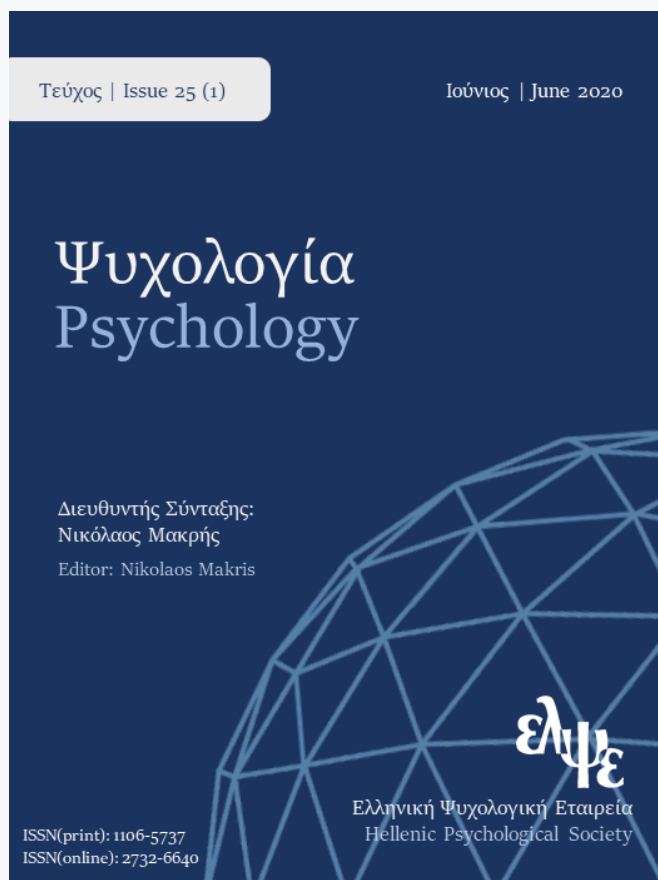


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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Measuring well-being in emerging adults: Exploring the PERMA framework for positive youth development

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KEYWORDS	ABSTRACT
character strengths, emerging adulthood, PERMA model, positive education, positive youth development, well-being	The PERMA theory brings together elements of the PERMA model, character strengths, and well-being. Set in the context of positive education this study set out to empirically test this multidimensional theory with emerging adults in higher education. 516 female and male students aged 18 to 29 years studying in Universities in Greece were asked to participate in a web-based survey of (a) the five elements of PERMA, i.e. positive emotions, engagement, relationships, meaning and accomplishment; (b) four character strengths, i.e. curiosity, gratitude, love for learning and humor; and (c) three well-being indicators, i.e. flourishing, resilience and positive perception. The patterning of associations within and between the three components of the theory was examined, leading to insights regarding both the multidimensionality of well-being and the specificity of relations between the three components. Conclusions were drawn regarding the theoretical and applied implications of the results for advancing positive youth development in higher education.
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Positive Psychology, a theory-driven research and practice paradigm seeks to study and promote well-being. PERMA, a model set in the context of Positive Psychology consists of five domains that constitute the elements of well-being (Seligman, 2011): positive emotions, engagement, positive relationships, meaning, and accomplishment. These are underpinned by character strengths, such as curiosity, gratitude, love for learning, and humor. According to Seligman (2011), the gold standard for measuring well-being is flourishing and the goal of Positive Psychology is to increase flourishing. Well-being is a multidimensional construct and needs to be measured in more ways than one, in order to reflect major aspects of the positive aspects of human experiences, such as resilience and positive perception. Taken together, the PERMA elements, character strengths, and well-being form the PERMA theory, which this study set out to explore with a sample of Greek emerging adults in higher education. The following sections present the terms of the current inquiry, linking positive youth development to well-being in emerging adulthood; set positive education as a guiding framework for the study of youth well-being within the PERMA theory in the context of the Greek crisis; and provide operational definitions of the elements of the PERMA model as interpreted and measured in this study.

Positive youth development in emerging adulthood

Emerging adulthood, a distinct developmental period from the late teens to the late twenties with unique characteristics, including identity exploration, experimentation, and focusing on one's self (Arnett, 2000) has been investigated as a unique period crucial for positive youth development. The latter is a research-

and practice-based approach that builds on young people's assets and their developmental potential to help face adversity and other challenges during adolescence and emerging adulthood (Damon, 2004). Intricate, well-documented links exist between positive youth development and well-being. For instance, Park (2004a) suggested that life satisfaction, the cognitive component of subjective well-being can index, predict and mediate/moderate positive development in youth; Larson (2006) maintained that activating young people's capacity for motivation through mentoring facilitates positive developmental outcomes; and Youngblade, Theokas, Schulenberg, Curry, Huang and Novak (2007) indicated that youth's positive resources, including parents, schools, and communities prevent youth maladaptation (externalizing, internalizing and academic problems) and encourage positive development, as indexed by social competence, health-promoting behavior, and self-esteem. Additional key drivers of well-being in adolescence and young adulthood include optimism, mindfulness, physical activity, nutrition and sleep (Ambrosini et al, 2009; Hunter, & Csikszentmihalyi, 2003; Ortega et al., 2008; Roberts et al., 2009; Sanger & Dorjee, 2015). As a result of the research findings into the mechanisms of positive youth development special programs have been developed to promote an array of desirable psychosocial outcomes in youths, such as resilience, social, emotional, cognitive, behavioral and moral competence, positive identity and optimism for the future and prosocial behavior (see Catalano et al., 2004 for a review). One of the foremost avenues for promoting positive youth development is through purpose-built programs in educational settings.

Positive education and well-being in the context of the Greek crisis

Traditionally, the world over, and particularly in Greece, education has always been highly valued, mainly in its own merit, but also as a means of socio-economic mobility. Showcasing the well-documented interconnections between well-being and learning (e.g. Department of Education and Children Services [DECS], 2007), positive education or 'education for both traditional skills and happiness' (Seligman et al., 2009, p. 293) can help alleviate the adverse effects of poverty and unemployment. Hence the need to advocate for positive education in Greece, a country facing a prolonged period of severe economic, social, and political crisis. The rationale for the present study pertains to the exploration of the usefulness of the PERMA model and overall theory as an organizing framework for measuring well-being during a crisis raging in Greece since 2008. The effects of the crisis on youths are extremely harsh. To illustrate, youth unemployment in Greece has risen dramatically to 50% since 2016 (Papanastasiou et al., 2016). This led to the phenomenon of 'brain drain', whereby more than 500.000 Greeks, half of them under 35 years, migrated mainly in Europe (but also the USA and elsewhere in the world) in the 11 years since the crisis first hit Greece in 2008 (Zoulias, 2018). A human rights approach to understand and combat poverty and other forms of social disadvantage and crises suggests that poverty affects children and youths particularly hard, through their adverse effects on access to housing and food, to health services and treatment, to education and to the workplace, to name but a few, since youths cannot do much to help their families increase their income until they find employment later in their life (McLoyd & Flanagan, 1990). Furthermore, the corrosive influence of a widespread multifaceted crisis permeates and affects all aspects of private, social, and political domains, making it even more difficult for young people to find work, thus lifting out of poverty. However, while the crisis in Greece affected youths negatively, it also influenced them in certain positive ways. In a comparison between youths growing up before and during the crisis, Motti-Stefanidi and Asendorpf (2017) ascertained that the latter faced more financial problems, displayed worse behavior at school, more absenteeism and lower self-efficacy; but they also exhibited similar levels

