

## Locomotion (Empowering) and Assessment (Disempowering) Self-Regulatory Dimensions as a Function of Affective Profile in High School Students

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### Abstract

The purpose of the present study was to examine high school adolescent pupils' self-regulatory strategies in relation to psychological well-being and subjective well-being (i.e., temporal life satisfaction and affect) using the affective profiles model as the backdrop for the analysis. Participants were categorized into Self-fulfilling (high positive, low negative), High affective (high positive, high negative), Low affective (low positive, low negative) and Self-destructive (low positive, high negative) profiles according to their responses on the Positive Affect and Negative Affect Schedule. The participants also self-reported self-regulation ("assessment" and "locomotion"), temporal life satisfaction (past, present and future) and psychological well-being (e.g. Self-acceptance, environmental mastery, personal growth). Self-fulfilling adolescents, in contrast to Self-destructive adolescents, expressed high levels of temporal life satisfaction and psychological well-being. The self-regulatory "locomotion" dimension was associated to high positive affect profiles, higher life satisfaction and psychological well-being whereas the self-regulatory "assessment" dimension was associated with high negative affect profiles, lesser life satisfaction and psychological well-being. Taken together, the well-being outcomes linked to the "locomotion" dimension seem to contribute to an upward 'spiral of empowerment', reinforcing approaching or agentic behavior; while the outcome linked to the "assessment" dimension appear to consist of a downward 'spiral of disempowerment' or inaction.

**Keywords:** Affective profiles; self-regulation; locomotion; assessment; life satisfaction; well-being

### Introduction

A range of factors are associated with the observed deteriorations in psychological health observed in juveniles and adolescents [1,2]. The Swedish National Board of Health and Welfare (SNBHW) have monitored youth health statistically since the early part of the 1980's, from which period forwards an increasing level of ill-health has been indicated. In the years, 1988-1989, nine percent of the girls and four percent of the boys reported problems with worry, anxiety and depression (SNBHW, 2009), but by the years 2004-2005, those levels had risen to thirty percent for the girls and fourteen percent for the boys. Concomitantly, it has become more common that adolescents receive treatment at hospitals and/or hospitalization for these types of complaints. As a consequence of worsening psychological health, the incidence of suicide attempts and completed suicides has increased among adolescents (The Swedish Social Insurance Inspectorate, 2013), mainly due to lifetime adversities [3]. Currently, suicide provides one of the most prevalent causes of fatality among young individuals, with about twenty-five percent of all fatalities within the age group 16-24 years due to suicide (SNBHW, 2009; The Swedish Council on Health Care Technology Assessment [SBU], 2010). These figures are in opposition to the general tendency: the number of suicides has been decreasing among several other age groups whereas it is increasing

among youth (SNBHW, 2009; SBU, 2010). This unsatisfactory results can be explained by the fact that most interventions are directed at symptoms and do not correct the underlying causes of the disorder [4]. Hence, the inadequacy of available treatments results in persistent residual symptoms of disease and distress, as well as low levels of life satisfaction and well-being. Indeed, the absence of life satisfaction and positive emotions is a serious problem because it is more predictive of subsequent mortality and morbidity than the presence of negative emotions [5].

Reduced well-being bears witness to deteriorations in psychological health among adolescents universally, independent of domestic/family relations, birthplace, the labor market status, parents' socioeconomic status, etcetera (SNBHW, 2009). The prevailing situation ought to be dealt with for several reasons: (i) from an ethical perspective ill-health of this type ought not to be tolerated for any individual, (ii) from society's viewpoint, depressed adolescent bear their affective condition with them into adulthood which implies a state of chronic illness, absence from one's occupation, medical treatments, alcohol- and drug-related problems and risk for suicide (SNBHW, 2009). Most teachers, and particularly parents, invest much time reflecting over how best to help the pupils and children, respectively, to achieve acceptable levels of well-being with recourse to various notions within psychology, biology, education and philosophy. It has been established that both genetic and epigenetic predispositions [6-9], such as temperament and impulsiveness, and also psychological conditions, such as self-regulation [10] and rumination [11] influence well-being.

Although current research on well-being has extended markedly among adults [12], research during adolescence has not kept pace [13]. Taken together, the evidence implies that adolescent feel increasingly worse and the question arises regarding as to how this trend may be reversed. It appears evident that a comprehensive definition of well-being facilitates the derivation of both those factors affecting health and an eventual model of the cognitive and emotional conditions affecting well-being [13,14].

