

## How to Become a Persevering Exerciser? Providing a Clear, Future Intrinsic Goal in an Autonomy-Supportive Way

Maarten Vansteenkiste<sup>1</sup>, Joke Simons, Bart Soenens<sup>1</sup>, and Willy Lens

University of Leuven

The goal of the present study was to examine partially conflicting hypotheses derived from two motivational theories, namely self-determination theory (SDT; Deci & Ryan, 1985, 2000) and future time perspective theory (FTPT; Lens, 2001; Nuttin & Lens, 1985). In line with SDT, it was found that framing an exercise activity in terms of future intrinsic goal attainment (focusing on health and physical fitness) has a positive effect on effort expenditure, autonomous exercise motivation, performance, long-term persistence, and even sport club membership. On the other hand, framing an exercise activity in terms of future extrinsic goal attainment (focusing on physical appearance and attractiveness) undermined those outcomes compared to a no-future-goal control group. Correlational analyses indicate that future extrinsic goal framing led to non-autonomous persistence while future intrinsic goal framing resulted in autonomously driven perseverance at the free-choice activity. In contrast to FTPT, the no-future-goal control group did not differ from a future content-free goal group, in which the general future importance of the present task was stressed. Finally, presenting those goals in an autonomy-supportive rather than a controlling way resulted in the same motivational and behavioral benefits as future intrinsic goal framing. It is discussed how future time perspective theory and self-determination theory can be reconciled and integrated.

**Key Words:** future time perspective, self-determination theory, motivation

Past research has convincingly shown that doing sports and engaging in physical exercises yield important benefits to physical (Bidde, Cavill, & Sallis, 1998) and psychological (Calfas & Taylor, 1994) well-being. Sallis and McKenzie (1991) even argued that positive experiences in physical education (PE) could influence people to adopt physically active lifestyles which can improve public health. In spite of these clear advantages associated with exercising, the physical activity level of adolescents is quite low, as documented in various international studies (De Bourdeaudhuij, Van Oost, & Mommerency, 1992; Rzewnicki, Van Reusel, & De Bourdeaudhuij, 2001; Sallis & Owen, 1999).

Therefore, PE teachers have the important task of creating optimal motivational conditions so their students will become persistent exercisers. In an attempt

to realize this goal, the media as well as fitness and sport clubs emphasize that exercising helps you become slim and might even make you more attractive to others. Providing such a future goal might particularly motivate adolescents and contribute to their exercise performance and persistence, since this age group cares deeply about their physical appearance (Diener, Wojsic, & Fujita, 1995). On the other hand, in order to get their students' participation, PE teachers might not focus on these external signs of worth but might instead stress the importance of exercising as a way to maintain health and fitness in adulthood.

Future Time Perspective Theory (FTPT; Lens, 1986, 2001; Lens, Simons, & Dewitte, 2002; Nuttin & Lens, 1985; Simons, Dewitte, & Lens, 2000) and Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000) were used to examine these issues in the present study. The broader aim of this research was (a) to identify situational antecedents that promote motivation, performance, and lasting persistence, and (b) to integrate FTPT and SDT by examining partially conflicting hypotheses derived from them.

### The Future as a Motivational Source

The concept of future time perspective refers to people's cognitive capacity to anticipate not only the immediate but also the long distant outcomes of a task (De Volder & Lens, 1982). FTPT claims that participants with a deep future time perspective will be more motivated for the present task and will score higher on various motivation related measures because they perceive the present task as more instrumental or as containing more utility value (Eccles & Wigfield, 2002). Considerable correlational research has confirmed this hypothesis in the academic domain (De Volder & Lens, 1982; Lens & Decruyenaere, 1991), but the theory has received less attention in the domain of physical exercise.

More recently the motivational impact of the future was examined using an experimental rather than a correlational design (Simons, Dewitte, & Lens, 2003). In this light, the motivational impact of the future was no longer considered as an individual disposition that differs among individuals but as a contextual factor that can be referred to. Simons et al. (2003) reported that referring to a future goal such as self-development increased people's task orientation and also led to better performances compared to a condition in which the obligatory nature of the task was accentuated, but also compared to a condition in which there was no reference to the future relevance of the present task.

However, there were two shortcomings in that study. First, when pointing to the importance of the present task for one's future, a specified future goal was always implied (i.e., self-development as a personally relevant goal). This made it impossible to conclude whether the content of the provided future goal or the future reference per se could explain the difference between the future-goal group and the no-future-goal control group. In other words, such a design does not allow us to explore FTPT's claim that the mere fact of referring to future importance yields positive consequences. Therefore, in the present study we included a no-future-goal control group as well as a future content-free goal group whereby the general future importance of one's present exercising was stressed ("exercising is important for your future"). Based on FTPT it was hypothesized that—compared to a no-future-goal control group—referring to the general future importance of a present exercise enhances people's exercise motivation and leads them to exert more effort in the task; participants in the future content-free goal group should perform better and

The authors are with the Dept. of Psychology, University of Leuven, Tiensestraat 107, B-3000 Leuven, Belgium. <sup>1</sup>Supported by a grant for scientific research Flanders (FWO-Vlaanderen).

persist more intensively afterward at similar exercise activities, because referring to the future enhances the instrumentality of the present task (*Hypothesis 1*).

