



Introducing a New Dimension of Individual Differences in Existential Psychology: Development and Initial Validation of the *Existential Reflection Scale*

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Abstract

Measuring individual differences in existential psychology has traditionally been centred around two key themes: (a) the ways in which individuals seek or attain meaning and purpose in life and (b) the extent of their anxiety related to existence and mortality. We introduce a new dimension of individual differences within existentialism: the extent to which individuals are curious about and enjoy reflecting on their own existence. This is a dimension of individual differences that has not been addressed effectively so far, and we discuss the importance of this trait within different social contexts. The new 11-item *Existential Reflection Scale* underwent a preliminary validation in seven British samples ($n = 836$). The scale showed high internal reliability

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($\omega = .808$) and concurrent validity with existing scales, including measures of meaning and purpose in life. We discuss the ways in which the scale can be of value for predicting cognitive and behavioural tendencies, such as in situations where the concept of mortality is made salient, or when individuals process information of an existential nature.

Keywords

existential reflection, existential psychology, existentialism, meaning in life, purpose in life

Introduction

Existentialism concerns itself with the basic perceived conditions of human existence, as well as the ways in which the individual endeavours to extract meaning from this existence and from its experiences (Barrett, 1958). Existential reflections are not a modern development: they appear in the Old Testament's Book of Ecclesiastes and concerned a number of the ancient Greek and Roman thinkers, such as Homer, Socrates, and Seneca. It was not until the 19th century, however, that most of the developments in existential thought that we today associate with existentialism took place. Kierkegaard, Nietzsche, and Heidegger all proposed different solutions to the problem of human existence and suffering. What they had in common, however, was a psychological focus on what it means to reflect on human existence, and what possible insights we might gain from such reflections that can provide a meaning to, and a framework for, our existence.

Existentialist elements were more explicitly introduced to the field of psychology in the post-war 20th century by Viktor Frankl, who proposed in his famous book *Man's Search for Meaning* (Frankl, 1959) that seeking and obtaining meaning in life is a basic human need. Later developments in social psychology included *Terror Management Theory* (Greenberg et al., 1986), which proposes that the realisation of the inevitability of death, accompanied by the self-preservation instinct, causes "terror" in the individual who then finds strategies to compensate for this painful reminder.

Most of the individual-difference measures in existential psychology revolve around these two aspects, namely meaning-making (e.g., Heine et al., 2006) and coming to terms with one's mortality in the face of an actual or symbolic existential threat (Burke et al., 2010). One of the widely used measures of meaning in life is the Sources of Meaning and Meaning in Life Questionnaire (SoMe, Schnell, 2009), which measures the various sources

that may provide meaning to individuals' lives. An example item on the "meaningfulness" subscale of the SoMe scale is "*I lead a fulfilled life.*" Schnell (2009) found that scores on the meaningfulness subscale of the SoMe are positively associated with two aspects of well-being, positive mood and satisfaction with life. Schnell and Becker (2006) found that the personality traits of extraversion/openness, disagreeableness, and conscientiousness account for 16% of the variance in meaningfulness. Another questionnaire that measures meaningfulness in life is the Meaning in Life Questionnaire (MLQ, Steger et al., 2006). This scale consists of two subscales: the presence of meaning in life (MLQ-P, e.g., "*I understand my life's meaning*") and searching for meaning in life (MLQ-S, e.g., "*I am always looking to find my life's purpose*"). Across cultures, the MLQ has demonstrated a positive association with mental health and well-being. For example, Khumalo et al., (2014) found in a South African sample that the MLQ-P was associated with better mental health and with psychological and social well-being. Similar results were found in the Philippines (Santos et al., 2012) and Romania (Brassai et al., 2011).

