re-translate the resulting version of the instrument. The evaluation committee will compare this version of the instrument with the original version. Items that do not retain their original meaning and intention will be re-translated into Puerto Rican Spanish and will be subjected to the same scrutiny process. Internal consistency will be calculated using Cronbach’s alpha coefficient.

Keywords: Time Perspective; Zimbardo Time Perspective Inventory; Cultural Adaptation; Puerto Rico; Spanish; Dialect

Time to Prepare for Retirement: Time Perspective Relationship with Financial and Career Retirement Preparation

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Since societies are getting older, creating challenges for governments and retirees (United Nations Department of Economic and Social Affairs, Population Division, 2020), retirement preparation research has been on the rise. Studies (Center for Longevity and Retirement, 2017) have shown that people lack retirement preparation, but psychological aspects of retirement preparation are mostly being overlooked. Time perspective can be perceived as a personality trait (Stolarski et al., 2018) that determines different behaviors. Therefore, it could be considered an important factor in retirement preparation too. Future and present time perspectives get the most attention in the research and retirement research field is not an exception (Boniwell & Zimbardo, 2004; Yang & DeVaney, 2011). Therefore, retirement preparation relationship with other time perspectives is still unclear. To fill that void, this study aimed to explore time perspective relationship with financial and career retirement preparation. 106 subjects participated in an online survey (mean age 33.7 (SD = 12.6), 22.6% male). Financial and career retirement preparation scale was developed based on Petkoska and Earl (2009), Noone et al. (2010), and Griffin and Hesketh (2008) questionnaires. The Lithuanian version of the ZTPI-36 (Sircova et al., 2014) plus Future negative subscale (Carelli et al., 2011) was used to measure time perspective. Results show that past and future negative time perspectives correlate with financial and career retirement preparation while present fatalistic time perspective correlates with career retirement preparation. Spearman's rho varies from -0.20 to -0.37. Hierarchical regression analysis shows that time perspective is a significant predictor of career retirement preparation, explaining 10% of the variance.

Keywords: time perspective, financial retirement preparation, career retirement preparation

Temporal Perspective and the Appreciation of Short Movies

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This research investigated the effect of presentation order on the appreciation of short movies (hedonic contrast) and on the relationship between the appreciation of short movies and the five dimensions of the Zimbardo Time Perspective Inventory (ZTPI). The sample included students and employees from Université Laval (N = 160) and was divided into 4 groups, which varied 2 orders of presentation (positive vs negative movie presented first) by 2 moments of appreciation (judgment after each movie vs. judgment only after viewing both movies). In addition to demonstrating that there is a significant effect of the order of presentation on the appreciation of movies, the results reveal significant relationships between the judgment of short films and certain dimensions of the ZTPI. In the group where the negative movie was presented first and the judgments were made after each movie, there was a positive correlation between the Past-Positive dimension and the appreciation of the positive movie. In the group where the positive movie was presented first and the judgments were made after the presentation of both movies, there was a positive correlation between the Negative-Past dimension and the appreciation of both movies. Finally, in the group where the negative movie was presented first and the judgments were made after the presentation of both movies, the correlation between the Present-Hedonistic dimension and the positive movie was also significant. Future research could investigate the role of age and gender as mediators of the relationship between time perspective and the appreciation of short movies.

Keywords: Temporal perspective, hedonic contrast, appreciation, short movies.

Individual Differences in Time Perspective and Mindfulness Affect the Perception of Waiting Time

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We investigated how individual differences in time perspective, impulsivity and levels of mindfulness are related to the perception of time in a real waiting situation. A total of 133 individuals (15% males) with an age between 17 and 53 years ($M = 22.35$, $SD = 6.75$) were individually left alone in an empty room for exactly 7 minutes and 30 seconds. We had a cover story of why participants had to wait without any indication about the true aim of the study and the actual duration of the waiting time. After the 7:30 minutes waiting time, the experimenter entered the room and participants were asked to fill in the inventory forms on subjective time, self, space and emotional states concerning the waiting time, as well as self-report questionnaires on time perspective (Consideration of Future Consequences), impulsivity (UPPS-P short French version), and mindfulness (Freiburg Mindfulness Inventory). Mediation analyses revealed specific effects of time perspective, levels of impulsivity, and mindfulness on the passage of time which were mediated through the subjective experiences of boredom, levels of arousal, and how often participants thought about time. Higher levels of consideration of future consequences, higher mindfulness acceptance and lower impulsivity lead to lower levels of boredom, arousal and less amount of thoughts about time, which in turn resulted in a perception of faster passage of waiting time.

