

The Impact of Goal Attainment and Goal Importance on Satisfaction with Life – A Polynomial Regression and Response Surface Analysis

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Introduction: Most people want to be happy in their lives and actively try to achieve some degree of contentment. Previous studies have shown that pursuing goals can increase peoples' well-being and that in order to understand the role of goals in well-being, it is important to differentiate between the importance and the attainment of both extrinsic and intrinsic goals. Yet, the issue of how the congruence between goal importance on the one hand and goal attainment on the other affects well-being has rarely been addressed. *Aims:* We investigated if well-being is a function of goal pursuit, or more precisely, if the extent to which people are satisfied with their lives is a result of their success in achieving goals that are relatively important to them. We expected that goal attainment would be a stronger predictor of well-being than goal importance. We also expected that the congruence between intrinsic goal attainment and importance would be positively related to subjective well-being. In addition, we explored whether the congruence between extrinsic goal attainment and importance would be negatively or positively associated with subjective well-being. *Methods:* A survey of 149 Hungarian adults was conducted (75% female). To test our hypotheses we used bivariate polynomial regression and response surface analysis. This tool is ideal to measure the joint effect of two predictor variables on a third variable, such as the goal importance and goal attainment on well-being. *Results:* Intrinsic goal attainment is positively related to well-being ($B = .77, p = .04$), while goal importance has no such effect. We also found that the congruence between intrinsic goal importance and goal attainment is positively related to well-being ($a1 = 1.29, p = .04$). The polynomial regression with well-being as the dependent variable and extrinsic goal attainment and importance as the predictor variables showed that whereas extrinsic goal importance ($B = -.32, p = .02$) has a negative relationship with well-being, goal attainment ($B = .51, p = .007$) has a positive one. Moreover, we found that well-being is higher when extrinsic goal attainment is higher than extrinsic goal importance ($a3 = -.84, p = .005$) and that well-being increases more sharply to the extent that the degree of discrepancy increases ($a4 = -.41,$

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$p = .03$). *Conclusions:* Based on our results it seems that the congruence between intrinsic goal attainment and goal importance enhances our well-being. While valuing extrinsic goals does not seem to increase happiness, attaining those goals does so.

Keywords: goal pursuit, intrinsic, extrinsic, goal importance, goal attainment, polynomial regression, well-being, happiness.

1. Introduction

Most of us want to be happy and satisfied with our lives. Although people strive for happiness in many ways, the road leading to satisfaction has yet to be discovered. Some researchers suggest that all striving for happiness is futile, because people have a genetically determined “happiness set point”, which is relatively stable no matter what the circumstances are (Brickman & Campbell, 1971; Lykken & Tellegen, 1996). However, others argue that people do have the chance to affect their own happiness and, in fact, play a decisive role in the extent to which they are satisfied with life (Diener, 1984; Diener, Lucas, & Scollon, 2006; Emmons, 1986). In the present paper, we explore the latter perspective and investigate if well-being is a function of goal pursuit, or more precisely, if the extent to which people are satisfied with their lives is influenced by their success in achieving goals that are relatively important to them. In line with current theorizing, we differentiate between the importance and the attainment of both extrinsic (wealth, fame and image) and intrinsic goals (personal growth, loving relationships, health and community, Kasser & Ryan, 1996).

Although previous research on determinants of well-being has focused on goal pursuit (Sheldon & Elliott, 1999; Sheldon & Kasser, 1998), the issue of how the congruence between goal importance and goal attainment affects well-being has rarely been addressed. This is unfortunate, because well-being can be expected to be dependent on the correspondence (or discrepancy) of what people find important to achieve and their actual success in achieving those goals. We argue, however, that to understand the joint effect of goal importance and goal attainment on well-being it is crucial to differentiate between intrinsic and extrinsic goals.

With respect to intrinsic goals, existing theory is relatively straightforward: Attaining important intrinsic goals should increase our well-being (Kasser & Ryan, 1996; Sheldon, Ryan, Deci, & Kasser, 2004). Yet, for extrinsic goals theoretical perspectives diverge. Perspectives rooted in Self-Determination Theory (SDT; Deci & Ryan, 1991; Ryan & Deci, 2000) suggest that striving for and actually attaining extrinsic goals is detrimental to well-being. These theoretical perspectives would thus support the expectation that well-being will be reduced to the extent that both goal importance and attainment

increase. Yet, other perspectives argue that any kind of personal striving and attainment – also if it concerns external goals – is beneficial to well-being (Emmons, 1986; Srivastava, 2001). Therefore, based on these theoretical perspectives one would argue that well-being will be increased to the extent that both goal importance and attainment increase. The present study aims to offer a test of these two theoretical perspectives.

In addition, whereas previous studies often used a difference score to assess the combined effect of intrinsic and extrinsic goal striving measures (Kasser & Ryan, 2001; Sheldon et al., 2004), we investigate extrinsic and intrinsic goal pursuit separately. Moreover, instead of relying on difference scores, we employ a more advanced methodological approach by using a specific case of polynomial regression analysis for two variables, the bivariate polynomial regression and response surface analysis (Edwards, 1994, 2001, 2002). This approach is ideally suited to measure the joint effect of two predictor variables (and their congruency or discrepancy) on a third variable and as such it represents an excellent way to assess the combined effect of goal attainment and goal importance on well-being.