of well-being and higher levels of academic achievement. Other recent research carried out in Greece suggested that meaning in life positively correlated with positive emotions, while it correlated negatively with negative emotions, depression, anxiety, stress, and the effects of the economic crisis (Pezirkianidis et al., 2016). In a study of youth purpose in life during the Greek crisis, positive future expectations held by emerging adults in crisis-ridden Greece were treated as an operationalization of flourishing (Bronk et al., 2019). It was indicated that youth with a high sense of purpose was in a positive developmental course, being able to display resilience, look past current challenges, and envision a positive future.

The momentum in Greece seems to represent a unique opportunity to incorporate positive education values and principles to the curriculum at all levels of the country's educational system as a means of alleviating the adverse effects of the crisis and of promoting well-being and flourishing. The main tenants of positive education hold that positive youth development can be achieved, even under the conditions of poverty and crisis, if steps are taken to equip youths with skills for happiness and resilience, in addition to traditional cognitive skills (Seligman & Csikszentmihalyi, 2000). Research carried out within its realm suggests that positive education offers a number of benefits especially for youth mental and physical health, including self-awareness and emotional intelligence (Waters, 2014), enhanced creativity and academic achievement (Seligman et al., 2009; Hoyt et al., 2012), as well as higher levels of life satisfaction in adulthood (Waters, 2011). Positive Psychology, the wider paradigm within which positive education is nested is ideally placed to provide youths, educators, families, mental health practitioners, social institutions members and policy makers with a comprehensive framework, methodology and tools to help young people better prepare for happiness and success in a competitive workplace.

The promotion of well-being in and through higher education is still largely a desideratum in Greece, or indeed internationally, where emerging adults attending University remain a largely under-researched population in that respect. The question raised asks what aspects of well-being to promote for positive youth development and preparation for the workplace. Kern and her associates (2015) reported that PERMA has been hailed as a useful framework for measuring well-being as a multidimensional construct within positive education, since it can assess dimensions that are relevant to and valued by youths, such as relationships, positive emotions and meaning in life, whilst also aligning to existing school structures and strategies (Norrish et al., 2013; Waters, 2011). To date, there have been few empirical investigations of PERMA with adolescents and emerging adults (Kern et al., 2015; Khaw, & Kern, 2014). The overarching aim of this study was to build empirical support for the model by exploring the patterning of the PERMA elements and their relations to facets of well-being, accounting for the influence of underpinning character strengths in emerging adults in higher education in the context of the Greek crisis; thus, it was expected that an operational application of the PERMA theory within an education setting would be demonstrated.

Well-being and the elements of PERMA

A critical issue when attempting to harvest the benefits of positive education for individual well-being is to decide how to conceptualize and measure it: most researchers agree that well-being is not a single factor, but rather "a profile of indicators across multiple domains" (Kern et al., 2015, p. 262). Kern et al. (2015) mention a host of theoretical and practical considerations supporting the multidimensional nature of well-being. These include definitions of well-being as both feeling good and functioning well (Huppert, 2014), the fact that positive constructs may affect well-being in different ways and that multidimensional indices of well-being can identify groups with specific strengths and weaknesses, thus enabling educators and other health care professionals to tailor interventions to suit the particular needs of each group. Previous

research has indicated that all five elements of well-being as indexed by the PERMA model (i.e. positive emotions, engagement, positive relations, meaning and accomplishment) can protect against negative emotions, depression and anxiety and physical illness (Kern et al., 2015), and also enhance resilience and life satisfaction in youths (Falecki et al., 2018).

PERMA was hailed as a framework particularly suited to examine multiple dimensions and patterns of well-being in positive education. The implicit relations between PERMA and well-being have recently received research attention. Goodman, Disabato, Kashdan, and Kauffman (2017) found a latent correlation of .98 between the PERMA-profiler (a recent measure of the PERMA model. Butler & Kern, 2016) and subjective well-being, and that each of the elements of the model correlated moderately highly with each other. In their evidence-based critique, the authors concluded that PERMA does not yield a new type of well-being, nor does it offer new insights beyond subjective well-being. In his response to this critique Seligman (2018) agreed that subjective well-being is the final common path of the five elements making up PERMA, but denied that PERMA is redundant with well-being. He clarified that PERMA constitutes (at least some of) the elements of well-being. He added that it is a model with an applied function, namely to help build happiness and not only measure it, thus transcending psychometric considerations. He went on to describe the criteria for deciding on elements of well-being. Based on this argument, the current study sought to understand whether and how the PERMA elements relate to multiple indicators of well-being and character strengths.

Operationalizations and measurement

Simultaneous testing of the elements of PERMA in relation to multiple indicators of well-being and underpinning character strengths requires clear definitions of all terms, as described next. The measures selected to index each term have been widely used in previous studies of youths across the globe and are presented in detail under Method.

The *PERMA* model is operationalized here as a multidimensional construct consisting of five distinct elements (Seligman, 2011), all falling into the positive spectrum of mental health. *Positive emotions*, such as happiness, cheerfulness, and comfort fall under the hedonic spectrum of feelings. They serve as indicators of flourishing, although according to Fredrickson (2001) they can produce flourishing and can be taught and developed. *Engagement* is usually defined as a state of flow, or deep immersion, which serves to intrinsically motivate toward a task (Csikszentmihalyi, 1997). Goal setting, monitoring, and achievement contribute to well-being throughout the life-cycle (Heckhausen et al., 2010). *Positive relationships* refer to feeling socially integrated, accepted, and supported by others and to being satisfied with one's social network. Social support has long been linked with positive mental and physical health outcomes and well-being (Cohen, 2004; Karademas, 2006). *Meaning* refers to the belief that one's life has purpose and direction in life and to feeling connected to something larger than oneself. Meaning has been linked to well-being outcomes and also to positive emotions in different age groups (Cotton et al., 2009). *Accomplishment* is usually associated with goal setting and progress and having a sense of personal achievement, thus leading to well-being (Croom, 2015).

