



HAL
open science

Time and the misfits: temporal framing and priming in persuasive communications.

Frédéric Martinez, Nicolas Fieulaine

► **To cite this version:**

Frédéric Martinez, Nicolas Fieulaine. Time and the misfits: temporal framing and priming in persuasive communications.. Time perspective theory: Review, research and application, pp.385-402, 2014, 978-3-319-07367-5. 10.1007/978-3-319-07368-2_25 . hal-02419729

HAL Id: hal-02419729

<https://hal.science/hal-02419729v1>

Submitted on 6 Oct 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Maciej Stolarski • Nicolas Fieulaine
Wessel van Beek
Editors

Time Perspective Theory; Review, Research and Application

Essays in Honor of Philip G. Zimbardo

 Springer

Editors

Maciej Stolarski
Faculty of Psychology
University of Warsaw
Warsaw, Poland

Nicolas Fieulaine
Groupe de Recherche en Psychologie
Sociale, Institut de Psychologie
Université de Lyon
Bron, France

Wessel van Beek
GGZ Veenendaal
Veenendaal, The Netherlands

ISBN 978-3-319-07367-5 ISBN 978-3-319-07368-2 (eBook)

DOI 10.1007/978-3-319-07368-2

Springer Cham Heidelberg New York Dordrecht London

Library of Congress Control Number: 2014942519

© Springer International Publishing Switzerland 2015

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Photo Credit goes to Linda A. Cicero/Stanford News Service, who kindly granted us the use of her picture on our cover.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Contents

Time Perspective Theory: The Introduction	1
Maciej Stolarski, Nicolas Fieulaine, and Wessel van Beek	
Part I Theory, Measurement, and Development of Time Perspective	
Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric	17
Philip G. Zimbardo and John N. Boyd	
Assessing Temporal Harmony: The Issue of a Balanced Time Perspective	57
Maciej Stolarski, Britt Wiberg, and Evgeny Osin	
Time Perspective and Transcendental Future Thinking	73
Wessel van Beek and Antanas Kairys	
Broadening the TP Profile: Future Negative Time Perspective	87
Maria Grazia Carelli, Britt Wiberg, and Elisabeth Åström	
Time Perspective and Personality	99
Antanas Kairys and Audrone Liniauskaite	
The Past, the Present, and the Future: A Conceptual Model of Time Perspective in Adolescence	115
Zena R. Mello and Frank C. Worrell	
Learning and Future Time Perspective: The Promise of the Future – Rewarding in the Present	131
Jenefer Husman, Sarah K. Brem, Sara Banegas, Daniel W. Duchrow, and Shanjeedul Haque	
From Time Perspective to Psychological Distance (and Back)	143
Sam J. Maglio, Yaacov Trope, and Nira Liberman	

Part II Evolutionary, Cultural, and Social Context of Time Perspective

The Evolved Psychology of Time Perspective	157
Curtis S. Dunkel and Daniel J. Kruger	
Time Perspective Profiles of Cultures	169
Anna Sircova, Fons J.R. van de Vijver, Evgeny Osin, Taciano L. Milfont, Nicolas Fieulaine, Altınay Kislali-Erginbilgic, and Philip G. Zimbardo and 54 members of the International Time Perspective Research Project	
Keeping Time	189
Robert V. Levine	
The Sankofa Effect: Divergent Effects of Thinking About the Past for Blacks and Whites	197
James M. Jones and Jordan B. Leitner	
Precariousness as a Time Horizon: How Poverty and Social Insecurity Shape Individuals' Time Perspectives	213
Nicolas Fieulaine and Thémis Apostolidis	

Part III Cognitive, Emotional, and Motivational Processes in Time Perspective

Neural Correlates of Time Perspective	231
Maria Grazia Carelli and Carl-Johan Olsson	
Cognitive Processes in Time Perspective	243
Marcin Zajenkowski, Maria Grazia Carelli, and Maria Ledzińska	
Differences in Time Perspective Predict Differences in Future Simulations	257
Kathleen M. Arnold and Karl K. Szpunar	
Emotional Processes in Development and Dynamics of Individual Time Perspective	269
Gerald Matthews and Maciej Stolarski	
The Motivational Properties of Future Time Perspective Future Orientation: Different Approaches, Different Cultures	287
Rachel Seginer and Willy Lens	
More Time to Procrastinators: The Role of Time Perspective	305
Juan Francisco Díaz-Morales and Joseph R. Ferrari	
Goals Need Time Perspective to Be Achieved	323
Zbigniew Zaleski and Aneta Przepiórka	

Part IV Non-clinical Applications of Time Perspective

Time Perspective as a Predictor of Healthy Behaviors and Disease-Mediating States	339
Peter A. Hall, Geoffrey T. Fong, and Genevieve Sansone	
Time Perspective in Consumer Behavior	353
Martina Klicperová-Baker, Jaroslav Košťál, and Jiří Vinopal	
Understanding Environmental Issues with Temporal Lenses: Issues of Temporality and Individual Differences	371
Taciano L. Milfont and Christophe Demarque	
Time and the Misfits: Temporal Framing and Priming in Persuasive Communication	385
Frédéric Martinez and Nicolas Fieulaine	
Time Perspectives and Subjective Well-Being: A Dual-Pathway Framework	403
Kerry F. Cunningham, Jia Wei Zhang, and Ryan T. Howell	

Part V Clinical Applications of Time Perspective

Time Perspective and Social Relations: A Stress and Coping Perspective	419
E. Alison Holman	
Time Perspective and Positive Aging	437
Pio Enrico Ricci Bitti, Manuela Zambianchi, and Joanna Bitner	
Time Perspective Coaching	451
Ilona Boniwell and Evgeny Osin	
Friend or Foe? Escape from Death, or Death as an Escape?	471
Wessel van Beek and Ksenia Chistopolskaya	
Time Perspective Therapy: Transforming Zimbardo's Temporal Theory into Clinical Practice	481
Richard M. Sword, Rosemary K.M. Sword, and Sarah R. Brunskill	
The Uncharted Territory: Time Perspective Research Meets Clinical Practice. Temporal Focus in Psychotherapy Across Adulthood and Old Age	499
Elena Kazakina	
Afterword	517
Appendix	521
Index	545

Editors

Maciej Stolarski is currently an Assistant Professor at Faculty of Psychology, University of Warsaw, Poland, where he earned his MA and PhD degrees, both awarded with *summa cum laude* distinction. His scientific interests are very broad, including mutual influences between cognition and emotion, individual differences in temperament, IQ, and emotional intelligence, as well as analyses of aggregate psychological features of nations. He published in renowned peer-reviewed journals, including *Intelligence, Personality and Individual Differences, Journal of Happiness Studies,* and *PLOS One*, among others. His interest in Time Perspective phenomenon, as well as his collaboration with Phil Zimbardo began in 2010, after Phil's visit at University of Warsaw. Since that time Maciej conducted numerous studies investigating TP, mainly in its relation to emotional processes. He developed and validated the DBTP, an indicator of temporal balance, increasingly used in empirical research. Currently he conducts a research program investigating genetic, familial, and cultural bases of TP.

Nicolas Fieulaine is an Associate Professor of Social Psychology at the Institute of Psychology at the University of Lyon, France. He earned his BA, MA, and PhD from Provence University and works with Phil Zimbardo since 7 years to develop and structure time perspective research worldwide. He was awarded with several research grants for applied studies, and is the program director of the Master of Applied Social Psychology at the University of Lyon. His earliest research interests dealt with psychological correlates of socioeconomic precariousness which he studied using quantitative and qualitative methods. His findings rapidly bring him to be interested in the social roots and psychological implications of time perspective, mainly in the fields of inequalities related to health and access to rights. He is also interested in applying psychology to social issues through action-research, field experiments, or professional training. He is currently studying the role of psychological field properties on people's experiences, decisions, and behaviors.

