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Higher education for happiness? Investigating the impact of education on the hedonic and eudaimonic well-being of Europeans

Janine Jongbloed

IREDU, Université Bourgogne Franche-Comté, France

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Abstract

This study examines the impact of post-secondary education on the well-being of Europeans, comparing single-item hedonic and multi-dimensional eudaimonic models of well-being, operationalized as ‘satisfaction with life’ (SWL) and ‘flourishing’. The results indicate that the impact of education varies significantly when well-being is defined from each of these two perspectives: although vocational education is not significantly associated with the SWL of women and men, it is significantly associated with the extent to which both men and women are flourishing in their lives. Tertiary education is significant across all models for both SWL and flourishing. This study highlights the importance of comprehensive conceptualizations and measurements of well-being in European educational research and public policy.

Keywords

Post-secondary education, well-being, flourishing, Europe, survey research

Introduction

Education is a pivotal institution in all European countries, touted as the key to individual and societal success. While educationalists emphasize post-secondary education’s ability to shape engaged and discriminating citizens, economists typically underscore the influence of education on earnings and prosperity (McMahon and Oketch, 2013; Nussbaum, 1997). Indeed, when the impacts of education are researched empirically, they often measure economic productivity rather than quality of life (Gouthro, 2010) – an intangible demand-side factor that is largely ignored (Seeberg, 2011).

Research mobilizing measures of ‘subjective well-being’ (SWB) enhances human capital approaches to educational studies (Forgeard et al., 2011; Zepke, 2013). This approach is able to examine individual welfare in non-monetary terms and examine directly what income examines indirectly: how well is this person doing in life? This is a relevant question in contemporary Europe, as ever-increasing credential levels become more expensive for individuals and governments (McMahon, 2009; van de Werfhorst, 2009). Studying the impact of education on well-being offers a new way to measure the efficacy of educational systems, a core value of the European Union.¹

There is a significant direct statistical relationship between well-being, as measured by ‘satisfaction with life’ (SWL), and highest educational credential (Blanchflower and Oswald, 2004; Dolan and White, 2007; Salinas-Jiménez et al., 2013). However, this link is contested as the effect of education alters or loses statistical significance with changing model

specifications (Helliwell and Putnam, 2004; Helliwell et al., 2012). Researchers argue that education has little direct impact on SWL; rather, it affects well-being indirectly through enhanced occupational, financial, and social opportunities (Castriota, 2006; Chen, 2011; Helliwell et al., 2012). Encompassing these debates from a wider perspective, contradictory findings regarding the impact of education on well-being also result from the diverse ways in which well-being is measured (Elwick and Cannizzaro, 2017; Michalos, 2008; Ryan and Deci, 2001).

The present study builds upon the work of Huppert and So (2011, 2013), who explore the conceptual framework of ‘flourishing’ to measure well-being using the European Social Survey (ESS). Our analysis critically evaluates research that uses ‘happiness, satisfaction and (subjective) well-being indistinctly’ (Salinas-Jiménez et al., 2013: 368). Rather, we examine hedonic and eudaimonic measures of well-being separately to tease out the nuances in the education–well-being relationship, controlling for relevant variables, among women and men.

Based on contemporary research exploring different conceptions of well-being, we ask: is post-secondary education associated with well-being as measured from hedonic and eudaimonic perspectives? We hypothesize that: (a) both vocational and tertiary attainment is directly associated with well-being; and (b) the significance of this association differs by the conceptualization and measurement of well-being adopted. The driving aim is to provide a comprehensive measure of well-being that captures the relationship between post-secondary education and well-being in the European context.

In the first section, we briefly review prior research on the measurement of well-being and the relationship between education and well-being. The second section outlines our measures of well-being and the third section describes the data and methodology. The fourth section describes analyses for each measure: the *flourishing* components; individual items; and a combined measure. Finally, the fifth section discusses our findings, limitations, and directions for future research.

Literature review

Theories of well-being

Literature on well-being has developed different conceptual and methodological approaches, due, in part, to cross-disciplinary interest. Psychology, economics, philosophy, sociology, and education all produce unique studies of well-being. This results in a multiplicity of approaches rather than a unified theory. Guided by Sen’s (1999) argument that well-being is at its core a plural and not a singular construct, Jayawickreme et al. (2012) use the ‘engine of well-being’ as a metaphor to illustrate how these seemingly contradictory approaches can be unified. They separate theories of well-being into three major groups: (a) approaches that emphasize desire-fulfilment; (b) approaches that focus on hedonic pleasure or ‘feeling good’; and (c) approaches that propose objective lists or models of what people need in order to be well. These can be summed up succinctly as theories of ‘wanting’, ‘liking’, and ‘needing’ (Dolan and White, 2007) and have been classified into similar categories by other researchers (Allardt, 1993; Deci and Ryan, 2006; Parfit, 1984).

Desire-fulfilment theories conceptualize well-being as the satisfaction of preferences and desires and focus on market behaviour and the individual’s possession of goods (Sen, 1979, 1987; van de Werfhorst, 2011). This basic approach is often modified, such as by the inclusion of *idealized preferences* to account for the influence of insufficient information on rational choice (Dolan et al., 2008).

Within the second group, *hedonic* theories tend to conceptualize well-being as feeling good or happy – key terms being SWL and SWB. SWL encompasses an individual’s evaluation of their life as a whole (Barrington-Leigh, 2013; Helliwell and Putnam, 2004). SWB

focuses on either momentary feelings of positive emotion (Kahneman and Krueger, 2006) or the balance of positive and negative affect (Diener et al., 1999). Important critiques to the study of SWB highlight that this approach is not (typically) sensitive to the socio-economic distribution of well-being, neglects other valuable outcomes, and is easily influenced by adaptation and mental conditioning (Raibley, 2011; Sen, 1985, 1987, 1999; Stewart, 2014).