Compared to the meaningfulness subscale of the SoMe, the MLQ covers a broader dimension of meaning in life, namely the searching for it as well as its presence, whereas SoMe covers just its presence. However, the MLQ-S does not measure the extent to which the individual actually enjoys or is intrigued by existential questions related to meaning and purpose. Nor does it measure the various domains of daily life where this curiosity, which we here call *existential reflection*, is manifested (see below for detail). Another scale, the *Existential Concerns Questionnaire* (ECQ, van Bruggen et al., 2017), measures existential anxiety, which is another central dimension of existential psychology, and as such is focused on the extent to which individuals worry about and are anxious about existential questions related to meaning in life, purpose and goals, and death. Items include "*I worry about the meaning of life*" and "*It frightens me when I realize how many choices life offers.*" The ECQ was initially validated in both clinical and non-clinical samples by van Bruggen et al. (2017) and has subsequently been shown to mediate the association between meaning experience and severity of depression (Pellens et al., 2022) and to be positively associated with OCD severity in a clinical population (Chawla et al., 2022).

Individual Differences in Existential Reflection

Our rationale for developing a new measure of individual differences in existentialism is in part based on a careful examination of the writings of key existential thinkers, in particular those mentioned above. What characterises

these philosophers is their keen desire to not just find meaning in life but also to engage in deep reflection, to analyse their lives and the lives of others, and to bring an investigative curiosity to the question of meaning and purpose in a way that they find intrinsically engaging and enjoyable. Kierkegaard and Nietzsche, in particular, did not necessarily want to create a new system of philosophical thought or even find a clear-cut answer to the question of meaning in life but rather sought to make sense of their own turbulent lives through philosophical reflections (Barrett, 1958). We argue that the presence of such reflective tendencies in individuals is what essentially should determine whether somebody can be described as being *existentially inclined*. Simply believing that one has a meaningful life, or believing that finding a purpose is important, which is what existing measures focus on, does not cover the extent to which the individual reflects deeply about existential questions, nor does it cover whether these reflections are grounded in curiosity, interest, and enjoyment or whether the search is simply driven by existential anxiety alone, which is what the ECQ (van Bruggen et al., 2017) measures.

Hence, our conception of the *existentially reflective individual* is based on the individual manifesting (a) habitual existential reflection and curiosity, characterised by enjoyment, intrigue, and a desire to analyse one's existence and its implications, and (b) behaviours characterised by seeking out existentially reflective stimulation through readings and discussions with others. While there exist some individual-difference measures that tap into individuals' levels of curiosity (e.g., *epistemic curiosity*, Berlyne, 1954), their *need for cognition* (Cohen et al., 1955), and their *openness to experience* (McCrae & Costa, 1997), these are all personality traits that cover tendencies related to ideas and thinking in general, rather than philosophical, or more specifically existential questions and ideas. As such, the existentially reflective individual might not have a generic curiosity about phenomena or ideas, nor might they on a daily basis manifest a need for cognition or knowledge in regard to everyday events or situations. Moreover, they may or may not be open to new ideas in particular domains, but would be likely to be open to deliberate on different possibilities of meaning and purpose within the specific domain of existential thinking. It is with this focus on existential reflection that we developed our new measure which we call *existential reflection scale*.

An existing scale that attempts to target a similar dimension of individual differences in existentialism is the *Scale for Existential Thinking* (SET, Allan & Shearer, 2012) which is an 11-item scale with items such as "Do you ever reflect on the purpose of life?", "Do you ever think about life's Big Questions?", "Have you ever reflected on the nature of reality or the universe?", and "Do you spend time in meditation, prayer, or reflecting on the mysteries of life?".

While the SET touches upon themes of existential reflection, we have two main reservations in terms of the construct that it measures. First, some of its items can be said to be cosmological, rather than existential, in nature. For example, questions (2) and (3) above might for some refer to the nature of the universe, rather than the individual's role within it which is what existentialism is focused on (Barrett, 1958). Moreover, the "Big Questions" could mean anything from "*why are we here?*" to "*is there life on other planets?*", or even "*what is time and space?*". We argue that existential reflections should revolve around the individual's meaning and purpose in life, rather than around wider questions concerning nature and creation. Second, the phrasing of the items on the SET is not ideal for detecting normally distributed individual differences. For example, a number of the items are phrased as "*do you ever*" or "*have you ever*," rather than tapping into how interesting or important it is for the individual regardless of the frequency (i.e., some individuals might find existential questions really intriguing but might not get time to reflect on them frequently; in this case, it would be fair to say that despite a low frequency, their existential reflections are central to their self-concept). In addition, the item on meditation, prayer, and reflection consists of these three components, so from the scoring it would not be clear which of these three practices the participants are responding to. For those who are existentially reflective but not spiritual or religious, the prayer part of the question would be irrelevant. Moreover, the word "*mysteries*" could mean different things to different individuals, and none of these meanings need be existential in nature.

