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Different Measures of Future Orientation May Yield Opposite Predictions of Environmental Attitudes and Behaviour

Abstract

Future orientation (FO) expresses interpersonal differences affecting the creation of attitudes and behaviour in many life areas. FO is a prerequisite of sustainability, which requires considering environmental consequences for future generations. This study compared two primary measures of FO; Zimbardo's Future Time Perspective (F-ZTP) and the Consideration of Future Consequences Scale (CFC), in the environmental context. While higher values of CFC predicted significantly higher levels of environmental variables, higher values of F-ZTP did *not* predict higher levels, and in some cases even predicted significantly *lower* levels of environmental variables. We suggest that FO is multidimensional, that different constructs capture different dimensions of FO and when temporal conflicts involve social conflicts, as in most environmental conflicts, an inconsistency between the predictabilities of the constructs may emerge, revealing a conflict between the "futures" people are orienting at.

Keywords: future orientation, Zimbardo Time Perspective, consideration of future consequences, environmental attitudes, environmental behaviour

Różne pomiary orientacji przyszłościowej mogą implikować odmienne przewidywania środowiskowych postaw i zachowań

Streszczenie

Orientacja przyszłościowa (FO) wyraża interpersonalne różnice wpływające na powstawanie postaw i zachowań w wielu dziedzinach życia. FO jest zasadniczym warunkiem zrównoważonego rozwoju, który wymaga uwzględnienia konsekwencji środowiskowych dla przyszłych pokoleń. W badaniu wykorzystano dwie metody pomiaru FO: Skalę Przyszłościowej Perspektywy Czasu Zimbardo (F-ZTP) oraz Skalę Przewidywania Przyszłych Konsekwencji (CFC) w kontekście środowiska. O ile wyższe wartości CFC prognozowały znacznie wyższe poziomy zmiennej środowiskowych, o tyle wyższe wartości F-ZTP *nie* prognozowały wyższych poziomów tych zmiennych, a w niektórych przypadkach prognozowały nawet znacznie *niższe* poziomy zmiennej środowiskowych. Wykazano zatem, że orientacja przyszłościowa

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(FO) ma charakter wielowymiarowy, a różne konstrukty oddają jej różne wymiary. Ustalono, iż kiedy konflikty temporalne obejmują konflikty społeczne, co ma miejsce w większości konfliktów środowiskowych, może pojawić się niezgodność między przewidywanymi kierunkami zależności, odsłaniając konflikt między „przyszłościami”, ku którym zwracają się ludzie.

Słowa kluczowe: orientacja przyszłościowa, orientacja czasu Zimbardo, przewidywanie przyszłych konsekwencji, postawy środowiskowe, zachowania środowiskowe

Introduction

The ability to foresee and anticipate, to make plans, and to organize future options is one of the most prominent human traits (Gjesme, 1983; Suddendorf & Corballis, 2007). The tendency to plan for, to achieve future goals, and to consider the future implications of one's actions, referred to as *future orientation* (FO), also serves as an individual-differences variable (Strathman, Gleicher, Boninger & Edwards, 1994; Zimbardo & Boyd, 1999). FO has a pervasive and powerful influence on many psychological and behavioural characteristics (Zimbardo & Boyd, 2008). The FO of people in a society considerably affects their personal and social order of priorities and directly influences both personal and national life quality (for review see Seginer, 2009; Strathman & Joireman, 2005). Over the years, FO has been studied at length in psychology literature, and the two primary tools that have been used in contemporary research are Zimbardo's Time Perspective Inventory (ZTPI) (Zimbardo & Boyd, 1999) and the Consideration of Future Consequences (CFC) Scale (Strathman et al., 1994).

Zimbardo and Boyd's Future Time Perspective (F-ZTP)