1.1. The role of goal attainment of personally valued goals in happiness

Well-being, denoting a state of contentment and happiness (Deci & Ryan 2008; Wright, 2004) is of such importance to human beings, that it has been a major research area for many years. Yet, discussions about the components of well-being are still ongoing (Diener, Fujita, Tay, & Biswas-Diener, 2012; Dodge, Daly, Huyton, & Sanders, 2012). Many scholars argue that life satisfaction is one of the major parts of individuals' well-being (Diener, Emmons, Larsen, & Griffin, 1985; Luhmann, Hofmann, Eid, & Lucas, 2012). Indeed, life satisfaction, being the cognitive appraisal of someone's life as a whole, has shown to be a good indicator of people's overall happiness (Diener et al., 1985). While some scholars argue that being happy or not is a matter of personal disposition (Solberg, Diener, Wirtz, Lucas, & Oishi, 2002), motivational and goal theorists would argue that people actually can be actively involved in achieving happiness in their lives (Emmons, 2003; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011; Sheldon et al., 2010) and that both setting and attaining goals that are deemed important can affect peoples' well-being.

Firstly, goal setting is important for well-being, because people often set goals as milestones in attempts to fulfill ambitions and life plans (Chekola, 1974). Diener (1984) argues that having goals that are important (objectives that are personally desired and valued) is central to someone's satisfaction

with life. The argument is that having goals is like having a compass: The goals inform us about what we need to do; they organize our efforts, and determine our actions. As such, goals give meaning and structure to our lives. Empirical findings support this notion, showing that, in general, people who pursue valued goals report higher well-being than those who are missing this sort of goal-directedness (Emmons, 1986; Freund & Baltes, 2002).

Secondly, attaining goals is also important for well-being (Brunstein, 1993; Carver & Scheier, 1990; Emmons & Diener 1986; Little, 1989; Wiese & Freund, 2005). Indeed, when people achieve what they set out to accomplish they feel satisfied and happy. Notably, it is particularly the attainment of personal goals (Brunstein, 1993; Emmons, 1986) or self-concordant goals – those that express personal interests and values – (Sheldon & Elliott, 1999) that enhance peoples' well-being. Nonetheless, we can conclude that both the pursuit of valued goals and the progress in these goals have been found to be relevant for well-being.

When looking at the question of what contributes more to happiness, goal importance or goal attainment, the literature provides a less clear answer. On the one hand, having achieved goals boosts peoples' sense of self-efficacy (Bandura, 1997) and increases their feelings of competence (Bahrami-Ehsan & Cranney, 2015; Raynor, 1982). Goal achievement thus provides the information that one is able to overcome obstacles through effort, which in turn enhance well-being (Emmons, 1986; Niemiec, Ryan, & Deci, 2009). On the other hand, the mere striving for goals that are deemed important but are not yet attained is often accompanied with a sense of longing and the feeling that needs are not fully satisfied (Mayser, Scheibe, & Riediger, 2008). This, in turn, can lead to impaired mood and decrease in emotional well-being (Schulteiss, Jones, Davis, & Kley, 2008). Therefore, goal attainment seems to be more critical for well-being than goal importance. We thus expect that the degree of discrepancy (i.e., incongruity) between (intrinsic and extrinsic) goal attainment and goal importance will be associated with well-being, such that particularly as goal attainment exceeds goal importance, people will experience an increase in well-being (*Hypothesis 1*).

Another question with regards to goal pursuit relates to the content of personally valued goals: So far we have discussed literature that suggests that setting important goals and achieving them contributes to well-being, but is this true for all types of goals? Does it matter if goal pursuit is related to, for instance, maintaining a happy marriage or becoming rich? The first perspective on the matter comes from Self-Determination theorists (Deci & Ryan, 1985; Kasser & Ryan, 1996). They make a distinction between goals that are advantageous and disadvantageous to happiness. They argue that

only intrinsic goals, including goals related to personal growth, loving relationships, community feeling and health, support our basic, innate psychological needs of autonomy, relatedness and competence and therefore are beneficial to our well-being (Kasser & Ryan, 1993; 1996; Niemiec et al., 2009; Sheldon, Ryan, Deci, & Kasser, 2004). Extrinsic goals, such as financial advancement, having an appealing appearance and fame, may be relevant to people across various cultures (Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999; Kasser & Ryan, 1999), but are not serving to satisfy inherent needs. Instead they engender public admiration and status, and people strive to obtain them mostly for external rewards and approval (Kasser & Ryan, 1996; Kasser & Ryan, 2001). According to SDT striving for extrinsic goals is considered to be detrimental to well-being (Kasser & Ryan, 1993; 1996). Several studies indeed show that the extent to which people place importance on extrinsic goals is associated with lower well-being (Kasser & Ryan, 2001; Schmuck et al., 2000, Sheldon et al., 2004). Moreover, SDT also argues that the successful chase for extrinsic goals does not engender an increased level of well-being. When people actually obtain the wealth, fame or the image they wished for, their well-being does not improve. In sum, according to this perspective the attainment of extrinsic goals does not lead to an increase in well-being (Niemiec et al, 2009).