In contrast to the existing scales covered above, our new *existential reflection scale* is designed to be focused on the importance that the individual gives to questions related to life's purpose and meaning, and the extent to which they are interested in and intrigued by such questions in their own personal lives. In addition, we have used terms such as "curious," "intrigued," and "reflect" to tap into the interest of the respondent in questions about existence, rather than just the frequency of such reflections, or the anxiety that such reflections give rise to (this would fall under the construct of existential anxiety rather than existential interest).

Method

Participants

This study consisted of seven British samples. Sample size for each sub-study after removal of incomplete responses is provided in Table 1, along with a summary of key variables for each sample. In total, there were 836

Table 1. Descriptive Statistics of the Participants Sorted by Sample.

Sample	N	Mean age	SD age	Males	Females	Unspecified sex
Sample 1	118	29.25	13.38	76	42	0
Sample 2	129	33.75	17.69	93	35	1
Sample 3	210	36.93	16.58	122	81	7
Sample 4	119	36.06	14.60	54	64	1
Sample 5	66	26.56	11.36	38	28	0
Sample 6	64	25.63	10.87	45	19	0
Sample 7	130	26.99	10.81	109	19	2

participants (537 males, 288 females, and 11 unreported), with an average age of 32.00 years ($SD = 15.11$; range: 18–79; see Table 1).

Participants were recruited through opportunistic sampling in the general public, using advertisements placed on social media. Requirements were that participants be over the age of 18 and fluent in English. Most participants were white ($n = 550$, 65.79%) and 372 (44.50%) held an undergraduate degree or higher. Informed consent was obtained from all participants, and the research was carried out in accordance with the BPS and APA guidelines and regulations. Ethical approval was granted by the ethical committees of the two British universities where the research was carried out. Data were collected from 15 March 2021 to 10 February 2023.

Materials

The online survey contained (a) questions about demographics, (b) the Existential Reflection Scale (ERS), and (c) other scales that differed between the sub-studies, which were used for testing concurrent validity of the ERS, as well as testing separate hypotheses that were unrelated to the scale validation.

Existential Reflection Scale. The items on this measure were developed after reviewing existing scales on existentialism, and after a consultation with two professors of existential psychology. We decided not to include any items on existential anxiety as this is a separate construct. Initially, 17 items generated for the initial validation of the scale, and these were on various aspects of the extent to which the individual is interested in and enjoys reflecting on questions related to their existence, meaning of life, their purpose in life, and their true nature. The items were phrased such that they would be suitable for both

religious/spiritual and non-religious/non-spiritual individuals. The item generation process consisted of three stages: (a) Review of existing scales, (b) Initial item generation focused on existential reflection and curiosity, including an interest in existential questions and self-reported engagement in related activities, such as reading and discussion, and (c) Selection of the final list of items after taking out items that were too similar. Responses were on a 5-point Likert scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*), with higher scores indicating a higher tendency to engage in existential reflections. None of the items were reversely phrased.

Meaning in Life Questionnaire. This scale (MLQ; Steger et al., 2006) evaluates both the presence of meaning in life and the search for it. Meaning in life is defined as the interpretation and importance attributed to one's being and existence. The scale consists of 10 items and uses a 7-point scale, from 1 (*Absolutely untrue*) to 7 (*Absolutely true*). An illustrative item is "*I understand my life's meaning.*" The alpha coefficients for the MLQ Presence (MLQ-P) and Search (MLQ-S) subscales were .82 and .87, respectively. The one-month test-retest stability coefficients was .70 for the MLQ-P and .73 for the MLQ-S (Steger et al., 2006).

Self-Reflection and Insight Scale. The SRS (SRS; Grant et al., 2002) is a psychometric tool designed to measure individuals' capacity for self-reflection and insight, including their ability to examine their thoughts, feelings, and behaviours, as well as their understanding of themselves and their experiences. We used the two Self-Reflection subscales which include six items on *engagement in self-reflection* (e.g., "*I frequently take time to reflect on my thoughts.*") and six items on *need for self-reflection* (e.g., "*I have a definite need to understand the way that my mind works.*"). Responses range from 1 (*Strongly disagree*) to 6 (*Strongly agree*). The internal reliability of the SRIS-SR was $\alpha = .91$, and the test-retest correlation over 7 weeks for the SRIS-SR was .77 (Grant et al., 2002).