## Well-Being

Earlier well-being research has focused on physical (i.e., bodily health due to absence of ill-health and presence of a healthy, functional body) and material well-being (i.e., sufficient material status in the form of domestic harmony, transportation, healthy food and economic security) [15]. As a complement, current research suggests two definitions of well-being: subjective well-being and psychological well-being [16,17]. Subjective well-being consists of cognitive and affective components [18]. The cognitive component concerns individuals' degree of life satisfaction as experienced in relation to an ideal notion [19]. The affective component is expressed through individuals' experiences of positive and negative feelings whereby the subtraction of the latter from the former provides an estimation of 'affect balance' [19]. Thus, the presence of greater levels of positive emotions than negative emotions provides an index of well-being, and vice versa. Nevertheless, this notion of the affective component has been criticized [13], with alternative notions for the affective component [20].

Regarding psychological well-being, Ryff [20] suggested a multidimensional model that consists of six different factors that together present individuals' psychological well-being, positive relations with others, self-acceptance, feeling of control of one's environment, self-determination, life purpose and personal development [15,21]. These notions rest upon positive attributes rather than negative attributes or outcomes [15], reflecting well-being derived from love of another(s) and good relations with friends and family, a high level of self-acceptance of all aspects of one's personal attributes, environmental control, meaning in life, personal growth, and autonomy. A central aspect pertains to a level of personal development through which individual expressing well-being welcome challenges as opportunities rather than problems [21].

## Affective profiles

The affective profiles are constructed using individuals experience of positive affect (PA) and negative affect (NA). The affective profiles model has been used to discern differences between individuals among high school pupils [22-25], adults in occupational settings [26-28] and psychiatric patients [29,30]. The affective profiles framework utilizes the notion of PA and NA as separate dimensions taking account of the propensity for these emotions to be expressed in different combinations by different individuals. Through consideration of these interactions, ref et al. [20] developed a 2 x 2 system whereby individuals were categorized into one of four affective profiles: "Self-fulfilling" (high PA, low NA), "High affective" (high PA, high NA), "Low affective" (low PA, low NA) and "Self-destructive" (low PA, high NA). Previous studies have shown that "Self-fulfilling" and "Low affective" adults express less stress than the "High affective" and "Self-destructive" whereas "Self-fulfilling" and "High affective" adults express more energy and lower blood pressure than "Low affective" and "Self-destructive" [19,30].

Garcia and Siddiqui [31,32] examined differences between the four affective profiles' extent of life satisfaction, psychological well-being and ability to recall positive and negative life events, respectively, in a population of high school students. They observed that the "Self-fulfilling", "High affective" and "Low affective" profiles reported a higher degree of life satisfaction, psychological well-being and recalled more positive than negative events than the "Self-destructive" profile. Furthermore, recall of more positive than negative events predicted life satisfaction among the high PA profiles [31]. In line with Fredrickson [33] Garcia [13] suggested that positive emotions might enhance psychological resources thereby facilitating individuals' propensity to obtain meaningfulness from events and situations in their lives [8] in fact high levels of PA might even abolish NA [33]. This probably explains why high affective adolescents experienced higher levels of life satisfaction and psychological well-being despite high levels of NA [34]. Nevertheless, Garcia and Siddiqui [31,32] observed that "Low affective" adolescents, despite a lower level of PA, experienced more life satisfaction and psychological well-being than the "Self-destructives". One likely conclusion would be that "Self-fulfilling" and "High affective" profiles seek positive emotions and experiences whereas "Low affective" profiles avoid negative emotions and experiences [8,35]. For instance, the notion of 'Regulatory focus' [36,37] concerns two different cognitive strategies individuals apply for the achievement of goals: (i) the experience of well-being through the attainment of positive goals one has set up for oneself, for example, good grades or dating an attractive person, and (ii) the efforts to avoid discomfort/disappointment, for example, by not asking that attractive person out to avoid a negative response which may provoke disappointment/discomfort and low life satisfaction.