In order to clarify the second shortcoming of the Simons et al. study (2003), we need to introduce SDT. Although SDT has not explicitly dealt with the concept of the future, it can be derived from this theory that the positive impact of future goal framing depends on the specified content of the future goal (intrinsic vs. extrinsic) and on the nature of the social context (autonomy-supportive vs. controlling) in which the future goal has been given. Those two dimensions were confounded in the study by Simons et al. (2003) because the obligatory nature of the activity was stressed in one condition, constituting a controlling context, while the goal of self-development was accentuated in another condition, which represents an intrinsic goal for SDT (Kasser & Ryan, 1993). The present study aimed to disentangle those dimensions and to investigate their separate effects.

On the basis of FTTT, it was hypothesized that future goal framing, regardless of the content of the specified future goal (intrinsic or extrinsic), would result in more optimal outcomes compared to a no-future-goal control group, because the instrumentality of the present task is enhanced by referring to a future goal (*Hypotheses 2a and 3a*). However, because a different set of hypotheses was derived from SDT, it is necessary to discuss SDT in more detail.

### Self-Determination Theory

SDT claims that people might pursue qualitatively different types of (future) goals, which will lead to considerably different outcomes (Deci & Ryan, 2000). Intrinsic goals such as health, self-development, and a sense of community are distinguished from extrinsic goals such as social recognition, financial success, and physical attractiveness (Kasser & Ryan, 1993, 1996). In line with an organismic way of thinking, intrinsic goals are theorized to be congruent with actualizing and growth tendencies, and SDT proposes that intrinsic goal pursuits have positive effects on well-being because they promote satisfaction of the basic psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 2000; Sheldon, Elliot, Kim, & Kasser, 2001).

In contrast, extrinsic goal pursuits are often oriented toward the attainment of external indicators of worth in order to compensate for a lack of basic need satisfaction. As a consequence, extrinsic goal striving often entails stressful interpersonal comparisons and may require the contingent approval of others, both of which are likely to undermine one's sense of well-being (Kernis, Brown, & Brody, 2000; Lyubomirsky & Ross, 1997). In line with these claims, various studies have shown that intrinsic (relative to extrinsic) goal pursuit is associated with various benefits to well-being (Kasser & Ryan, 1996; McHoskey, 1999).

The impact of goal content on outcomes related to well-being was recently extended to performance and persistence outcomes. Vansteenkiste, Simons, Lens, Sheldon, and Deci (in press) showed in a set of experiments that framing an activity in terms of future intrinsic (relative to extrinsic) goal attainments results in a more volitional or autonomous task engagement and in better performance and higher persistence at the activity, but a no-future-goal control group was missing from those studies. However, as noted earlier, such a control group was included in the present research design. Therefore the aim of the present study consisted in determining whether future intrinsic and future extrinsic goal framing exert a different impact

on people's autonomous task engagement, performance, and persistence compared to a no-future-goal control group serving as a baseline.

Another aim of this study was to examine the impact of type of goal framing on a new set of dependent variables compared to previous research. First, because people's lasting persistence was not assessed in the Vansteenkiste et al. (2003) research, we obtained persistence measures and information about participants' sport club membership 4 months after their initial engagement in the PE lessons to examine whether intrinsic (vs. extrinsic) goal framing would affect those outcomes. Second, we wanted to explore the impact of goal content on people's different self-regulatory styles. Within SDT, people are said to act in an autonomous manner when their task engagement is based on inherent task satisfaction or enjoyment (intrinsic regulation), or when it represents a self-endorsed commitment (identified regulation). Conversely, people's task engagement is non-autonomous, i.e., controlled, when they merely comply with the imposed demands of others (external regulation) or when they act to avoid feelings of guilt and shame or to preserve their self-worth (introjected regulation).

These four self-regulatory styles were combined in the Vansteenkiste et al. studies (in press), making it impossible to determine whether goal content affects the four types of self-regulation. The goal of the present study was to examine whether goal content would affect these separate self-regulatory styles. It is particularly interesting to explore whether goal content affects people's intrinsic interest in the activity, just as various external factors such as rewards, competitions, and deadlines have been found to influence people's task enjoyment (Deci, Koestner, & Ryan, 1999).

The following hypotheses were formulated on the basis of SDT. We hypothesized that indicating that the present task is instrumental for attaining a future extrinsic goal would lead people to focus on external signs of worth, and would thus amplify their concerns about their appearance and performance in comparison with others. Such an ego concern is likely to hamper the sense of challenge and inherent enjoyment in the exercise itself (intrinsic regulation) (Kasser, 2002; Plant & Ryan, 1985). Given this evaluative and competitive nature of extrinsic goals (Kasser & Ryan, 1996), they would also increase participants' levels of external task regulation. In fact, correlational studies (Sheldon & Kasser, 1995; Sheldon, Ryan, Deci, & Kasser, in press) have indicated that extrinsic goal striving was positively correlated with an underlying controlled self-regulation. Because intrinsic goal striving was also positively correlated with an autonomous self-regulation, we expected that intrinsic goal framing would enhance people's present task enjoyment (intrinsic regulation) and would grant personal meaning to the exercise activity (identified regulation). Intrinsic goals are reflective of people's natural growth tendencies (Kasser & Ryan, 1993); therefore it is likely that intrinsic goals will allow participants to experience their task engagement as personally meaningful and will encourage them to invest effort in the task.

In a similar vein, future intrinsic goal framing should promote greater engagement in the sport activity and thus lead to better performance and more intensive persistence afterward compared to a no-future-goal control group. Conversely, future extrinsic goal framing leads people to focus on external signs of worth (Williams, Cox, Heberg, & Deci, 2000) which detracts people's attention from the exercise activity. Because of the shift in orientation, extrinsic goals should lead to poorer engagement in the learning task, thereby undermining people's performance and

persistence compared to a no-future-goal control group. In short, it was predicted on the basis of SDT that future intrinsic goal framing would lead to more optimal functioning (i.e., higher performance and stronger persistence) compared to the no-future-goal control group (*Hypothesis 2b*), a prediction that was also derived from FTPT. However, on the basis of SDT we expected future extrinsic goal framing to result in a more maladaptive pattern of findings compared to the no-future-goal control group (*Hypothesis 3b*). The latter hypothesis stands in contrast with FTPT, which claims that future goal framing yields positive consequences independent of the content of the future goal.