The final theoretical grouping, eudaimonic theories of well-being, focuses on objective lists of attributes needed in order to be well, especially in terms of personal meaning, purpose, and autonomy (Deci and Ryan, 2006; Ryan and Deci, 2000, 2001; Ryff and Singer, 2006). Indeed, the term *eudaimonia* was used by Aristotle to conceptualize and measure the extent to which an individual reaches their full potential (Aristotle, 350BC/1996; Ryan et al., 2006). One such theory, the ‘capability approach’ conceptualizes well-being as the real freedoms an individual has to attain a life he or she has reason to value (Nussbaum, 2003, 2011; Sen, 1987, 1999). Both *functionings*, or ‘the various things a person may value doing or being’, and *capability*, or ‘the alternative combinations of functionings that are feasible for her to achieve’, are key units of measurement (Sen, 1999: 75). Although this approach does not reject subjective accounts of well-being, it posits that a view of well-being that neglects what people actually do in their lives is incomplete.

Theories of flourishing

Building on these three strains of research, several theories of human ‘flourishing’ have emerged and gained empirical support. ‘Flourishing’ refers to the achievement of high levels of well-being and typically includes both hedonic and eudaimonic components (Hone et al., 2014). Keyes (2002), the first to use this term, outlines 14 components of flourishing, including positive relationships, positive affect, purpose in life, self-acceptance, social contribution, identity well-being, autonomy, and life satisfaction. These elements can be sublimated into emotional, psychological, and social well-being (Hone et al., 2014).

Likewise, Diener et al. (2010) expand their measurement of SWB to include dimensions of psychological well-being and other attributes empirically linked to high levels of SWB to create a measure of flourishing (Diener et al., 2010; Ryff and Singer, 2006). It incorporates positive relationships, engagement, purpose and meaning, self-acceptance and self-esteem, competence, optimism, and social contribution. Seligman’s (2011) measure focuses on what things people value for their own sake rather than for instrumental reasons and includes positive emotion, engagement, (positive) relationships, meaning in life, and accomplishments (Forgeard et al., 2011).

These approaches to flourishing all incorporate feeling and functioning and include positive relationships, engagement or interest, and meaning and purpose (Hone et al., 2014). Only Keyes’ (2002) original model of ‘flourishing’ includes SWL – the most common measure of well-being used in research and public policy. In regards to measurement, Diener et al. (2010) sum individual items into a composite variable of ‘psychological wealth’. Keyes (2002) and Seligman (2011) average item scores for each component and report them individually (Hone et al., 2014).

Using the same approach as Keyes (2002), another team working with the ESS Round 3 supplementary well-being module created a measurement scheme that closely aligns with these conceptualizations of flourishing by combining hedonic and eudaimonic approaches into a single, multi-dimensional measure (Huppert and So, 2011; Huppert et al., 2009). Huppert and So (2011) use thresholds to determine who is (and is not) flourishing, outlining levels across European countries. The present article, using ESS Round 6 (European Social Survey, 2012) data, utilizes a new measure based on their operationalization of flourishing and emphasizes commonalities and differences with the models described above.

Well-being and education

Educational practitioners, researchers, and policy-makers nearly always assume, explicitly or implicitly, that education² leads to better lives and increased well-being (Cockerill, 2014). For example, the 2009 ‘Inquiry into the Future of Lifelong Learning in the UK’ focuses explicitly on well-being as an outcome of lifelong learning. It acknowledges that while education is generally assumed to have a positive impact on individual well-being, only recently has it become a topic of research (Gouthro, 2010). The relationship between education and well-being is indeed unclear. A ‘World Happiness Report’ claims that education has no clear direct effect on happiness (Helliwell, Layard and Sachs, 2012). The authors posit that education mainly impacts well-being indirectly through income, job possibilities, and job security. They describe the positive direct effect as ‘smaller than is often claimed by educationalists’ (Layard and Sachs, 2012: 78).

There is also contradictory evidence that education improves well-being. In certain contexts, higher educational levels decrease job satisfaction (Mora and Ferrer-i-Carbonell, 2009) or can be a source of regret (Roese and Summerville, 2005). Research also suggests demographic differences. For example, highly educated men are more likely to report being depressed (Chevalier and Feinstein, 2006). Research suggests that education changes an individual’s subjective evaluation of their objective conditions and expectations (Huppert, 2009; Norwegian Social Science Data Services, 2013). Indeed, education may have little effect on life satisfaction even when it is subjectively rated as very important (Camfield and Esposito, 2014).

Despite these contradictory findings, education often has a small but significant positive effect on well-being (Blanchflower and Oswald, 2004; Salinas-Jiménez et al., 2013; Witter et al., 1984). However, how these findings should be interpreted and used in public policy is unclear. In a call for further insight into the education–well-being link, Michalos (2008) emphasizes the need for more sophisticated measures of all or part of this relationship. Heeding this advice, a complex measure of well-being as ‘flourishing’ offers a novel way to examine this association.

Well-being and socio-economic variables

Well-being has also been shown to vary with occupation, income, and socio-economic status. Typically higher income and more prestigious occupations are linked to greater well-being, and unemployment exhibits a clear negative relationship with well-being at both the individual and national levels (Bockerman and Ilmakunnas, 2006; Boyce et al., 2010; Di Tella et al., 2006; Michalos and Orlando, 2006). These findings are considered to be similar internationally.

Another element that is strongly associated with well-being is social relationships, both close personal relationships and social capital as defined by social networks, involvement, and trust (Aknin et al., 2013; Helliwell and Putnam, 2004; Sarracino, 2012). Once again, this is often viewed as one component of well-being itself, as seen in the literature on ‘flourishing’ outlined above, as well as in most eudaimonic theories of well-being.