Wessel van Beek studied clinical psychology at the University of Utrecht, the Netherlands, and earned his PhD from the Vrije Universiteit in Amsterdam. He has been working in clinical psychology and psychiatry for 20 years. Beside his work as a psychotherapist Wessel did research on the role of time perspective and Future thinking in suicidality, and he developed the Future Oriented Group Training for suicidal patients. As a clinician Wessel has special interest in how past, present, and future thinking are related and how they influence psychopathology. Wessel has been part of a core group of researchers working with Phil Zimbardo. He currently focuses on Prenatal Past, as a complementary time perspective, and is preparing a book on Time in Psychotherapy. Wessel is director of a small mental health care institute in The Netherlands.

Time and the Misfits: Temporal Framing and Priming in Persuasive Communication

Frédéric Martinez and Nicolas Fieulaine

As repeatedly evidenced in various chapters of this book, time perspective is a core concept and a crucial underlying factor to understand a wide range of individuals' attitudes and behaviors. The view people maintain on their past, present and future, their orientation and attitudes towards the various time frames, and the extent to which they consider the long- and short-term consequences of their behaviors are dispositional constructs that has been revealed as predictive of why people engage- or not-in sustainable behaviors (e.g. chapter “[Understanding Environmental Issues with Temporal Lenses: Issues of Temporality and Individual Differences](#)” by Milfont and Demarque, this volume; Boyd and Zimbardo 2005). This kind of behavior is broadly defined as behaviors having positive or non-impairing consequences for the self, others, societies, animals or the environment. Hence, consideration for future consequences or Future time perspective was evidenced as an important determinant of lower health risk-taking, greater environmental concerns and behaviors, and higher rates of preventive behaviors (Strathman and Joireman 2005). This relation is typically explained by the temporal dilemma, carried by many of our daily choices and behaviors, between short term and long-term costs and benefits (Van Lange and Joireman 2008), and by the “social traps” (Platt 1973) in which short-term consequences are positive but long-term consequences are negative. Exercise, sorting garbage, contributions to social goods, smoking cessation, schoolwork, and so on are behaviors that are costly for the present, but beneficial in the future (Dawes 1980; Hendrickx et al. 2001). When considering the future beyond the present, one is able to resist temptations or to accept constraints and efforts to achieve future benefits (Mischel et al. 1989). On the contrary, when people are, for various reasons, chronically focused on the present without taking into

Funding for this study was partially provided by IReSP/INPeS Grant 083/07-DAS.

F. Martinez (✉) • N. Fieulaine
Groupe de Recherche en Psychologie Sociale, Institut de Psychologie,
Université de Lyon, 69600 Bron, France
e-mail: frederic.martinez@univ-lyon2.fr

account the future consequences, they are more likely to take risks for their health (substance use, risky driving, no condom use..., see Boyd and Zimbardo 2005) and therefore less likely to engage in sustainable behaviors. In the context of Zimbardo and Boyd's Time Perspective Theory (1999), many studies have evidenced this relation between Future time perspective and health or pro-environmental behaviors (e.g. Milfont et al. 2012; Henson et al. 2006). Hence, previous research has shown that future-oriented individuals are more concerned with potential negative future consequences and are more likely to take protective measures that will minimize future health risks. Present-oriented individuals are generally less concerned with potential future risks (Strathman et al. 1994). In the area of pro-environmental behaviors, Lindsay and Strathman (1997) reported that participants scoring higher on the consideration of future consequences scale (Strathman et al. 1994) are more likely to engage in consumer behavior that benefits the environment (see also Milfont and Demarque, this volume). Joireman et al. (2001) found that individuals scoring high in CFC reported more willingness to fund improvement in public transit. According to these studies, the consideration of future consequences made people more convinced of and affected by the long terms benefits of sustainable behaviors and more likely to contribute to public goods (Kortenkamp and Moore 2006). Another recent study by Joireman et al. (2004) indicated that higher scores in CFC correlated with preference for commuting to work by public transportation instead of by car (see also Van Lange et al. 2013). In sum, even if long-term future orientation may have paradoxical effects (Van Lange and Joireman 2008; Apostolidis et al. 2006a) and taking into account that other individuals' orientations (e.g. social orientations and values) may interact with temporal ones, this body of research strongly support the typical assumption that future orientation and consideration for delayed consequences beyond immediate ones are related to sustainable behaviors.

The Time Frame of Sustainability Promotion

If health, pro-environmental, and more generally *sustainable* behaviors are future-oriented ones, it seems to be obvious that public communication or advertisement aiming at promoting this kind of behaviors appear itself as future-oriented. In line with it, we must protect our environment for the well-being of future generations, and we have to stop smoking or to make exercise to avoid coronary diseases in the future. As a consequence, communications aiming to promote sustainable concerns or behaviors deeply shaped by the temporal frame they use to be persuasive, and previous studies demonstrated that the impact of individuals' future orientation in decisions related to temporal dilemmas is particularly true when the long-term consequences of a behavioral option are more salient (e.g. Joireman et al. 2004). Hence, messages should be (and actually are generally) temporally framed as oriented towards future, and this frame is a key determinant of how people perceive, interpret, construe the promoted concern or behavior, and finally of how and if people will engage in consequent action.

In persuasive and media communication, a frame is a central organizing idea, a point of view on an issue or object, emphasizing one or several aspects among others, and by this way defining what is relevant, what the situation is about, and what is the essence of the issue (Goffman 1974; Nelson et al. 1997; Levin et al. 1998; Borah 2011). Framing communication corresponds to the selection of “some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (Entman 1993, p. 53). Framing effects are “more concerned with how issues or other objects (people, groups, organizations, countries, etc.) are depicted in the media than with which issues or objects are more or less prominently reported” and “are concerned with ways of thinking rather than objects of thinking” (Weaver 2007, pp. 145–146). Framing effect is namely the measurable impact of the selection of one frame or another on how individuals organize and use the information and on decision-making. Considerable research has examined the role played by message framing in persuasion processes, especially in health-related communications (e.g. Rothman and Salovey 1997). This body of research demonstrates that small changes in the presentation of an option choice can produce somewhat surprisingly large changes in attitudes, intentions and subsequent behaviors (for a review, see Chong and Druckman 2007; Gallagher and Updegraff 2012). Typically considered in experimental psychology through its “equivalency effects” (different but logically equivalent, phrases; whereas *issue* framing involve differences in the content and nature of options; Druckman 2001), message framing has been related to a wide range of dimensions along which message can vary. The most well-known is certainly the distinction made by Kahneman and Tversky between choices options of gains versus losses in their Prospect Theory (Kahneman and Tversky 1979; Tversky and Kahneman 1981). Their postulate is that decision makers organize information relevant to choice options in terms of potential gains (i.e., benefits) or potential losses (i.e., costs) as compared to a reference point (e.g., one’s present status health status). In this context, message framing refers to the emphasis in the message on the positive or negative consequences of adopting or failing to adopt a particular behavior (Rothman and Salovey 1997). In relation to health behaviors, for instance sensitivity to recommendation for detection or preventive behaviors is impacted by how recommendations are framed. Whereas loss-framed messages were showed to increase positive attitudes towards, and intention to perform detection behaviors such as cholesterol testing (Maheswaran and Meyers-Levy 1990), HIV testing (Kalichman and Coley 1995), breast self-examination (Meyerowitz and Chaiken 1987) and skin cancer self-examination (Block and Keller 1995), people are more likely to perform health prevention behaviors such as the use of condoms (Kiene et al. 2005) and smoking cessation (Wonj and McMurray 2002), after they are presented with a gain-framed message. Since these early statements of Prospect Theory, various framing effects were observed in relation with different psychological perspectives trough which people may construe objects, build motivation or make decisions (Levin et al. 1998).