The second perspective on if the type of goal that people strive for is important for happiness comes from authors who argue that any goal or ambition (Emmons, 1986) can be beneficial to our well-being (Carver & Baird, 1998; Emmons & Diener, 1986; Srivastava et al., 2001). They regard goal content as not necessarily beneficial or detrimental; it is the motive behind the goal that makes the difference for well-being. For instance, Srivastava (2001) found that the well-being of a person who is focused on becoming famous or wealthy can be just as high as of a person who is focused on meaningful relationships if he or she pursues these goals for reaching a higher sense of autonomy. Other scholars also seem to think that the actual content of the goal has little impact. For instance, according to Multiple Discrepancy Theory, people use different standards to judge how they are doing in life (Michalos, 1985). When they assess what they obtained, they compare with what relevant others have gotten, what they like to have, or what they had earlier. The theory posits that it is the gap between what people have and various standards that determines their happiness and satisfaction, not so much whether what one has or wants is related to intrinsic or extrinsic goals. Solberg and colleagues (2002) for instance found that the discrepancy between people's financial desires and actual state has a causal influence on their satisfaction. Therefore, according to this perspective both internal and external strivings can lead to happiness.

In sum, in line with both the SDT and the general goal pursuit theories, our hypothesis regarding intrinsic goal attainment and goal importance is straightforward: The congruence between intrinsic goal attainment and importance will be positively related to subjective well-being (*Hypothesis 2*). In other words, we expect that goal attainment and goal importance contribute to well-being, in such a way that well-being increases to the extent that both goal importance and attainment increase (simultaneously). With regard to extrinsic goals however, the literature is less clear. Both perspectives on how the pursuit of different kind of goals affect well-being seem to have merit, and there seems to be no a-priori reason to select one of those perspectives as a basis for our hypothesis. As a consequence, we have two competing hypotheses: The congruence between extrinsic goal attainment and importance will be negatively associated with subjective well-being (*Hypothesis 3a*); and: The congruence between extrinsic goal attainment and importance will be positively associated with subjective well-being (*Hypothesis 3b*).

2. Method

2.1. Participants and Procedure

A total of 149 adult Hungarian people participated in the study. Many of them are teachers, psychologists and psychology students who responded to our published advertisement of the questionnaire on various social media forums or to our public announcement in university lectures. The average age of the respondents is 32 years ($SD = 11.62$ years) and 75% of them are women. All participants have a high school diploma or higher.

The survey served as a pilot study for a broader research on happiness and aspirations of Hungarian migrants living abroad (ethical approval number is 2016/35 from the ELTE PPK KEB).

2.2. Measures

To measure the attainment and importance of various life goals, the Hungarian version of Kasser and Ryan's (2001) *Aspiration Index* was used (V. Komlósi, Rózsa, Bérdi, Móricz, & Horváth, 2006). The scale assesses the importance and attainment of four types of intrinsic goals (personal growth, relationship, community, health) and three types of extrinsic goals (wealth, fame, image). Participants were presented with a total of 35 individual goals (5 items per subscale) and were asked to indicate how important that given

goal is to them and on to what extent they had attained that goal. Both dimensions were measured on a seven-point Likert scale (1 = *not at all*, 7 = *very much*). A higher score on the scale indicated greater importance or higher attainment of the specific goal. Intrinsic and Extrinsic goal importance and attainment scores were created by computing the average from the items of the relevant subscales (Kasser & Ryan, 2001). The Cronbach's alphas of all four scales (Intrinsic attainment, Intrinsic importance, Extrinsic attainment, Extrinsic importance) are all above .80 (see Table 1).

To measure subjective well-being we used the *Satisfaction With Life Scale* (SWLS; Diener et al., 1985; Martos, Sallay, Désfalvi, Szabó, & Ittész, 2014). The scale has five items, measuring the satisfaction with life as a whole. An example item is: "In most ways my life is close to my ideal". The scale uses a 7 point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). A higher score on the scale meant greater life satisfaction. The Cronbach's alpha of the scale is .89.

2.3. Strategy of Analysis

The polynomial regression and response surface analysis is used to assess the impact of the discrepancy between two predictor variables on an outcome variable and to visualize this result in a three-dimensional space (Edwards, 1994, 2002; Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). The analysis allows us to look at the extent to which combinations of two predictor variables relate to one dependent variable, particularly when our key concern is the effect of the (in) congruence of the two predictor variables (Edwards, 2002; Shanock et al., 2010). For decades these types of discrepancy and congruence measures were handled by calculating a difference score, a variable that is formed by subtracting one variable from another which then is treated "as a concept on its own right" (Edwards, 2001, p. 265). Despite of its widespread use, there are multiple methodological issues with the use of a difference score (Edwards, 1994, 2001, 2002). First, there is a problem with reduced reliability, which means that the difference score is often less reliable than either of its component measures (Edwards, 2002). Second, a difference score handles two conceptually distinct measures as one single score and that leads to a potentially ambiguous interpretation. This may be because with algebraic differences, the variances of absolute differences give greater weight to the component measure with larger variance (Edwards, 2002).