Health exhibits a robust impact on all measures of well-being, including SWL. Indeed, it is sometimes argued to be one component of well-being (Michalos et al., 2012; Perneger et al., 2012). For example, Nussbaum (2011) includes physical health in two of her ten central capabilities, and laypeople often mention health as an important part of their well-being (Anand et al., 2005; Collomb et al., 2012; Jongbloed and Andres, 2015). Health is strongly linked to education as well (Furnée et al., 2008). Some have even argued that controlling for health may overcorrect associations, such as between income and SWL, because of its high correlation with well-being (Hou, 2014).³

Methodology

Data

This study uses ESS data drawn from the sixth wave (European Social Survey, 2012) – a sample of more than 50,000 individuals in 27 European countries (European Social Survey, 2012, 2014). The ESS is a cross-national survey project that began in 2001 and is conducted every two years. Its goal is to explore people's values, beliefs, and behaviours. The sixth wave included a rotating module adapted from the third wave that focused specifically on personal and social well-being. It includes measures of SWL, happiness, and numerous other aspects of well-being. It also includes measures of education, health, income level, occupational status, and family make-up, as well as many other variables.

Measures

Well-being. This study employs and compares different conceptualizations of well-being: a traditional hedonic approach; SWL;⁴ and a more complex eudaimonic approach capturing 'flourishing'. To measure *flourishing*, we use eleven separate items and test the data structure of this construct using a principal component analysis (PCA). Following this, we conduct regression analyses on each PCA component to examine their relationships with post-secondary education. Additionally, all eleven indicators are examined separately in a 'dashboard approach' (Forgeard et al., 2011). This methodology highlights the multifaceted nature of well-being and potential differences in the effects of education on each component.

Education. The measurement of education is also central to these analyses. Education is measured through four categories: lower tier upper secondary or below (comparison group); upper tier upper secondary ('secondary education'); advanced vocational training ('vocational education'); and lower tertiary education and above ('tertiary education').⁵ This simplified schema highlights important qualitative differences in educational credentials while providing adequate sample sizes in all categories. Average levels of SWL and 'flourishing' differ significantly by highest credential for the sample as a whole ($p < 0.01$); however, only a very small percentage (1% and 3% respectively) of the variance is explained by education alone.

Control variables. Prior research investigating the most robust methods available to examine the determinants of well-being has shown that using analyses that assume cardinality or interpersonal ordinality of responses to well-being questions produce similar results, while including relevant control variables related to observables is very important in explaining well-being and creates stark differences in findings (Ferrer-i-Carbonell and Frijters, 2004). Four key variables that consistently relate to well-being are: age; income; marriage; and physical health. These variables, as well as gender and professional occupational status – which have significant but less consistent effects on well-being – are included in the present analyses.

Drawing on existing research, the control variables in this study are as follows: gender (comparison group is women, compared to men); income (comparison group is low, compared to medium or high); subjective⁶ physical health (comparison group is low, compared medium or high); marital status (comparison group is single, compared to married or living with a partner); age and age squared; occupational status (comparison group is employed, compared to unemployed); professional status (comparison group is non-professional, defined as an International Standard Classification of Occupations score of 4,000 or higher, compared to professional, defined as an ISCO of 3,999 or lower; a missing category was also included as a separate control variable); currently in education (comparison group is not engaged in education, compared to students); and retired (comparison group is not retired). All of these except age are introduced as dummy

variables.⁷

Analysis. The analyses are carried out using ordinary least squares (OLS) regressions in Stata version 12 (StataCorp, 2009) with errors clustered within countries and controls included for all countries to account for national and socio-cultural differences. Post-stratification weights in combination with population size weights are applied in all analyses. The analyses are split into three parts: the first part uses the three components of ‘flourishing’ as the dependent measures of well-being; the second part predicts individual items, including SWL; and the third part uses a single *flourishing* composite variable to measure the impact of education on well-being. Scales⁸ created from the standardized items for each well-being component are used as the dependent variables in the regression analyses. Likewise, when examining individual indicators, we use the standardized rather than raw scores. The final set of analyses uses a single composite dependent variable to represent the construct *flourishing*.

The first models include demographic, health, and socio-economic control variables, as well as the education variables. Further variables are added sequentially to control for occupational status. To assess the robustness of the findings, we examine results from models for each sub-component separately for women and men. Finally, all analyses are rerun using ordered probit regression to confirm the statistical significance of our results. Consistent with prior findings (Ferrer-i-Carbonell and Frijters, 2004), the ordered probit and OLS regression models are similar (i.e. the sign of the coefficients and whether a coefficient is significant). Thus, because we espouse a cardinal vision of well-being⁹ in our theoretical framework of ‘flourishing’, the OLS results are reported here unless otherwise specified.

Results

Measurement of well-being

Employing a measurement model similar to that developed by Huppert and So (2013), items were chosen from the ESS that parallel the indicators used in the four extant operationalizations of flourishing (see Table 1). It includes positive emotion, positive relationships, engagement, meaning, competence, optimism, self-esteem, emotional stability, resilience and vitality (Huppert et al., 2009; Huppert and So, 2011). A measure of SWL was also included, consistent with Keyes' (2002) original 'flourishing' model and the New Economic Foundation's conceptualization of personal well-being (New Economics Foundation, 2009, 2011).

We conducted a PCA with Varimax rotation to test the overall construct of flourishing. The eleven standardized indicators (z-scores) loaded onto three factors (I–III in Table 1; loadings > 0.30, suggesting that distinct components exist within the construct of flourishing (Cronbach's alphas > 0.60). Supplemental PCA analyses with oblimin rotation, which has the advantage of assuming that the survey items are correlated, replicated these groupings. Furthermore, confirmatory factor analyses using structural equation modeling confirm that the three-factor solution provides satisfactory fit (root mean square error of approximation = 0.07, confidence distribution = 0.97).