Existential Concerns Questionnaire. The ECQ (van Bruggen et al., 2017) assesses existential anxiety, which encompasses concerns arising from fundamental threats to human existence, such as mortality, existential void, and being alone. It consists of 22 items, with responses ranging from 1 (*Never*) to 5 (*Always*). An example item is "*The question of whether life has meaning makes me anxious.*" The total ECQ scale has good internal consistency, with a Cronbach's α of .92 in a nonclinical sample and .91 in a clinical sample (van Bruggen et al., 2017).

Five-Facet Mindfulness Questionnaire. The FFMQ-15 (Gu et al., 2016) measures mindfulness across five dimensions: acting with awareness, observing, describing, nonjudging of inner experience, and nonreactivity to inner experience. It is a 15-item scale, with responses ranging from 1 (*Never or very rarely true*) to 5 (*Very often or always true*). An illustrative item is “*I pay attention to sensations such as the wind in my hair or sun on my face.*” Internal consistency values range from $\alpha = .64$ to $.80$ before mindfulness-based cognitive therapy and from $.69$ to $.83$ after (Gu et al., 2016).

HEXACO–60. The HEXACO model of personality (Ashton & Lee, 2009) is a theoretical framework that organises personality traits into six broad dimensions: Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience. We used the subscale of Openness to Experience, which consists of 10 items to which participants answer from 1 (*Strongly disagree*) to 5 (*Strongly agree*). An example item from Openness to Experience is “*I like people who have unconventional views.*” This subscale has an internal consistency reliability of $\alpha = .77$ – $.80$ (Ashton & Lee, 2009).

The Sources of Meaning and Meaning in Life Questionnaire (SoMe). The SoMe (Schnell, 2009) is a scale designed to assess 26 sources of meaning as well as meaningfulness. Answers range from 0 (*Strongly disagree*) to 5 (*Strongly agree*). We used the following subscales: Harmony ($\alpha = .85$, 8 items including “*I am striving for inner harmony,*”); Meaningfulness ($\alpha = .74$, 5 items including “*I think that there is meaning in what I do*”); and Spirituality ($\alpha = .68$, 5 items including “*I believe in miracles*”).

Procedure

The questions and the scales were administered as an online survey using Qualtrics Survey Software (Qualtrics, Provo, UT, USA; see <https://www.qualtrics.com>). Participants were informed about the nature of the study (i.e., for each sub-study, the topic addressed by the existential reflection and the other scales used). After reading the information sheet and virtually signing the consent form, respondents provided their age, ethnicity, level of education and academic discipline if they had a university education. Participants then completed the ERS and the other scales.

Data Analysis

A graded response model (Samejima, 2016) was performed to examine the discrimination parameters of the ERS questionnaire’s items. The discrimination

parameter of an item quantifies how effectively the item differentiates between individuals with different levels of the trait being measured. A high discrimination parameter suggests that the item is sensitive to the latent trait and can effectively distinguish between individuals with varying levels of the trait. Conversely, a low discrimination parameter indicates that the item is less effective in differentiating between individuals with different levels of the trait, making it less informative and less useful for measuring the targeted trait. In the graded response model for ordinal response data (e.g., Likert-scale items or test items with multiple ordered response categories), the discrimination parameter corresponds to the steepness of the category-response curves, with higher values indicating sharper differentiation between respondents at different levels of the latent trait (Samejima, 2016). A threshold of 1.1 was set to select the items for the following analyses. This threshold, albeit arbitrary to some extent, was selected to exclude the bottom first quartile of the items.

Second, an exploratory factor analysis (EFA) was run to evaluate the factorial structure of the ERS questionnaire. Specifically, this analysis was employed to establish whether the questionnaire exhibited a multidimensional (rather than unidimensional) structure. In case of multidimensionality, a bifactor model was fit. Then, the reliabilities of the general factor and the potential subscales were estimated. The EFA was run on 75% of the available data randomly sampled (training dataset). Then, the resulting model was tested via confirmatory factor analysis (CFA) on the remaining 25% (testing dataset). This procedure was implemented to avoid overfitting (Kline, 2023).

