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Supporting One's Own Autonomy May Be More Important Than Feeling Supported by Others

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According to self-determination theory and research, authorities should support subordinates' autonomy to maximize subordinates' well-being and performance. The current studies examine the novel effects of supporting one's own autonomy, via one's self-talk. In cross-sectional Study 1, rated self-supportiveness predicted subjective well-being to a greater extent than rated supportiveness of authorities in one's life. In longitudinal Study 2, initial self-supportiveness predicted boosted well-being after hiking the Pacific crest trail (Study 2a) and across six weeks of a college semester (Study 2b) more strongly than the positive effects of feeling supported by authorities or the negative effects of feeling controlled by authorities or by oneself. In Study 3, experimentally manipulating self-support (compared to self-control) in a "problem class" scenario predicted higher expected enjoyment and less distress. However, we also predicted and found a matching effect, such that those with a higher self-control orientation expected the self-controlling strategy to lead to greater class success and better emotional tone. Overall, results provide a new type of support for the idea that people should try to be friends with themselves, rather than harsh taskmasters.

Keywords: self-determination theory (SDT), self-support, self-talk

According to self-determination theory (SDT) and research (Ryan & Deci, 2017), human beings have a universal need to feel autonomous, that is, to feel that they cause and regulate their own behavior. Supporting this claim, feelings of autonomy, volition, and self-determination in behavior have been reliably associated with many positive life-outcomes including performance, creativity, resilience, happiness, well-being, and more. These findings suggest that, regardless of whether free will is "really real," *feelings* of free will make an important difference in peoples' lives (Ryan & Deci, 2017).

Experiences of being autonomous versus controlled typically occur within interpersonal contexts, which often involve unequal power relations between two or more actors (Deci & Ryan, 1987). The question is, does a person's boss, parent, teacher, doctor, or coach support that person's ability to make autonomous and self-endorsed choices? Or, do authorities in the person's life instead leverage their power to try to control the person, forcing them to do what the authority wants? According to SDT, authorities can

better motivate their subordinates, and thus better promote subordinates' mental health and performance, by supporting their autonomous functioning rather than by asserting control (Deci & Ryan, 1987; Sheldon et al., 2008). Paradoxically, *relinquishing* some authority (by supporting autonomy) may be the best way to *wield* authority, to the benefit of both parties.

Specific practices of autonomy-supportive authorities include trying to take the perspective of subordinates. The goal is to show that the authority understands how things appear to the subordinate or has been in the subordinate's shoes. Autonomy-supportive authorities also try to provide meaningful rationales for the rules and requirements that they impose. Why or for what reasons does it make sense for the subordinate to do the task willingly? Autonomy-supportive authorities also provide as much choice as possible within the situation—for example allowing subordinates to choose when they do the task, how they do it, with whom they do it, and so on. Some rules must be followed, but when people get to decide *how* to follow them, it helps them to internalize the rule, rather than following it with a sense of resistance (Ryan & Deci, 2017; Ryan & Stiller, 1991). On the other end of the spectrum, controlling authorities are uninterested in the perspective of subordinates ("I don't care what you think"), unwilling to provide meaningful rationales ("because I said so, that's why") and unwilling to offer choice ("it's my way or the highway"). Such leadership styles may be ultimately counterproductive.

The central hypothesis of the current article and research is that autonomy-support (vs. control) is an important issue not only in the relations of *authorities* with *subordinates*, but also in the relationship of a *person* with *themselves*. People engage in inner

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dialogues, attempting to explain things to themselves, convince or debate with themselves, and motivate themselves (Morin, 2005, 1993). In such dialogues the mind is functionally split into two parts, one of which speaks, and the other of which listens. The question explored in this research was: “do variations in the autonomy-supportiveness of a person’s inner voice impact that person’s well-being and functioning?” Also, might receiving autonomy-support from oneself be even *more* important in some ways, than receiving autonomy-support from authorities in the environment?

Do people actually talk to themselves from a second-person perspective? This question has long been an area of interest in American social psychology, as seen in the early writings of James Cooley (1902) and George Herbert Mead (1934). In such thinking, the ability to draw upon the perspective of a “generalized other” within one’s own mind is critical for cognitive and social development. Indeed, the Russian psychologist Lev Vygotsky (1934) argued that this mirroring ability was the very foundation upon which the mind is built. Kross and Grossmann (2012) found support for this positive conception of the internalized other, in that participants reasoned more wisely and cooperatively when induced to take a second-person (“self-distancing”) perspective rather than a first-person perspective, upon complex personal issues. Moreover, Dolcos and Albarracin (2014) found that talking to oneself in the second-person led to improvements in actual behavior and in intentions for future behavior compared to the first-person self-talk. A recent review by Kross and Ayduk (2017) concluded that talking to oneself from a second-person perspective can be an effective regulatory mechanism for behavior, thoughts, and feelings, especially when individuals are under stress. Still, a less positive interpretation of the inner speaker is provided by existential and humanistic perspectives, which view self-distancing as potentially disempowering or de-personalizing, and as perhaps being indicative of an alienated, distanced, or “divided self” (Laing, 1960; Sheldon, 1996). In this view, those who pay too much attention to a hectoring inner voice may lack trust in themselves, and their inner voices may be residues of overcontrolling developmental environments (Ryan et al., 1997). In Freudian terms, the distanced self may act like a harsh superego, which bullies and manipulates the ego.