Keywords: Time perception, time perspective, mindfulness, waiting

Is Time Money? An Investigation of the Association Between Time Perspective and Socioeconomic Status in American Adolescents

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Time perspective refers to the way one thinks and feels about the past, present, and future (Mello & Worrell, 2015). Its dimensions include time relation (how interrelated one thinks the past, present, and future are) and time attitudes (how positively or negatively one feels about the time periods). Socioeconomic status (SES) refers to the social/financial standing of a person or group (APA, 2021). In adolescents, SES has been assessed with parental education, occupation, and income (Entwisle, 1994) and has been shown to be associated with risk of disease (Adler, 1994) and chronic health conditions (Montgomery, 1996). Prior research has yet to use a multidimensional model of time perspective to examine its association with SES in adolescents. To address this topic, we examined the research question: How are time perspective dimensions (relation and attitudes) associated with SES in American adolescents?

Participants were 748 American adolescents ($M_{age}=15.71$, $SD_{age}=1.53$). Time perspective dimensions were measured with the Adolescent and Adult Time Inventory (Mello & Worrell, 2007). For SES, maternal education and subjective social status (Goodman, 2001) were measured. An ANOVA showed that maternal education varied by time relation, $F(3,666)=2.89$, $p<.05$, with adolescents who reported that time was linearly related ($M=3.05$) indicating greater maternal education than those who reported that only the present and future were related ($M=2.61$, $p=.02$). Further, correlations showed that in general time attitudes were associated with maternal education and subjective social status in theoretically expected directions ($M|r|=.17$, $ps<.05$). Findings indicated that time perspective dimensions and SES were associated in American adolescents.

Keywords: time perspective, time relation, time attitudes, time feelings, socioeconomic status, maternal education, subjective social status, adolescents

Time Perspective Profiles and Positive Gaming Moments

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Computer games can be captivating in different ways, e.g., as a test of competence, for social interaction, or stimulating experiences. Many gamers save these positive moments to review them later. However, remembering technologies for computer games do not take individual time perspective profiles into account yet, despite their influence on remembering and well-being. In an exploratory study about positive remembering of gaming moments, we conducted a 2-week study with gamers ($n=16$), using a web app that enabled them to save positive moments, sort them into categories based on psychological need satisfaction (autonomy, competence, relatedness, or stimulation) and later use the system to remember these moments. A total of 258 memories were saved and relived 520 times. We found that participants with a more balanced time perspective profile had higher rates of need satisfaction using the system than those with a more unbalanced profile ($p<.05$). Moreover, need satisfaction was higher in terms of competence compared with popularity ($p<.05$). However, we found no association between saving or experiencing specific needs and the related need satisfaction. We outline our conclusions and further research directions.

Keywords: Computer Games, Time Perspective Theory, DBTP, psychological need satisfaction, positive memories

Time Perspectives in Human-Computer Interaction

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Digital technologies are widely used to access and shape personal memories, e.g. in the form of digital photo albums, travel blogs, and life logging. Yet, human-centered research about these media has so far framed them mainly under the scope of autobiographical memory theory and individual differences have not been studied extensively. However, from time perspective theory we know that people fundamentally differ in how they look back at their life, indicating that more complex relations between interactive media, time perspective profiles, and different types of memories may exist. In order to test this assumption, we carried out an online vignette study (n=152), probing positive memories and comparing different modes of technology-mediated interaction with them. We varied technology-mediation (unmediated vs. smartphone-mediated), memory trigger (external vs. internal), type of memory (significant life event vs. everyday memory), and measured affect balance with the positive and negative affect scale (PANAS). A main effect for technology-mediation on affect balance emerged ($p < .05$), indicating that interactive technologies can lead to positive experiences compared with unmediated remembering. Two further interaction effects (DBTP x mediation, $p < .05$; DBTP x mediation x type of memory, $p < .05$) showed that specifically individuals with a less balanced time perspective profile profit from technology-mediation, and this effect is particularly pronounced for significant life events. We discuss implication for research and design related to interactive remembering technologies.

Keywords: ZTPI, Human-Computer Interaction, Remembering Technologies, Autobiographical Memory, Reminiscence

How Are Time Perspectives and Personality Traits Related to Temporal Satisfaction with Life?

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Numerous studies have shown that personality traits are associated with human well-being. Interestingly, also individual attitudes towards time have been found to influence how people feel and how satisfied they are. In the current investigation we were interested in examining how both personality traits and time perspectives are related to perceived satisfaction with life divided into the past, the present and the future. The study was conducted among Polish adults (N= 198) and used the following well-established self-report measures: the Zimbardo Time Perspective Inventory, the IPIP-50 Big Five factor markers, and the Temporal Satisfaction with Life Scale.

The results indicated that there are significant relationships between personality, time perspectives, and temporal satisfaction with life. In fact, all investigated time perspectives and almost all personality traits (with the only exception of Intellect/Imagination) revealed significant correlations with one or more temporal dimensions of life satisfaction. Next, we also directly compared the significance of both personal factors for the temporal satisfaction with life. Most notably, regression analysis showed that time perspectives predicted past, present and future life satisfaction over and above personality traits. We further discuss these findings as pointing to the particular importance of cognitive time framing for perceived well-being in different time spheres.

Keywords: time perspectives, personality, temporal satisfaction with life, well-being



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