Third, the coefficient relating a difference score to an outcome is supposed to capture the effect of congruence and not the effects of the components of the difference score. However, since the difference score is computed from its component measures, it fails to capture more than the combined effects of the component measures. These effects are then confounded once they are reduced to one single coefficient (Edwards, 2002). Last but not least, “difference scores reduce an inherently three-dimensional relationship between the component measures and the outcome to two dimensions... [thus] discard information and oversimplify the relationship of the components with the outcome” (Edwards, 2002, p. 359).

A central premise of polynomial regression is that the effects of component measures on the outcome have to be conceptualized in three dimensions. The response surface methodology provides a framework to both analyzing and interpreting these surfaces that are created in a three-dimensional space (Edwards, 2002). Due to its clear advantages, the methodology has been gaining popularity over the last decade, and its application is starting to appear in studies on well-being and identification (cf., Hoffmeister, Gibbons, Schwatka, & Rosecrance, 2015; Kazén & Kuhl, 2011; Lipponen, Wisse, & Jetten, 2017; Mähönen, & Jasinskaja-Lahti, 2013; Zyphur, Zammuto, & Zhang, 2016). Usage of this methodology in studies that look at well-being from a self-determination perspective and multi-discrepancy theory is however not common. Since the technique can be used whenever the two predictor variables are commensurate (meaning that the predictors represent the same conceptual domain) and measured on the same numeric scale (Edwards, 2002; Shanock et al., 2010), it offers us an excellent way to test our hypotheses.

2.4. Tools

For the polynomial regression analysis we follow the guidelines described in Edwards (2002) and Shanock et al. (2010) and run the analysis in SPSS 24. To interpret the results it is advised to use the response surface pattern, rather than directly interpret the results from the polynomial regression analyses (Edwards, 1994, 2002; Shanock, 2010). The general form of the polynomial regression function used in the analysis is $Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2$, where Z is the dependent variable (Well-being), X is predictor 1 (Goal Importance), and Y is predictor 2 (Goal Attainment). Well-being is regressed on each of the two predictor variables (X and Y), the interaction between the predictor variables (XY), and the squared values of the two predictors (X^2 and Y^2). First, we centered the predictors (Goal

Attainment and Importance) around the midpoint of their scales. We achieved this by subtracting 4 from each score because both goal importance and attainment was measured on a 7-point Likert scale. After centering the predictors, we create three new variables: the square of the centered first predictor (goal importance), the square of the second predictor (goal attainment), and the interaction of the two centered predictor variables. We followed this procedure both for intrinsic goal attainment and importance and for extrinsic goal attainment and importance. The results of the polynomial regression analyses are evaluated to four surface test values: $a1$, the slope of perfect agreement ($a1 = b1 + b2$); $a2$, the curvature along the line of perfect agreement ($a2 = b3 + b4 + b5$); $a3$, the slope of the line of incongruence (disagreement), indicating the direction of discrepancy ($a3 = b1 - b2$), and $a4$, the curvature of the line of incongruence ($a4 = b3 - b4 + b5$). To find support for our Hypothesis 1, namely that goal attainment exceeds goal importance in its effect on well-being, we need to find a significant, negative slope along the line of incongruence (so $a3$ needs to be negative and significant). Given that our Hypothesis 2 is that congruence between intrinsic goal attainment and importance will be positively related to well-being, we expect significant positive slope along the line of perfect agreement ($X = Y$). In other words, we expect the surface test $a1$ to be significant and positive. It would mean that the outcome variable (well-being) increases as intrinsic goal importance and intrinsic goal attainment increase. With our third hypothesis, we aim to test two competing theories and try to answer the question if well-being decreases when extrinsic goals are both obtained and found important (*Hypothesis 3a*), as SDT suggests, or that well-being increases when extrinsic goals are both obtained and found important (*Hypothesis 3b*). A significant negative $a1$ would denote support for Hypothesis 3a (meaning that well-being decreases as both extrinsic goal importance and goal attainment increase). A significant positive $a1$ would denote support for Hypothesis 3b (meaning that well-being increases as both extrinsic goal importance and goal attainment increase).

3. Results

Table 1 shows descriptive statistics and intercorrelations of our variables. Intrinsic goal importance has a significant positive correlation with well-being ($r = .24, p < .01$), while extrinsic goal importance does not relate significantly to well-being. Moreover, Intrinsic ($r = .49, p < .01$) and Extrinsic goal attainment ($r = .41, p < .01$) are both positively related to well-being.

It seems that, in contrast to SDT, extrinsic goal attainment is not detrimental to well-being in our sample. Goal attainment and goal importance are positively correlated to each other for intrinsic goals ($r = .46, p < .01$), as well as for extrinsic goals ($r = .29, p < .01$).