## Self-regulation

The attainment of a goal requires its identification over a range of possible alternatives. After doing this, one may consider the options and select a course of action to achieve one's goal. When the goal and course of action have been selected one may continue by adhering to the selected strategy and acting accordingly; these process has been termed self-regulation [10,38]. Higgins [38] distinguishes between the 'process steps' (i.e. goal identification, strategy identification, action and maintenance) by separating self-regulation into two dimensions. (1) "Assessment": the initial step of the process consisting of appraisals, comparisons and judgments of potential outcomes and actions to achieve the goal, and (2) "locomotion": the operational drive and endurance to achieve the desired goal, that is, the capability of advancing step-by-step through those stages that finally leads to the goal [38]. These may be illustrated through the process of acquiring an education as a starting-point. Here, "assessment" consists of the acquisition of information concerning different courses and programs, comparing them, choosing and planning how one shall complete the education. "locomotion" consists of initiating actions—applying and getting accepted, attending lectures and studying, maintaining the necessary work effort for successful completion of examinations.

"Assessment" and "locomotion" capabilities occur in unison when an individual constructs a goal and seeks to attain it. In contrast to early approaches to self-regulation, Kruglanski et al. [10] and Higgins [38] have separated the notions of "locomotion" and "assessment" which are considered as individual personality orientations, each affecting self-regulation [10,38]. Kruglanski [10] implies that different individuals develop different degrees of "assessment" and "locomotion", with high and low levels, respectively. High levels of

“assessment” are associated with tendencies to consider options and goals meticulously, that is, a ‘reflective’ attitude to one’s goal. High assessment individuals are self-evaluating themselves and their actions repeatedly to a great extent, perhaps even excessively. Individuals expressing high levels of “locomotion” seem not to be overly ‘reflective’ with lower tendencies towards self-evaluation and are self-confident and optimistic, as well as low in anxiety and depression.

## Self-regulation and Well-Being

Kruglanski et al. [10] examined the relationships between “assessment” and “locomotion” and anxiety, depression, self-confidence and optimism. They obtained positive associations between “assessment” and anxiety and depression but negative associations with self-confidence and optimism. Pierró et al. obtained similar results [39] on associations between “locomotion” and ‘individuals’ work-related stress and satisfaction. “Locomotion” has also been found positively related to extraversion, motivation, type-A behavior, action-preparedness, decisiveness and vitality [10,40], greater well-being [41] and higher academic outcomes [10,42]. The tendency to evaluate one’s own performance excessively, which individuals expressing high levels of “assessment” are defined by, has been linked to feelings of inadequacy, lower self-esteem and self-confidence, and lower levels of optimism [42].

High degrees of “locomotion” are perceived as active and progressive characteristics with little time invested on reflection but rather focus on the goal and moving forward resulting in more positive feelings and self-confidence with higher levels of optimism and self-sufficiency and goal attainment. Individuals expressing high levels of “assessment” tend not to reach the high levels of self-esteem as those with high levels of “locomotion”; possibly due to high “assessors” repeated self-assessment, which induces a critical attitude to one’s own person [42]. On the basis of self-regulation theory, it has been shown that individuals expressing high levels of “locomotion” generally experienced more PA, optimism, high self-confidence and belief in the future [38]. Currently, there are only a few studies, if any, of studies examining directly the relationship between affective profiles, well-being and the self-regulation variables.

## The Present Study

The purpose of the present study was to investigate the relationship of the self-regulation dimensions, “assessment” and “locomotion”, to temporal life satisfaction (i.e., satisfaction with the past, present and the future) and psychological well-being. As the backdrop of the investigation we use the affective profiles model.

## Method

### Participants and procedure

The participants (N=230, from which we got 215 valid responses, 84 female and 131 male) were recruited from a high school in Western Sweden. This high school is one of the largest of its type in Sweden with a very large geographic area, thereby implying a varied psychosocial-socioeconomic background of the pupils. The mean age of the participants was 18.41 years (SD=0.62). Only pupils who had turned 18 years were recruited as participants as these did not require parental permission. They participated through responding to an online questionnaire that was laid out on the internal network of the school that each pupil had access to; any pupil lacking access received

the paper and pencil version of the questionnaire. The participants were told about the project during one of their lessons with a short account of the purpose and the instruments so that they were influenced as little as possible. All the participants were informed that participation was voluntary and confidential. Participation was carried out during common class hours and pupils received a cinema ticket on completion of the questionnaire. Completion of the questionnaire required about 30 minutes and pupils were debriefed upon completion.

### Instruments

**Affect:** The Positive Affect and Negative Affect Schedule [43] assesses affect by requiring participants to indicate on 5-point liker scale to what extent (1=very slightly, 5=extremely) they generally experienced 20 adjectives describing different affect states (10 positive affect and 10 negative affect) within the last few weeks. The PA scale includes adjectives such as strong, proud, and interested; and the NA scale includes adjectives such as afraid, ashamed, and nervous. The Swedish version has been used in previous studies [21-24] and demonstrated acceptable internal consistency in the present study (PA: Cronbach’s  $\alpha=.85$ ; NA: Cronbach’s  $\alpha=.85$ ).