Table 1. Components and indicators of flourishing.

Component	European Social Survey indicator item	Scale	Mean	Standard deviation
<i>I. Psychological well-being:</i>				
1. Competence	Most days I feel a sense of accomplishment from what I do	1–5; agree strongly to disagree strongly; <i>reversed</i>	3.71	0.87
2. Engagement	Please tell me to what extent you learn new things in your life	0–6; not at all to a great deal	4.09	1.54
3. Meaning	I generally feel that what I do in my life is valuable and worthwhile	1–5; agree strongly to disagree strongly; <i>reversed</i>	3.90	0.78
4. Optimism	I am always optimistic about my future	1–5; agree strongly to disagree strongly; <i>reversed</i>	3.70	0.96
5. Self-esteem	In general, I feel very positive about myself	1–5; agree strongly to disagree strongly; <i>reversed</i>	3.89	0.81
<i>II. Emotional well-being:</i>				
6. Positive emotion	Taking all things together, how happy would you say you are?	0–10; extremely unhappy to extremely happy	7.05	2.07
7. Positive relationships	To what extent do you feel you are appreciated by the people you are close to?	0–10; not at all to completely	7.64	1.91
8. Satisfaction with life (SWL)	All things considered, how satisfied are you with your life as a whole nowadays?	0–10; extremely dissatisfied to extremely satisfied	6.64	2.4
<i>III. Mental well-being:</i>				
9. Emotional Stability	Please tell me how much of the time during the past week you felt calm and peaceful	1–4; none or almost none of the time to all or almost all of the time	2.73	0.83
10. Resilience	When things go wrong in my life, it generally takes me a long time to get back to normal	1–5; agree strongly to disagree strongly	3.28	1.06
11. Vitality	Please tell me how much of the time during the past week you had a lot of energy	1–4; none or almost none of the time to all or almost all of the time	2.64	0.86

Note: Table 1 is an adaptation and re-analysis of Huppert and So's work (Huppert and So, 2011; Huppert et al., 2013) and modeled on four extant models of flourishing (see Hone et al., 2014; Appendix A). The item means and standard deviations were computed using post-stratification weights in combination with population size weights. After standard-ization, the eleven items loaded onto three factors (I–III in the table; loadings > 0.30) in a principal component analysis. Source: ESS6-2012 (Edition 2.3).

Initial exploratory factor analyses without rotation favoured a one-factor solution (loadings >0.30) and the overall Cronbach's alpha of all eleven items together was 0.82 using standardized (*z*) values and 0.79 using the original scores, showing a high level of internal consistency for *flourishing* as a whole. Thus, both the three-component solution and the existence of a larger unitary construct are supported by statistical evidence. Nevertheless, we conclude that the best-fitting model statistically and theoretically is the three-component model from the PCA with Varimax rotation that explained 55% of the variance (see Table 1).

The three components extrapolated from the PCA are: *psychological well-being*; *emotional well-being*; and *mental well-being* (accounting for 22%, 18%, and 15% of the total variance respectively). These statistical groupings are similar theoretically to the groupings developed by Keyes (2002). The first comprises feelings of 'thriving' in one's life, such as competence, engagement, and confidence (Ryff, 1989; Ryff and Keyes, 1995). The second captures classic measures of positive affect and positive social relationships. It reflects the most common conceptualization of well-being: hedonic well-being. Finally, the third taps into feelings of peacefulness and resiliency, but also of energy in one's life. This component embodies what is often termed 'mental health' and relates to psychosocial functioning and impairment (Keyes, 2002).

Although these components clearly reflect existing constructs in the flourishing literature about 'flourishing,' interestingly, they do not exactly mirror the groupings found by Huppert and So (2011) in their exploratory factor analyses. They found the components of 'positive characteristics', 'positive functioning', and 'positive appraisal'. The construct of 'positive characteristics' comprised emotional stability, vitality, optimism, resilience, and self-esteem, 'positive functioning' by engagement, competence, meaning, and positive relationships, and 'positive appraisal' by life satisfaction and positive emotion (Huppert and So, 2011).

Clearly, these groupings are similar to those found in the current study, but our findings reflect more closely the theoretical constructs mobilized by Keyes (2002).¹⁰ These differences are not due to the methodology used, as exploratory factor analyses on the 2012 data give a single component solution, but may be due to the fact that Huppert and So (2011) chose to categorize features dichotomously as present or absent using cut-points on the response scale. Other possible explanations include differences in the questions and in the response categories between the two survey waves,¹¹ as well as sampling differences in the participating countries in the 2012 wave.

Multiple well-beings: psychological, emotional, and mental

As outlined in Table 1, our measure of well-being as *flourishing* consists of three components:

- (a) *psychological well-being*, defined by competence, engagement, meaning, optimism, and self-esteem;
- (b) *emotional well-being*, including positive emotion, positive relationships, and SWL; and
- (c) *mental well-being*, measured by emotional stability, resilience, and vitality.

Table 2 presents the regression results predicting the three components. We find that tertiary and vocational education has a significant positive impact on each of the three components. The control variables show consistently significant effects across all models, with the exception of age, which only significantly predicts *emotional well-being*.

Examining these findings in more detail, we see that *psychological well-being* is influenced by both vocational and tertiary post-secondary education, although vocational education clearly has a more significant effect. These items can be linked theoretically to skills within the labour market and workplace, as well as overall self-confidence that may be

imparted by education. In particular, the item measuring ‘engagement’ has a strong logical connection to post-secondary education, as we discuss further below.

Table 2. Education and occupation variables regressed on the multiple well-beings.