Zimbardo and Boyd (1999) studied time perspective as a multidimensional variable that incorporates perception of the past, present, and future to create the Zimbardo Time Perspective Inventory. In this research, only one time dimension was used: future time perspective. According to Zimbardo and Boyd, F-ZTP describes the tendency to plan for and to achieve future goals and rewards. High scores in F-ZTP were found as related to low levels of novelty and sensation seeking, and low engagement in behaviours that might jeopardize future goals, such as aggression, ego control, impulsivity and risk taking. F-ZTP has been found to correlate with a wide variety of behavioural phenomena such as smoking, alcohol consumption and drug use (Apostolidis, Fieulaine & Soule, 2006; Keough, Zimbardo & Boyd, 1999; Klingemann, 2001; Kovac & Rise, 2007), reckless driving (Zimbardo, Keough & Boyd, 1997), education, employment and general health (Crockett, Weinman, Hankins & Marteau, 2009; Guthrie, Butler & Ward, 2009; Hamilton, Kives, Micevski & Grace, 2003; Hensen, Carey & Maisto, 2006), well-being and life quality (Drake, Duncan, Abernethy & Henry, 2008), academic success (Adelabu, 2007; Mello & Worrel, 2006; Horstmanshoff & Zimitat, 2007; Worrel & Mello, 2007), procrastination (Diaz-Morales, Ferrari & Cohen, 2008; Ferrari & Diaz-Morales, 2007), fulfilment of commitments (Harber, Zimbardo & Boyd, 2003),

anti-social behaviour (Kruger, Reischl & Zimmerman, 2008), political inclination (Thornhill & Fincher, 2007), and environmental attitudes (preservation vs. utilization) (Milfont & Gouveia, 2006). For a broader review of international research on ZTPI, see www.timeperspective.com.

Consideration of Future Consequences (CFC)

Strathman et al. (1994) proposed an instrument called *consideration of future consequences* (CFC), to represent an individual-difference variable that assesses “the extent to which individuals consider the potential distant outcomes of their current behaviours and the extent to which they are influenced by these potential outcomes” (Strathman et al., 1994, p. 743). The name CFC succinctly describes it. It measures people’s tendency to seriously consider the future. The CFC was found to be relatively stable over a single year (Toepoel, 2010). It was also found to be relevant to the creation of attitudes and behavioural decision making in many contexts such as health (Adams & Nettle, 2009; Crockett & Weinman, 2009; Kovac & Rise, 2007; Orbell, Perugini & Rakow, 2004), finances (Adams & Nettle, 2009), environment (Corral-Verdugo, Bonnes, Tapia-Fonllem, Fraijo-Sing, Frias-Armenta & Carrus, 2009; Ebreo & Vining, 2001; Joireman, Van Lange & Van Vugt, 2004; Joireman, Lasane, Bennett, Richards, Solaimani & Joireman, 2001; Lindsay & Strathman, 1997; McElwee & Brittain, 2009) and more (Kortenkamp & Moore, 2006; Strathman et al., 1994; Toepoel, 2010. For a review see Joireman, 2005).

To sum up, all of the reviewed examples, representing diverse contexts in which FO was found to influence attitudes and behaviours, share a common characteristic: they all arouse a temporal conflict between short-term and long-term interests and consequences. In each of the above contexts, future-oriented people prioritized long-term interests over short-term ones, and behaved accordingly.

F-ZTPI versus CFC in prior studies

Most studies previously mentioned have used *either* CFC *or* F-ZTPI as a measure for FO. Few have used *both* constructs simultaneously to measure the relationship between them, as well as the differences in patterns of relationships of each construct with other variables. For example, Adams and Nettle (2009) studied various personality traits, smoking, and other health-related variables along with CFC and F-ZTP. They reported that the correlation between these two constructs was $r = .45$, but only CFC was associated with some of the health-related behaviour. Crockett, Weinman, Hankins, and Marteau (2009) measured health-related behaviour as a function of CFC and F-ZTP (a shortened version of F-ZTPI), and reported that $r = .38$ between the two constructs, and that the constructs predicted health-related behaviours differently. These findings show that both constructs share common characteristics, yet there are differences which should be considered.

FO in the environmental context

FO is an inseparable component of the skills required by an individual or by society to protect nature, to recognize and take responsibility for the state of the

environment for future generations, and to be committed to a sustainable way of life (Joireman, 2005). The very term “sustainability” intimates focusing on future developments and implications. Considering its importance for environmental education and communication, great interest has been aroused in the study of FO in its environmental context (Ebreo & Vining, 2001; for a review see Joireman, 2005).