Herein, we suggest that the answer to the question of whether taking a second-person perspective upon the self is beneficial or not depends on a critical factor: How the “second-person” *treats* the “first person,” in the sense of being autonomy-supportive versus being controlling. When people constantly criticize, cajole, and control themselves, the inner voice is problematic and undermines functioning (Zuroff et al., 1990; Zuroff & Mongrain, 1987). But when people instead try to support and empathize with themselves, then the inner voice may become a valuable life-partner (Blasi, 2004). Being able to count on *ourselves* for support, even when environments are nonsupportive, seems likely to promote our well-being and resilience.

Supporting this, Oliver et al. (2010) showed that informational self-talk has positive effects on peoples’ mood after attending a lecture, in contrast to controlling self-talk. In the domain of sports psychology, Zourbanos and colleagues (2009) studied the different kinds of self-talk used by athletes, and showed that self-talk can be positive, negative, and neutral. They also identified eight specific forms of self-talk, including four positive (delivering a confidence

boost, giving oneself instruction on what to do, psyching oneself up, and calming one’s anxiety), three negative (thinking of disengaging, expressing worry, and thinking of one’s fatigue), and one neutral (thinking irrelevant thoughts). Interestingly, a review of 47 studies by Tod et al. (2011) found that negative self-talk did not have a negative effect on athletes’ performance, while instructional and motivation self-talk had positive effects. Notably, however, in the current research we are not addressing different types of *content* delivered within self-talk, but rather, different ways in which self-talk is *delivered* (supportively vs. controllingly), regardless of its particular content or message.

Somewhat similar to our focus on individual differences in autonomy-supportive self-talk, research finds that people vary in their degree of self-compassion. Self-compassion involves treating oneself with kindness while keeping in mind that all people, including oneself, experience setbacks and are worthy of sympathy and understanding (Neff, 2003). Studies show that people who are self-compassionate respond better to failure (Neff et al., 2005; Leary et al., 2007; Wirth et al., 2020) and cope better with stressful situations (Allen & Leary, 2010). Moreover, self-compassion is connected to less self-criticism (Neff, 2003). However, self-compassion is not the same as autonomy-supportive self-talk, as the latter involves self-motivating strategies and is deeply grounded in SDT, whereas self-compassion is more about self-acceptance and kindness. Autonomy-supportive self-talk takes a step further than self-compassion, by positing that people can try to get themselves to do things either in a controlling way, offering the part of the self that listens to the self-talk no choice, or in a supportive way, offering the listening self the power to make its own final decisions.

It is also important to distinguish self-support and self-control from related SDT constructs. Autonomy support is a key construct within SDT’s “cognitive evaluations mini-theory” (Ryan & Deci, 2017), which focuses on how behavior is negotiated within unequal power relationships, and specifically on how people “cognitively evaluate” the behavior of authorities as being either supportive versus controlling. It concerns a social context variable, typically measured by self-report. Another minitheory within SDT, “organismic integration theory,” concerns peoples’ motivational reasons for doing a behavior, ranging from very internal (autonomous, self-endorsed) to very external (controlled, externally regulated). Acting for more autonomous reasons is a sign of integration within the self. Many studies have connected contextual autonomy-support to organismic integration, showing that when authorities support autonomy, people are enabled to better internalize prescribed behaviors, thereby enacting them for more personally endorsed reasons (Slemp et al., 2018). The concept of self-support occupies a kind of middle ground between cognitive evaluation theory and organismic integration theory, since it concerns how the self uses its own authority to motivate itself, which is likely to be related to the person’s motivational reasons for doing the resulting behavior (not examined herein). Still, we conceive of self-support as being more on the cognitive evaluations side because it involves power relations between a speaker and a listener, more than it involves a person’s self-perceived reasons for behaving.

Again, the central hypothesis of the research was that autonomy-supportive self-talk has beneficial effects on people. Study 1 tests the hypothesis in a large cross-sectional sample, using subjective

well-being and meaning in life as outcome variables. Study 1 also compares the effects of self-support to the effects of perceived autonomy-support from authorities in one's life. We expected that self-support might be more important because one's inner voice is frequently present and salient, whereas influential others are more transiently present or more readily ignored. Study 2 tests our hypothesis in two longitudinal samples, asking whether self-support at the beginning of a period of time predicts positive changes in well-being at the end of that time. Study 2b also tests psychological need-satisfaction as a mediator of the longitudinal effects and introduces a measure of self-controlling self-talk in addition to the primary measure of self-supportive self-talk. Study 3 randomly assigns participants to self-supportive versus self-controlling strategies in dealing with a "problem class," to test the central hypothesis experimentally. Study 3 also tests a person-fit hypothesis, that when the assigned strategy matches the person's orientations, they will expect better outcomes of using the strategy. Such beliefs might explain why self-controlling strategies persist, despite being largely unhelpful.

Study 1

In Study 1 we assessed the perceived autonomy-support received from generalized authorities in the participant's life. We also created a new measure of perceived autonomy-support received from the *self*, by modifying the latter measure. We then examined and compared the associations of self-support and authority-support with positive outcomes, expecting that self-support might be more important than authority-support in relation to well-being.

Method

Participants and Procedure

Participants were 1167 introductory psychology students at the University of Missouri, 728 women, 428 men, 5 and 11 missing or other, with a modal age of 19. The sample was 82% Caucasian. The measures were given during the departmental "mass pretest," with *N* based on the number of students taking introductory psychology that semester. The survey was delivered online, with 7-point Likert scales employed for all measures. The study was approved by the Institutional Review Board of the University of Missouri.