### Self-regulation

We measured “assessment” and “locomotion” orientation using the Kruglanski et al. [10] 26-item instrument (e.g., for “assessment”, ‘I often critique work done by myself or others’; for “locomotion”, ‘I am a “doer”’). Swedish native speakers translated the instrument from English to Swedish and then back translated; no significant discrepancies were found. The Swedish version used in the present study showed acceptable reliability coefficients: assessment: Cronbach’s  $\alpha=.76$ ; locomotion: Cronbach’s  $\alpha=.72$ .

### Temporal life satisfaction

The Temporal Satisfaction With Life Scale [44] comprises 15-items (7-point liker scale; 1=strongly disagree, 7=strongly agree) organized in three subscales assessing past (e.g., ‘If I had my past to live over, I would change nothing’), present (e.g., ‘I would change nothing about my current life’), and future life satisfaction (e.g., ‘There will be nothing that I will want to change about my future’). The Swedish version has been used in previous studies among adolescents [45]. In the present study we used a total score of temporal life satisfaction (i.e., the sum of the past, present, and future subscales). The Cronbach’s  $\alpha$  in the present study was: .94

### Psychological well-being

The Scales of Psychological Well-Being-short version [46] comprises 18 items; 3 items for each of the 6 dimensions. These dimensions are: self-acceptance (e.g., ‘I like most aspects of my personality’), personal growth (e.g., ‘For me, life has been a continuous process of learning, changing, and growth’), purpose in life (‘Some people wander aimlessly through life, but I am not one of them’), environmental mastery (e.g., ‘I am quite good at managing the responsibilities of my daily life’), autonomy (e.g., ‘I have confidence in my own opinions, even if they are contrary to the general consensus’), and positive relations with others (e.g., ‘People would describe me as a giving person, willing to share my time with others’). The Swedish version has been used in previous studies [13,31] and it has showed low reliability for most of the subscales.

Thus, the total psychological well-being score (i.e., the sum of the 18 items) has been recommended as a better and more reliable measure [31]. In the present study the total psychological well-being score showed a Cronbach's  $\alpha$  of .78.

### Statistical Treatment

The procedure to create the affective profiles was originally developed by Norlander et al. [19] by dividing self-reported positive affect and negative affect scores into high and low. In the present study the distribution of affective profiles was as follows: 66 self-fulfilling (44 boys, 22 girls), 48 low affective (29 boys, 19 girls), 38 high affective (24 boys, 14 girls), and 63 self-destructive (34 boys, 29 girls). The analysis, using SPSS (version 21), was a Multivariate Analysis of Variance (MANOVA) in which the affective profiles and gender were the independent factors and the dependent factors were the two self-regulation strategies (assessment and locomotion) and well-being (temporal life satisfaction and psychological well-being).

## Results

### Differences between affective profiles

The affective profiles had a significant effect ( $F(12,540.025)=14.18$ ,  $p<.001$ , Wilks'  $\Lambda=.49$ , Observed Power=1.00) on all the

dependent variables: assessment ( $F(3,207)=11.78$ ,  $p<.001$ , Observed Power=1.00), locomotion ( $F(3,207)=17.44$ ,  $p<.001$ , Observed Power=1.00), temporal life satisfaction ( $F(3,207)=22.47$ ,  $p<.001$ , Observed Power=1.00), and psychological well-being ( $F(3,207)=47.08$ ,  $p<.001$ , Observed Power=1.00). The effect of gender ( $p=.55$ ) and the interaction of affective profiles and gender ( $p=.94$ ) were not significant. Adolescents who experience high levels of negative affect (i.e., high affective and self-destructive) had higher scores in the self-regulation strategy of assessment than low negative affect adolescents (i.e., low affective and self-fulfilling). Locomotion was instead higher among high positive affect adolescents (i.e., high affective and self-fulfilling) than low positive affect adolescents (i.e., low affective and self-destructive); see Table 1 for the details. In regards to temporal life satisfaction, self-fulfilling adolescents showed higher levels than all other profiles ( $M=4.84$ ,  $p<.01$ ). Nevertheless, self-destructive adolescents scored lower in temporal life satisfaction ( $M=3.24$ ) than both low affective ( $M=3.81$ ,  $p<.05$ ) and high affective ( $M=4.15$ ,  $p<.001$ ). Psychological well-being was higher among self-fulfilling adolescents than all other profiles ( $M=4.76$ ,  $p<.001$ ). Nevertheless, self-destructive adolescents scored lower in psychological well-being ( $M=3.79$ ) than high affective ( $M=4.30$ ,  $p<.001$ ), but not lower than low affective ( $M=4.02$ ,  $p=.061$ ).