To date, no study has yet investigated FO simultaneously with CFC and F-ZTP on the same issue in the environmental realm. The present study aims at comparing the patterns with which the two instruments predict various environmental variables. Such a comparison is important for two reasons. The first reason relates to a general methodological aspect of measuring FO. Only a few studies (in health related variables) concurrently examined several measures supposedly describing the same construct. In light of the inconsistency between the two FO measures, hinted by the two studies, the question is: what aspects of FO do they actually capture? An analysis of inconsistency between the two constructs, if revealed, may contribute to every study that uses either of these constructs as measures of FO, and may help to choose the appropriate construct. The second reason relates to the specific studied context; the environmental realm. If the development of FO is a key factor in promoting environmental attitudes and behaviour, it is especially important to be well acquainted with the tool(s) for measuring FO. Different predictions of FO constructs may expose different aspects of the predicted variable and help to better understand the complexity of FO relation to the specific research subject (in this case, the environment).

Method

Participants

The study was based on an internet convenience sample (Qualtrics Research, Suite 2011, www.qualtrics.com) distributed by email and by Facebook. It included 361 respondents; 251 (69.5%) females and 110 males (30.5%). Ages ranged between 20 and 74, with a mean of 32.2 years and a standard deviation of 12.06 years. Each respondent was asked to complete CFC, F-ZTP, and environmental questionnaires (see details in the following sections).

Measures of future orientation

F-ZTP. The scale consisted of 13 items. Items typical of this construct are: “I can resist temptations when I know that there is work to be done” or “It upsets me to be late for appointments”. **CFC.** The scale consisted of 12 items. Examples of items include: “I only act to satisfy immediate concerns, thinking the future will take care of itself” or “I think it is important to take warnings about negative outcomes seriously even if the negative outcome doesn’t occur for many years”.

Environmental variables

Among the most commonly used predictors of environmental behaviour are: environmental attitudes, perceived severity of environmental problems, environ-

mental efficacy, and willingness to sacrifice for the sake of the environment. We adopted the questionnaire already developed and validated by Peer, Goldman & Yavetz (2007) to be used on an Israeli student population.

Environmental attitudes reflect an individual's general and relatively stable assessment – positive or negative – regarding issues of environmental preservation, and may serve as a reliable predictor of behaviour (Ajzen & Fishbein, 1980). Six items (Cronbach's Alpha = .73) were used. Sample items are: "In my opinion, it is important to save water in Israel" or "When I go out into nature, it is important for me to leave it clean and to make sure not to leave any trash behind". Each item was presented as a statement and respondents were asked to indicate their level of agreement on a scale ranging from one (totally disagree) to five (very much agree).

Perceived severity of environmental problems (PSEP) describes the extent to which a person is concerned over ecological issues and is considered as an important prerequisite for the modification of environmental behaviours (Maloney & Ward, 1973). PSEP has been termed in many ways and has received many definitions and operationalizations (for review see Bamberg, 2003). PSEP was measured as follows: On a scale of 1 (not at all troubled) to 5 (greatly troubled) people were asked to rate how severely they relate to harming the quality of the environment (air pollution, water quality, trash and others) and to global warming.

Environmental efficacy is adapted from Bandura's (1994) definition as "the confidence people have in their capability to plan and execute a course of action and to accomplish a task or solve a problem". In the environmental context, it refers to people's belief that their actions have an impact on environmental problems. It is often used synonymously with perceived personal control or efficacy representing the extent to which people feel they can make a difference to the environment (Axelrod & Lehman, 1993). Perceived control, or individuals' belief that their actions can benefit the environment, is an important predictor of pro-environmental behaviour (Axelrod & Lehman, 1993; Hines, Hungerford & Tomera, 1986; Manzo & Weinstein, 1987). Environmental efficacy was measured with 6 items (Cronbach's Alpha = .752). Examples are: "I have the power to affect the quality of the environment by wise consumption" or "Even if I personally save water, that will not have any effect on the existing shortage of water in the state" (reverse coding).

Willingness to sacrifice for the sake of the environment (WTS) represents "the extent to which individuals' decisions will consider the well-being of the environment even at the expense of immediate self-interest, effort, or costs, when confronted with day-to-day environmental dilemmas" (Davis, Le & Coy, 2011). WTS is one of the proxies of environmental behaviour in various models and theories (Ajzen, 1991). According to Davis et al. (2011), WTS may be especially important in decisions regarding environmental action because it encompasses the psychological tension of acting in one's immediate best interests versus considering one's FO towards the greater good of the environment. WTS was measured with seven items (Cronbach's Alpha = .79). Examples are: "I am willing to save water at home, even

if it is not always convenient”, “I am willing to give up car trips in order to save on energy consumption”.