Measures

Authority-Support. To assess the amount of autonomy-support received from authorities, we used the six item version of the Perceived Classroom Climate scale (Ryan & Deci, 2017; Sheldon & Krieger, 2007). The scale contains items like "teachers provide me with choices and options," "I feel understood by teachers," and "teachers listen to how I would like to do things." We substituted the word "authorities" for the word "teachers," in order to measure peoples' general perceptions of how they are treated by powerful others. The items were preceded by the prompt: "We are interested in how authorities talk to you, when they are trying to get you to do things. How do authorities try to motivate you?" We chose the "how do they try to motivate you?" framing because this is a very typical authority/subordinate con-

text, in which a person with power is trying to influence a second person to do things the second person might not really want to do. Alpha was .87 and a principle components analysis showed that the first component had an eigenvalue of 3.79, accounted for 63% of the variance, and was loaded on by all six items at .72 or higher. The eigenvalue of the second component was only .65 (followed by .58, .43, .32, and .24).

Self-Support. To assess the degree of autonomy-support received from the self, we modified the six items in ways such that "I" support myself, rather than "authorities support me." The parallel items to the three examples given above were "I provide myself with choices and options," "I feel understood by myself," and "I listen to myself, to understand how I would like to do things." The items were preceded by the prompt: "We are interested in how you talk to yourself, when you are trying to get yourself to do things. How do you try to motivate yourself?" This framing was analogous to the authority-support framing, except in this case the person is trying to get themselves to do things they might not really want to do. Alpha was .84, and the items again all loaded (at .67 or more) on a first component accounting for 56% percent of the variance with an eigenvalue of 3.41 (followed by .67, .65, .52, .41, and .34).

Subjective Well-Being. Positive and negative affect were measured with a nine-item mood scale (Emmons, 1991; Sheldon et al., 2019). Specifically, participants rated how much they had experienced emotions such as joyful, pleased, unhappy, and worried/anxious, in the last month. Life-satisfaction for the last month was measured with the 5-item Satisfaction with Life Scale (Diener et al., 1985). The positive affect, negative affect, and life-satisfaction items were averaged into an aggregate subjective well-being measure (SWB, $\alpha = .87$), after reversing the negative affect items (Diener, 1994; Sheldon & Elliot, 1999). For the reader's information, breaking SWB down into its three components did not add informational value to the picture so we have not presented these results.

Meaning in Life. The five-item presence of meaning scale was also administered (Steger et al., 2006). This scale contains items like "My life has a clear sense of purpose" and "I have a good sense of what makes my life meaningful" ($\alpha = .86$).

Results

Table 1 presents descriptive statistics and correlations among the study variables. Interestingly, autonomy-support received from oneself had a higher mean than did autonomy-support received from authorities, $t(1166) = 9.987$, $d = .59$, $p < .001$, which may be logical given that one's personal attitudes toward oneself are more potentially controllable than are others' attitudes toward oneself, and given that one is inherently closer to oneself than to others. Self-support and authority-support were positively correlated with each other and with SWB and meaning in life, although the self-support coefficients were somewhat greater. We utilized Lee and Preacher's (2013) two-tailed test of the difference between dependent correlations to evaluate whether or not there were significant differences between the magnitudes of these correlations. This test is derived from Steiger's (1980) equations for comparing correlations. We found that for SWB, the correlation with self-support was significantly larger in magnitude than the correlation with authority-support ($z = -2.03$, $p = .042$). For

Table 1*Study 1: Descriptive Statistics and Correlations Among Study Variables*

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Received autonomy support from authorities	4.73	1.09			
2. Received autonomy support from the self	5.06	0.99	.40		
3. Subjective well-being	4.78	1.03	.31	.37	
4. Meaning in life	4.22	1.25	.32	.39	.44

Note. $N = 1167$. All correlations significant at $p < .01$.

meaning in life, we also find that the correlation with self-support was significantly larger in magnitude than the correlation with authority-support ($z = -2.39$, $p = .017$).

To verify the greater predictive strength of the self-support variable we conducted two regressions, one predicting SWB and one predicting meaning in life, in which the two autonomy-support measures were entered together as independent variables. This allowed shared variance to be removed so that the unique contributions of each predictor could be evaluated. In the SWB analysis, self-support ($\beta = .29$, $p < .001$) and authority-support ($\beta = .19$, $p < .001$) were both significant, although self-support accounted for more than twice as much squared variance (.0841 vs. .0361). The overall R-Square for the equation was .167. In the meaning in life analysis, self-support ($\beta = .31$, $p < .001$) and authority-support ($\beta = .19$, $p < .001$) were both significant, although self-support again accounted for more than twice as much squared variance (.0961 vs. .0361). The overall R-Squared for the equation was .181.

Discussion

Study 1 tested a new measure of autonomy-support received from one's own self-talk, modified from an existing measure of autonomy-support received from authorities. Although the two measures were positively correlated with each other, self-support, compared to authority-support, was a somewhat stronger predictor of both SWB and meaning in life. Thus, the patterns are at least consistent with the proposal that autonomy-supportive self-talk is beneficial for people's SWB and may even be more important than receiving autonomy-support from external authorities. Unfortunately, causal conclusions cannot be drawn from cross-sectional data. Thus, for example, the latter finding can also be interpreted as supporting a mediational model in which authority autonomy-support causes self-support, which in turn causes SWB.