How Framing Operates? The Frame and the Fit

Framing thus appeared as an easy and effective approach to message tailoring and a well-established strategy to increase the persuasive impact of campaigns promoting sustainable behaviors. Beyond this main effect, considerable evidence suggests that this impact is under the dependence of individuals' or group's chronic tendencies and orientations. Hence, individuals will be more influenced by messages that are compatible with their mind-set (e.g., Clary et al. 1994; Petty et al. 2000) or their culture (e.g., Han and Shavitt 1994; Briley and Aaker 2006). This functional relation between communication content and individuals' dispositions, needs, and attitudes was particularly evidenced in the context of regulatory focus theory (Higgins 1997). According to it, all goal-directed behavior is regulated by two distinct basic motivational strategies. One strategy emphasizes the pursuit of gains (or the avoidance of nongains) and aspirations toward ideals, is termed *promotion focus*; the other emphasizes the avoidance of losses (or the pursuit of nonlosses) and the fulfillment of obligations, is termed *prevention focus*. Individuals are guided by these two fundamental goals and the related motives underlie the choices and decision people make. Each of these two motivational orientations corresponds to different strategy to achieve goals, but also to chronic and relatively stable individual (Crowe and Higgins 1997) and cultural (Lee et al. 2000) orientation. The concept of regulatory *fit* (Higgins 2000, 2005) address the possible interactions between chronic (cultural and individual) and situational (context-relevant) orientations, and postulates that people "feel right" and are more engaged in a task when they pursue a goal in a manner that sustains their chronic orientation. Under regulatory fit context, people have an "it just feels right" experience, which may be transferred to subsequent judgments (Camacho et al. 2003). As an example, participants give the same coffee mug a higher price when the strategy they use to acquire the mug fit their regulatory orientation (Higgins et al. 2003). In the persuasive communication framework it was evidenced that matching individuals regulatory focus and the orientation of a goal presented in a message increases the effectiveness of a persuasive appeal (Cesario et al. 2004; Lee and Aaker 2004; Cesario et al. 2007). As an example, Cesario et al. (2004) created a persuasive message advocating a new after-school program for grade-school children. In one condition, the description of program was designed to correspond to a promotion focus (advance children's education and support more children to succeed) and to a prevention focus in a second condition (secure children's education and prevent more children from failing). The effectiveness of the persuasive appeal increased when the message was congruent to individuals' chronic orientation. Research suggested multiple mechanisms that lead to increased persuasion when regulatory fit occurs (Cesario et al. 2007; Higgins et al. 2010). A primary mechanism is that recipients of a message that fits their chronic orientation have a feeling right experience, and that feeling is used as information to make congruent inferences related to the message (value transferred from the fit to the information; Higgins 2000). A second potential mechanism is that fit increases the strength of engagement in the message processing activity, and therefore

intensifies persuasion. Individuals presented with a message frame that fit their chronic regulatory focus perceived the information to be easier to process (Lee and Labroo 2004) and the advocated cause more believable and worthy of pursuit (Cesario et al. 2004).

Beyond the classical effect of framing information in a positive or negative light (or emphasizing benefits vs. costs) on judgment and decision-making, and even if the fit effect apply with a preferred manner to self-regulatory systems, they are broad concepts that may apply to any dimension of a message that can match personal characteristic and by this way increase the persuasive impact of the message.

Among these other potential dimensions, time is not surprisingly the one we are interested in. Some studies (Orbell and Hagger 2006; Orbell and Kyriakaki 2008; Orbell et al. 2004) have shown that not only the gains vs. losses frame is important in persuasive communication, but also the *temporal frame* in which costs and benefits are perceived. Previous studies, even if not followed by many others, underlined the importance of how information is framed on the temporal dimension (temporal framing, Strathman et al. 1994; Lo et al. 2012). The same behavior may have consequence in the short and the long term future, some of them positive, other negative, and it depend not only on the decision of the actor to focus on one or the other, but also on the message to put the emphasize on one or the other time perspective. Several studies demonstrated that also the *temporal distance* of presented consequences of a promoted behavior make this behavior subjectively more proximal or more distal, this appearance leading to strong differences in how people construe, interpret and build decisions and action following a message (Chandran and Menon 2004; McElroy and Mascari 2007; Förster et al. 2004). Following the strongly supported statements of the Construal Level Theory (CLT, Trope and Liberman 2003; chapter “From Time Perspective to Psychological Distance (and Back)” by Maglio et al., this volume) various authors explored how temporal distance through which an event is presented can influence the decision making process (Liberman and Trope 1998, 2003; Mogilner et al. 2008; Dshemuchadse et al. 2013). Despite relying on different theoretical backgrounds, other studies highlighted how crucial is to take into consideration not only the temporal frame of the message, but also the persons’ time perspective, to assess the efficacy and the potential counter effects of temporally framed communications (Strathman et al. 1994; Kees 2011; Demarque et al. 2012).

Temporal Fit and Temporal Misfit

The most convincing studies on this topic were conducted by Orbell and colleagues at University of Essex, UK (Orbell and Hagger 2006; Orbell and Kyriakaki 2008; Orbell et al. 2004; Kees 2011). They tested if, and how, individual differences in time perspective (consideration of future consequences, Strathman et al. 1994) influence the impact of a temporally framed persuasive communication. In these

studies, individual differences in CFC were measured, and the time frame in which a message posits the occurrence of positive and negative consequences of a promoted behavior is manipulated. Although equivalent consequences of a given health protective behavior are presented (colorectal cancer screening, Orbell et al. 2004; Sunscreen use, Orbell and Kyriakaki 2008, Diabetes screening, Orbell and Hagger 2006), in one time frame negative consequences are presented as short term and the positive consequences as long term, and conversely in a second time frame (short term positive consequences and long term negative consequences). Findings from surveys and experimental studies revealed that high CFC individuals (1) were generally more sensitive to health communications; (2) have greater intentions to engage in healthy behavior when the long-term consequences are positive and the short-term consequences are negative. In contrast, lower CFC individuals indicated greater intentions when positive outcomes were presented as immediate and negative outcomes as delayed in the future. These findings confirmed the strong effect temporal framing of persuasive communication might have on individuals' sensitivity, depending on their time orientation. From Orbell et al. findings, but also relying on Kees (2011) study, it also appear that the persuasive impact of communications is lowered in low CFC audience when messages are framed as future-oriented. Of greater concern is the fact that in present oriented (or with low future orientation) audience, when benefits are presented as occurring in the future and the costs immediately, individuals develop a more negative attitude, and have lower intentions than in all other conditions. Highly future-oriented individuals remain partially convinced by the persuasive communication, mainly due to their greater sensitivity in general, but also because they are less discouraged by the unfit of message's temporal frame. In conclusion, not only messages are more persuasive when their temporal frame is matched with dispositional time perspective of the target audience, but there is a higher sensibility to a temporal mismatch in present-oriented people.

The Big Issue: How and for Whom Campaigns may be Ineffective?