Environmental behaviour is defined as “actions which contribute towards environmental preservation and/or conservation” (Axelrod & Lehman, 1993, p. 153). Environmental behaviour is not a single cohesive entity, but a complex phenomenon sometimes exhibiting internal contradictions (Lindsay & Strathman, 1997). Previous studies have made a distinction between environmental behaviours with personal benefit and behaviours that lack personal benefit, a distinction reflected in the frequency with which these behaviours are performed; behaviours “with personal benefit” are performed much more frequently than those “without personal benefit” (Goldman, Yavetz & Peer, 2006). Environmental behaviour was assessed with 6 items: two items for engagement in environmental behaviours that have **personal benefit** (Cronbach’s Alpha = .57): “I save electricity by turning off lights and electrical appliances when not in use” or “I save water at home (for example, I shut the tap while I am brushing my teeth or washing dishes)”; four items assessed behaviours **not involving personal benefit** (Cronbach’s Alpha = .66): “When I go out into nature and I see trash that others have thrown away, I pick it up and put it into a bag” or “I make sure to gather newspapers and used papers and bring them to the bins for paper recycling”.

Statistical analyses were done with SPSS 19.0 and Amos 19.0 (Arbuckle, 2011). The regression coefficients of F-ZTPI and CFC on each of the environmental variables were calculated separately using a structural equation model (SEM). In the model each measure was treated as a latent variable consisting of all of its original items as indicators. Each of the environmental variables was also treated as a latent variable consisting of its items as indicators (as described in the previous sections). Figure 1 shows the general model used to assess the standardized regression coefficients and the correlation between the two constructs.

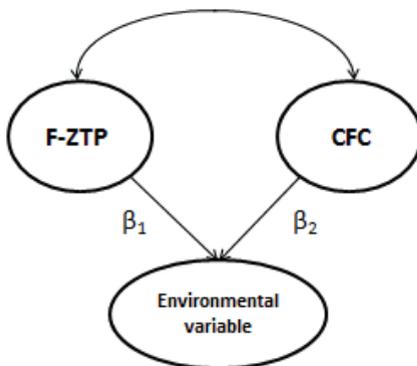


Fig. 1. General SEM model of the effects of FO, measured by CFC vs. F-ZTP, on the environmental variable

* β_1 and β_2 are regression coefficients of F-ZTP and CFC, respectively

Results

CFC was found to be positively correlated with F-ZTPI; $r = .34$ ($p < .001$). Table 1 presents the regression coefficients of F-ZTPI (β_1) and CFC (β_2) on each of the six environmental variables, along with the model fit results. All models fit the data reasonably well.

Tab. 1. Standardized regression coefficient of CFC and F-ZTPI on environmental variables

Environmental variables	Measures of FO		Model fit statistics			
	F-ZTPI (β_1)	CFC (β_2)	χ^2/df	CFI	NFI	RMSEA
Attitudes	.02 ns	.25***	1.658	.911	.806	.043
Perceived severity	-.13*	.29***	1.717	.924	.838	.045
Efficacy	.01 ns	.30***	1.579	.922	.817	.040
Willingness to sacrifice	-.18*	.39***	1.708	.904	.800	.044
Behaviour (with personal benefit)	.16*	.15*	1.746	.913	.822	.046
Behaviour (without benefit)	-.12 ns	.36***	1.694	.902	.795	.044

* $p < .05$, ** $p < .01$, *** $p < .001$

F-ZTPI scores significantly and *negatively* predicted perceived severity of environmental problems, and WTS, and negatively but not significantly – behaviour without personal benefit. Higher F-ZTPI scores did *not* result in significantly higher scores in environmental attitudes and environmental efficacy. The only variable that showed significant higher levels with higher F-ZTP was behaviour with personal benefit.

On the contrary, CFC scores significantly and *positively* predicted **all** of the environmental variables. The highest positive effect was on WTS and on behaviours without personal benefits. Simple bivariate correlational analyses yielded similar results.

Discussion

In addition to the significant differences in the predictive patterns of both constructs for the environmental variables, a positive and significant correlation was found ($r = 0.34$) between them. This finding is not new. In this case, how can the differences between these two instruments be explained? The statistical interpretation of this finding is that even though the two constructs provide 10% of the shared variance, it is quite possible that the remaining 90% of variance, stemming from other sources representing other dimensions, will refer to other qualities in a different and even opposite way.