Table 1. Descriptive statistics, Cronbach's alphas, and intercorrelations for the study variables

Variables	Mean	SD	1.	2.	3.	4.	5.
1. Satisfaction with Life	4.95	1.25	(.89)				
2. Intrinsic Goal Importance	6.13	0.63	.24**	(.88)			
3. Intrinsic Attainment	5.00	0.87	.49**	.46**	(.88)		
4. Extrinsic Goal Importance	3.76	1.01	.06	.28**	.04	(.89)	
5. Extrinsic Attainment	3.37	0.87	.41**	.29**	.55**	.60**	(.86)

Note: * $p < .05$, ** $p < .01$ (two-tailed significance). Cronbach's alpha coefficients are displayed on the diagonal in parentheses.

Table 2 shows the regression coefficients, curvatures, and slopes associated with the polynomial regression equation for well-being as the dependent variable and intrinsic goal attainment and importance as the predictor variables. All results are shown after controlling for age and gender. We found that intrinsic goal attainment has a main effect on well-being ($B = .77, p = .04$), while goal importance has no such effect.

In line with our second hypothesis, we find that indeed, there is a linear relationship along the line of perfect agreement ($a1 = 1.29, p = .04$). This indicates that the congruence between intrinsic goal importance and goal attainment is positively related to well-being. As Figure 1 shows, the lowest level of well-being can be found when both goal attainment and goal importance are low, and it increases towards the end of the graph where both goal attainment and goal importance are both high. We do not find that the curvature of discrepancy, which would show that attainment matters more in the equation than importance, is significant. Therefore Hypothesis 1 does not seem to be supported for intrinsic goal pursuit.

Table 2. Summary of polynomial regression analyses (Intrinsic)

	Satisfaction with life	
Variables	B	SE
Constant	4.34***	.72
Age	-.02*	.008
Gender	.04	.20
Intrinsic Goal Importance (b ₁)	.50	.64
Intrinsic Goal Attainment (b ₂)	.77*	.38
Intrinsic Goal Importance ² (b ₃)	-.14	.18
Intrinsic Goal Importance × Att (b ₄)	-.08	.18
Intrinsic Goal Attainment ² (b ₅)	.11	.11
F	7.70***	
R ²	.24	
Surface tests		
a1 (b ₁ + b ₂)	1.29*	.63
a2 (b ₃ + b ₄ + b ₅)	-.12	.18
a3 (b ₁ - b ₂)	-0.27	.85
a4 (b ₃ - b ₄ + b ₅)	.04	.29

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

We also analyzed the several sub-scales of the intrinsic goal importance and attainment. We see that in three out of four cases the line of perfect agreement ($a1$) is significant and positive. This indicates that for goals related to growth ($B = 1.29$, $SE = .57$, $p = .02$), relationship ($B = .51$, $SE = .24$, $p = .03$) and physical health ($B = 1.95$, $SE = .74$, $p = .01$) congruence or agreement between goal importance and goal attainment is positively related to well-being. Only for the community subscale the line of perfect agreement is not significant ($B = .17$, $SE = .12$, $p = .17$). In addition, for the personal growth subscale we find that the slope along the line of incongruence ($a3$) is significant and positive ($B = 1.94$, $SE = .29$, $p = .02$). This indicates that regarding personal growth goals, well-being is higher when the importance of the goal is higher than the attainment of the goal. Interestingly, we find furthermore a curvilinear effect of two of the intrinsic subscales, namely relationship ($B = -.36$, $SE = .15$, $p = .02$) and growth

($B = -.51$, $SE = .17$ $p = .003$) goal importance. This means that an increase in both relationship and personal growth goal importance is associated with an increase in well-being up to a point, after which a further increase in both goal importance is associated with a decrease in well-being. In other words, there seems to be an optimal midrange for relationship and growth goal importance.

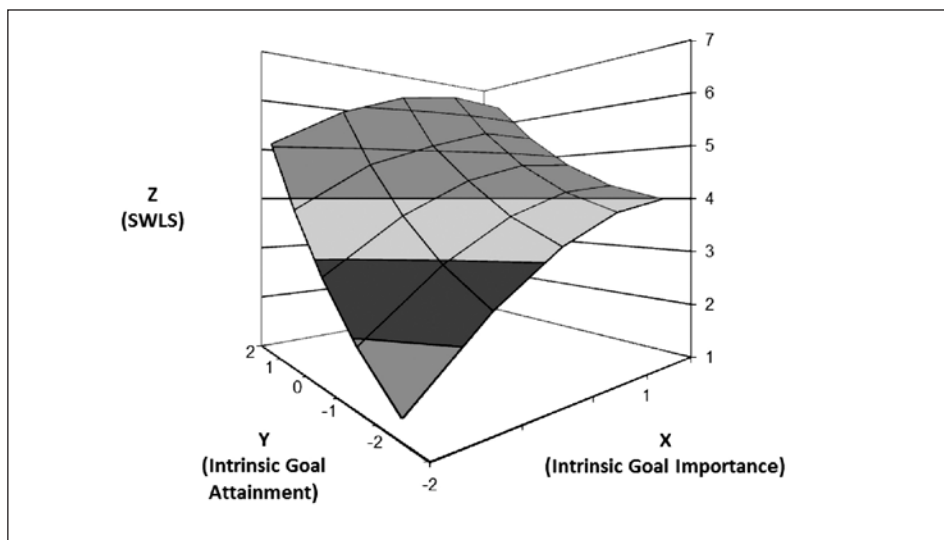


Figure 1. Satisfaction with Life as the result of the discrepancy between Intrinsic Goal Importance and Goal Attainment

Table 3 shows the regression coefficients, curvatures, and slopes associated with the polynomial regression equation for well-being as the dependent variable and extrinsic goal attainment and importance as the predictor variables.