The different types of future goals can be provided within social environments that vary considerably in the degree to which they promote an exerciser's free choice or autonomous task engagement. For example, the social context can pressure people to engage in the exercise activity by using incentives, creating a competitive atmosphere, or using controlling language such as "should," "ought," or "have to," thereby producing an external perceived locus of causality (deCharms, 1968). Conversely, other environments might minimize the salience of external incentives and avoid verbal pressure so that participants are more likely to perceive the locus of causality for their task engagement as internal.

Correlational (Chatzisarantis, Hagger, Biddle, & Karageorghis, 2002; Goudas, Biddle, Fox, & Underwood, 1995; Ntoumanis, 2001) and experimental (Vansteenkiste et al., in press) studies in the exercise domain showed that autonomy-supportive contexts are associated with a host of positive outcomes such as higher exercise enjoyment, more effort expenditure, a stronger intention to exercise, better performance, and more intensive voluntary persistence at the exercises. Based on these findings and SDT, we hypothesized that pressuring people into action vs. supporting their autonomy (a) would undermine their exercise enjoyment and identified motivation, (b) would result in less effort expenditure and worse performance, and (c) would lead to less voluntary persistence in the short run, but also in the long run (*Hypothesis 4*).

The final goal of this study was to examine not only whether future goal framing affects the extent of people's persistence but also the degree of congruency between people's underlying autonomous motives for persistence and their behavioral persistence. Past research (Ryan, Koestner, & Deci, 1991; Vansteenkiste & Deci, 2003) has shown that in some circumstances, for instance when people get ego-threatening feedback, they tend to persist longer at the task during the free-choice period but their self-reported intrinsic motivation is uncorrelated with their behavioral persistence; this suggests that people continue to perform the activity afterward for reasons other than task enjoyment. In a similar vein, we examined the reasons for people's persistence behavior under intrinsic and extrinsic goal circumstances by correlating their self-reported autonomous reasons for engaging in the exercise activity with their behavioral persistence. We believe it is important to execute such within-cell correlations because past research (Pelletier, Fortier, Vallerand, & Brière, 2001; Vallerand, Fortier, & Guay, 1997) has shown that people are only likely to persist at the activity over a longer period of time if their behavior is autonomously based.

We expected that because framing the task in terms of future intrinsic goal attainment would promote intrinsic task enjoyment and make the task more meaningful, people's persistence would be positively correlated with their self-reported autonomous motivation in the future intrinsic goal condition. Thus their

persistence would be fully consistent with their underlying emotional preferences and personal values.

By contrast, although extrinsic future goals might motivate people to act and thus enhance the extent of persistence (Kasser, 2002), they would give rise to behavior that does not necessarily stem from, or may even conflict with, people's individual values and emotional preferences. Extrinsic goals would thus lead to a rather alienated persistence, defined as a failure to behave in accordance with one's emotional preferences (Kuhl & Beckmann, 1994). Under future extrinsic goal circumstances, people would rather persist because they want to prove their worth (Ryan et al., 1991; Williams et al., 2000), or because they hope to attain the anticipated future extrinsic goal (Kasser, 2002). Therefore we expected that the behavioral persistence of participants in the future extrinsic goal condition would be uncorrelated with their self-reported autonomous motivation (*Hypothesis 5*).

To summarize, the overall aim of the present study was to identify the contextual antecedents of people's motivation, effort expenditure, and performance during PE lessons, and their perseverance at the activity afterward, using FTPT and SDT. The study differed from most previous research by: (a) examining whether a mere content-free reference to the future importance of the task yields positive consequences compared to a no-future-goal control group; (b) examining how future intrinsic and future extrinsic goal framing stand in relation to the no-future-goal control group; (c) considering the impact of the manipulated factors on a new set of outcomes (different self-regulatory styles, lasting persistence, sport club membership); and (d) examining, along with the extent of persistence, the congruency between people's persistence and their self-reported autonomous reasons for persisting under future intrinsic and future extrinsic goal circumstances.

## Method

### Participants and Procedure

Participating in the study were 232 female and 269 male 10th-, 11th-, and 12th-grade students ( $N = 501$ ). The study took place during PE classes in which the students were taught a few exercises of an Asian sport. Participants were randomly placed in one of the eight conditions ( $n = 60$  to 72 per condition).

At the beginning of participants' PE lesson, different instructions were used to invite them to read a text about taboo. A completely randomized factorial  $4 \times 2$  design was operationalized in which two factors were manipulated: type of goal framing and type of social context. Specifically, participants in the future intrinsic goal condition were told that doing taboo exercises at a younger age was instrumental for attaining the future goal of physical fitness and health (i.e., "doing a little taboo helps you to remain physically fit and prevents you from becoming sick at a later age"), while participants in the future extrinsic goal condition were told that doing taboo was instrumental for becoming or remaining physically attractive to others (i.e., "doing a little taboo helps you to remain physically appealing to others and prevents you from gaining weight at a later age"). Further, participants in the future content-free goal condition were told that "doing taboo is important for your future", so no specific future goal was mentioned. Finally, participants in the no-future-goal control group were not provided with any future reference in all.