As at the time this study was conducted no specific measures of the PERMA model existed, much less for emerging adults, existing, well-validated and concise measures in Greece and abroad were selected for their usefulness in exploring the concomitants of positive youth development according to PERMA (see Method for descriptions of the measures used). Since, Butler and Kern (2016) developed the PERMA Profiler, an instrument developed to measure the model and also successfully used it with young adults. In

the relatively short time since its publication, the PERMA Profiler was translated and validated in various cultural contexts, including Malaysia (Khaw, & Kern, 2014), South Australia (Iasiello et al., 2017), and more recently Greece (Pezirkianidis et al., 2019).

Character strengths are a family of 24 “positive traits reflected in thoughts, feelings, and behaviors” (Park, 2004b, p. 40). These are regarded as “the bedrock of human condition”, and “strength-congruent activity” as “an important route to the psychological good life” (Peterson, & Seligman, 2004, p. 4). They promote well-being and positive youth development and protect youth against psychological disorders (Park, 2004b). Four character strengths were selected for inclusion in this study, on the basis of their relevance for emerging adults, namely curiosity, gratitude, love for learning, and humor.

With respect to the measurement of *well-being*, this study conceptualized it as a multidimensional construct referring to positive psychological states. Seligman (2011) elevated *flourishing* to the status of gold standard of well-being measurement. As a concept, it relates to the five elements of PERMA by way of summing up what enables people to cultivate their talents, to build satisfying relationships with others, to feel pleasure, to accomplish their targets, and to contribute to the world in a meaningful way. *Resilience* is also a construct referring to processes leading to positive well-being outcomes despite the risk of maladaptation (Masten, 2001). It focuses on positive developmental trajectories, based on strengths development and incorporating adaptive developmental processes (Masten, 2014). These characteristics render it a desirable construct to index well-being, especially in a study that researches character strengths. *Positive perception* refers to traits and perceptions that predict well-being (Ickson, & Pines, 2013). It includes three aspects, a positive view (a) of self, (b) of time, and (c) of human nature. Different aspects of positive perception were found to relate to indexes of well-being, such as physical health and coping strategies, optimism, and low levels of depression.

The present study

This study brings together for the first time and in order to empirically test in a single model the five components of the PERMA model (positive emotions, engagement, relations, meaning and accomplishment), character strengths (curiosity, gratitude, love for learning and humor) as its underpinnings, and well-being (flourishing, resilience and positive perception) as its outcome. It adopts a multidimensional approach to the measurement of well-being, manifested by testing not only flourishing, defined as the gold standard of well-being, but also other widely accepted well-being indicators, such as resilience and positive perception. It sets PERMA as a useful framework within positive education in order to explore associations between the above constructs in emerging adults attending higher education institutions in Greece under conditions of a deep crisis. As to the best of our knowledge, no studies to date have directly tested together in a single model the five PERMA components, as well as their relations with character strengths and with multiple indicators of well-being, the patterning of cross-sectional associations between the PERMA elements and the four underpinning character strengths is tested, as are their relations with the three well-being indicators. Given that previous research on the PERMA model and well-being reported high correlations between the five PERMA elements and also between these and well-being (Goodman et al., 2017), similar positive associations are expected here. The effects of demographic and other differences on the study variables are also explored in the study. Finally, the usefulness of the PERMA model and character strengths in predicting positive youth development is explored. All three well-being indicators are expected to be predicted by both PERMA and character strengths.

Thus, the overall aim of the study is to map the intricate relations between the above three key elements of the PERMA theory (i.e., the PERMA model, character strengths and well-being) with a view to build an empirical foundation for more specialized perspectives to be further tested in the future. It is hoped that the knowledge gained from this research endeavor will add to the complex work-in-progress that seeks to understand the best elements of and the pathways leading to positive youth development in emerging adulthood. The practical implications of such empirical knowledge are far-reaching, affecting the design of targeted interventions in educational, clinical, and organizational settings, to name but a few.

Method

Participants

A total of $N = 516$ emerging adults studying in Greek higher education institutions, mainly females (91%), aged 18 to 29 years, most between 18 and 21 years (85.1%) took part in the study. 33.8% of the sample had a least one parent with a higher education degree, 19.5% with a technical education background, 29.3% of the parents had a College degree (Lyceum), 14.8% had finished High School and 2.5% did not attend school at all. 60.3% were enrolled in Education departments, 22.7% in Social Work departments, 5.7% in Philosophy, Education and Psychology departments, and the rest were scattered among a host of other departments, including Economics, Mathematics, Business Management, Greek Language and Medicine departments. Similar percentages of youths (roughly 33%) were in their first and second year of studies, and again similar numbers (14%) were enrolled in the third and fourth years, the rest was being in the process of obtaining their degree or studying for a postgraduate degree. Over half the sample (52.9%) reported living alone, 29% lived with their parents, 6.3% with roommates, 6.7% lived at University halls of residence, and 4.5% with relatives. Most students were very (59.7%) and moderately (19.2%) satisfied with their living situation, a further 15.3% were neither satisfied nor dissatisfied and 5.9% were dissatisfied. 58.2% reported being in a romantic relationship.

Measures

A questionnaire battery was prepared which included demographic information, such as participants' gender, age, parental education, educational institution, department and year of study, accommodation and satisfaction with it, and being in a romantic relationship. A number of other well-validated questionnaires were used to assess the study's independent, dependent, and underpinning variables, as follows.

The PERMA elements

Positive emotions were measured using The Scale of Positive and Negative Experience (SPANE; Diener et al, 2010). This is a 12-item scale, half measuring positive (e.g. pleasant, joyful, contented) and half negative (e.g. bad, sad, afraid) experiences. Items are scored on a scale ranging from 1 ("very rarely or never") to 5 ("very often or always"). Three scores can be calculated, the summed positive and negative scores and the affect-balance score. A high score indicated high levels of positive or negative affect. The first two subscales' Cronbach's α s were (a) for the positive subscale, for the original sample $\alpha = .87$, and for the Greek sample it was $\alpha = .85$, and (b) for the negative subscale, for the original sample $\alpha = .81$ and for the Greek sample it was $\alpha = .76$. The reliability for the whole scale was $\alpha = .87$ in the Greek study.

Engagement was assessed with the use of The Flow Questionnaire (Collins et al., 2009. Based on Csikszentmihalyi & Csikszentmihalyi, 1988). In this questionnaire three short passages describing the flow state are presented to participants (e.g. “I am so involved in what I am doing. I don’t see myself as separate from what I am doing.”), who are subsequently asked whether they have had the experience (yes or no), how often (10 possible responses) and in what activity contexts (5 possible responses). High scores indicated high and frequent levels of flow. In the Greek sample, Cronbach’s α for the flow was low, $\alpha = .54$, but the Flow Questionnaire was still included in the study in the interests of testing the complete model.