	Self-Destructive	Low Affective	High Affective	Self-fulfilling
Assessment	4.05 ± 0.56	3.57 ± 0.75	4.09 ± 0.51	3.61 ± 0.61
Locomotion	3.60 ± 0.62	3.54 ± 0.55	4.10 ± 0.53	4.17 ± 0.53
Temporal Satisfaction with Life	3.24 ± 1.10	3.81 ± 1.14	4.15 ± 1.18	4.84 ± 1.00
Psychological well-being	3.79 ± 0.46	4.02 ± 0.45	4.30 ± 0.41	4.76 ± 0.49

**Table 1:** Mean and standard deviations in self-regulation (assessment and locomotion) and well-being (temporal life satisfaction and psychological well-being).

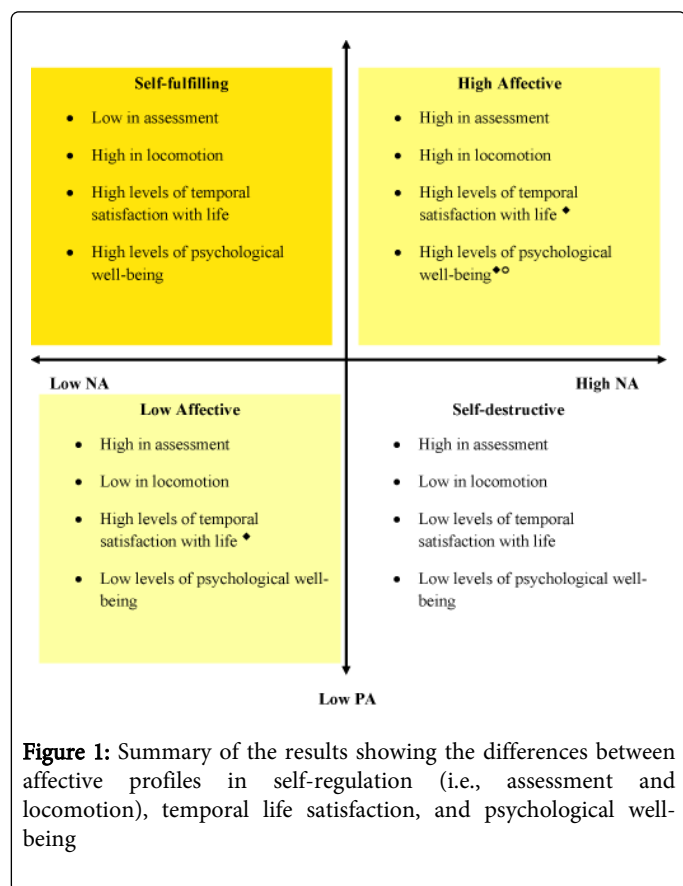
## Discussion

The present findings indicated that the influence of affective profiles covered all the attributes examined: self-regulatory dimensions, "assessment" and "locomotion", temporal life satisfaction and psychological well-being. The results might be described as follows: adolescents expressing high levels of negative affect (i.e., high affective and self-destructive) showed higher scores in the self-regulation strategy of "assessment" than low negative affect adolescents (i.e., low affective and self-fulfilling). Conversely, the dimension, "locomotion", was higher among high positive affect adolescents (i.e., high affective and self-fulfilling) than low positive affect adolescents (i.e., low affective and self-destructive) (Figure 1).