When one knows that present-oriented people are those who are the most at risk to engage in unsustainable behaviors, we are dealing here with a big issue. Unfortunately, in contrast with these findings or without any knowledge of them, a great part of the public propaganda and of our everyday conversations, when promoting sustainable behaviors or concerns for sustainability, are temporally framed by emphasizing the long term benefits of short term costly behaviors ("It takes time to sort garbage, but it is for the future of next generations"; "it is hard to stop smoking but very beneficial for future health"; "you may feel difficult to respect the classwork, but it is the condition for future success", and so on...). But do this kind of persuasive communications achieve their goals? Do they change attitudes, or induce behavior? From the findings presented here, it seems that their temporal frame (largely unquestioned) may make this messages inefficient for - and

sometimes rejected by - people who are more sensitive to short term consequences and not to long-term ones. And here is the points: (1) present-focused people are the most at risk of unhealthy behaviors (Adams and White 2009; Daugherty and Brase 2010; Henson et al. 2006) and (2) socioeconomically deprived people are more susceptible to be stuck in the present (for a review, see chapter “[Precariousness as a Time Horizon: How Poverty and Social Insecurity Shape Individuals’ Time Perspectives](#)” by Fieulaine and Apostolidis, this volume). One may intuitively conclude that health communication, if presented in a future frame, can be not only ineffective, but may also contribute to maintain or reinforce social inequalities in health. Elaborated by and for future-oriented people (as a default option), future-framed persuasive communications are, by their very nature, potential *negative nudges* for the most deprived, and therefore for the most important target audience. This was confirmed by Fieulaine and Martinez (2010) in a prospective study conducted during a campaign promoting seasonal influenza vaccination in France. We collected data in a community sample of 161 people, aged 65 and over who received an invitation to vaccinate themselves and a voucher to reach for a free flu shot at the officine, sent by the national health insurance. Time perspective (Zimbardo Time perspective Inventory, Zimbardo and Boyd 1999), attitudes, perceived control and perceived norms towards influenza vaccination (planned behavior measures, following Ajzen 2002), and past behaviors were assessed by a self-questionnaire at the first wave. At the second wave, two months later, exposure to the promotion campaign (number of exposition to the message, channels of information, recall of information...) and behavior (taking a flu shot this year, or not) were assessed by explicit and implicit measures for the former, and with multi-items measure for the latter. There was 93.8 % of the sample at the follow-up, and among them, 35 % were not yet vaccinated. As determinant of vaccination behavior, Present-Hedonistic TP was a negative predictor of being vaccinated at the follow-up (OR=.47; 95 % CI: .13-.93; $p=.05$), whereas Present-Fatalistic TP was positively related to vaccination behavior (OR=2.08; 95 % CI: 1.08-4.03; $p=.02$; all regression controlled for age, sex and planned behavior measures). If these findings are important in demonstrating a direct and independent relation of TP to vaccination behavior, they are particularly illustrative of the issue considered in this chapter. In fact, if present-hedonistically oriented individuals were less vaccinated than others, it may be partly due to the information they were exposed to. A test of an interaction effect between PHTP and exposure to the campaign on the evolution of intention between the two waves (intention at the end of the campaign – intention at the beginning), made appear a significant result (using the Baron and Kenny approach to moderation effects, see Baron and Kenny 1986): when splitting the non-vaccinated group between high and low orientation towards PHTP (median split), and plotting the relation of exposure to the campaign, we could interpret that not only the campaign had almost no impact for the low PHTP group, but it had a negative impact on the intention of the high PHTP group (see Fig. 1). Hence, one can conclude that vaccination promotion campaign lead to dissuade present-oriented people to vaccinate themselves, especially as the messages promoting vaccination are for a large part future-oriented.

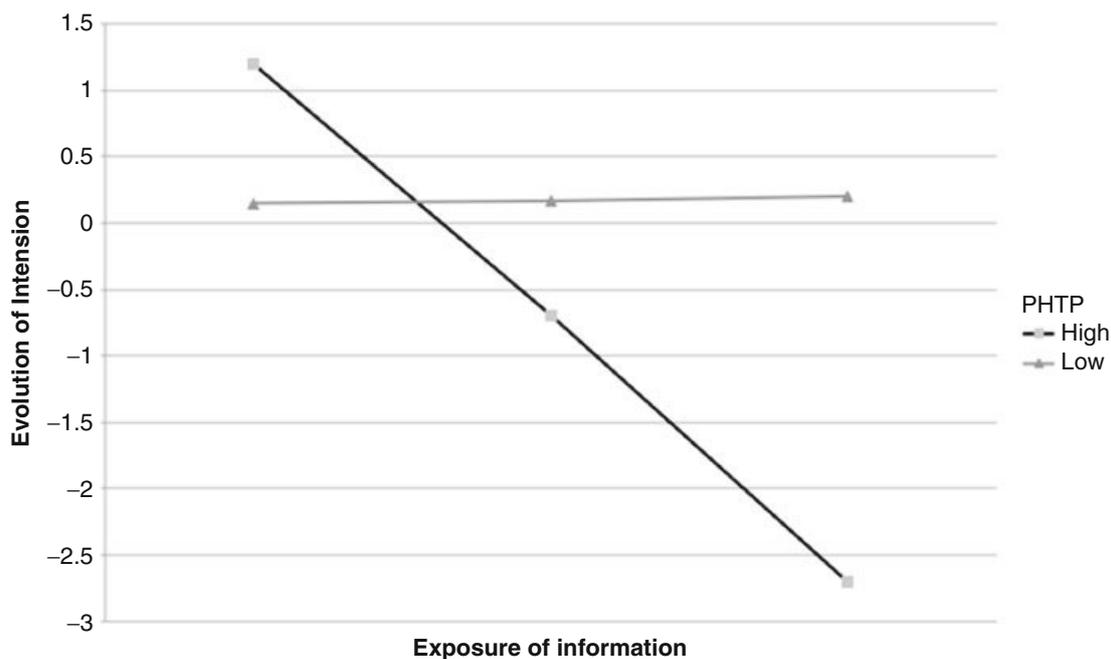


Fig. 1 Interaction effect of the exposure to vaccination promotion campaign on Intention for high and low present-oriented groups

Following these disturbing results, what solutions time perspective research can suggest to policy makers, health promotion practitioners, and media campaigns developers to deal with the differential impact of health communications in relation to individual time orientation?

A first option is to tailor communication in order to fit the messages temporal frame to the target people time perspectives. So, it seems necessary to build communications with arguments that emphasize short-term benefits given that present-focused people are the most at risk for risky and lack of preventive or sustainable behaviors. Hence, framing a persuasive message in proximal positive terms can have a persuasive impact on consumers who have difficulties in considering the future consequences of their actual behaviors without adversely affecting consumers who do typically take into account the future consequences of their behaviors (Chandran and Menon 2004). But there are strong limitations. First, it may be in many cases difficult to find some (reliable) short-term benefits of behaviors that are objectively costly in the present and beneficial only in the long term future (do think about the short term benefits of sorting garbage or cancer screening!). Most important in our view is the fact that if communications are temporally framed according to individuals' time perspective (on the basis of the group), they can sustain and develop these time perspectives. A tailored communication, adjusted for present-oriented people, by maintaining a present-focused atmosphere, can contribute to perpetuate a biased time perspective in particular groups and therefore to contribute to future problems.