Relationships were assessed with a social support measure, The ENRICH Social Support Inventory (ENRICH. Mitchell et al., 2003). This is a 7-point instrument answered on a 5-point Likert-type scale ranging from 1 = “none of the time” to 5 = “all of the time”, with item 7 (“living with spouse”) scored 4 = “yes” and 2 = “no”. Sample items include “Is there someone available to you whom you can count on to listen to you when you need to talk?” and “Can you count on anyone to provide you with emotional support (talking over problems or helping you make a difficult decision)?”. A high score indicates the availability of social support. The original scale had a Cronbach’s $\alpha = .86$, while for the Greek sample $\alpha = .83$.

Meaning was assessed using the Meaning in Life Questionnaire (MLQ. Steger et al., 2006). This is a 10-item questionnaire measuring two dimensions of meaning in life, namely presence of meaning, i.e. how much one’s life has meaning and seeking for meaning, i.e. how much one strives to find meaning and understanding in one’s life. It is answered on a 7-point Likert-type scale ranging from 1 = “absolutely true” to 7 = “absolutely untrue”. Sample items include “I have discovered a satisfying life purpose” and “I am looking for something that makes my life feel meaningful”. Higher scores indicate that respondents experience high levels of meaning and are seeking for meaning in their lives. The authors report high convergent and discriminant validity of the MLQ subscales across time and informants and good Cronbach’s α s for the subscales ($\alpha = .86$ for presence and $\alpha = .88$ for seeking). In the Greek sample α s were $\alpha = .86$ for presence and $\alpha = .87$ for seeking.

Accomplishment was measured using the short form of The Basic Psychological Needs Scale (BPNS. Deci & Ryan, 2000, in Samman, 2007). This scale addresses satisfaction with one’s achievements with three needs the authors identify as autonomy, competence and relatedness, each measured with three items (e.g. “I feel like I am free to decide for myself how to live my life”, “I often feel very capable” and “People in my life care about me”). Items are answered on a scale from 1 = *not at all true* to 4 = *completely true*. In the Greek sample Cronbach’s α s were $\alpha = .66$ for autonomy, $\alpha = .68$ for competence and $\alpha = .49$ for relatedness.

Character strengths

Four *character strengths*, namely curiosity, gratitude, love for learning, and humor were selected as possible underpinning variables in the relation between the independent predictor variables and the dependent outcome study variables hypothesized to be relevant for emerging adults. These were measured using the respective VIA subscales, each consisting of 10 items, drawn from the Values in Action Inventory Questionnaire (VIA-IS. Peterson & Seligman, 2004). This is a 240-item questionnaire answered on a 5-point Likert type scale, where 1 = “not at all like me” and 5 = “very much like me”. Sample items for each subscale include “I am never bored” (curiosity), “I always express my thanks to people who care about me” (gratitude), “I always go out of my way to attend educational events” (love for learning) and “Whenever my friends are in a gloomy mood, I try to tease them out of it” (humor). Authors report that the VIA-IS has acceptable internal consistency and test-retest reliability, moderate levels of psychometric validity, and

moderate and acceptable levels of predictive validity. Cronbach's α s as reported at the VIA official website are $\alpha = .82$ for curiosity, $\alpha = .85$ for gratitude, $\alpha = .85$ love for learning and $\alpha = .86$ for humor (<https://www.viacharacter.org/researchers/assessments/via-is>). The respective Cronbach's α s for the Greek sample were $\alpha = .83$ for curiosity, $\alpha = .86$ for gratitude, $\alpha = .83$ love for learning and $\alpha = .84$ for humor.

The well-being measures

Flourishing was indexed by the Flourishing Scale (FS; Diener et al., 2010). This 8-item scale describes important aspects of human functioning, such as positive relationships, feelings of competence, having meaning, and purpose in life. They are scored on a 7-point Likert-type scale ranging from “*strong disagreement*” to “*strong agreement*”. Sample items include “I am engaged and interested in my daily activities” and “I am a good person and live a good life”. High scores indicate that respondents view themselves in positive terms in the areas of functioning measured. Cronbach's α for the original scale was $\alpha = .87$ and for the Greek sample was $\alpha = .72$.

Resilience was measured using the Resilience Scale – 15 (Wagnild & Young, 1993, as modified by Neill & Dias, 2001). Each of the 15 items is scored on a 7-point Likert-type scale, where 1 = “*agree*” and 7 = “*disagree*”. All items are positively phrased so that a higher score suggests greater resilience. Items include “When I make plans I follow through with them” and “I feel that I can handle many things at a time”. The original authors report that the scale has concurrent validity in relation to other scales of morale, life satisfaction, and depression, while Neil and Dias (2001) state that Cronbach's α for the scale was .91. For the Greek sample, $\alpha = .90$.

Positive perception was measured using the Positive Perception Scale (PPS; Ickson & Pines, 2013). This is an 8-item scale answered on a 7-point scale, where 1 = “*strongly disagree*” and 7 = “*strongly agree*”. The scale includes three dimensions, positive perception of the self (abilities), of time (past and present), and human nature. Sample items include “I'm pleased with what I have accomplished so far in my life” and “People are basically kind and helpful”. Authors state that the PPS is a reliable measure with high internal consistency, moderate to high test-retest reliability and good construct and external validity. Cronbach's α for the original scale was $\alpha = .82$ and for the Greek sample was $\alpha = .85$.

Procedure

This paper reports an internet-based self-report questionnaire study of well-being in emerging adulthood. Students enrolled in Higher Education departments all over Greece were eligible for participation. The majority were conducted during class periods by consenting course tutors, were offered directions for accessing the electronic questionnaires available at a dedicated, secure internet site, and were asked to share them with peers at different educational institutions. The study was open for a period of six months roughly at the heart of the severe economic crisis facing Greece. After indicating their agreement to the terms and conditions of participation, students were able to complete the questionnaire battery, a procedure that lasted between 20 and 30 minutes.

Results

A number of statistical analyses were carried out to explore the patterning of associations between the PERMA elements, the underpinning character strengths, and the well-being study variables. Table 1 shows

means, standard deviations (SDs), and correlations between the PERMA elements, character strengths, and well-being (bootstrapping was used to better reflect true population parameters (Sideridis & Simos, 2010)).

Demographics

Only a few significant differences were found between the demographic variables in the study (such as gender, age, year of study, academic institution and department type and satisfaction with accommodation, parental education, and relationship status). For gender and age, significant differences were found for academic institutions and departments, but since these did not prove useful for the aims of this study, they are not reported or discussed further. In terms of parental education, the higher this was, the more likely their children were to live either on their own ($\chi^2 (20) = 62.6, p < .001$). As regards accommodation, a significant difference was found between type and satisfaction with accommodation, so that those living on their own were more satisfied ($\chi^2 (20) = 31.55, p < .05$). Also, those living on their own were almost twice as likely to be in a romantic relationship as those living with their parents ($\chi^2 (5) = 13.58, p < .05$).