The first implication of the findings is that “future orientation” is not a simple univalent entity, but may represent different and not necessarily coherent contents; the items of the F-ZTP describe skills of time management, delay of gratification,

and sticking to a time schedule. In certain contexts (personal-private), these skills may be critical for ensuring future developments which will benefit the *individual*, such as avoiding behaviours which harm health (smoking, drinking, drugs, reckless driving), and reasonable occupational or economic conduct (see review). However, unlike the above mentioned (personal) contexts, the environmental context is characterized by a unique constraint: in addition to the temporal conflict, it also arouses a *social conflict*. In other words, in the environmental context, temporal and social conflicts are inherently interwoven because short-term benefits are often personal while long-term consequences are often general and borne by many socially distant individuals. This means that having FO skills, according to F-ZTPI, is not necessarily relevant in the environmental context. In comparison, all of the CFC items deal with quantifying the relative weight granted by the individual in the present to future implications *in general*, and are not necessarily specific to the individual him-/herself. That might explain why higher CFC scores predict greater WTS and higher F-ZTP scores predict significantly *lower* WTS. It appears that individuals scoring high on F-ZTP do not view the future of the environment as a value which is worth a present sacrifice, or they do not view environmental development as a scenario which is likely to affect their personal future.

The second implication of this study is that different FO constructs capture different dimensions of FO. According to its general definition (see Introduction), FO involves mental, planning and self-regulation skills as well as tendencies and motivations to consider future implications of present actions (Gjesme, 1983; Strathman et al., 1994; Suddendorf & Corballis, 2007; Zimbardo & Boyd, 1999). No construct captures all of the above traits; while CFC captures the tendency to consider general consequences, F-ZTP captures FO skills that may be relevant to the future of the individual. These findings raise the question of which “future” is measured by the two constructs. Many behaviours, with future implications, as for example, in the health or finance realms, are predicted by F-ZTP and CFC in a similar pattern (see Introduction). Considering the type of behaviours which are referred to, these can be roughly generalized as behaviours concerning the *personal future* of the individual. Indeed, in this study, the only variable that was predicted by the two constructs in a similar pattern was the behaviour with *personal* benefit. Perhaps only when FO is measured in private contexts is there greater consistency in the predictive patterns of the two constructs. In Zimbardo and Boyd (1999), a hint of this distinction can be found in the description of the “prototype” of the future oriented individuals (according to F-ZTP):

(...) They were highly organized, ambitious goal seekers who felt pressed for time but were willing to sacrifice present enjoyment to achieve their career objectives. (...) Another aspect of their eye on living for tomorrow and their self-centeredness was evident in reports about wanting to live to be older, preferring nutrition over taste in selecting foods and planning to have fewer children. But a significant cost that is packaged with this ambitious goal seeking for future oriented individuals is the social deficit (...) created by having no time to “waste” hanging out with friends or even making

them in the first place (...) having no time to “waste” hanging out with friends or even making them in the first place (...)” (Zimbardo and Boyd, *ibidem*, p. 1281).

These qualities do not necessarily contribute to the development of concern and pro-environmental behaviour, and perhaps **even** the opposite may be true. Perhaps the ambitions and the self-centeredness characterizing those who scored high on ZTPI, combined with the ability to sacrifice comfort for future interests, are intended primarily to benefit their own private future. The social cost which they are willing to pay, or the social deficit (according to the previous description of Zimbardo), should actually hint at lower social concern. This reinforces previous findings that ZTPI successfully predicted attitudes and behaviours directed to future results in the personal realm (studies, health) but not in the environmental area, which is not solely personal (authors' own). The distinction between personal and general FO could also explain the differences found regarding WTS and environmental behaviours themselves. Behaviours without personal benefit are better predicted by CFC, indicating that CFC reflects long-term considerations which refer to the future in general, not only the future of the individual him-/herself. To sum up, the third implication of this study is that inconsistency between the predictabilities of the two constructs is context dependent and may expose conflicting interests between the “futures” people are orienting to.

Finally, this research has demonstrated that FO is a significant predictor of attitudes and behaviour in temporal conflict situations. The studied instruments may offer equivalent predictions in areas in which personal and non-personal futures are not at odds. But when temporal conflicts involve social conflicts, as in the environmental context, the two measures of FO may have different and even opposing effects on attitudes and behaviours. Further research, *using both instruments* along with various psychological variables and in additional contexts, is warranted to understand the differences and to better adapt the instrument to the studied realm.

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