Study 2

Studies 2a and 2b included several improvements over Study 1. Both studies were longitudinal, allowing us to examine predictors of changes in the outcomes. Study 2a was a 6-month longitudinal study of Pacific Crest Trail through-hikers, whose self-support and SWB were assessed before and after their summer-long journey, along with the distance they covered on the trail. Study 2b was a 6-week longitudinal study of University of Missouri students, whose received self-support, authority-support, and well-being were surveyed near the midpoint of a semester and again near the end of the semester.

Study 2b also added a potential mediator of the self-support effects, specifically, psychological need-satisfaction. According to Self-determination theory (Ryan & Deci, 2017), humans need to feel competent (i.e., effective and masterful) and related (i.e., connected and close), as well as needing to feel autonomous (Sheldon, 2011). In SDT research, need-satisfaction is often employed as a mediator of predictor- to well-being effects (Ryan & Deci, 2017), that is, need-satisfaction is used to explain why a context or personality variable promotes well-being. Martela and Sheldon (2019) generalized this pattern in providing a "Eudaimonic activity model" (EAM), which specifies that by definition, eudaimonic activities and practices are those which boost basic need-satisfaction (see also Sheldon, 2013, 2016). Need-satisfaction in turn tends to boost SWB, as a kind of side effect of the eudaimonic activity. In line with the EAM, we tested boosted need-satisfaction as a mediator of the longitudinal associations of self-support with SWB.

Method

Participants and Procedure

Study 2a was a sample of people intending to hike the 2650-mile Pacific Crest trail, which runs from Mexico to Canada up the mountainous U.S. west coast, during the summer of 2018. They were recruited by advertisements to relevant Facebook groups, and no incentive was offered. Only the 92 participants who completed both the pre- and posthike surveys (approximately six months apart) were included, 50 women, 41 men, and 1 missing or "other," with a mean age of 36.9 (see Sheldon, 2019, for a different study using this sample and a full description of the methods). Study 2b was a sample of 119 introductory psychology students at the University of Missouri, 38 men, 75 women, and 6 missing or other, who completed surveys six weeks apart to help satisfy a course requirement. Their modal age was 20. Both surveys in both studies were delivered online. Neither study had a "stop" rule, instead utilizing all of the data collected from two finite pools of participants: self-selected samples of would-be PCT through-hikers, and self-selected extracredit seekers in an undergraduate class. The study was approved by the Institutional Review Board of the University of Missouri.

Measures

Subjective Well-Being. SWB was measured with the same items as in Study 1, with a 5-point scale in both studies (alphas = .93 at Time 1 and .92 at Time 2 in Study 2a, and .89 and .92 in Study 2b).

Self-Support. Self-support was also measured with the same items as in Study 1 (alphas = .83 at Time 1 and .74 at Time 2 in Study 2a, and .69 and .81 in Study 2b). In Study 2a, the PCT study, we modified the framing of the items to fit a situation in which a person is trying to keep themselves motivated in the long-term, in the face of great difficulties likely to arise. The instructions read: “There are bound to be difficulties and problems along the way. How will you talk to yourself, when you experience setbacks? Will you be a friend, or a taskmaster, to yourself?” In the postsurvey the same instructions were provided, but they were worded in the past tense instead of the future tense (“how did you talk to yourself?”). In Study 2b, at both time points, the items were preceded by the same instructional frame as in Study 1.

Self-Controllingness. In Study 2b we also added new items to measure self-control, since the autonomy-support items were all positively worded, and since negatively worded items (i.e., actively controlling or thwarting, rather than simply nonsupportive) can have substantive meaning (Sheldon & Gunz, 2009; Vansteenkiste & Ryan, 2013). Specifically, we modified the four autonomy-thwarting items of the Interpersonal Behavior Questionnaire (Rocchi et al., 2017). They were administered via the same prompt, “how do you try to motivate yourself?” Two illustrative items are “I pressure myself to do things a certain way” and “I limit my own choices.” This scale was also assessed at both time points (alphas = .70 and .79).

Psychological Need-Satisfaction. Additionally, we assessed psychological need-satisfaction at both time points in Study 2b, using the balanced measure of psychological needs (BMPN; Sheldon & Hilpert, 2012). This 18-item scale has 6 items each for autonomy, competence, and relatedness need-satisfaction. For the current purposes we computed aggregate T1 and T2 need-satisfaction scores from the data (alphas = .88 and .85).

Miles Covered on PCT Hike. In Study 2a, we also asked participants to indicate the number of miles they were able to complete on the PCT over the summer.

Results

Study 2a, PCT Sample

Table 2 contains descriptive statistics and correlations among the major study variables. As can be seen, self-support declined over the summer, $t(91) = 3.26$, $d = .68$, $p = .002$, which may make sense as long-distance hikers encounter many physical and motivational difficulties along the way. Time 1 self-support was associated with T1 SWB, $r = .28$, $p < .01$, and T2 self-support was associated with T2 SWB, $r = .36$, $p < .01$,

replicating the cross-sectional results of Study 1, at two different time points. None of the variables were associated with distance (number of miles) covered, indicating that the two self-motivational styles do not necessarily affect objective performance.

To address changes in well-being we conducted a hierarchical regression predicting Time 2 SWB. At the first step we included Time 1 SWB to focus the analysis on change, and also included the Time 1 self-support variable to see if it predicted later change. Then at the second step we entered the Time 2 self-support variable, to see if change in self-support was associated with change in SWB. T1 SWB (the test-retest coefficient) was significant at Step 1 ($\beta = .62$, $p < .01$), and T1 self-support was not significant ($\beta = -.002$, $p = .985$). Therefore, supporting one's own autonomy at the beginning of the hike did not predict later changes in SWB. At Step 2 however, T2 self-support was significant at $\beta = .19$, $p < .05$, while T1 SWB remained significant at $\beta = .57$ and T1 self-support remained nonsignificant. Therefore, participants who became relatively more self-supportive over the summer also gained in SWB over the summer. Of course, the causal direction of this effect cannot be determined. The R-Squared for the regression equation was .386.