Again, all results are shown after controlling for age and gender. First of all, the results show that both extrinsic goal importance ($B = -.32$, $SE = .14$ $p = .02$) and goal attainment ($B = .51$, $SE = .19$ $p = .007$) have a significant relationship with well-being, but while goal importance has a negative effect, goal attainment has a positive one. This indicates that valuing extrinsic goals is detrimental to well-being (which is congruent with predictions of SDT); however the attainment of such goals is positively related to it (which is in contrast to predictions of SDT). The bivariate polynomial regression analysis does not show the expected significant line

of the perfect agreement ($a1$). Therefore we do not find support for either of the two competing hypothesis. We do find however, that the slope of the line of incongruence is significant and negative ($a3 = -.84$, $p = .005$), indicating that well-being is higher when extrinsic goal attainment is higher than extrinsic goal importance. This is in line with our first hypothesis. Additionally, the curvature along the line of incongruence is significant ($a4 = -.41$, $p = .03$), showing that well-being increases more sharply to the extent that the degree of discrepancy increases. *Figure 2* shows a three dimensional chart of the results. It shows for instance that when goal attainment is high and goal importance low, well-being is relatively high as compared to the situation where extrinsic goal attainment is low and goal importance is high.

Table 3. Summary of polynomial regression analyses (Extrinsic)

	Satisfaction with life	
Variables	B	SE
Constant	5.90***	.40
Age	−0.01*	.008
Gender	.07	.19
Extrinsic Goal Importance (b ₁)	−.32*	.14
Extrinsic Goal Attainment (b ₂)	.51**	.19
Extrinsic Goal Importance ² (b ₃)	.05	.09
Extrinsic Goal Importance × Att (b ₄)	.12	.16
Extrinsic Goal Attainment ² (b ₅)	−.34**	.13
F	8.47***	
R ²	.26	
Surface tests		
a1 (b ₁ + b ₂)	.19	.15
a2 (b ₃ + b ₄ + b ₅)	−.17	.11
a3 (b ₁ − b ₂)	−0.84**	.30
a4 (b ₃ − b ₄ + b ₅)	−0.41*	.19

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

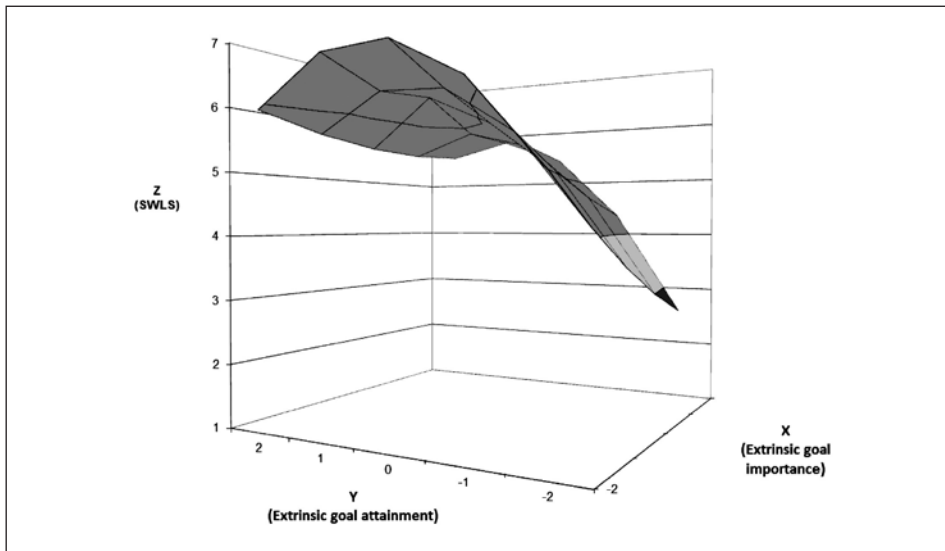


Figure 2. Satisfaction with Life as the result of the discrepancy between Extrinsic Goal Importance and Goal Attainment

We also analyzed the sub-scales of the extrinsic goal importance and attainment (wealth, fame, and image). In two out of the three cases the line of perfect disagreement ($a3$) is significant and negative, indicating that regarding wealth ($B = .76$, $SE = .27$, $p = .006$) and image goals ($B = -.61$, $SE = .18$, $p = .001$), well-being is higher when the discrepancy is towards the attainment and not the importance. In addition, our data reveals a significant positive line of perfect agreement ($a1$) on the image goal content ($B = .33$, $SE = .02$, $p < .001$), showing that when the importance and attainment of image goals are in agreement, well-being increased.