	Psychological well-being	Emotional well-being	Mental well-being
Secondary education	0.00 (0.97)	0.02 (0.42)	0.04 (0.16)
Vocational education	0.06* (0.03)	0.03* (0.05)	0.07*** (0.00)
Tertiary education	0.07+ (0.06)	0.07* (0.02)	0.05* (0.04)
Unemployed	-0.16*** (0.00)	-0.20*** (0.00)	-0.14*** (0.00)
Professional	0.08*** (0.00)	0.06*** (0.00)	0.03*** (0.00)
Observations	53490	53506	53452
R ²	0.16	0.24	0.15
Adjusted R ²	0.16	0.24	0.15

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are available upon request.

Source: ESS6-2012 (Edition 2.3).

Both vocational and tertiary education are also significant predictors of *emotional* and *mental well-being* when compared to those with less than a secondary school education. These clear positive effects of post-secondary education on *emotional well-being*, net of controls, contrast with previous findings suggesting that no direct effects exist (Helliwell et al., 2012). *Mental well-being*, which may overlap theoretically with other constructs, such as that of ‘grit,’ is clearly an attribute that could be both taught through education and, reversely, may also increase an individual’s chances of successfully completing post-secondary education (Akos and Kretchmar, 2017).

More generally, we find that controls for unemployment and professional occupational status are highly significant and that almost all country coefficients show significant influences on well-being scores ($p < 0.05$). Nordic countries show significant positive effects on all measures of well-being, while Central and Eastern European countries generally show a negative association. This is consistent with other findings showing that levels of well-being are highest in ‘Social-Democratic’ countries, whereas relationships between education and well-being are strongest in ‘Conservative Welfare States’ (Jongbloed and Pullman, 2016). This may be due to the emphasis on vocational education in these countries, as well as more limited participation in tertiary education (Willemsse and de Beer, 2012). Country-level differences are not explored in depth in this article but will be discussed as an important area for further study as they provide an important context for the relationship between education and well-being.

Single-item measures of well-being

When well-being is measured as SWL, income, health and marriage all show the expected significant positive relationships, while age shows the expected U-shape relationship.¹²

Table 3. Education and occupation variables regressed on satisfaction with life.

	Model 1	Model 2	Model 3
Secondary education	0.07+ (0.07)	0.06 (0.15)	0.03 (0.41)
Vocational education	0.05 (0.24)	0.04 (0.45)	0.01 (0.82)
Tertiary education	0.21*** (0.00)	0.18*** (0.00)	0.11** (0.00)
Unemployed		-0.86*** (0.00)	-0.81*** (0.00)
Professional			0.17*** (0.00)
Observations	53238	53238	53238
R ²	0.23	0.24	0.25
Adjusted R ²	0.23	0.24	0.25

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are discussed in the text and the coefficients are available upon request.

Source: ESS6-2012 (Edition 2.3).

When unemployment is introduced, it shows a highly significant negative relationship with SWL and slightly reduces the coefficients of income and post-secondary credentials. Tertiary education is a significant predictor across all models; however, vocational education does not significantly predict SWL (see Table 3).

When examining the other items individually in a ‘dashboard approach’ (see Table A1 in Appendix A), one quickly sees that both vocational and tertiary education are highly significant in the models predicting *engagement*, as is currently being a student. This finding is intuitively appealing, as engagement measures the extent to which one learns new things in life. This suggests that higher education plays a strong role in both immediate and lifelong learning, consistent with the literature (Rubenson, 2007; Walberg and Tsai, 1983). Those currently in school have an expected highly significant positive association while those who are unemployed and retired exhibit a negative association (not shown).

Education plays a surprisingly small role in predicting *competence*, *optimism*, and *self-esteem*. Those with higher levels of education are not any more likely to report feeling a sense of accomplishment from what they do, although being a professional is significant in predicting a sense of competence. These non-findings are theoretically interesting, as we expected these psychological well-being variables to be more, rather than less, related to education. Indeed, much of the discourse concerning education emphasizes hope for the future, self-confidence, and enhanced abilities; however; these analyses signal that tertiary education in Europe may not be succeeding in this role.

Tertiary education significantly impacts *positive relationships*, as measured by the perception of being appreciated by the people one is close to. Thus, education may impact feelings of happiness through the ‘creation of social opportunities’ which make ‘a direct contribution to the expansion of human capabilities and the quality of life’ (Sen, 1999: 144). This may include enhanced social networks, more equal partnerships within marriage, and greater community participation, among other factors.

Table 4. Education and occupation variables regressed on flourishing.

	Model 1	Model 2	Model 3
Secondary education	0.03 (0.11)	0.03 (0.15)	0.02 (0.39)
Vocational education	0.08*** (0.00)	0.07*** (0.00)	0.06*** (0.00)
Tertiary education	0.10*** (0.00)	0.09*** (0.00)	0.06* (0.03)
Unemployed		-0.18*** (0.00)	-0.17*** (0.00)
Professional			0.06*** (0.00)
Observations	53515	53515	53515
R ²	0.24	0.24	0.25
Adjusted R ²	0.24	0.24	0.25

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are available upon request.

Source: ESS6-2012 (Edition 2.3).

Those with higher levels of education also report significantly higher *resilience* scores, as defined by how long it takes one to get back to normal after things go wrong in one's life. Being a professional and having a higher income are also significant in predicting resilience.¹³ Both vocational and tertiary education are associated with greater *emotional stability*, while being currently in education exerts a positive influence on feelings of *vitality* (not shown). These findings suggest that education is associated with mental health, although reverse causation cannot be ruled out.

Flourishing

Finally, we examine the composite variable of *flourishing* as a single indicator. The final *flourishing* variable is a scale¹⁴ constructed using the standardized scores of all the indicators listed in Table 1 and varies from -3.39 to 1.46, with a slight negative skew and a median of 0.03 (mean (M) = -0.04; standard deviation (SD) = 0.59). This continuous approach, as compared to a categorical approach, allows for a more nuanced examination of determinants of levels of *flourishing*, complementing prevalence studies (Huppert and So, 2011). As predicted theoretically, the SWL and *flourishing* items are correlated with one another: high scores on the SWL scale are generally associated with high scores on the *flourishing* measure (for the sample as a whole, Spearman rho = 0.65).