Study 2b, Student Sample

Table 3 contains descriptive statistics and correlations for the Study 2b variables. As can be seen, T1 self-support was positively associated with T1 SWB and with T1 need-satisfaction, and T2 self-support was positively associated with T2 SWB and with T2 need-satisfaction. These patterns are fully consistent with Study 1's cross-sectional findings, extending them to measured need-satisfaction. Turning to the two new predictor variables, T1 self-control was significantly negatively correlated with T1 SWB and need-satisfaction, and T2 self-control was negatively correlated with T2 need-satisfaction but was uncorrelated with T2 SWB.

Next, we conducted two hierarchical regressions, one predicting T2 need-satisfaction and the other T2 SWB. At Step 1 we entered the T1 version of the dependent measure, to focus the analysis on change. At Step 2 we entered T1 self-support and T1 self-control, to evaluate whether either initial variable predicted downstream changes. At Step 3 we entered T2 self-support and T2 self-control, to examine the associations of changes in these variables with changes in SWB and need-satisfaction. At Step 4 of the SWB analysis we further entered T1 and T2 need-satisfaction, to evaluate whether changes in need-satisfaction might be associated with

Table 2
Study 2a: Descriptive Statistics and Correlations Among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. T1 Received autonomy support from the self	4.09	0.57				
2. T2 Received autonomy support from the self	3.87	0.66	.44**			
3. T1 Subjective well-being	3.29	0.74	.28**	.35**		
4. T2 Subjective well-being	3.59	0.73	.17	.36**	.62**	
5. Distance covered	1,847	909	-.09	-.06	-.03	.12

Note. $N = 92$.

** $p < .01$.

Table 3*Study 2b: Descriptive Statistics and Correlations Among Study Variables*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. T1 Received autonomy support from the self	3.74	0.67							
2. T2 Received autonomy support from the self	3.89	0.60	.49**						
3. T1 Received Control by the self	3.05	0.98	-.09	-.31**					
4. T2 Received Control by the self	3.25	0.86	-.03	-.12	.40**				
5. T1 Need-satisfaction	3.27	0.53	.52**	.34**	-.21*	-.12			
6. T2 Need-satisfaction	3.25	0.47	.41**	.48**	-.24**	-.14	.63**		
7. T1 Subjective well-being	3.26	0.62	.41**	.40**	-.26**	-.19*	.68**	.66**	
8. T2 Subjective well-being	3.40	0.70	.42**	.48**	-.20*	-.10	.51**	.72**	.59**

Note. *N* = 119.* $p < .05$. ** $p < .01$.

the effects of changes in self-support upon changes in SWB (Baron & Kenny, 1986).

In the need-satisfaction analysis, the test-retest coefficient for need-satisfaction at Step 1 was $\beta = .60$, $p < .001$. At Step 2 T1 need-satisfaction remained significant ($\beta = .49$, $p < .01$) and T1 self-support was a significant predictor as well ($\beta = .21$, $p = .009$), indicating that self-support at a particular time may predict increases in need-satisfaction at a later time. T1 self-control was nonsignificant ($\beta = -.06$, $p = .47$). At Step 3, only T2 self-support was significant ($\beta = .24$, $p = .006$). T2 self-control was nonsignificant ($\beta = .02$, $p = .77$) and neither T1 predictor was significant (both $ps > .18$). These results indicate that positive changes in self-support over time are associated with positive changes in need-satisfaction over time, while self-control had essentially no effects. R-Squared for the equation was .437.

In the SWB analysis, the test-retest coefficient for T1 SWB at Step 1 was $\beta = .63$, $p < .001$. At Step 2, T1 SWB remained significant ($\beta = .54$, $p < .001$). However, neither T1 self-support ($\beta = .12$, $p = .15$) nor T1 self-control ($\beta = -.12$, $p = .10$) were significant, suggesting as in Study 2a that initial self-support is not directly associated with changes in SWB. At Step 3, of the four predictor variables, only T2 self-support was significant ($\beta = .29$, $p = .001$; all other $ps > .60$). Thus, changes in self-support were again associated with changes in SWB. At Step 4, T1 need-satisfaction was significant ($\beta = .19$, $p = .032$) as was T2 need-satisfaction ($\beta = .43$, $p < .001$). T2 self-support was no longer significant in this analysis ($\beta = .12$, $p = .11$). Thus, this analysis suggests that the association of change in self-support with change in need-satisfaction might explain the association of change in support with change in SWB, consistent with the tenets of the Eudaimonic Activity Model (Martela & Sheldon, 2019; Sheldon, 2013, 2016). In this context, it appears that supporting one's own autonomy may be construed as a eudaimonic activity, which helps people to meet their own needs and attain higher SWB. R-Squared for the equation was .637.