Concerning the social context manipulation, participants in the controlling conditions were forced to engage in the exercise activity by using, in five different

places, controlling phrases such as "you are obliged," "you should," and "you have to." In contrast, in the autonomy-supportive conditions, phrases such as "we ask you to," "you can," and "you might" were used instead so as to give participants a chance to decide for themselves whether to engage in the exercises.

After reading the text, participants were taught a set of taboo exercises over two PE classes by a certified taboo instructor, who was blind to students' condition assignment and the theoretical purpose of the study. At the end of the first class the participants filled out questionnaires that assessed their degree of choice/autonomy in the activity, their degree of self-determined motivation for doing the exercises, and the effort expended in doing them. In the second class 3 to 5 days later, all participants were tested on the taboo exercises. Then four persistence measures were obtained after people's initial task participation, as described below.

### Measures

**Perceived Autonomy.** Perceived autonomy was assessed on a 5-point Likert scale ranging from 1 = "not at all" to 5 = "very much." Participants rated the degree to which they experienced their engagement in the exercise activity as their own personal choice (e.g., "I felt like executing the exercises was my own choice"; 6 items,  $\alpha = .97$ ). This measure was used as a manipulation check for the autonomy-support vs. control manipulation.

**Self-Regulation.** The behavioral regulation in exercise questionnaire (BREQ; Mullan, Markland, & Ingledew, 1997) was used to assess to what extent participants did the taboo exercises for external reasons (4 items;  $\alpha = .93$ ), for intrinsic reasons (3 items;  $\alpha = .82$ ), for identified reasons (4 items;  $\alpha = .88$ ), or for intrinsic reasons (4 items;  $\alpha = .95$ ). Participants indicated their agreement with the formulated items on a 4-point Likert scale ranging from 1 = "not at all" to 4 = "very much." 1

**Effort.** Participants rated on a 7-point Likert scale ranging from 1 = "not at all" to 7 = "very much" to which degree they had put effort and energy in doing the exercises (e.g., "I have done my personal best to do the sport exercises"; 3 items;  $\alpha = .98$ ).

**Graded Performance.** Students' regular PE teacher graded the quality of students' taboo performances on a scale ranging from 1 = "very bad" to 10 = "very good." The teacher was unfamiliar with the theoretical goal of the study and was blind to participants' condition assignments.

**Free-Choice Persistence.** Three persistence measures were obtained. All students were invited to voluntarily demonstrate the taboo exercises (a) to other students 1 week after participating in the experiment, (b) to other people on open school days 1 month after their first PE lesson, and (c) to other students 4 months after the initial manipulation. Because the first PE lesson took place in May 2002, and one-third of the initial sample (i.e., all 12th graders) finished high school a month later, there were fewer participants involved in the third persistence measure.

**Sport Club Membership.** At the beginning of the new academic year, that is, 4 months after the initial PE class, the teacher noted which students became a member of an official taboo club.

Table 1 Correlations Between Dependent Variables

	Means	1	2	3	4	5	6	7	8	9
Intrinsic regulation (1)	3.03									
Identified regulation (2)	2.44	.50**								
Introjected regulation (3)	1.91	-.08	-.07							
External regulation (4)	2.40	-.44**	-.49**	.05						
Effort (5)	4.22	.52**	.43**	-.07	-.57**					
Performance (6)	5.89	.25**	.32**	-.11*	-.36**	.37**				
Persistence time 1 (7) <sup>†</sup>	.55	.28**	.24**	-.07	-.37**	.30**	.20**			
Persistence time 2 (8) <sup>†</sup>	.39	.16*	.20**	-.04	-.37**	.30**	.34**	.18**		
Persistence time 3 (9) <sup>†</sup>	.16	.24**	.27**	-.08	-.38**	.34**	.28**	.36**	.47**	
Club membership (10) <sup>††</sup>	.02	.13**	.16**	-.06	-.20**	.18**	.15**	.15**	.19**	.44**

Note: <sup>†</sup>Dichotomously scored with 0 (absent) and 1 (present) on exercise session.

<sup>††</sup>Dichotomously scored with 0 (not enrolled in sport club) and 1 (enrolled).

\* $p < .01$ ; \*\* $p < .001$

## Results

Descriptive statistics for all variables, as well as intercorrelations between the variables, are given in Table 1.

### Preliminary Analyses

Before testing our hypotheses through contrast analyses, we performed one-way ANOVA analyses to explore whether the eight operationalized conditions differed from one another on each variable. Overall  $F$ -values for all measured outcomes were significant and are reported together with cell means in Table 2. Furthermore, gender analyses revealed that boys and girls did not differ from each other on any of the outcome variables and that gender did not interact with any of the independent variables. Therefore both genders were included in further analyses.

Finally, it is important to determine whether the manipulation of the autonomy-supportive vs. controlling social context was experienced in the intended way. An independent sample  $t$ -test revealed that participants in the autonomy-supportive condition engaged in a more volitional and willing manner in the activity than those involved in the controlling conditions,  $t(499) = 73.45, p < .001$ , indicating, in line with past research (e.g., Reeve & Deci, 1996), that the autonomy-supportive instructions were perceived as granting more autonomy than the controlling instructions.

### Primary Analyses

Four contrast analyses comparing different conditions were used to explore the four primary hypotheses, derived from FTPT and SDT. The fifth hypothesis, which concerns the degree of congruency between people's persistence and their autonomous motives for persisting, was examined by executing within-condition correlations.