A number of t-tests were run to reveal any significant demographic effects on the PERMA elements, character strengths and well-being. Gender differences were identified for negative affect, whereby females reported higher levels of negative affect and social support, but lower levels of curiosity than males ($t (508, 55.001) = -2.47, p < 0.5$; $t (509, 50.302) = -2.21, p < 0.5$; and $t (507, 54.86) = 3.46, p < 0.001$ respectively). Romantic relationship status seemed to differentiate between a number of study variables as follows. Those in a romantic relationship appeared to enjoy higher levels of positive affect and also affect balance ($t (509, 453.59) = -2.69, p < 0.1$; $t (509, 468.95) = -2.005, p < 0.5$ respectively). They also displayed higher levels of meaning (perception) and social support, but lower levels for love for learning ($t (510, 424.5) = -2.15, p < 0.5$; $t (510, 398.69) = -3.32, p < 0.001$; and $t (509, 454.76) = 2.77, p < 0.1$ respectively).

Subsequently, one-way ANOVAs were carried out to identify any age differences between the study variables. It seemed that resilience levels differed by age ($F (5, 509) = 2.73, p < .01$), with those aged 20 years displaying higher resilience than those in the 22-25 age group. Marginally significant differences were found for positive affect and gratitude ($F (5, 508) = 2.12, p < .055$ and $F (5, 509) = 2.2, p < .052$ respectively), with 18 years old displaying more positive affect and gratitude than 21 years old. When differences were sought depending on the year of study, significant ones were found for the basic psychological need of relatedness ($F (10, 491) = 2.59, p < .01$), for positive perception ($F (10, 490) = 2.06, p < .05$) and for love for learning ($F (10, 490) = 2.54, p < .01$) so that students in their sixth year of study showed higher need for relatedness than postgraduate students, and the third-year undergraduate students displayed higher levels of positive perception and love for learning than those in their seventh year of study. Moving on, a number of significant differences were unearthed depending on the level of student satisfaction with their living conditions. In particular, positive affect and affect balance were highly and positively related to satisfaction with living conditions, while negative affect was negatively related to it (all at the $p < .001$ level). The three types of basic psychological needs (i.e. autonomy, competence, and relatedness), as well as meaning in life (perception) and social support, and curiosity (at the $p < .001$ level), but also gratitude and humor were also affected by satisfaction with living conditions (at the $p < .01$ level), so that those more satisfied with their living condition displayed higher levels of the other study variables.

Finally, significant differences according to satisfaction with living conditions were found for the three outcome measures, i.e. flourishing, resilience, and positive perception (see Table 2 for details). In all cases, those reporting very high levels of satisfaction enjoyed significantly higher levels in each of the outcome variables.

Table 1*Means, Standard Deviations (SDs) and Correlations between the Study Variables*

Variables	Mean	SD	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PERMA																			
1. Positive affect	3.62	.70	-.62***	.90***	.01	-.04	.42***	.40***	.01	.37***	.45***	.38***	.49***	.16***	.36***	.26***	.60***	.51***	.53***
2. Negative affect	2.73	.66		-.89***	.01	-.01	-.31***	-.39***	-.00	-.41***	-.36***	-.25***	-.39***	-.09***	-.19***	-.18***	-.50***	-.49***	-.47***
3. Affect Balance	.89	1.22			.00	-.02	.41***	.44***	.00	.43***	.45***	.35***	.50***	.14**	.31***	.25***	.61***	.55***	.56***
4. Flow Experience	1.41	.49				-.37***	.05	-.02	-.08	.04	-.00	.08	.04	-.10	-.05	.04	-.00	-.01	.00
5. Flow Frequency	3.99	2.66					-.04	.07	.07	.06	.06	-.03	.08	.17**	-.00	.00	.02	.10	.04
6. Social support	4.11	.75						.36***	.06	.28***	.26***	.36***	.32***	.10	.34***	.21***	.41***	.30***	.40***
7. Meaning Perception	4.85	1.13							.36***	.27***	.44***	.23***	.43***	.24***	.46***	.19***	.56***	.53***	.56***
8. Meaning Seeking	5.25	1.15								.08	.18***	.06	.17**	.24***	.26***	.13*	.15**	.21***	.15***
9. Autonomy	3.18	.56									.37***	.31***	.35***	.10*	.20***	.27***	.39***	.45***	.44***
10. Competence	3.26	.52										.29***	.46***	.30***	.35***	.29***	.54***	.62***	.55***
11. Relatedness	3.23	.50											.25***	.06	.25***	.30***	.36***	.28***	.30***
Character strengths																			
12. Curiosity	3.53	.58												.50***	.37***	.32***	.55***	.62***	.56***
13. Love for learning	3.43	.57													.23***	.08	.22***	.35***	.23***
14. Gratitude	3.90	.57														.35***	.47***	.38***	.43***
15. Humor	3.74	.58															.37***	.41***	.32***
Well-being																			
16. Flourishing	5.63	.65																.67***	.63***
17. Resilience	5.27	.89																	.76***
18. Positive perception	5.07	.96																	

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

Table 2
One-way ANOVAs for Satisfaction with Living Conditions

Variables	df	F
Positive affect	4, 505	19.90 ^{***}
Negative affect	4, 505	19.62 ^{***}
Affect balance	4, 505	24.57 ^{***}
Flow - Experience	4, 498	.35
Flow - Frequency	4, 364	.84
Social support	4, 506	11.10 ^{***}
Meaning – Perception	4, 506	8.59 ^{***}
Meaning – Seeking	4, 506	9.17 ^{***}
Autonomy	4, 506	14.32 ^{***}
Competence	4, 505	8.95 ^{***}
Relatedness	4, 506	8.59 ^{***}
Curiosity	4, 504	8.63 ^{***}
Love for learning	4, 505	.77
Gratitude	4, 505	3.04 ^{**}
Humor	4, 505	3.35 [*]
Flourishing	4, 506	15.50 ^{***}
Resilience	4, 506	14.19 ^{***}
Positive perception	4, 505	11.85 ^{***}

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

Examining the correlation matrix next (Table 1), a plethora of significant and medium to high correlations were revealed, with the exception of the flow variables. For instance, positive and negative affect indicators were significantly correlated with almost all other study variables. The same picture emerged for social support, for the perception subscale of meaning, for autonomy, competence, and relatedness, for all proposed character strengths, but especially for curiosity, and also for the three outcome measures, i.e. flourishing, resilience and positive perception, which were also highly correlated with each other.