Self-fulfilling adolescents experienced a higher degree of temporal life satisfaction and psychological well-being (although the difference was only significant against the self-destructive adolescents); they expressed also higher levels of "locomotion" and lower levels of "assessment". These self-fulfilling individuals have repeatedly been found to be robustly equipped to plan and attain goals accompanied, high levels of well-being, and with a strong positive bias [13,26,47] which makes them resilient [13]. Positive bias refers in this context to the tendency to focus upon positive rather than negative life experiences. The Low affective profile did not differ from the self-

fulfilling on "assessment", but had lower scores on the "locomotion" dimension, and life satisfaction; it is likely that low affective avoid discomforting situations and negative feelings and choose to ruminate about different ways to achieve different goals [13]. The High affective profile also expressed a higher life satisfaction, compared to the Self-destructive profile, implying that the high level of PA may 'neutralize' their high level of NA. Individuals with this profile combined high scores on the "assessment" dimension with high scores on the "locomotion" dimension. It seems likely that high levels of PA provide a resource that allows individuals to cope with negative feelings more effectively than those possessing low PA [33]. Indeed, there were differences between profiles expressing high PA and those expressing low PA in relation to the "locomotion" dimension—high PA adolescents reporting higher levels of "locomotion". Positive and negative feelings exert both phylogenetic and ontogenetic influences from a survival perspective [33,48,49]. PA offering an incentive function that prepares individuals to act, with positive emotions provoking investigation, movement forward and extending horizons (i.e., approaching or agentic behavior that empowers the individual to take action); whereas NA and negative emotions provoke a reflective, withdrawn condition whereby individuals survey the outcome of events, rather than influence them [33], that is, a withdraw or inactive behavior that disempowers the individual from taking action).

According to this notion, adolescents expressing high levels of PA may experience ‘action-orientation’, movement forward and attainment/achievement thereby operating with ”locomotion” orientation. Beike et al. [50] have shown that the tendency to regret actions is to a large extent a ’non-action whereas actions, ‘in the long run’, provide more positive feelings than passivity. As a self-regulatory strategy, high levels of “locomotion”, based on coping behavior rather than inaction, may have contribute to elevated PA in adolescents. For instance, a current consensus of opinion maintains that considerable brain development during adolescence occurs in brain regions and systems implicated in the perception, evaluation and performance of actions linked to risk and reward; these involve changes in social and cognitive adaptation and affective processing [51].



Affective profiles described by high degrees of NA (i.e. Self-destructive and High affective) reported higher scores on the “assessment” dimension than profiles linked with low NA (i.e. Self-fulfilling and Low affective). One possibility may be that certain adolescents possessing a propensity for worry and anxiety (i.e., high NA) tend to ruminate to a greater extent before making choices/decisions thereby creating “assessment” orientation as an attribute. Robinson et al. [52] have postulated that NA functions as a ’defense’ mechanism by either provoking a passive state wherein watchfulness and reticence are prioritized or, alternatively, that individuals applying high levels of ”assessment” invest more effort on ruminating prior to choice and these deliberations induce worry and other feelings linked to NA. Individuals identified through behavioral inaction tend to express more regret [53] and experience a higher degree of NA [54] through inaction than if they had attempted, even persisted, towards a goal [50,55]. Excessive hesitancy may accompany the pursuance of an

“assessment” approach to choice and decision-making leading to inaction and reducing the quality of preferences and decisions [56]. According to the Beike et al. [50] the tendency to hesitancy/’thinking too much ought to be associated with NA. In the context of high school functioning by pupils, the situation may be illustrated by the youth who hesitates/delays examination preparation then decides to avoid it thereby experiencing greater NA than the youth who undertakes examination preparation even if the latter individual fails the test. Taken together, the attributes linked to the “assessment” dimension, involving low life satisfaction, psychological well-being and NA, appear to consist of a downward ‘spiral of disempowerment’ whereas the attributes linked to the “locomotion” dimension, involving higher life satisfaction, psychological well-being and PA, would be expected to contribute an upward ‘spiral of empowerment’.

### Limitations

The number of participating adolescents is relatively limited (N=215). It would have been useful to if the self-regulation, life satisfaction, well-being and affect variables had been combined with estimations of motivation and other measures of personality [9,23,57] in order to provide more substance to the empowerment-disempowerment issue.

### Conclusions

The type of self-regulatory strategy that high school students employ appears to affect their emotions, temporal life satisfaction and psychological well-being. National Swedish statistics concerning adolescents’ health presents a clearly negative development along several parameters; against this background, the utility of ongoing research into factors modulating well-being and academic performance amongst adolescents is clear-cut. The present study demonstrates that the self-regulatory “locomotion” strategy is associated to positive measures of well-being that endow empowerment: frequently experiencing positive emotions, high temporal life satisfaction, and high psychological well-being. Conversely, the disadvantages of a self-regulatory “assessment” strategy are associated to frequently experiencing negative emotions, low temporal life satisfaction, and low psychological well-being, thus, disempowering these adolescents.

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