**Hypothesis 1: Future Content-Free Goal vs. No-Future-Goal Control Group.** The future content-free goal group and the control group did not differ for most

**Table 2 Cell Means and Standard Deviations for Measured Outcome Variables, all 8 Conditions**

	Autonomy-Supportive Context				Controlling Context				F(7, 493)	Effect size <sup>1</sup>
	Future extrinsic goal (n = 62)	Control group (n = 61)	Future content-free goal (n = 72)	Future intrinsic goal (n = 62)	Future extrinsic goal (n = 60)	Control group (n = 61)	Future content-free group (n = 62)	Future intrinsic goal (n = 61)		
Effort	3.76 ±.52	5.03 ±1.10	5.01 ±1.10	5.89 ±.50	2.62 ±.61	3.47 ±1.22	3.08 ±1.19	4.76 ±.41	98.53***	1.40
Self-Regulation										
Intrinsic	2.89 ±.56	3.37 ±.55	3.15 ±.49	3.74 ±.49	2.36 ±.53	2.74 ±.62	2.71 ±.57	3.25 ±.46	40.34***	1.34
Identified	2.10 ±.39	2.74 ±.82	2.57 ±.76	3.24 ±.32	2.13 ±.40	2.19 ±.53	2.31 ±.58	2.19 ±.59	28.98***	.41
Introjected	1.75 ±.36	1.77 ±.35	2.03 ±.34	1.79 ±.34	1.74 ±.47	1.91 ±.40	2.45 ±.41	1.74 ±.39	25.62***	.36
External	1.95 ±.36	1.98 ±.51	2.24 ±.34	1.51 ±.38	3.14 ±.33	2.87 ±.27	2.67 ±.38	2.87 ±.14	165.51***	2.35
Performance	5.87 ±1.06	6.38 ±1.05	6.11 ±1.01	6.87 ±1.05	5.13 ±.87	5.46 ±1.06	5.45 ±1.05	5.75 ±1.06	18.40***	.26
Persistence										
Time 1	.62 ±.49	.79 ±.41	.63 ±.48	.95 ±.22	.20 ±.40	.38 ±.49	.38 ±.49	.39 ±.49	19.31***	.27
Time 2	.58 ±.50	.36 ±.48	.45 ±.50	.87 ±.34	.13 ±.34	.01 ±.28	.31 ±.31	.34 ±.48	20.77***	.29
Time 3	.11 ±.32	.00 ±.00	.10 ±.30	.80 ±.40	.00 ±.00	.01 ±.15	.00 ±.24	.12 ±.32	49.50***	.87
Club Membership	.00 ±.00	.00 ±.00	.00 ±.00	.19 ±.20	.00 ±.00	.00 ±.00	.00 ±.00	.03 ±.18	12.11***	.17

Note: <sup>1</sup>f<sup>2</sup> = R<sup>2</sup> / (1-R<sup>2</sup>). \*\*\* p < .001

**Table 3 Results of Contrast Analyses**

	Hypothesis 1 CF vs. NO		Hypothesis 2 I vs. NO		Hypothesis 3 E vs. NO		Hypothesis 4 AS vs. C	
	ES	ES	ES	ES	ES	ES	ES	
Effort	CF = No	I > No <sup>†</sup>	.17	E < No**	.17	AS > C <sup>†</sup>	.64	
Self-Regulation								
Intrinsic	CF = No	I > No <sup>†</sup>	.06	E < No <sup>†</sup>	.09	AS > C <sup>†</sup>	.24	
Identified	CF = No	I > No <sup>†</sup>	.02	E < No <sup>†</sup>	.05	AS > C <sup>†</sup>	.16	
Introjected	CF > No <sup>†</sup>	I = No	—	E = No	—	AS < C <sup>†</sup>	.05	
External	CF = No	I < No <sup>†</sup>	.04	E > No*	.02	AS < C <sup>†</sup>	1.98	
Performance	CF = No	I > No <sup>†</sup>	.02	E < No**	.01	AS > C <sup>†</sup>	.21	
Persistence								
Time 1	CF = No	I = No	—	E < No**	.02	AS > C <sup>†</sup>	.27	
Time 2	CF > No**	I > No**	.12	E > No*	.01	AS > C <sup>†</sup>	.16	
Time 3	CF = No	I > No <sup>†</sup>	.34	E = No	—	AS > C <sup>†</sup>	.14	
Club Membership	—	I > No <sup>†</sup>	.08	—	—	AS > C <sup>†</sup>	.02	

Note: CF = future content-free goal group; NO = no future-goal group; I = future intrinsic goal group; E = future extrinsic goal group; AS = autonomy-supportive context; C = controlling context. ES = Effect size = F = R<sup>2</sup> / (1-R<sup>2</sup>). \*p < .05; \*\*p < .01; †p < .001

outcomes except for introjected regulation and persistence at Time 2 (see Table 3). Providing a future content-free goal led to a more introjected regulation, *t*(493) = -8.34, *p* < .001, and more free-choice persistence at Time 2, *t*(493) = -2.98, *p* < .01. Thus, in general this strict test of FTPT provided almost no support for the claim that a mere reference to the future yields positive motivational consequences.

**Hypothesis 2: Future Intrinsic Goal vs. No-Future-Goal Control Group.** Future intrinsic goal framing led to more effort expenditure compared to the control group, *t*(493) = 9.37, *p* < .001. As for people's self-regulatory styles, future intrinsic goal framing reduced external task regulation, *t*(493) = -5.33, *p* < .001, but it enhanced participants' identified regulation, *t*(493) = 3.41, *p* < .001, and intrinsic regulation, *t*(493) = 6.41, *p* < .001 compared to the control group.