Effects of the elements of PERMA and character strengths on well-being

The next step in the analysis was to examine possible effects of the PERMA components and the proposed underpinning variables of character strengths on the three well-being measures used in this study, i.e. flourishing, resilience, and positive perception. Towards this aim and for simplicity reasons, three distinct categories were created for each of the above measures, reflecting high, medium, and low levels of the dependent variables. One-way ANOVAs were then run with the following results. Highly significant differences (at the $p < .001$ level) were observed between students exhibiting high, medium, and low levels of flourishing, resilience, and positive perception for all independent variables, save for the flow variables. Table 3 details the ANOVA results. Figure 1 indicatively graphs the relationship between each of the dependent variables.

Subsequently, linear regressions were carried out to examine whether the three outcome measures could be predicted by the elements of PERMA and character strengths. Those demographic variables that related to the other study variables as delineated above were included in the first step of the analyses (dummy variables were calculated as needed), i.e. gender, age group, year of study, satisfaction with living

Table 3

One-way ANOVAs for Differences on High and Low Levels of Flourishing, Resilience and Positive Perception

Variables	Flourishing		Resilience		Positive Perception	
	df	F	df	F	df	F
Positive affect	2.511	116.6***	2.511	75.17***	2.511	76.94***
Negative affect	2.511	67.24***	2.511	62.87***	2.511	53.7***
Affect balance	2.511	120.22***	2.511	89.95***	2.511	84.52***
Flow - Experience	2.505	.28	2.505	.669	2.505	1.4
Flow - Frequency	2.369	.44	2.505	1.93	2.369	.13
Social support	2.513	40.46***	2.513	20.39***	2.513	46.05***
Meaning – Perception	2.513	85.19***	2.513	70.72***	2.513	68.71***
Meaning – Seeking	2.513	9.36***	2.513	10.82***	2.513	7.37***
Autonomy	2.513	38.29***	2.513	48.76***	2.513	42.12***
Competence	2.512	73.57***	2.512	121.15***	2.512	81.06***
Relatedness	2.513	39.54***	2.513	18.81***	2.513	35.03***
Curiosity	2.511	91.25***	2.511	114.69***	2.511	82.27***
Love for learning	2.512	10.18***	2.512	29.37***	2.512	14.63***
Gratitude	2.512	56.2***	2.512	42.84***	2.512	53.55***
Humor	2.512	31.37***	2.512	38.77***	2.512	33.48***

* Note. *** $p < .001$

condition and romantic relationships status). Subsequent steps included the rest of the independent variables, i.e. those denoting positive emotions, engagement, relations, meaning, and accomplishment. Potential underpinnings were then all included in a single step, followed by the other dependent variables. Table 4 details useful indicators in the regression analyses.

The results indicated that all three dependent variables could be predicted by nearly all other study variables, as follows. *Flourishing* was predicted by satisfaction with living conditions: being more satisfied with living conditions predicted greater levels of flourishing. All independent variables (save for flow), and in particular positive affect, competence (accomplishment), meaning (perception) and social support (relations), and also the character strengths of curiosity, gratitude, and humor, as well as resilience, predicted flourishing. *Resilience* was predicted by gender (being female in particular) and satisfaction with living conditions; by positive affect, autonomy, and competence, and meaning (perception), but not by social support or flow; by curiosity and humor; and by both dependent variables of flourishing and positive perception. *Positive perception* was predicted by all other variables, apart from flow, with being male, 19 years old, and enjoying high affect balance being particularly strong predictors.

Discussion

The aim of this paper was to explore whether the PERMA model could be measured in a sample of emerging adults, thus offering an operational application of the PERMA theory within the positive education paradigm in higher education in Greece. In this exploratory study (1) a mapping of the PERMA theory, constituting three components, i.e. the elements of PERMA, the underpinning character strengths and multiple indicators of well-being was attempted, and (2) the issue of multidimensionality of well-being was examined in a sample of Greek emerging adults in higher education.

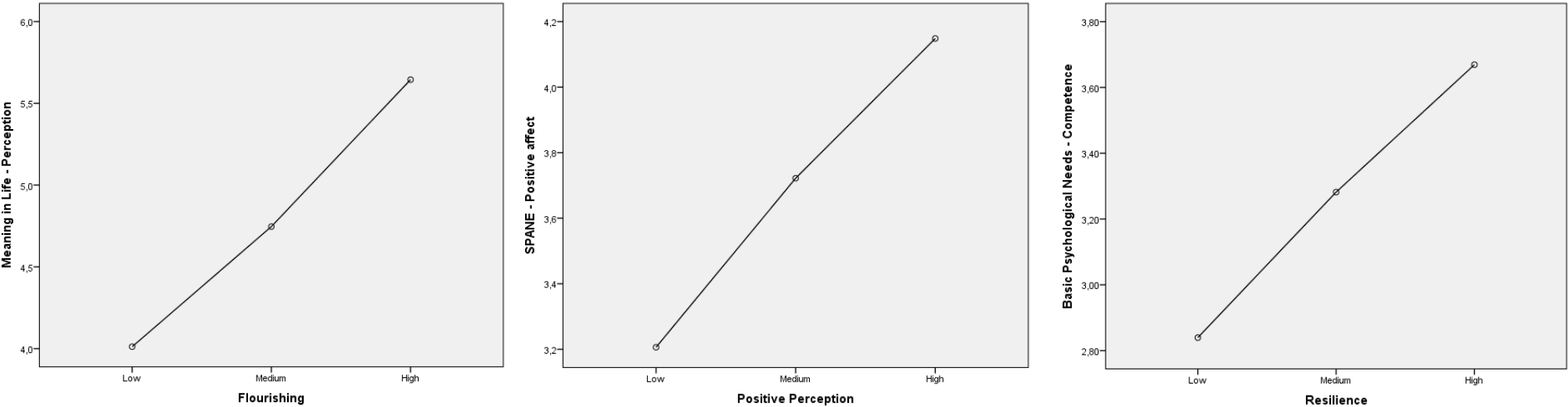


Figure 1 Relationships between the PERMA Elements and High, Medium and Low Levels of Well-Being Variables

Table 4*Regression Indicators for Flourishing, Resilience and Positive Perception*