A second possibility is to enhance long-term thinking or future mind-set through individual or group training. For example, Hall and Fong evidenced that a

training program designed to enhance long-term thinking can promote initiation and maintenance of a preventive behavior (Exercise; cf. Hall and Fong 2003). Other interventions related to planning, mental contrasting or anticipated regret are also designed to alter individuals' time perspective in a way that favors the adoption of recommended behaviors (Loewenstein et al. 2003; Teuscher and Mitchell 2011). Even very powerful, such interventions are costly, difficult to generalize, and irrelevant for mass-media campaigns.

Beyond Individuals and Messages: A “Situationist” View on Time Perspective in Persuasive Communication

A third possibility is to create an adequate context to make recipients more sensitive and therefore communication more persuasive. In the context of regulatory fit theory, some studies showed that fit may be activated “incidentally”, i.e. activated separately from the context of the task of interest. Hence, beyond recipients' chronic orientation and the framing of a message, regulatory fit can be induced independently to the persuasive message and this prior fit impacts subsequent message processing and persuasive impact (cf. Cesario et al. 2004, 2007). Freitas and Higgins (2002) developed a technique to induce either regulatory fit or nonfit. This technique consists of asking participants to first list either a current hope or aspiration (promotion focus induction) or a current duty or obligation (prevention focus induction). Then, participants must list either some strategies they could use to make sure everything goes right (eager means induction) or some strategies they could use to avoid anything that could go wrong (vigilant means induction). The regulatory fit or unfit conditions consisted of engaging congruent or non-congruent subsequent task. Results of Cesario et al. (2004) reveal that participants in the regulatory fit condition have higher intentions to perform a behavior consonant with the topic of the communication than participants in the regulatory nonfit condition after a same persuasive message. The induction of regulatory fit *outside* of the persuasion context itself indicates that fit can be induced by the situational induction of individuals' motivational orientation. This kind of induction to test causal relations of fit to decisions, intentions or (less often) behaviors, was applied to psychological time in relation with time perspective (Zimbardo et al. 1971), representation of time (Richmond et al. 2012), or construal level (Förster et al. 2004, study 5). In our view, this incidental technique of persuasion contrasts with intervention designed to train and develop a specific or non-biased time orientation, like in Hall and Fong (2003) study. In incidental source technique, the rationale do not rely on the objective to change in a durable manner the individuals' orientation, but to emphasize, make more relevant or salient a particular orientation. This kind of situational induction implies the addition of a third source of fit or match beyond the message frame and the target audience disposition, namely the situational (or contextual) time.

Then, it appear possible in a persuasive communication, to prime the context in which a message is delivered, in order to make this context congruent with the

message frame or the individuals' orientation, or both. Can this priming effect overcome the low persuasive impact of future oriented messages for present oriented individuals? This is what Fieulaine and Martinez (2012b) have tested in a recent study. They explored whether the induction of a temporal context immediately prior the diffusion of a persuasive message could buffer the influence of individuals' time orientation. Hypothesis was that present-oriented participants, weakly influenced by a message focused on the future, would become more sensitive to the same message after the induction of a fit effect by a contextual induction. We tested this hypothesis in relation to a behavior with strong evidence of being related to time perspective, cannabis use. Hence, in recent correlational study, Fieulaine and Martinez (2010) showed that Present Hedonistic (positively) and Future time perspective (negatively) were significantly related to a composite score of substance use (see also Apostolidis et al. 2006a, b). This was confirmed (Fieulaine and Martinez 2012a) using a prospective design in a larger sample showing that PHTP is positively (and FTP negatively) related to attitudes, subjective norm and perceived control favoring cannabis use, and to subsequent behavior. In another study (Martinez and Fieulaine 2010), the persuasive impact of temporally framed communications promoting information seeking on excessive cannabis use was evidenced as moderated by individuals' time perspective.

To test for the potential effect of contextual fit, the study was designed as experimental, using a real-world health promotion message, promoting information seeking on excessive cannabis use. This message, as many others in mass-media campaigns, was focused on the long-term consequences of excessive cannabis use. In a first step, participants were invited to fill in the CFC scale (Strathman et al. 1994) to assess their individual time orientation (the questionnaire was introduced as unrelated to the study they were invited for). Then, and prior to the diffusion of the message, presenting the study timelines and objectives as short-term or long-term focused (without any induction for the control group) in the welcome address by the experimenter made the situational induction of a temporal context. Then, participants were invited to listen cautiously a health promotion message presented by a research assistant introduced as a health educator. Finally, participants gave their evaluation through measures of message reception (attitudes, willingness to perform the promoted, recall of risks evoked). 155 students from University of Lyon participated in the study (37 men et 118 women, 18–30 years old, $M_{age}=20,36$) and were randomly affected to the three experimental groups: without induction ($N=52$), Present-oriented induction ($N=51$), and Future-oriented induction ($N=52$). Check for randomization made appear no significant differences between groups on the measures of CFC and prior substance use. As a manipulation check, study was considered as more important for the immediate present in the present induction condition, and more important for the future in the future induction condition. Each group was divided in two groups of low- and high-CFC subjects using a median split on the mean scores on CFC. One-way (control group) and two-way (experimental conditions) ANOVAs were conducted using induction (none, present, future) and CFC (low vs. high) as independent variable and attitudes, intentions and number of recalled risks as dependent variables.

Results

Without any induction of a temporal context (control condition), results showed that high CFC subjects report greater intention to perform the promoted behavior than low CFC subjects (Fig. 2; $F(1,47)=3,94$; $p=.05$) following the presentation of the message emphasizing the long-term risks of excessive cannabis use as well as long-term benefits of seeking information about cannabis.

This result is in line with previous studies on the greater sensibility to health communications in individuals with high scores on CFC, particularly when these communications are future-oriented (Orbell et al. 2004; Kees 2011). In order to test for the potential buffering effect of the temporal context induction, we performed 2 (context: present or future) X 2 (CFC: high or low) ANOVAs on dependent variables. Results showed a significant interaction effect for the intention to perform the promoted behavior, the number of risks recalled, and willingness to diffuse the message to others. Figure 3 depicts this interaction for intention and clearly show that when putted in a context emphasizing the present (i.e. when study is temporally framed as focused on immediate issues), participants with lower consideration of future consequences became more sensitive to a future-oriented message than people scoring higher on CFC ($F(1, 96)=9,88$; $p<.01$).

Fig. 2 Intention to perform the promoted behavior for high and low CFC subjects

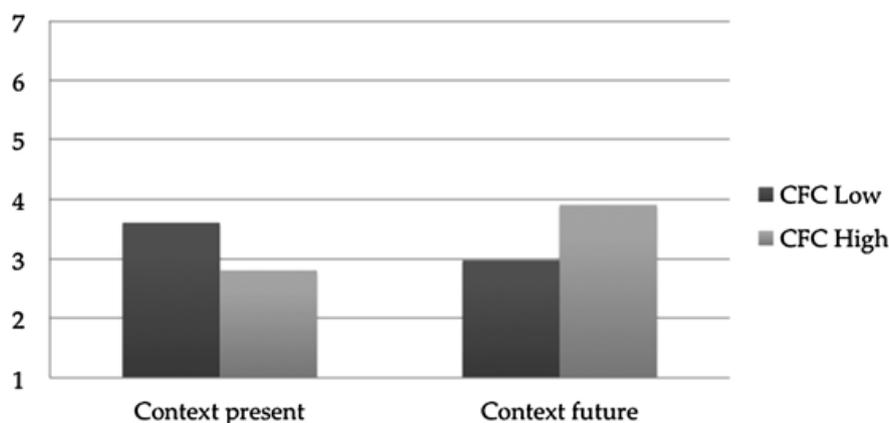
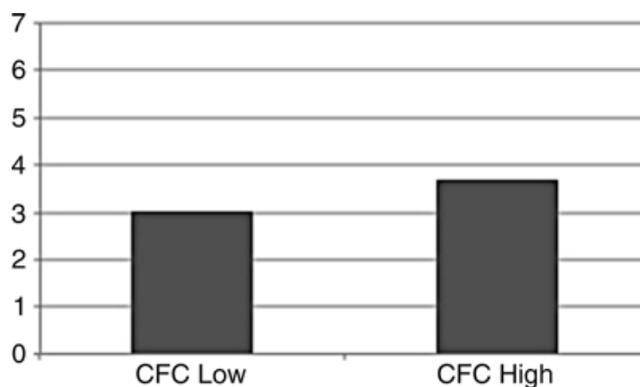