Next to these self-reported outcomes, intrinsic goal framing resulted in better test performance compared to the control group, *t*(493) = 3.00, *p* < .001. Both groups did not differ in terms of persistence at Time 1, *t*(493) = 1.60, *p* < .11, but future intrinsic goal framing led to higher persistence at Time 2, *t*(493) = 6.98, *p* < .001, and Time 3, *t*(398) = 11.63, *p* < .001, compared to the control group. Finally, intrinsic goal framing resulted in more club member affiliation than when no future goal was provided, *t*(493) = 5.77, *p* < .001, although the effect size was rather small. In short, the present results are in line with the claims of SDT and FTPT that future intrinsic goals enhance optimal functioning.

**Hypothesis 3: Future Extrinsic Goal vs. No-Future-Goal Control Group.** Future extrinsic goal framing undermined people's effort expenditure compared to the control group, *t*(493) = -9.22, *p* < .001. Furthermore, future extrinsic goal fram-



ing promoted an external regulation,  $t(493) = 2.71, p < .05$ , and reduced people's identified regulation,  $t(493) = -4.73, p < .001$ , as well as their intrinsic regulation,  $t(493) = -6.19, p < .001$ , compared to when no future goal was provided.

As for the behavioral outcomes, future extrinsic goal framing decreased people's performance compared to the control group,  $t(493) = -3.12, p < .01$ , and negatively predicted their persistence at Time 1,  $t(493) = -2.94, p < .01$ . Contrary to the expectations drawn from SDT, future extrinsic goal framing resulted in higher persistence at Time 2,  $t(493) = 2.45, p < .05$ , while both groups did not differ in terms of Time 3 persistence (both dropped to almost 0%), or in terms of taboo affiliation (nobody enrolled for the taboo course). In short, it appears that if the content of the provided future goal is extrinsic, negative motivational and behavioral consequences follow, as was predicted by SDT but not by FTPT.

**Hypothesis 4: Autonomy-Supportive vs. Controlling Contexts.** Autonomy-supportive contexts led to more effort expenditure,  $t(493) = 17.88, p < .001$ , a reduced external regulation,  $t(493) = -31.23, p < .001$ , and a diminished introjected regulation,  $t(493) = -3.68, p < .001$ , compared to a controlling context. Furthermore, autonomy-support positively predicted an identified regulation,  $t(493) = 8.81, p < .001$ , and an intrinsic regulation,  $t(493) = 10.87, p < .001$ . Participants in the autonomy-supportive conditions obtained higher performance scores,  $t(493) = 9.32, p < .001$ , and more participants persisted at the activity at Time 1,  $t(493) = 10.34, p < .001$ , at Time 2,  $t(493) = 9.06, p < .001$ , and at Time 3,  $t(398) = 7.71, p < .001$ . Finally, fewer people enrolled in a taboo club in the controlling compared to the autonomy-supportive conditions,  $t(493) = 2.92, p < .001$ , although the effect size was not very large. These results indicate that the nature of the social context might determine whether a future goal reference results in more, or less, optimal outcomes, as was predicted by SDT.

**Hypothesis 5: Congruency Between Persistence and Autonomous Reasons for Persistence.** The degree of congruency between people's behavior and their self-reported autonomous motives was explored by correlating their self-reported autonomous motivation with their persistence behavior at the three persistence moments. A measure of autonomous motivation was constructed by averaging the scores for intrinsic and identified motivation ( $\alpha = .89$ ). As shown in Table 4, persistence behavior was positively correlated with self-reported autonomous motivation when referring to a future intrinsic goal (at all three times) and when no goal was provided (at Times 1 and 2). By contrast, people's persistence was uncorrelated with

their self-reported autonomous motivation when referring to a future content-free goal or a future extrinsic goal, suggesting that to the extent the participants in those conditions persisted at the activity at Times 1 and 2, their persistence behavior was not autonomously driven.<sup>2</sup>

## Discussion

Past research (Biddle et al., 1998) has convincingly demonstrated that exercising regularly yields important benefits to physical and psychological well-being. Therefore, PE teachers are confronted with the challenging task of creating the optimal motivational environment so their students will appreciate doing sports, will get involved in the PE lessons, and even become persevering exercisers. The goal of this study was to identify social factors that stimulate students' lasting engagement in exercise. In doing so, we derived hypotheses from future time perspective theory (FTPT; Lens, 2001; Nuttin & Lens, 1985) and self-determination theory (SDT; Deci & Ryan, 1985, 2000).

According to FTPT, referring to the future importance of people's present behavior, regardless of the content of the future goal, should result in positive motivational outcomes. This reasoning is based on the assumption that pointing out the future importance of people's behavior enhances its instrumental value (Lens et al., 2002; Simons, Vansteenkiste, & Lens, 2004) or its utility value (Eccles & Wigfield, 2002). We executed a strict test of FTPT's claim in the present study by examining whether providing a future content-free goal would energize participants' behavior, result in better performance, and lead to stronger persistence afterward compared to a no-future-goal control group.

Providing participants with a future content-free goal for their present exercising did not yield the positive effects that were predicted on the basis of FTPT, except for persistence at Time 2. In addition, correlational within-cell analysis revealed that people's persistence behavior at Time 2 was not in accord with their underlying personal interests or values. Thus, although providing a content-free future goal "moved" participants, they were not genuinely engaged in the exercise and appeared to display a rather alienated functioning (Kuhl & Beckmann, 1994). This might explain why a broad future reference failed to produce the desired long-lasting effects on persistence. As would be predicted by SDT (Deci & Ryan, 2000) and as reported before (Pelletier et al., 2001; Vallerand et al., 1997), people need to execute the task with a sense of volition and choice in order to persist at the activity over a longer period of time.