Predictor variables	B	T	R ²	ΔR ²	ΔF	B	T	R ²	ΔR ²	ΔF	B	T	R ²	ΔR ²	ΔF
	Flourishing					Resilience					Positive Perception				
Demographics															
Gender	ns	ns	.10	.10	4.66***	-.1	-2.12*	.13	.13	5.76***	ns	ns	.11	.11	4.77***
Age	ns	ns				ns	ns				ns	ns			
Year of study	ns	ns				ns	ns				ns	ns			
Satisfaction with living conditions	.31	6.09***				.3	5.93***				.28	5.65***			
Romantic relations	ns	ns				ns	ns				ns	ns			
PERMA															
Positive affect	.48	8.8***	.39	.29	83.84***	.34	6.02***	.32	.21	58.03***	.37	6.57***	.32	.23	61.05***
Negative affect	-	-3.3***				-	-				-	-			
	.17					.24	4.31***				.22	3.97***			
Flow Experience	ns	ns	.54	.00	.12 ^{ns}	ns	ns	.53	.00	.9 ^{ns}	ns	ns	.51	.00	.14 ^{ns}
Flow Frequency	ns	ns				ns	ns				ns	ns			
Social support	.09	2.2*	.54	.00	4.84*	ns	ns	.53	.00	.1 ^{ns}	.1	2.33*	.51	.00	5.47*
Meaning Perception	.27	6.02***	.51	.46	21.17***	.2	4.61***	.53	.04	17.23***	.29	6.38***	.5	.06	22.53***
Meaning Seeking	ns	ns				ns	ns				ns	ns			
Autonomy	ns	ns	.48	.08	18.8***	.14	3.37***	.51	.16	38.84***	.16	3.61***	.44	.73	26.99***
Competence	.28	6.22***				.41	9.25***				.33	7.09***			
Relatedness	.08	2.02*				ns	ns				ns	ns			
Character strengths															
Curiosity	.19	3.65***	.59	.56	.04***	.25	5.18***	.64	.08	18.63***	.2	3.89***	.57	.03	6.19***
Love for learning	ns	ns				ns	ns				ns	ns			
Gratitude	.1	2.43*				ns	ns				ns	ns			
Humor	.1	2.58**				.17	4.65***				ns	ns			
Well-being															
Flourishing	-	-	-	-	-	.22	4.41***	.66	.02	19.46***	.16	2.94**	.55	.01	8.67**
Resilience	.25	4.41***	.61	.23	19.46***	-	-	-	-	-	.52	9.85***	.65	.09	97.07***
Positive Perception	ns	ns	.61	.00	.87 ^{ns}	.73	.07	97.07***	-	-	-	-	-	-	-

*Note. * $p < .05$ ** $p < .001$, ns: non-significant

Mapping the PERMA theory

The associations between the elements of PERMA, the underpinning character strengths, and well-being were assessed in an effort to map the landscape of the PERMA theory. Reviewing the demographic information obtained, and with respect to gender differences, females reported higher levels of social support than males, but also higher negative affect than males; the latter expressed higher levels of curiosity. This is consistent with previous findings in Greece (Leontopoulou, 2013, 2018).

As far as age differences are concerned, the younger students exhibited higher levels of positive affect, gratitude, and resilience than those over 21 years. In a related tack, when the year of study (which largely corresponds to age: younger people are more likely to be enrolled in the first years of study at the University) was taken into consideration, the need for relatedness, love for learning and positive perception was higher for younger undergraduate students in respect to older undergraduate and postgraduate students. These results align with those in a different study of Greek University students, whereby developmental processes such as identity exploration, experimentation, and self-focus diminish with age (Leontopoulou et al., 2016). Among the few differences found between demographic variables were those for type and satisfaction with accommodation. Parental education seemed to affect both, in such a way that the higher the education level of students' parents the more likely their offsprings were to live on their own and to be romantically involved with a partner, thus experiencing greater levels of satisfaction. This result corresponds to findings from a Greek study that suggested that younger University students living on their own scored significantly higher in some of the core developmental features, i.e. self-focus and experimentation/possibilities (Galanaki & Leontopoulou, 2017). Further, satisfaction with living conditions was strongly and positively linked with the PERMA elements of positive affect (and affect balance), with all indicators of basic psychological needs (autonomy, competence, and relatedness), with perceived meaning in life, and with relatedness; also with curiosity, gratitude and humor; and with all three indicators of well-being. This finding was supported by subsequent regression analyses, rendering satisfaction with living conditions a particularly salient variable for emerging adults. In other studies, satisfaction with the living environment has been linked to both overall and social adjustment in freshmen College students (Enochs & Roland, 2006), as well as to overall satisfaction with life. For example, in a study of Canadian University students' satisfaction with life, those who expressed higher levels of satisfaction with their living conditions reported markedly higher levels of satisfaction with life (Chow, 2005). Moreover, being in a romantic relationship seemed to bring about higher levels of positive affect (and also affect balance), and also perceived meaning in life and social support. Romantic involvements in young adults were found to be closely associated with mental health, especially for women, and support in an ongoing relationship with men's emotional well-being (Simon & Barrett, 2010). In the present study, an apparently inconsistent finding was that being involved in a romantic relationship was associated with lower levels of love for learning. This may seem contradictory to the overall picture regarding the benefits of independent living. However, it may be explained by the fact that for many emerging adults studying at the university, possibly away from their homes for the first time in their life offers an opportunity to seek and be in a romantic relationship that they are allowed to fully explore for the first time. This may distract them from their engagement in an advanced educational process. These findings are consistent with the particular developmental requirements of emerging adulthood as proposed by Arnett (2000). According to this theory, being able to live on one's own and to form close personal romantic relationships fall under two of the criteria (independence and interdependence respectively) of emerging adulthood. In Greece,

these criteria were ranked moderately high for the transition to adulthood (Galanaki & Leontopoulou, 2017).

Mapping well-being and the issue of multidimensionality

The abundance of significant and medium to high correlations identified in the data was remarkable and lent some support to the Goodman et al. (2017) findings, whereby PERMA elements and well-being indicators were significantly correlated. In addition, in this study character strengths were correlated to each other. A multi-study examination of the PERMA in College and community samples sought empirical support for the multidimensional model of well-being (Coffey et al. 2016). Results provided cross-sectional and longitudinal support for the model, suggesting that PERMA predicted markers of well-being, such as vitality and life satisfaction, and flourishing. Moreover, differences were uncovered between low, medium, and high levels of well-being indicators for all the PERMA elements (save for flow) and character strengths. In all cases¹ higher levels of attributes related to high levels of well-being indicators. These results are similar to those of a recent European adult sample, where all strengths were positively related to all five PERMA elements (Wagner et al., 2019). A single exception in this pattern of results was flow, which stood apart from other PERMA elements in all analyses. Perhaps flow represents a different type of construct, requiring different measurement and analysis. It is worth mentioning that in the Kern et al. (2015) data flow was the only PERMA element that was not found in their exploratory factor analysis of the model. Flow notwithstanding, this study's findings signify that the three types of variables in the PERMA theory measure constructs that are linked to positive characteristics, perceptions, and manifestations. The question arose as to whether these were expressions of a singular construct, for instance, positivity or even well-being. To answer this question one needs to take into consideration that the very nature of PERMA, character strengths and well-being is multifaceted and multidimensional. It is conceivable that the constructs measured here tap into similar, but distinct aspects of positive mental health and well-being. Seligman (2018) supports this explanation of similar results, mainly based on their practical and applied implications. Their repercussions are far-reaching for the theory and practice of PERMA and well-being. They also seem to point to the existence of different pathways that can lead to positive youth development in emerging adulthood.