4. Discussion

Happiness is a function of “the extent to which important goals, needs, and wishes have been fulfilled” (Frisch, 1998, p. 35). In the present paper, we explored if the extent to which people are satisfied with their lives is a result of their success in achieving goals that are important to them. In doing so we differentiated between the importance and attainment of both extrinsic goals and intrinsic goals. With our study we made an attempt to find empirical evidence related to the interplay of intrinsic and extrinsic goal importance and goal attainment. As Niemiec et al. (2009) points out, much

more studies have focused on the relationship between psychological well-being and the importance of intrinsic or extrinsic goals, and very few included the consequences of the attainment of these goals for well-being. In our investigation of the effects of the relationship between goal attainment and importance on well-being, we made use of bivariate polynomial regression analysis. Previous research usually relied on difference scores in these situations, but this practice comes with serious methodological problems (Edwards, 1994, 2001). Employing polynomial regression analysis allowed us to look at the combined effect of goal attainment and goal importance on well-being in greater depth and with more accuracy.

First, in agreement with the predictions of SDT, we found that intrinsic goal attainment is positively related to well-being, and that extrinsic goal importance is negatively related to well-being. However, we also found that two out of four subscales of intrinsic goal importance have a curvilinear relation to well-being, and that extrinsic goal attainment is positively related to well-being. The curvilinear effect is particularly interesting here; because it suggests that there can be 'too much of a good thing': Having important intrinsic goals can make people happy, but placing too much importance on such goals may have the effect that they become a burden rather than a benefit to well-being. The current findings suggest that future studies may fruitfully take such curvilinear relationships into account.

Our results also suggest that the agreement between intrinsic goal importance and goal attainment is positively related to well-being, thus supporting our second hypothesis. These findings corroborate the Self-Determination Theory and the findings of previous studies showing that the progress in personally important goals has important implications for well-being (e.g. Brunstein, 1993). Interestingly, our results also show that neither of our two competing hypotheses on the effect of extrinsic goal pursuit on well-being (Hypotheses 3a and 3b) found support. The congruence between extrinsic goal importance and goal attainment was neither positively nor negatively related to well-being. Present findings thus suggest that the realization of extrinsic goals that are considered important is not harmful, but also not beneficial to our well-being. Notably, Niemiec and colleagues (2009) also found that the progress in attainment of extrinsic goals does not have significant effects on well-being. They explain this by arguing that extrinsic goal pursuit does not promote the satisfaction of basic psychological needs, but they also consider alternative explanations. First, following the argument of Bandura and Locke (2003), they mention that it can be that the positive effects of extrinsic goal aspirations are temporary and short-term compared to intrinsic aspirations therefore it has no detectable effect on happiness on the long run. Second, they mention the possibility that chasing and eventually attaining extrinsic aspirations

interfere with other life domains – such as maintaining loving relationships –, which in turn weakens the positive effect of goal attainment on happiness. Perhaps the fact that we found no effects on the congruence between extrinsic goal importance and goal attainment on well-being can also be explained by the argument that extrinsic goal pursuit indeed does not support our innate needs; that potential beneficial effects are short lived and temporary (also see the hedonic treadmill theory; Brickman & Campbell, 1971); or that it simply just takes time from more fulfilling goal pursuit. Notably, our study examined overall subjective well-being, and did not focus on satisfaction with a specific life domain. Perhaps further research may examine whether the discrepancy between importance and attainment contributes positively or negatively to satisfaction with various domains in one's life.

Our results also show that whether or not goal attainment exceeds goal importance in its relation to well-being depends on the specific goal type. For intrinsic goals we find no evidence that attainment is more consequential than importance. In fact, for one of the sub-scales we even found the opposite: The importance of personal growth goals adds more to a person's well-being than having attained them. Apparently, sometimes having a goal in your life that is important to you, is more important than having realized that goal. For extrinsic goals however, we do indeed find that well-being is higher when the attainment of extrinsic goals exceeds the importance of these goals. It seems that, when it comes to money, fame or beauty it is better to have it than to appreciate and want it.

4.1. Strengths and weaknesses

Clearly, the cross-sectional single-source design of our study is suboptimal as it may inflate direct relationships between variables. Therefore, it would be valuable if future field studies would test these relationships with a design that does not suffer from this problem (for instance by measuring well-being by asking partners or close relatives to make an assessment). Importantly, however, common source or method bias cannot account for quadratic or interactive effects (Siemens, Roth, & Oliveira, 2010), and thus forms no threat to the validity of a large part of our conclusions. Also, a substantial portion of the respondents were (prospective) helping professionals (teachers, psychologists, psychology students) which raises the question whether the type of goals they consider important is illustrative for a larger population. Intrinsic goals related to the community or relationships maybe of lesser importance to people who have jobs that signify a less pro-social orientation (Jacobsen, Eika, Helland, Lind, &