As shown in Table 4, vocational and tertiary education are significantly associated with the overall *flourishing* variable in all models. These relationships are significant even when adding all controls. However, secondary education, as compared to less than secondary education, does not predict higher levels of *flourishing*.

These results are largely consistent with those for SWL, with one notable exception: vocational education significantly predicts higher levels of *flourishing*, while it did not significantly predict higher levels of SWL. Thus, previous research may have underestimated

the positive effects of vocational education by limiting the definition of well-being. This adds empirical evidence to research that shows that the rewards of vocational education may be undervalued. These findings support the notion that occupational education contributes to individuals' well-being, an important measure of their 'worthwhileness' (Winch, 2002).

Robustness of findings to gender differences. Average levels of SWL and *flourishing* differ significantly for women and men ($p < 0.01$). When predicting *flourishing* within the sub-populations of men and women, we find that both vocational and tertiary education are significant for both women and men (see Table B1 in Appendix B). In contrast, for SWL, tertiary education is significant across both groups, while vocational education is not significant for either men or women (see Table B2 in Appendix B). These findings mirror the results that we saw for the population as a whole.

The effects of vocational and tertiary education are generally significant across the components of *flourishing*. However, *mental well-being*, as measured by emotional stability, resilience, and vitality, is more strongly linked to vocational education for women and tertiary education for men (see Tables B3 and B4 in Appendix B). This could be due to the types of jobs individuals typically perform after these two different types of post-secondary education: this component might be seen as the opposite of unhealthy stress, which is potentially more present for women in higher-status occupations demanding more investment.

Furthermore, men and women differ significantly in their *levels* of education and well-being: the women ($M = 6.60$; $SD = 2.39$) in our sample are significantly less satisfied than the men overall ($M = 6.69$; $SD = 2.41$), but also slightly more likely to have tertiary education than the men (18% of the women have tertiary education versus 17% of the men), equally likely to have vocational education (13%), and slightly less likely to be in a professional occupation (30% versus 29%).¹⁵ Women's levels of *flourishing* as measured by individual items and our component scales are significantly lower than those of men in this sample ($p < 0.01$). These findings are consistent with other studies using the ESS Wave 3 data (New Economics Foundation, 2009).

Discussion

This study combines two disparate theoretical and empirical strands: research examining the education–well-being association; and research exploring the impact of diverse operationalizations of well-being. We find that our measure of *flourishing* and the resulting components differ slightly from those found by Huppert and So (2011), but correspond fairly closely with Keyes' (2002) conceptualization. Both three- and single-component solutions are supported empirically. The latter offers the advantage of parsimony, while the former allows for more nuanced assessments.

Addressing our primary objective, this study illustrates the importance of measurement models in studies examining the impact of education on well-being. Although vocational education does not significantly impact SWL, when a more comprehensive measure of *flourishing* is used to operationalize well-being, both vocational and tertiary education are significantly associated with well-being measured as *flourishing*.

There exist important differences in the impact of post-secondary education on our measures of well-being. In particular, the effects of the three components of *flourishing* are not uniformly robust: vocational education is more important in predicting *psychological* and *mental well-being*, while tertiary education is key in predicting *emotional well-being*.

The fact that vocational education has a more significant effect than tertiary education on *psychological well-being* is an unexpected finding that potentially supports the notion of learning to ‘know what you do not know,’ which often comprises an integral part of tertiary education (Gibbs, 2014).

When examining individual measures, items measuring *competence*, *optimism*, and *self-esteem*, as well as *positive emotion* and *vitality*, are not significantly linked to post-secondary education. On the other hand, *engagement*, *meaning*, and *positive relationships*, as well as *resilience*, are positively associated with higher education. These differences amongst various well-being measures point to the importance of the choice of measurement when making broader claims about the over- all relationship between higher education and happiness.

Previous studies may have underestimated the positive effects of post-secondary education on well-being. This has serious implications from a policy standpoint. A recent working paper attempted to rank components of the Human Development Index by their influence on happiness scores in different countries – as measured by SWL – as part of a proposal to focus monetary aid on those factors that exhibit the most robust relationship with happiness measures in each country (Kroll, 2013). Education exhibited the smallest effect – yet this may be due to how happiness was measured. The present study provides evidence that education may indeed exert a robust impact on well-being as measured by a more complex instrument. Policies incorporating ‘happiness’ or ‘well- being’ need to consider carefully how this construct is conceptualized and measured.

Limitations and areas for future research

This study is limited by the fact that, although country-effects are controlled for using dummy variables, they are not explored fully using multi-level models. Almost all countries were significant when introduced as dummy variables in OLS analyses, exhibiting both positive and negative coefficients. This raises the question of whether or not it is appropriate to assume that the relationship between education and well-being is the same in all European countries, in particular considering the significant differences in average well-being in different national educational and welfare state contexts (Jongbloed and Pullman, 2016).

When estimating intercept-only multi-level models for the two measures of well-being, the intraclass correlation coefficient (ICC), which indicates how much of the total variance can be attributed to country-level variations, for SWL is 0.18, indicating that there are indeed significant country-level variations that contribute to the total variance (Park and Lake, 2006). On the other hand, *flourishing* varies less between countries, with an ICC of 0.09. Thus, single-level models (as performed in this study) are likely sufficient. However, it is quite possible that the marginal effects of education on well-being differ by country, due to differences in educational systems and typical employment patterns (Estevez-Abe et al., 2001). This is an important area for future research.