Although not predicted, there is one other finding in the content-free goal condition that seems worthy of discussion. Broadly referring to the future elicited a stronger introjected regulation. Thus, PE teachers who point out the overall importance of the present exercise activity seem to motivate students to engage in the activity in order to avoid feelings of guilt, shame, and anxiety. According to SDT (Deci, Eghnari, Patrick, & Leone, 1994), in order to promote an identification with the required activity, one should provide a clear and meaningful rationale for engaging in the activity. However, the future goal that was provided in the future content-free-goal condition was rather vague and broad, and it was not made clear to participants why and how the present exercise might be so important for their future. As a consequence, they failed to understand the personal meaningfulness of the activity (i.e., identified motivation), leaving them with a feeling of internal stress and anxiety when not engaging in the activity.

**Table 4** Within-Condition Correlations Between Autonomous Motivation and Persistence Measures

	No-future- goal control group	Future content-free goal group	Future intrinsic goal group	Future extrinsic goal group
Time 1	.24**	.14	.50**	.09
Time 2	.22**	.06	.26**	.05
Time 3	-.06	.03	.44**	-.07

\* $p < .05$ ; \*\* $p < .01$

This finding has important practical ramifications for teachers, parents, and other socializing agents who hope to motivate their students and children by telling them that "doing this activity is important for your future." Perhaps in contrast to common sense, it seems that such motivational statements do not lead to a genuine engagement in the activity and do not produce the desired positive effects.

Although SDT (Deci & Ryan, 2000) does not explicitly theorize about the concept of the future, we can derive from SDT that the impact of pointing out the instrumentality of the present task to attain a future goal will depend on the content of the future goal (intrinsic vs. extrinsic) and on the nature of the social context (autonomy-supportive vs. controlling) wherein the instrumentality is made clear. Because future intrinsic goals are likely to promote deep commitment toward the exercise activity, it was predicted that future intrinsic goal framing would result in enhanced performance and persistence compared to a no-future-goal control group. In contrast, future extrinsic goals are likely to orient people toward external signs of worth (Williams et al., 2000), leading to an enhanced concern about their own performance and appearance compared with others. Therefore, future extrinsic goals should distract people from the exercise activity and lead to a more superficial engagement with the learning tasks, undermining people's performance and persistence. The latter hypothesis conflicts with FITP's claim that future goal framing should result in more optimal outcomes, even when the content of the future goal is extrinsic in nature.

The present research helps to sort out this conflicting hypothesis and provides a clear answer. Although the extrinsic goal of appearing physically attractive to others constitutes an important value for adolescents (Diener et al., 1995), a future extrinsic goal exerts a debilitating impact on both self-reported motivational and behavioral measures compared to a no-future-goal control group, as predicted by SDT. Future extrinsic goal framing reduces people's task enjoyment and fails to promote an identification with the activity. It is instructive to see that extrinsic goal framing, just as controlling factors such as deadlines, competitions, and rewards, hinders participants from experiencing inherent satisfaction in the present task.

Kasser (2002) argued that such an undermining effect might occur because extrinsic goals heighten participants' ego concern and public self-awareness, preventing them from experiencing their task participation as enjoyable (Plant & Ryan, 1985) and hindering their commitment toward the activity. This poorer engagement with the learning activity might explain why future extrinsic goal framing also undermines behavioral outcomes: it decreases people's performance and short-term persistence compared to a no-future-goal control group.

There was one single finding contrary to this pattern of results. Extrinsic future goals promoted persistence at the moderate long level (1 month) compared to a no-future-goal control group. Also in this case, however, it is important to consider the congruency between people's behavioral persistence and their self-reported underlying autonomous motives. Although more participants showed up for the demonstration of exercises when the task was framed in terms of a future extrinsic goal compared to a no-future-goal group, their persistence was not consistent with their underlying emotional preferences and personal values, while it was consistent when no future goal was provided. Future extrinsic goal framing appears to lead to a rather alienated persistence (Kuhl & Beckmann, 1994).

These results indicate that merely considering the quantity of people's persistence only tells us half the story and highlights the importance of executing within-

cell correlational analyses to obtain a better picture of the motivational impact of manipulated future goals. Indeed, not all types of persistence are created equal: under some circumstances people are genuinely moved to act upon their underlying interests and values, while other social contexts, such as extrinsic goal framing, push people into action but fail to promote authentic engagement in the activity (Kuhl & Beckmann, 1994). On a practical level, the results suggest that teachers should perhaps not rely solely on the extent of people's persistence to evaluate their motivational strategies, or judge students' exercise motivation, because people might persist at certain activities for very different reasons, some of which are less likely to result in long-lasting adherence (Vallerand et al., 1997).

But which future goals are beneficial? The present research clearly suggests that framing the exercise activity in terms of attaining the future intrinsic goal of health and physical fitness produces the desired positive effects. In the future intrinsic goal condition, people experienced their task engagement as personally meaningful and enjoyable while it lessened their feeling of external control compared to a no-future-goal control group. Furthermore, intrinsic goal framing energized people's behavior and positively predicted performance and persistence in the short run, but also in the long run. Future intrinsic goal framing even had a positive effect on people's enrollment in a sport course. Importantly, correlational analyses suggested that people's persistence was concordant with their own emotions and values, replicating past correlational studies where intrinsic goal striving was associated with an autonomous underlying regulation (Sheldon & Kasser, 1995). Participants were thus genuinely involved because their personal values and affective preferences fully guided their persistence behavior.