To formally test the mediational effect (i.e., the drop in the self-support coefficient from .29 to .12), we conducted a bootstrapped mediation analysis with 5,000 samples using the PROCESS Model 4 (Preacher & Hayes, 2004) testing need satisfaction at T2 as a mediator of the relationship between supporting one's autonomy at T2 and subjective well-being at T2 while also including the three T1 measures as covariates (subjective well-being, need satisfaction, and self-support), to focus the analysis on rank-order change in the outcome. The analysis revealed a direct

effect of supporting one's autonomy on the proposed mediator of need satisfaction ($DE = .55$, $SE = .29$, $p = .002$, $LL = .08$, $UL = .33$). Also, within the mediation model, the direct effect of supporting one's autonomy on subjective well-being was no longer significant ($DE = .15$, $SE = .08$, $p = .061$, $LL = -.01$, $UL = .31$). Most pertinent is that the indirect effect of supporting one's autonomy on subjective well-being via need satisfaction, which was significant ($IE = .13$, $SE = .04$, $LL = .05$, $UL = .23$). In sum, need satisfaction partially mediated the relationship between supporting one's autonomy and subjective well-being. For the reader's information, breaking the need-satisfaction measure down into its three components yielded similar effects for all three needs, consistent with past research linking contextual autonomy-support to satisfaction of all three of subordinates' basic psychological needs (Ryan & Deci, 2017).

Discussion

Within both Study 2 samples the Study 1 cross-sectional associations of self-support with SWB were replicated, at each of the two time points. More importantly, both studies demonstrated that longitudinal changes in self-support were associated with longitudinal changes in SWB. Also, Study 2b showed that the association of change in self-support with change in SWB was explained by change in psychological need-satisfaction, consistent with the predictions of the EAM (Martela & Sheldon, 2019; Sheldon, 2013, 2016). Study 2b also introduced a new measure of self-controlling self-talk, showing that it had no effects or negative effects upon SWB.

An important limitation of the studies so far, however, is their correlational design. Although the two longitudinal studies of Study 2 helped with this problem, they were only 2-wave studies, and thus more advanced (i.e., cross-lagged) analyses could not be employed. Thus, for example, it is possible that changes in need-satisfaction caused changes in self-support, rather than vice versa. Obviously, the most convincing evidence for causality would be adduced by an experiment showing that being randomly assigned to a self-supportive condition brings subsequent positive outcomes, compared to being assigned to a self-controlling condition. In Study 3 we conducted such a study.

Study 3

Study 3 first assessed self-support and self-control, and authority autonomy-support and control, using the same framing and

items as in Study 1. Then it randomly assigned participants to one of two self-motivational scenarios, either self-supportive or self-controlling, followed by measures of expected emotions and expected success in the assigned scenario.

Our primary hypothesis was that self-supportive self-talk has positive effects on peoples' emotions, compared to self-controlling self-talk. However, we did not predict an effect of experimental condition on expected class performance, based on the absence of self-support effects upon PCT hike performance in Study 2b.

Our secondary hypothesis predicted that participants' self-supportive and/or self-controlling orientations would moderate the effects of their assigned condition upon their performance and emotional expectations. This was based on a person-fit perspective, in which people expect to do and feel better when they are asked to think or behave in ways that match their dispositions (Lyubomirsky & Layous, 2013; Schueller, 2010; Sheldon, 2014). Such a finding, in this case, could help explain why those who take a self-controlling approach persist in the strategy; because they expect it to have beneficial effects.

Method

Participants and Procedure

Study 3 employed a sample of 426 psychology students in two different psychology classes at the University of Missouri, 146 men, 288 women, and 2 "other," who participated for extra credit. Their modal age was 19. They completed the survey online, and the data from the two classes were combined. The study was approved by the Institutional Review Board of the University of Missouri.

The survey asked participants to "Please imagine the following scenario. You are enrolled in a required class, and it is proving to be difficult for you. The main problem is that you don't really like the class, and it is hard to motivate yourself to study the materials and prepare for the tests. Suppose that you hit upon a particular strategy for motivating yourself: you will change the way you talk to yourself about the class! Of course, we all talk to ourselves at times, in the same way another person (like a parent or a teacher or a friend) might talk to us. We have an "inner dialogue" with ourselves. The question is, "HOW do we talk to ourselves?"

Two hundred and 11 of the participants then read a self-controlling manipulation: "Suppose that your new self-motivation strategy is the following: to talk to yourself as a no-nonsense friend might talk to you—pressuring you to try harder, and trying to guilt

or shame you into doing better. For example, you might say to yourself: "You have to do it, whether you like it or not!" or "You really must try harder, with no excuses!" or "You'll feel terrible if you screw this up!" The other 215 participants read a self-supportive manipulation: "Suppose that your new self-motivation strategy is the following: to talk to yourself as an understanding friend might talk to you—trying to help you understand your motivation, and giving you the freedom to make your own choices. For example, you might say to yourself: "Listen to what you are really feeling right now!" or "Let yourself do things your own way!" or "Everybody makes mistakes sometimes, don't let it get you down!"

Measures

Self-Support. Self-support ($\alpha = .86$) and self-control ($\alpha = .78$) were measured with the same prompt ("how do you talk to yourself when you are trying to get yourself to do things?") and the same 10 items as in Study 2b, and authority-support ($\alpha = .91$) and authority-control ($\alpha = .85$) were again measured with the prompt "how do authorities talk to you, when they are trying to get you to do things?", also with the same 10 items.