Furthermore, gender differences in the impact of education on well-being need to be more fully explored. Gender differences in the education–well-being association also likely differ by country and might best be investigated with groupings of countries by welfare and labour systems related to gender (Mandel and Shalev, 2009; Siaroff, 1994). It would also be useful to run analyses separately for those who are engaged in full-time and part-time employment to tease out gender differences in education’s impact on well-being under these differing circumstances.

Finally, based on previous research, it seems likely that post-secondary education plays a

different role for those who are unemployed versus those who are employed (Becchetti and Pelloni, 2013; Bockerman and Ilmakunnas, 2006; Cole et al., 2009; Michalos and Orlando, 2006). Indeed, when we examine models separately for employed and unemployed respondents (not shown), we find that tertiary education does not have a significant impact on SWL for unemployed individuals. This may be evidence for the indirect effects of education through occupation. Post-secondary education may be associated with an improvement in one's job quality, experience of work, social connections at work, and other factors besides simply one's occupational status as measured by professional status. Each of these limitations of the present study offers fruitful new avenues for future studies.

Conclusion

This study highlights a key challenge for future research: operationalization and measurement of well-being. The impact of education on well-being differed substantially when *flourishing* rather than SWL was measured and predicted. In particular, simple hedonic constructs may understate the impact of vocational education: when well-being was measured from a eudaimonic perspective, both vocational and tertiary education played an important role in predicting well-being across all models.

This clearly corroborates the hypothesis of Michalos (2007) who suggested that the lack of consistent and significant findings for the impact of education on well-being was due to measurement problems in both the independent variable and dependent variable. Thus, we find a possible reason for the fact that education, while highly valued in theories of well-being, has not shown a strong empirical relationship to well-being. Theorists in the eudaimonic tradition or using the capability approach view well-being in a complex, plural sense, while the extensive empirical work done in the economic literature, which tends to use education as a demographic control variable, measures well-being in a hedonic way and finds only very small or insignificant effects. Therefore, inconsistencies in the literature reflect differences in the theoretical understandings of these constructs and may not provide accurate comparisons of the relationship between these two variables. Future studies and policies need to be sensitive to these issues of conceptualization, operationalization, and measurement.

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Notes

1. Article 3 of the 2007 Treaty of Lisbon declares, 'The Union's aim is to promote peace, its values and the well-being of its peoples' (European Union, 2007: 15).

2. Various terms referring to education are used in this article. 'Higher education' and 'post-secondary education' are used interchangeably to refer to all types of further education after secondary school. 'Vocational education' refers to practically-based education that is occupationally-specific. 'Tertiary education' refers to post-secondary education that has more advanced educational content, including academic and/or professional knowledge, skills and competencies. When used alone, 'education' refers to all of the aforementioned types of education, as well as primary and secondary education.
3. Some researchers use health as an independent control variable, some view it as too correlated with well-being to be included because it overcorrects the estimates, and still others view it as a part of well-being, the dependent variable (Anand et al., 2005; Hou, 2014; Van Praag and Ferrer-i-Carbonell, 2008). Subjective health is potentially an endogenous variable in the models presented here: it is correlated to both education and the measures of well-being (Gana et al., 2013; Groot and Maassen van den Brink, 2007). For these reasons, we performed analyses with and without health as an independent control variable but chose to interpret the analyses using physical health as a control variable in order to remain consistent prior research. However, we refer to the drawbacks of this choice in the conclusion.
4. Satisfaction with life is measured by the individual's response to an 11-point Likert-type scale that asks, 'All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means extremely dissatisfied and 10 means extremely satisfied'.
5. This is based on the International Standard Classification of Education (ISCED) eight categories: less than lower secondary (I); lower secondary (II); lower tier upper secondary (IIIb); upper tier upper secondary (IIIa); advanced vocational training, sub-degree (IV); lower tertiary education at the Bachelor of Arts level (V1); upper tertiary education at or above the Master of Arts level (V2); and other education levels not possible to harmonize into the ISCED schema.
6. The European Social Survey measures health with the question, 'All in all, how would you describe your state of health these days? Would you say it is very good, good, fair, or poor?'
7. The descriptive statistics of these data as well as the correlations between variables are available upon request.
8. The scale is constructed by dividing the summative score of the standardized values of the individual items by the number of items over which the sum is calculated.
9. This cardinal vision implies that the intervals between two points on well-being indicators (for example, satisfaction with life) have consistent meanings, or, in other words, that the interval between these two points is always the same wherever they appear on the scale (for example, between 2 and 3 or 8 and 9). This vision also asserts that we can compare this metric between different individuals. There exist important critiques of this vision, problematizing the assumed ability to make interpersonal comparisons and highlighting the importance of questions of fair distribution and fair methods of distribution (Rappert and Selgelid, 2013; Sen, 1985).
10. These results also differ from those found by the New Economic Foundation. Their theoretically driven groupings separated social well-being into a distinct component, resulting in five total components and further subcomponents using a larger number of indicators in the 2006 wave of the European Social Survey (New Economics Foundation, 2009). The inclusion of a larger number of items explains these differences.
11. For example, the question concerning *positive relationships* changed between the 2006 and 2012 surveys. In 2006 respondents were asked if there were people in their lives who really cared about them, while in 2012 they were asked if they felt appreciated by the people that they were close to. Thus, the focus changed from the perception of other people's feelings to their own emotional affect in response to those around them.
12. This, however, may be partly due to the choice of control variables: well-being scores may in fact influence variables such as income and marriage, causing the appearance of this relationship because they also vary with age. These are traditional control variables predominately accepted in the literature, but have also received important critiques (e.g., Glenn, 2009).
13. Physical health (not shown), as expected, significantly predicts satisfaction with life and all *flourishing* items, except *self-esteem*. The strong effect of health in these models, suggests that, due to the link

between education and health (for the sample as a whole, Spearman rho = 0.20), the effects of education may be underestimated.