Nyborg, 2011; Stevens et al., 2012). Yet another concern derives from the nature of the questionnaire we used for measuring goal importance and attainment. The Aspiration Index questionnaire contains a certain set of goals. However, we do not know whether in reality these are the goals that are personally the most valued and interesting to the respondents (also see Sheldon & Elliot, 1999). Perhaps in a future study it would be useful to rely on a set of goals that people generate themselves, so that we get an even better understanding of how the discrepancy of goal importance and attainment relates to well-being. In the present study we also did not investigate any underlying constructs that may help explain the intricate relationship between goal importance, goal attainment and well-being. Some previous studies suggest that constructs such as need satisfaction (Sheldon & Elliott, 1999), commitment to goals (Brunstein, 1993), and the actual mental representation of the goal progress (Huang, Zhang, & Broniarczyk, 2012) can be important. Finally, in the current study we focused on goal attainment and goal importance, which we measured using the Aspiration Index (Kasser & Ryan, 2001). Interestingly, this scale also includes an additional goal dimension, namely the expected likelihood of goal attainment (indicating the future prospect of achieving the given goal). Although we did not discuss this dimension in present paper, future studies may fruitfully investigate how future expectations of goal attainment (and their interplay with goal importance) affect well-being.

4.2. Conclusions

People are active agents in crafting their own happiness. One way of doing so is by setting goals and progressing towards them. However, our study shows that not all goal pursuits contribute to happiness. We found that particularly the congruence between intrinsic goal attainment and goal importance adds to our satisfaction in life. So, when people value personal growth, loving relationships and physical health and feel that they have been able to reach those goals they are relatively happy. People should be careful though: Our findings also suggest that too much importance placed on loving relationships and personal growth can be harmful, and be detrimental to happiness. Moreover, valuing extrinsic goals also does not seem to increase our happiness, but attaining those goals does. Indeed, well-being is higher when extrinsic goal attainment exceeds extrinsic goal importance. Fortunately, most people have the natural craving for loving relationships and community, good health, and personal development so it might be comforting to know that we can make steps towards our happiness by actively working towards the achievement of these goals.

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Conflict of Interests Statement

The authors have no conflict of interest to declare.

A célok fontosságának és megvalósulásának hatása az élettel való elégedettségre – Polynomiális regresszió analízis

TÓTH ÁGNES – WISSE, BARBARA – FARAGÓ KLÁRA

Bevezetés: A legtöbb ember aktívan keresi a boldogságot és dolgozik a céljai elérésén. Korábbi kutatások eredményei bizonyították, hogy célok kitűzése és azok megvalósítása növeli a jóllétet. Annak érdekében, hogy ezt a kapcsolatot megértsük, szükséges, hogy különbséget tegyünk a célok fontossága és a célok elérése között, mind az extrinzik, mind az intrinzik célok tekintetében. *Célkitűzés:* Kutatásunkban arra keressük a választ, hogy a jóllét hogyan függ az intrinzik és extrinzik célok elérésétől, a célok fontosságától, illetve

a kettő közötti kongruenciától, azaz hogy a számunkra fontos célok elérése kell-e ahhoz, hogy boldogok legyünk. Elvárásaink alapján, a célok elérése jobb előrejelzője a jóllétnek, mint csupán a célok kijelölése. Feltételezzük továbbá, hogy az intrinzik célok esetében a számunkra fontos célok megvalósítása (kongruencia) magasabb jóllét értékekkel jár együtt. Az összefüggést az extrinzik célok esetében is megvizsgáljuk. *Módszer:* Vizsgálatunkban 149 fő vett részt (75%). A hipotéziseink teszteléséhez polynomiális regresszió analízist használtunk, amivel két változó, a cél fontosságának és cél elérésének egy harmadik változóra, a jóllétre gyakorolt együttes hatását vizsgálhatjuk. *Eredmények:* Az intrinzik cél elérés pozitívan hat a jóllétre ($B = 0,77; p = 0,04$), míg a cél fontosságnak nincs ilyen hatása. Az intrinzik célok fontossága és elérése közötti kongruencia szintén pozitív együttjárást mutat a jólléttel ($a1 = 1,29; p = 0,04$). Amikor az extrinzik célok fontossága és elérése közötti kongruencia hatását vizsgáljuk a jóllétre, azt találjuk, hogy míg az extrinzik célok fontossága ($B = -0,32; p = 0,02$) negatív hatással van a jóllétre, addig az extrinzik célok megvalósítása ($B = 0,51; p = 0,007$) pozitívan hat. Továbbá azt is sikerült kimutatni, hogy nagyobb az élettél való elégedettség, amikor az extrinzik célokat megvalósultnak látjuk, ám azok nem olyan fontosak számunkra ($a3 = -0,84; p = 0,005$). A jóllét értékei pedig meredekebb növekedést mutatnak, ahogy az extrinzik cél fontosság és a megvalósítás közötti szakadék növekszik ($a4 = -0,41; p = 0,03$). *Konklúzió:* Eredményeink alapján úgy tűnik, hogy a számunkra fontos intrinzik célok elérése a jóllét növekedésével jár együtt. Ugyanakkor extrinzik célok kijelölése és fontossága nincs hatással a jóllétre, viszont elérésük pozitív kapcsolatban van a jólléttel.

Kulcsszavak: célelérés, intrinzik, extrinzik, célfontosság, célmegvalósítás, polynomiális regresszió, jóllét, boldogság