In support of the above postulation lies the identification of particular PERMA elements that are associated with specific well-being outcomes. The effort to uncover what underlies various well-being constructs rendered important insights. With the exception of flow, many of the other study variables differentially predicted all three well-being indicators, but similarities were also observed. Flourishing, resilience, and positive perception presented similar patterns in terms of their predictors, so that satisfaction with living conditions, positive and negative affect, perceived meaning, competence, and curiosity were strong predictors for both, and they also predicted each other. This is consistent with results in a study of East European adolescents where meaning in life was positively related to well-being and quality of life (Brassai et al., 2011). In the present study, some of the differentiations unearthed between predictors of well-being indicators indicated that only resilience was predicted by gender: being female carried a greater chance for exhibiting this particular indicator of well-being; however, social support was not a significant predictor of well-being. Cultural variations may exist with respect to these findings, as in a study of postgraduate students in India it was found that males displayed higher resilience scores, whereas females displayed higher levels of meaningfulness, flourishing and grit (Aswini & Deb, 2017); also,

¹ Except from negative affect, where a reverse correlation was observed, as expected.

that meaningfulness, resilience, and grit predicted flourishing, especially for males. In the present study, only relatedness predicted flourishing, but autonomy did not. Gratitude also only predicted flourishing, and humor did not predict positive perception. Finally, flourishing was not predicted by positive perception, but only by resilience. These results highlight the existing differentiations in the patterning of relations between the elements of the PERMA theory.

Setting the PERMA theory within positive education for positive youth development

The key, therefore, to unlock the secrets of the PERMA theory in emerging adults may lie with the identification of patterns and pathways linking the elements of PERMA, character strengths, and multiple indicators of well-being and their application in higher education environments. Positive education can serve, thus, as a unifying theory and applied framework for positive youth development, especially in a crisis situation, where students and their family's psychosocial and financial resources are challenged. In this respect, Kern et al's (2015) assertion that multidimensional measures of well-being are practically useful in higher education lends support to this interpretation of results. The PERMA elements allow for greater specificity in identifying and addressing student needs. Should such needs be tailored to systematic well-being approaches to practically enhancing the developmental needs of emerging adults in higher education, better mental health, and well-being outcomes can be expected. Positive psychology interventions, be them educational or psychological in nature, can be devised with more accuracy to suit particular academic and socio-emotional needs of University students. They can further link these more effectively to developing and aligning their particular abilities and skills with their current and future plans and aspirations for entering the competitive workplace with more claims, for preparing themselves for more satisfying personal and social relations and for becoming active citizens – all of these lie at the heart of positive psychosocial development in emerging adulthood.

Advances, limitations and future steps

The value of this exploratory study lies primarily with bringing together for the first time and testing all three aspects of the PERMA theory of well-being in emerging adulthood. In so doing it provides useful insights into the patterning of relations between the elements of PERMA, character strengths, and multiple well-being indicators in youth. As it is set within the framework of positive education it helps clarify the role of each element in aiding educators to recognize the need for tailored approaches and interventions to suit the developmental needs of higher education students.

Limitations of the study must be acknowledged. The cross-sectional nature of the study necessarily limits the causal and directional explanations of results. Directionality of results can be assessed with longitudinal research designs. Methods other than self-report, including interviews, academic records and third-party evaluations of the variables measured here and of others with great significance for emerging adults can render more complete and accurate information of their needs, capabilities, aspirations, performance, and potential, which can in turn guide more targeted academic procedures and interventions.

Most importantly, in the future, the dimensions of PERMA need to be confirmed with appropriate analyses, including EFA and CFA statistical procedures. Furthermore, the role of the character strengths used here, as well as other strengths and virtues necessarily left out of this research endeavor needs to be further explored with a view of identifying possible mediating and/or moderating effects in the relation between the elements of PERMA and well-being. Also, different well-being indicators more suited to

measuring the negative end of the well-being spectrum need to be examined in relation to PERMA elements and character strengths.

Conclusion: Envisioning a positive future for emerging adults

Enhancing the well-being of emerging adults in higher education is a neglected area of concern in most countries. To do so effectively, theory and practice need to be aligned within a comprehensive framework, set within the positive education tradition, which allows for recognition and handling of needs arising under conditions of crisis. Preliminary support is gathered here for the suitability and adequacy of the PERMA theory with its three basic components (elements of PERMA, character strengths, and multiple well-being indicators) to fulfill this role. Future studies furthering this line of research can be instrumental in furthering the cause of enabling positive youth development in emerging adulthood.

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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Η μέτρηση του ευ ζην κατά την αναδυόμενη ενηλικίωση: Διερευνώντας το πλαίσιο PERMA για τη θετική ανάπτυξη των νέων

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ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ	ΠΕΡΙΛΗΨΗ
αναδυόμενη ενηλικίωση δυνάμεις του χαρακτήρα ευ ζην θετική ανάπτυξη των νέων θετική εκπαίδευση μοντέλο PERMA	Η θεωρία PERMA συγκεντρώνει στοιχεία από το μοντέλο PERMA, τις δυνάμεις του χαρακτήρα και το ευ ζην. Αυτή η μελέτη τοποθετείται στο πλαίσιο της θετικής εκπαίδευσης και έχει στόχο να εξετάσει εμπειρικά αυτήν την πολυδιάστατη θεωρία με αναδυόμενους ενηλίκους που φοιτούν στην ανώτατη εκπαίδευση. 516 φοιτήτριες και φοιτητές ελληνικών Πανεπιστημίων ηλικίας 18 έως 29 ετών κλήθηκαν να συμμετάσχουν σε μία διαδικτυακή διερεύνηση (α) των πέντε στοιχείων του PERMA, δηλαδή των θετικών συναισθημάτων, της εμπλοκής, των σχέσεων, του νοήματος ζωής και της επίτευξης, (β) τεσσάρων στοιχείων του χαρακτήρα, δηλαδή της περιέργειας, της ευγνωμοσύνης, της αγάπης για τη μάθηση και του χιούμορ, καθώς και (γ) τριών δεικτών του ευ ζην, δηλαδή της ακμαιότητας, της ανθεκτικότητας και της θετικής αντίληψης. Η διαμόρφωση των συσχετισμών εντός και μεταξύ των τριών διαστάσεων της θεωρίας οδήγησε στην κατανόηση τόσο της πολυδιάστατης φύσης του ευ ζην, όσο και συγκεκριμένων σχέσεων ανάμεσα στις τρεις αυτές διαστάσεις. Τέλος, συζητούνται οι επιπτώσεις των αποτελεσμάτων της έρευνας σε θεωρητικό και εφαρμοσμένο επίπεδο σε ό,τι αφορά στην προώθηση της θετικής ανάπτυξης των νέων στην ανώτατη εκπαίδευση.
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