Fig. 3 Intention to perform the promoted behavior across experimental conditions

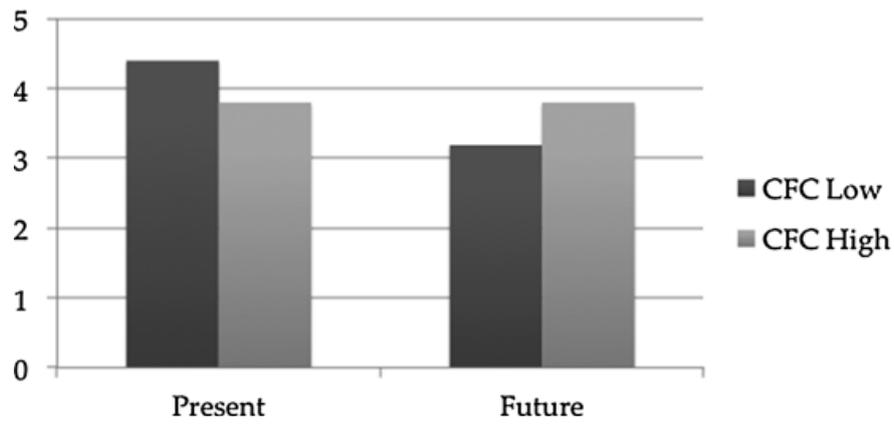


Fig. 4 Number of risks recalled by participants across experimental conditions

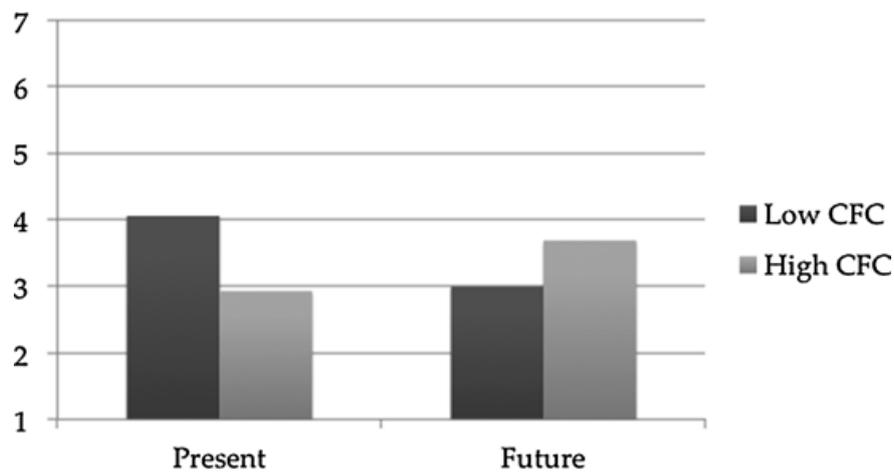


Fig. 5 Willingness to share the information with peers

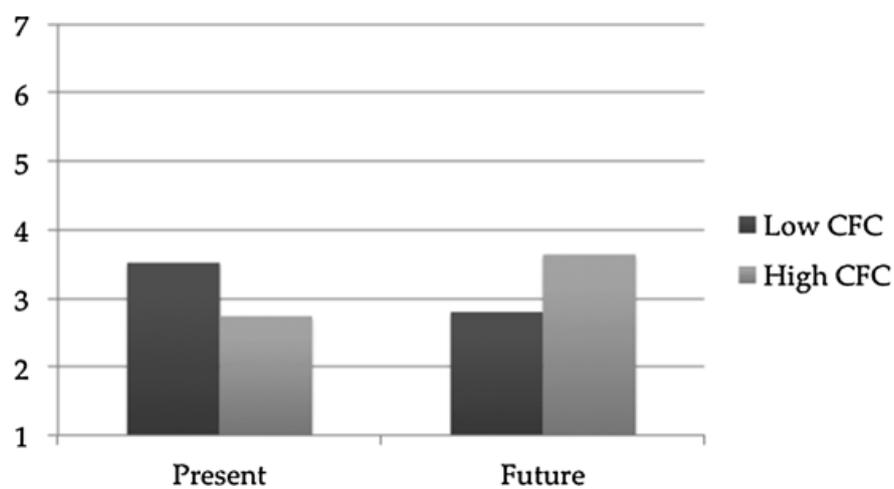


Fig. 6 Feelings of being involved in the situation

Hence, participants who were the less sensitive became the more sensitive to the same message when presented after an *incidental* emphasize on a *contextual* present time perspective. A same pattern of results appear for the number of risks recalled (Fig. 4; $F(1, 97)=6,51$; $p=.01$) and for the willingness to share the message with peers (Fig. 5; $F(1, 96)=6,84$; $p=.01$).

Interestingly, results showed that future-oriented people became less sensitive to the message when presented in a present-focused context. Potential mediators were observed, such as the feeling of involvement (Fig. 6; $F(1, 96)=4,53$; $p=.03$) or the easiness to understand. Hence, participants felt more involved and the future message was judged as easier to process when the context fits the individuals' dispositions, whenever the message unfit their personal time orientation.

The study was were replicated in a second student sample ($N=376$; with 60 subjects by conditions), and the contextual induction was also tested using a present-oriented message. Findings were in line with previous ones for future framed message, but no significant results were found with the present-oriented message largely because it was strongly rejected by participants and judged as unreliable.

Conclusions

Public media campaigns are deeply temporally framed, just as our everyday conversations. When talking about the future, we almost ever take it for granted that our counterpart will be sensitive to long term issues and consequences. In a real-world interpersonal interaction, one can be denied and then be able to reframe his/her argument to match it on other's expectations. But when it comes to public propaganda or mass media communication, there is no simple mean, until now, to immediately reframe a communication to fit the audience characteristics and to adjust the arguments to the target audience. Several studies provided evidence that temporal framing is a strong predictor of the persuasive impact of health communications (Orbell et al., op. cit.). Other studies, with different approaches, highlighted the impact of temporal framing of communications in other domains, such as political participation (Hakkyun et al. 2009), Public Policy (Lynch and Zauberman 2006) or environmental issues (Spence et al. 2012), and its potential effects on differential sensitivity according to audience's time orientation. In the health domain, it is particularly crucial to avoid making people insensitive to campaigns. If present-oriented people are not convinced by public health messages, this will not only make campaigns ineffective. Given that present-oriented people are the most at risk for unhealthy behaviors, and that a deprived socioeconomic status is strongly related to present time orientation (chapter "[Precariousness as a Time Horizon: How Poverty and Social Insecurity Shape Individuals' Time Perspectives](#)" by Fieulaine and Apostolidis, this volume), findings suggest that the effect of public health campaigns could be to increase or at least to maintain social inequalities in health. But individuals' time perspectives are not the sole dimensions to be considered when trying to tailor communication to make it more effective. Time horizon, defined as