Anticipated Effects of the Assigned Strategy. After reading the experimental manipulation, participants were asked to rate the likely results of their assigned self-motivational strategy, prompted by the statement "talking to myself in this way would. . . ." We assessed the anticipated *efficacy* of the strategy ("be effective" and "lead to a better grade in the class"; $\alpha = .67$), the anticipated *positive emotional effects* of the strategy ("lead to more enjoyment and learning in the class" and "lift me up emotionally"; $\alpha = .80$) and the anticipated *negative emotional effects* of the strategy ("it would backfire" and "bring me down, emotionally"; $\alpha = .74$). Efficacy correlated $r = .67$ with positive emotional effects and $r = -.33$ with negative effects; positive and negative emotional effects correlated $r = -.49$, all $ps < .01$.

Results

Table 4 contains descriptive statistics and correlations for all study variables.

To test our hypotheses, we used matched-group *t* tests to examine differences between the three dependent variables, split by condition. The two conditions did not differ in expected efficacy ($M_s = 4.51$ in the self-support condition and 4.36 in the self-control condition, $t(424) = 1.21$, $d = .12$, $p = .23$). This mirrors

Table 4
Study 3: Descriptive Statistics and Correlations Among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Received autonomy-support from the self	5.19	1.07						
2. Received control by the self	4.41	1.16	-.05					
3. Received autonomy-support from authorities	4.75	1.19	.32**	-.02				
4. Received control by authorities	4.10	1.33	.02	.34**	-.28**			
5. Negative emotional effects of strategy	3.25	1.44	-.10*	.08	-.02	.20**		
6. Positive emotional effects of strategy	4.46	1.50	.16**	.09	.17**	-.11*	-.49**	
7. Expected efficacy of strategy	4.43	1.28	.24**	.07	.10*	.01	-.33**	.67**

Note. $N = 426$.

* $p < .05$. ** $p < .01$.

the finding of Study 2a, that self-support did not predict distance covered on the PCT. However, the two conditions did differ in the positive emotional effects variable ($M_s = 5.02$ in the self-support condition and 3.88 in the self-control condition, $t(424) = 8.50$, $d = .83$, $p < .01$) and in the negative emotional effects variable ($M_s = 2.79$ in the self-support condition and 3.71 in the self-control condition, $t(424) = 6.97$, $d = .68$, $p < .01$).

To test our person-fit hypotheses, we examined the moderating role of participants' self-support and self-control orientations. Do people higher in self-support expect greater benefits of self-support, or do people higher in self-control expect greater benefits of self-control? Again, this would represent a matching effect, in which being assigned to one's preferred condition is at least perceived as more beneficial by participants. We computed two product interaction terms by centering the self-support and self-control variables and multiplying the condition dummy variable times these variables. We then conducted three hierarchical regressions, one for each dependent measure, entering condition, self-support, and self-control at Step 1, and the two product interaction terms at Step 2. Step 2 contained the results of interest.

In none of the three analyses did self-support orientation significantly interact with condition, at Step 2 (all three $p_s > .23$). Thus, although self-support orientation was positively associated with expected efficacy and positive emotions and negatively associated with negative emotions (as can be seen in Table 4), these associations did not differ by experimental condition. However, self-control orientation *did* interact with condition to predict all three outcomes. The interaction coefficient for expected efficacy was $\beta = -.56$, $p < .001$. To illustrate, in the self-control condition, self-control orientation was associated with expected efficacy at $r = .24$, $p < .001$, and in the self-support condition self-control orientation was associated with efficacy at $r = -.13$, $p = .058$. Self-control orientation also interacted with condition to predict positive emotional effects ($\beta = -.49$, $p < .001$). To illustrate, in the self-control condition, self-control orientation was associated with positive emotions at $r = .23$, $p = .001$, and in the self-support condition self-control orientation was uncorrelated with positive emotions at $r = -.10$, $p = .144$. Finally, self-control orientation also interacted with condition to predict negative emotional effects ($\beta = .36$, $p = .013$). To illustrate, in the self-control condition, self-control orientation was not associated with negative emotions at $r = -.03$, $p = .70$, and in the self-support condition, self-control orientation was associated with negative emotions at $r = .22$, $p = .001$.

Discussion

Study 3 showed experimentally that those assigned to consider a self-supportive self-motivational style in a "difficult class" scenario expected to enjoy the class more, and to experience less distress, compared to those assigned to consider a self-controlling self-motivational style. However, there was no experimental effect on expected efficacy in the class, mirroring the lack of performance effects observed in the Pacific Crest Trail Study 2a. Self-supportive self-talk may not directly affect performance in an achievement situation. Supporting our matching hypothesis, however, those with a self-controlling orientation did expect the self-controlling style to lead to better performance in the class, and to

produce fewer negative emotional consequences. Whether their beliefs are true remains to be ascertained.

General Discussion

Across 3 studies, and in correlational, longitudinal, and experimental paradigms, we found that supporting one's autonomy via one's self-talk is linked to several positive outcomes. Study 1 established a new measure of autonomy-support received via one's own self-talk, and found that self-support, compared to authority-support, was a stronger predictor of SWB and meaning in life. Studies 2a and 2b replicated the cross-sectional correlations of self-support and SWB at two different time points, and extended Study 1 by demonstrating that longitudinal changes in self-support were associated with longitudinal changes in SWB. Study 2b also provided support for a psychological need-satisfaction mediating the change in self-support with change in SWB, consistent with the predictions of the EAM (Martela & Sheldon, 2019; Sheldon, 2013, 2016). Study 3 extended previous findings by experimentally assigning participants to either a self-supportive or self-controlling motivational style in a "difficult class," finding that those in the self-supportive condition expected to enjoy the class more and to experience less distress. Study 3 also found a consistent pattern of matching effects, such that those with a self-controlling orientation expected to have better emotional tone and more success when assigned to the self-controlling strategy.