14. The scale is constructed in the same manner as explained in note 13.
15. The item means and standard deviations, as well as the percentages, were computed using post-stratification weights in combination with population size weights.

ORCID iD

Janine Jongbloed <https://orcid.org/0000-0001-9221-0045>

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Author Biography

Janine Jongbloed is a Canadian PhD student in France and her research focuses on the association between higher education and adult well-being in international comparative context.

Appendix A

Table A1. Education regressed on individual well-being items.

	Competence	Engagement	Optimism	Meaning	Self-esteem	Positive emotion	Positive relationships	Emotional stability	Resilience	Vitality
Secondary education	-0.05* (0.04)	0.11** (0.01)	-0.01 (0.74)	0.03 (0.25)	-0.03 (0.31)	-0.06 (0.32)	0.12+ (0.07)	0.05 (0.26)	0.10*** (0.00)	-0.02 (0.55)
Vocational education	0.05 (0.14)	0.22*** (0.00)	0.04 (0.12)	0.05* (0.04)	0.01 (0.87)	-0.04 (0.30)	0.16*** (0.00)	0.05* (0.05)	0.14*** (0.00)	0.03 (0.40)
Tertiary education	0.01 (0.78)	0.34*** (0.00)	0.01 (0.81)	0.09* (0.04)	-0.00 (0.89)	0.04 (0.54)	0.23*** (0.02)	0.07* (0.02)	0.12*** (0.00)	-0.04 (0.27)
Unemployed	-0.24*** (0.00)	-0.15*** (0.00)	-0.09*** (0.00)	-0.19*** (0.00)	-0.09** (0.01)	-0.41*** (0.00)	-0.10+ (0.09)	-0.10*** (0.00)	-0.17*** (0.00)	-0.12** (0.01)
Professional	0.04+ (0.07)	0.26*** (0.00)	0.03 (0.03)	0.06** (0.01)	0.04 (0.14)	0.16*** (0.00)	0.07** (0.01)	-0.01 (0.23)	0.10*** (0.00)	0.01 (0.59)
Observations	53018	53013	53189	52961	53165	53128	52970	53041	52852	53012
R ²	0.11	0.22	0.09	0.09	0.08	0.22	0.08	0.08	0.10	0.13
Adjusted R ²	0.11	0.22	0.09	0.09	0.08	0.21	0.08	0.08	0.10	0.13

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are discussed in the text and the coefficients are available upon request.

Source: ESS6-2012 (Edition 2.3).

Appendix B

Table B1. Education and occupation variables regressed on flourishing by gender.

	All	Women	Men
Secondary education	0.02 (0.39)	0.02 (0.31)	0.01 (0.47)
Vocational education	0.06*** (0.00)	0.08*** (0.00)	0.04* (0.04)
Tertiary education	0.06* (0.03)	0.07* (0.05)	0.05* (0.02)
Unemployed	-0.17*** (0.00)	-0.13*** (0.00)	-0.20*** (0.00)
Professional	0.06*** (0.00)	0.06*** (0.00)	0.06*** (0.00)
Observations	53515	29147	24368
R ²	0.25	0.25	0.24
Adjusted R ²	0.25	0.25	0.24

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are available upon request.

Source: ESS6-2012 (Edition 2.3).

Table B2. Education and occupation variables regressed on satisfaction with life by gender.

	All	Women	Men
Secondary education	0.03 (0.41)	0.06+ (0.10)	0.00 (0.96)
Vocational education	0.01 (0.82)	0.01 (0.78)	0.00 (0.92)
Tertiary education	0.11** (0.00)	0.10* (0.03)	0.13** (0.01)
Unemployed	-0.81*** (0.00)	-0.65*** (0.00)	-0.95*** (0.00)
Professional	0.17*** (0.00)	0.14** (0.00)	0.20*** (0.00)
Observations	53238	28977	24261
R ²	0.25	0.25	0.24
Adjusted R ²	0.25	0.25	0.24

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are discussed in the text and the coefficients are available upon request.

Source: ESS6-2012 (Edition 2.3).

Table B3. Education regressed on the multiple well-beings for women.

	Psychological well-being	Emotional well-being	Mental well-being
Secondary education	-0.01 (0.80)	0.04 (0.12)	0.03 (0.30)
Vocational education	0.08* (0.02)	0.03+ (0.10)	0.10*** (0.00)
Tertiary education	0.08+ (0.09)	0.07* (0.04)	0.06 (0.11)
Unemployed	-0.12*** (0.00)	-0.15*** (0.00)	-0.13*** (0.00)
Professional	0.09*** (0.00)	0.05* (0.02)	0.02 (0.25)
Observations	29135	29143	29118
R ²	0.18	0.24	0.15
Adjusted R ²	0.17	0.24	0.15

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are available upon request.

Source: ESS6-2012 (Edition 2.3).

Table B4. Education regressed on the multiple well-beings of men.

	Psychological well-being	Emotional well-being	Mental well-being
Secondary education	0.01 (0.65)	-0.01 (0.68)	0.06+ (0.10)
Vocational education	0.04+ (0.07)	0.02 (0.23)	0.04 (0.12)
Tertiary education	0.06* (0.02)	0.06** (0.01)	0.04* (0.03)
Unemployed	-0.21*** (0.00)	-0.24*** (0.00)	-0.15*** (0.00)
Professional	0.05* (0.02)	0.08*** (0.00)	0.04+ (0.10)
Observations	24355	24363	24334
R ²	0.16	0.25	0.13
Adjusted R ²	0.15	0.25	0.12

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$; the coefficients and p values (reported in parentheses) are based on the ordinary least squares models. Post-stratification weights in combination with population size weights are applied in all analyses. Control variables (specified in the methodology section) are not shown, due to space constraints, but are available upon request.

Source: ESS6-2012 (Edition 2.3).