the unrelated temporal context in which a message is delivered, can overcome the buffering effect of individuals' time perspectives on the sensitivity to future-oriented persuasive communications. Therefore, these findings lead us to claim for a more holistic approach of psychological time, a "time landscape" model taking into account individuals' perspectives shaped by contextual situations, themselves located in a wider social space with particular time horizons. Our findings suggest that present-oriented people feel better in a situation where their temporality is accepted and valued, and that "feeling good" lead them to become sensitive to messages that are not matching their predominant time perspective. This effect has to be confirmed and developed by other studies, especially experiments aiming at establishing the "how" and the "why" of the observed results. Also, the role of time perspective in persuasive communication should be studied in the many other fields in which it may apply. How to make present-oriented people more concerned about ecological crisis, climate change, and sustainability? How long term issues could be considered in a time of crisis, when a growing number of people are living on a day-to-day basis? The (re)emerging research on psychological time and time perspective will be at the core center of the stakes societies will have to face in the coming decade. For sure, Phil Zimbardo's model of time perspective and the ZTPI will be very helpful to deal with future issues, at basic and applied levels.

References

- Adams, J., & White, M. (2009). Time perspective in socioeconomic inequalities in smoking and body mass index. *Health Psychology, 28*(1), 83.
- Ajzen, I. (2002, September). *Constructing a TpB questionnaire: Conceptual and methodological considerations*. Working paper, University of Massachusetts, Amherst. Available at <http://www-unix.oit.umass.edu/~ajzen/pdf7tpb.measurement.pdf>
- Apostolidis, T., Fiulaine, N., Simonin, L., & Rolland, G. (2006a). Cannabis use, time perspective and risk perception: Evidence of a moderating effect†. *Psychology and Health, 21*(5), 571–592.
- Apostolidis, T., Fiulaine, N., & Soulé, F. (2006b). Future time perspective as predictor of cannabis use: Exploring the role of substance perception among French adolescents. *Addictive Behaviors, 31*(12), 2339–2343.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173.
- Block, L. G., & Keller, P. A. (1995). When to accentuate the negative: The effects of perceived efficacy and message framing on intentions to perform a health-related behavior. *Journal of Marketing Research, 32*, 192–203.
- Borah, P. (2011). Conceptual issues in framing theory: A systematic examination of a decade's literature. *Journal of Communication, 61*(2), 246–263.
- Boyd, J. N., & Zimbardo, P. G. (2005). Time perspective, health, and risk taking. In A. Strathman & J. Joireman (Eds.), *Understanding behavior in the context of time: Theory, research, and applications* (pp. 85–107). Mahwah: Lawrence Erlbaum.
- Briley, D. A., & Aaker, J. L. (2006). When does culture matter? Effects of personal knowledge on the correction of culture-based judgments. *Journal of Marketing Research, 43*, 395–408.

- Camacho, C. J., Higgins, E. T., & Luger, L. (2003). Moral value transfer from regulatory fit: What feels right is right and what feels wrong is wrong. *Journal of Personality and Social Psychology*, *84*, 498–510.
- Cesario, J., Grant, H., & Higgins, E. T. (2004). Regulatory fit and persuasion: Transfer from “feeling right”. *Journal of Personality and Social Psychology*, *86*, 388–404.
- Cesario, J., Higgins, E. T., & Scholer, A. A. (2007). Regulatory fit and persuasion: Basic principles and remaining questions. *Social and Personality Psychology Compass*, *2*(1), 444–463.
- Chandran, S., & Menon, G. (2004). When a day means more than a year: Effects of temporal framing on judgments of health risk. *Journal of Consumer Research*, *31*, 375–389.
- Chong, D., & Druckman, J. N. (2007). Framing theory. *Annual Review Political Science*, *10*, 103–126.
- Clary, E. G., Snyder, M., Ridge, R. D., Miene, P. K., & Haugen, J. A. (1994). Matching messages to motives in persuasion: A functional approach to promoting volunteerism. *Journal of Applied Social Psychology*, *24*, 1129–1149.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes*, *69*, 117–132.
- Daugherty, J. R., & Brase, G. L. (2010). Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*, *48*(2), 202–207.
- Dawes, R. M. (1980). Social dilemmas. *Annual Review of Psychology*, *31*, 169–193.
- Demarque, C., Apostolidis, T., & Joule, R. V. (2012). Does binding communication increase consideration of future consequences and decision-making concerning pro-environmental behaviour? In S. Kabisch, A. Kunath, P. Schweizer-Ries, & A. Steinführer (Eds.), *Advances in people-environment studies* (Vulnerability, risks, and complexity: Impacts of global change on human habitats, Vol. 3, pp. 221–229). Göttingen: Hogrefe.
- Druckman, J. N. (2001). The implications of framing effects for citizen competence. *Political Behavior*, *23*, 225–56.
- Dshemuchadse, M., Scherbaum, S., & Goschke, T. (2013). How decisions emerge: Action dynamics in intertemporal decision making. *Journal of Experimental Psychology. General*, *142*(1), 93.
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, *43*, 51–58.
- Fioulaine, N., & Martinez, F. (2010). Time under control: Time perspective and desire for control in substance use. *Addictive Behaviors*, *35*, 799–802.
- Fioulaine, N., & Martinez, F. (2012a). About the fuels of self-regulation: Time perspective and desire for control in adolescents substance use. In F. Columbus (Ed.), *The psychology of self-regulation* (pp. 83–102). New York: Nova.
- Fioulaine, N., & Martinez, F. (2012b). *Temporal context and individuals time orientation: The role of perspective fit in increasing health communication persuasiveness*. First international conference on time perspective, Coimbra, Portugal
- Förster, J., Friedman, R. S., & Liberman, N. (2004). Temporal construal effects on abstract and concrete thinking: consequences for insight and creative cognition. *Journal of Personality and Social Psychology*, *87*(2), 177.
- Freitas, A. L., & Higgins, E. T. (2002). Enjoying goal-directed action: The role of regulatory fit. *Psychological Science*, *13*, 1–6.
- Gallagher, K. M., & Updegraff, J. A. (2012). Health message framing effects on attitudes, intentions, and behavior: a meta-analytic review. *Annals of Behavioral Medicine*, *43*(1), 101–116.
- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. New York: Harper & Row.
- Hall, P. A., & Fong, G. T. (2003). The effects of a brief time perspective intervention for increasing physical activity among university students. *Psychology and Health*, *18*, 685–706.
- Han, S., & Shavitt, S. (1994). Persuasion and culture: Advertising appeals in individualistic and collectivistic societies. *Journal of Experimental Social Psychology*, *30*, 326–350.