Much research has demonstrated the importance of feeling that one's autonomy is supported by authority figures within one's life (Deci & Ryan, 1987; Ryan & Deci, 2017), for example, by parents, teachers, coaches, bosses, and the like. In contrast, our studies are the first (to our knowledge) to show that supporting one's *own* autonomy, via one's self-talk, may be just as important, or even more important. In both cases, the speaker has some power over the listener, to affect the listener's emotions and behaviors. However, in the second case, the speaker is a construct of the person's own mind, to which he or she listens. As noted earlier, such internal splits have the potential to provide a person with the valuable balancing perspective of a generalized other (Mead, 1934; Vygotsky, 1934). However, they also have the potential to disempower and divide the person, and to render them victims of a hectoring superego (Laing, 1960; Sheldon, 1996).

Our research suggests that the outcome, for any particular case or person, may depend on *how the inner voice talks to the inner listener*. Does the inner voice try to guilt the self into action, reminding them of possible punishments and negative consequences, and manipulating their ego and insecurities (Ryan, 1982)? Or, does the inner voice try to support the self's right to remain open—to reflect more deeply about what to do, and about how and when to do it? (Gendlin, 1996). Of course, self-criticism has received considerable research attention over the years as a process that often has negative outcomes (Dunkley et al., 2003, 2006; Vandenkerckhove et al., 2019). The primary contribution of the primary research is to bring attention to the possible positive outcomes that occur when a person delivers positive autonomy support to themselves. Our results show that a lack of positive self-support may be more harmful than the presence of self-control or control by others. If we cannot trust ourselves to support ourselves, perhaps we have already lost the game.

Our findings open up a variety of new research directions. Where does a self-supportive style come from? We might posit that it develops when a child receives autonomy-support from important adults, and learns to use those role models to provide scaffolding for their own inner voice (Ryan & Deci, 2017). Self-supportiveness may also be related to other positive personality dispositions, such as trait mindfulness (Brown & Ryan, 2003), humility (Tangney, 2002), and self-compassion (Neff et al., 2007). Another question is whether people tend to alternate between self-support and self-control over time. Our experimental results showed that people are able to adopt either mindset when asked, suggesting that both styles exist within peoples' self-persuasive repertoires. Perhaps self-controlling styles emerge mainly under stress and pressure, whereas self-supportive styles may characterize more stress-free or playful tasks and purposes. Some research suggests that autonomy-support is especially important to receive in high-pressure activities, such as from coaches of varsity athletes as compared to coaches of club athletes or recreational athletes (Sheldon & Watson, 2011). If so, then the ability to be support one's own autonomy may be especially important during the most difficult periods of life. All of these conjectures await research attention.

One very intriguing finding from experimental Study 3 was a moderator effect such that participants who reported a dispositionally self-controlling style, when randomly assigned to adopt a self-controlling strategy, expected to experience better emotional and performance outcomes. This matching effect, in which self-controlling people expected a self-controlling strategy to serve them better, did not emerge for those with a dispositionally self-supportive style who were assigned to adopt a self-supportive strategy. It is possible that self-controlling people are mistaken in their beliefs, and that they too would benefit from self-support, if they could offer it to themselves. Unfortunately Study 3 did not assess any objective performance outcomes and did not have a longitudinal component, so this must remain an open question for now.

It is important to note that we found variation in effect sizes across studies. In Study 3, we found larger effects sizes than in the earlier studies. This may be due to the fact that Study 3 involved affective forecasts, which potentially invite overestimation of reactions and focalism (e.g., Wilson & Gilbert, 2005). We speculate that true effect sizes are likely to be closer to those found in Studies 1 and 2; that is, they are small to medium, like many effects in personality psychology. Future studies should seek to better establish the true effect size of self-support, and to better establish its practical importance in real-world settings.

Limitations and Future Directions

Another study limitation concerns the rather homogeneous samples. Although Study 2a did focus on a unique sample of through-hiking adults, the rest of the studies employed only Missouri college students. Of course, it would be beneficial to generalize the findings to other age groups and nationalities. Another study limitation concerns the exclusive use of self-report methodologies, making it possible that method effects explain our results. Also, there was much reliance on correlational methodologies. It is true that in Studies 2a and 2b we at least incorporated time as a factor, and that Study 3 employed an experiment with random assign-

ment. Still, the experiment was only a hypothetical scenario, and it remains to be seen whether its effects would generalize a real performance situation, involving class grades or anything else. We look forward to conducting such research. Additionally, future research should include other measures of self-talk (Brinthaup et al., 2009; Hatzigeorgiadis & Biddle, 2000; Oliver et al., 2010; Wolters & Benzion, 2013) in order to establish the incremental validity of our measure. It might also be beneficial to measure a person's self-support from the perspective of others who know them well. Although those others cannot have direct access to the participant's self-talk, they may be in a position to judge the style of such talk based on how the participant talks to them. Finally, it may be useful to modify other existing measures of autonomy-support to measure self-support, as some of the items in the 6-point scale we employed may be seen as more general than the target construct. Still, this is a widely employed scale in SDT and not a problem unique to our research.

Conclusion

Many people seem to think that, in order to get the best from themselves they have to drive themselves, like taskmasters. However, our results suggest that they may be better off if they supported themselves, like understanding friends. The Golden Rule says that we should we treat others as we would like to be treated. Even more important, perhaps, is that we should treat *ourselves* as we would like to be treated!

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