In short, the present study replicates earlier findings by Vansteenkiste et al. (in press) and extends them because the comparison with a no-future-goal represents a significant advancement in our knowledge about the precise impact of future goal framing. It appears that the impact of future goal framing on optimal outcomes depends on the content of the future goal, a finding that is significant for the teaching practices of PE instructors. PE teachers who point out the future intrinsic benefits of students' present exercising are likely to promote their motivation, persistence, and performance. By contrast, PE instructors who, in line with the media's emphasis on weight control and appearance (Kasser, 2002), rely on future extrinsic goals to clarify the instrumentality of the exercise task are likely to undermine students' performance and persistent engagement in the exercise activity.

Finally, because an autonomy-supportive context allows people to perceive the locus of causality for their actions as internal, it was predicted that providing a future goal in an autonomy-supportive context would lead to better performance and to sustained persistence compared to pressuring people into action. As documented in other studies (see Deci & Ryan, 2000), autonomy-supportive social contexts enhanced people's self-determined task engagement, led to more effort expenditure, and enhanced performance. Furthermore, acting in an autonomy-supportive fashion not only yielded short-term effects on persistence but also produced long-term persistence benefits. These positive effects are quite amazing in light of the brief instructions and the commitment needed to show up for the demonstrations and to enroll in such a course. When PE instructors are able to support students' autonomy, their students become fully dedicated toward the exercises and continue to persist at them, even over a longer period of time.

### *Integrating Future Time Perspective Theory and Self-Determination Theory*

Over the past two decades Lens and colleagues (Lens, 2001; Nuttin & Lens, 1985; Simons et al., 2004) have empirically demonstrated the positive motivational importance of being future oriented. They stress that perceiving a present task as instrumental for one's future, and thus by definition being extrinsically motivated, does not necessarily undermine people's present focus toward mastering the task and does not impede their inherent task enjoyment. By claiming that referring to the future increases motivation by enhancing the perceived instrumentality or utility value (Eccles & Wigfield, 2002) of the task, one uses a rather quantitative reasoning on motivation.

Although SDT has not explicitly dealt with the notion of the future, the present research reveals that this concept can well be integrated within SDT, and that FTPT's accent on the future represents a significant extension for SDT. However, SDT and the present results also contribute in a meaningful way to the further development of FTPT. This study reveals that stressing the future relevance of the present task is not beneficial under all circumstances: optimal outcomes will only occur if a future intrinsic goal is referred to, and when that future goal is provided in an autonomy-supportive fashion. Thus it seems the quality of the future goal as well as the quality of the interpersonal context play an important role in understanding the impact of future goal framing.

But how can previous FTP related correlational studies, which showed that having an extended or deep future time perspective positively predicts motivation and performance in academic contexts (e.g., De Volder & Lens, 1982; Husman & Lens, 1999; Lens & Decruyenaere, 1991), be interpreted in light of the present findings? It might be that people who anticipate the future consequences of their present school behavior primarily focus on future intrinsic rather than extrinsic goals. So they might for instance think that doing well at school now will help them find an interesting job later, in which they will be able to further develop their skills and contribute in a meaningful way to society. This future intrinsic goal orientation might explain why they perform better and are more motivated for their schoolwork (e.g., Lens & Decruyenaere, 1991). Future research could explore this hypothesis.

### *Limitations*

In spite of the clear findings, two limitations must be mentioned. First, the present study took place during PE classes. Therefore it would be important to examine whether these effects could be generalized to other domains such as sport, physical exercising, and fitness. Second, although the qualitative dimensions outlined by SDT can account for the present findings in a more parsimonious manner than FTPT's rather quantitative reasoning in terms of instrumentality and utility, we do not believe the present results undermine FTPT's reasoning. Vaguely referring to the future importance of one's present exercising does not yield the desired optimal effects. However, it might well be that referring to the future importance of the present task leads to more optimal outcomes when the future goal is specified rather than vague or content-free.

To examine such a hypothesis, an immediate intrinsic and immediate extrinsic goal condition, missing from the present study design, need to be compared with a future intrinsic and a future extrinsic goal condition. If FTPT's contention is right

that future goal framing produces more optimal functioning by increasing the utility of the present task, both specified future goal conditions should differ significantly from both specified immediate goal conditions.

### *Conclusion*

Adolescents' levels of exercising are quite low (Rzewnicki et al., 2001) in spite of the media's bombardment of messages conveying that exercising helps adolescents get the right "look." Also various fitness and sport clubs hope to recruit new members by pointing out that exercising is helpful for losing weight and warding off the signs of age. However, the present study shows that if PE teachers want to stress the future importance of students' exercise activities, they should avoid the reference to such future extrinsic goals because these goals result in the opposite effect of what fitness and PE instructors hope to achieve: they undermine people's optimal functioning and even result in a rather alienated behavioral persistence.

The present study also reveals a promising message, however, because it indicates which future goals might lead to the desired effects. As accentuated in SDT, physical education teachers might better clarify the relevance of students' present exercising by stating that it entails important future health benefits, and this future intrinsic goal is better provided in an autonomy-supportive fashion. Both factors lead to a host of positive outcomes, such as increased satisfaction with the exercise activity, better performance, and even long-term persistence at the exercise activities. In other words, these factors created the optimal circumstances for adolescents to become persevering exercisers.

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## Notes

<sup>1</sup> The BREO requires participants to report their agreement with the different motives to exercise using a 5-point Likert scale. Only a 4-point Likert scale was used in the this study.

<sup>2</sup> In each of the four conditions, the pattern of correlations between persistence and either intrinsic or identified motivation was identical to the pattern of correlations between persistence and the autonomous motivation composite.