- Hendrickx, L., Poortinga, W., & van der Kooij, R. (2001). Temporal factors in resource dilemmas. *Acta Psychologica, 108*, 137–154.
- Henson, J. M., Carey, K. B., Carey, M. P., & Maisto, S. A. (2006). Associations among health behaviors and time perspective in young adults: Model testing with bootstrapping replication. *Journal of Behavioral Medicine, 29*, 127–137.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.
- Hakkyun, K., Rao, A., & Lee, A. (2009). It's time to vote: Fit between construal level and temporal distance on political persuasion. *Journal of Consumer Research, 35*(6), 877–889.
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist, 55*, 1217–1230.
- Higgins, E. T. (2005). Value from regulatory fit. *Current Directions in Psychological Science, 14*, 209–213.
- Higgins, E. T., Idson, L. C., Freitas, A. L., Spiegel, S., & Molden, D. C. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology, 84*, 1140–1153.
- Higgins, E. T., Cesario, J., Hagiwara, N., Spiegel, S., & Pittman, T. S. (2010). Increasing or decreasing interest in activities: The role of regulatory fit. *Journal of Personality and Social Psychology, 98*, 559–572.
- Joireman, J. A., Van Lange, P. A. M., Van Vugt, M., Wood, A., Vander Leest, T., & Lambert, C. (2001). Structural solutions to social dilemmas: A field study on commuters' willingness to fund improvements in public transit. *Journal of Applied Social Psychology, 31*, 504–526.
- Joireman, J., Van Lange, P. A. M., & Van Vugt, M. (2004). Who cares about the environmental impact of cars? Those with an eye toward the future. *Environment and Behavior, 36*, 187–206.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263–291.
- Kalichman, S. C., & Coley, B. (1995). Context framing to enhance HIV-antibody- testing messages targeted to African American women. *Health Psychology, 14*, 247–254.
- Kees, J. (2011). Advertising framing effects and consideration of future consequences. *Journal of Consumer Affairs, 45*(1), 7–32.
- Kiene, S. M., Barta, W. D., Zelenski, J. M., & Cothran, D. L. (2005). Why are you bringing up condoms now? The effect of message content on framing effects of condom use messages. *Health Psychology, 24*, 321–326.
- Kortenkamp, K. V., & Moore, C. F. (2006). Time, uncertainty, and individual differences in decisions to cooperate in resource dilemmas. *Personality and Social Psychology Bulletin, 32*(5), 603–615.
- Lee, A. Y., & Aaker, J. L. (2004). Bringing the frame into focus: The influence of regulatory fit on processing fluency and persuasion. *Journal of Personality and Social Psychology, 86*(2), 205–218.
- Lee, A. Y., & Labroo, A. (2004). Effects of conceptual and perceptual fluency on affective judgment. *Journal of Marketing Research, 41*, 151–165.
- Lee, A. Y., Aaker, J. L., & Gardner, Y. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology, 78*, 1122–1134.
- Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes, 76*(2), 149–188.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology, 75*, 5–18.
- Liberman, N., & Trope, Y. (2003). Construal level theory of intertemporal judgment and decision. In G. Loewenstein, D. Read, & R. Baumeister (Eds.), *Time and decision: Economic and psychological perspectives on intertemporal choice* (pp. 245–276). New York: Russell Sage.
- Lindsay, J. J., & Strathman, A. (1997). Predictors of recycling behavior: An application of a modified health belief model. *Journal of Applied Social Psychology, 27*, 1799–1823.

- Lo, S. H., Smith, S. G., Taylor, M., Good, A., & von Wagner, C. (2012). The effect of temporal framing on behavioral intentions, expectations, and behavior: The case of healthy eating. *Journal of Applied Biobehavioral Research, 17*(3), 202–213.
- Loewenstein, G. F., Read, D., & Baumeister, R. (2003). *Time and decision: Economic and psychological perspectives on intertemporal choice*. New York: Russell Sage.
- Lynch, J. G., Jr., & Zauberman, G. (2006). When do you want it? Time, decisions, and public policy. *Journal of Public Policy and Marketing, 25*(2), 67–78.
- Maheswaran, D., & Meyers-Levy, J. (1990). The influence of message framing and issue involvement. *Journal of Marketing Research, 27*, 361–367.
- Martinez, F., & Fioulaine, N. (2010). For whom message framing is persuasive? Investigation of goals and temporal framing effects on health information seeking. *International Congress of Applied Psychology*, Melbourne.
- McElroy, T., & Mascari, D. (2007). When is it going to happen? How temporal distance influences processing for risky-choice framing tasks. *Social Cognition, 25*(4), 495–517.
- Meyerowitz, B. E., & Chaiken, S. (1987). The effect of message framing on breast self-examination attitudes, intentions, and behavior. *Journal of Personality and Social Psychology, 52*, 500–510.
- Milfont, T. L., Wilson, J., & Diniz, P. (2012). Time perspective and environmental engagement: A meta-analysis. *International Journal of Psychology, 47*(5), 325–334.
- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science, 244*(4907), 933–938.
- Mogilner, C., Aaker, J. L., & Pennington, G. L. (2008). Time will tell: The distant appeal of promotion and imminent appeal of prevention. *Journal of Consumer Research, 34*(5), 670–681.
- Nelson, T. E., Oxley, Z. M., & Clawson, R. A. (1997). Toward a psychology of framing effects. *Political Behavior, 19*(3), 221–246.
- Orbell, S., & Hagger, M. S. (2006). Temporal framing and the decision to take part in Type 2 diabetes screening: Effects of individual differences on persuasion. *Health Psychology, 25*, 537–548.
- Orbell, S., & Kyriakaki, M. (2008). Temporal framing and persuasion to adopt preventive health behavior: Moderating effects of individual differences in consideration of future consequences on sunscreen use. *Health Psychology, 27*, 770–779.
- Orbell, S., Perugini, M., & Rakow, T. (2004). Individual differences in sensitivity to health communications: Consideration of future consequences. *Health Psychology, 23*, 388–396.
- Petty, R. E., Wheeler, S. C., & Bizer, G. Y. (2000). Attitude functions and persuasion: An elaboration likelihood approach to matched versus mismatched messages. In G. R. Maio & J. M. Olson (Eds.), *Why we evaluate: Functions of attitudes* (pp. 133–162). Mahwah: Erlbaum.
- Platt, J. (1973). Social traps. *American Psychologist, 28*, 641–651.
- Richmond, J., Clare Wilson, J., & Zinken, J. (2012). A feeling for the future: How does agency in time metaphors relate to feelings? *European Journal of Social Psychology, 42*(7), 813–823.
- Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate behavior: The role of message framing. *Psychological Bulletin, 121*, 3–19.
- Spence, A., Poortinga, W., & Pidgeon, N. (2012). The psychological distance of climate change. *Risk Analysis, 32*(6), 957–972.
- Strathman, A., & Joireman, J. (Eds.). (2005). *Understanding behavior in the context of time: Theory, research, and application*. Mahwah: Lawrence Erlbaum.
- Strathman, A., Gleicher, F., Boninger, D. S., & Edwards, C. S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology, 66*, 742–752.
- Teuscher, U., & Mitchell, S. (2011). Relation between time perspective and delay discounting: A literature review. *The Psychological Record, 61*, 613–632.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*, 403–421.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211*, 453–458.
- Van Lange, P. A. M., & Joireman, J. A. (2008). How can we promote behaviour that serves all of us in the future. *Social Issues and Policy Review, 2*, 127–157.

- Van Lange, P. A., Joireman, J., Parks, C. D., & Van Dijk, E. (2013). The psychology of social dilemmas: A review. *Organizational Behavior and Human Decision Processes*, *120*(2), 125–141.
- Weaver, D. H. (2007). Thoughts on agenda setting, framing, and priming. *Journal of Communication*, *57*(1), 142–147.
- Wonj, C., & McMurray, N. E. (2002). Framing communication: Communicating the antismoking message effectively to all smokers. *Journal of Community Psychology*, *30*, 433–447.
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual differences metric. *Journal of Personality and Social Psychology*, *77*, 1271–1288.
- Zimbardo, P. G., Marshall, G., & Maslach, C. (1971). Liberating behavior from time-bound control: Expanding the present through hypnosis. *Journal of Applied Social Psychology*, *1*(4), 305–323.