Finally, measurement invariance was tested for common demographic characteristics such as sex, age, and education. Measurement invariance examines whether the measurement properties of a latent construct remain consistent across different groups or conditions. There are several types of measurement invariance. Each type assesses the degree to which specific parameters hold constant across groups.

We produced a set of nested bifactor models for each grouping variable: (a) configural invariance, which tests whether the factor structure (i.e., the pattern of relationships between latent constructs and observed variables) is similar across groups; (b) metric invariance (also called weak invariance), which constrains the factor loadings to be equal across groups to test whether the relative importance or strength of the relationships between latent constructs and observed variables remains the same across groups; (c) scalar invariance (also called strong invariance), which includes the constraints of metric invariance and also constrains the intercepts of observed variables to be equal across groups in order to ensure that the observed means of the variables are equivalent between groups, allowing for meaningful comparisons of latent constructs' scores; and (d) residual invariance (also called strict

invariance), which includes the constraints of scalar invariance and adds the constraint that item uniquenesses (residual variances) are also equal across groups to ensure that the latent constructs are estimated with the same level of precision.

Concurrent Validity Tests

To ensure the psychometric robustness of the ERS, we tested the concurrent validity of the scale. We selected questionnaires that measured constructs that were expected to be positively associated with the ERS. These included the MLQ, SRS, ECQ, the Meaningfulness, Spirituality, and Harmony subscales of the SoMe, FFMQ, and HEXACO's openness to experience subscale.

Table 2 shows how the constructs measured by these questionnaires overlap with constructs measured by the ERS. MLQ is the closest, with two constructs in common, followed by three questionnaires that have each one construct in common with the ERS.

Transparency and Openness

All data, analysis code, and research materials are available by contacting the corresponding author. Data were analysed using R, version 4.4.0 (R Core Team, 2020) and the packages *lavaan* version 0.6.17, *ltm* version 1.2.0, *psych* version 2.3.12, *semTools* version 0.5.6 (Jorgensen et al., 2022; Rizopoulos, 2006; Revelle, 2023; Rosseel, 2012). The study design and analysis were not pre-registered.

Results

Latent Trait Modelling

The graded response model estimated six items below the 1.1 threshold for the discrimination parameters (ERS_3, ERS_5, ERS_6, ERS_7, ERS_12, ERS_14), which were excluded from the following analyses. The item response curves can be retrieved from the Supplemental Materials.

Exploratory Factor Analysis

A parallel analysis was run to estimate the number of factors in the exploratory factor analysis. This was carried out on 75% of the sample (randomly selected), using the defaults of the *psych* R package. Specifically, the number of replications was 20; the eigenvalues were compared against the 95th

Table 2. Constructs Measured by the ERS and the Other Scales Used in the Sample.

Scale	Construct					Overlap with ERS
	Meaning of Life: Search	Meaning of Life: Presence	Existential Anxiety	Curiosity/Self-reflection/regulation	Other Personality Traits	
ERS	✓	✓		✓		–
MLQ	✓	✓				2
ECQ		✓	✓			1
SoMe_Spirituality		✓				1
SoMe_Meaningfulness		✓				1
SoMe_harmony					✓	0
FFMQ					✓	0
HEXACO openness to experience					✓	0

Table 3. Factor Loadings in the Bifactor Model.

Item	g	F1	F2	u2
ERS_1	0.673	0.368	0.137	0.393
ERS_2	0.671	0.461	0.043	0.336
ERS_3	0.435	0.387	-0.060	0.657
ERS_4	0.624	0.503	-0.035	0.356
ERS_5	0.639	-0.004	0.483	0.359
ERS_6	0.730	0.122	0.426	0.271
ERS_7	0.548	-0.078	0.489	0.455
ERS_8	0.613	0.346	0.114	0.492
ERS_9	0.396	0.367	-0.070	0.703
ERS_10	0.568	0.085	0.341	0.554
ERS_11	0.747	0.274	0.287	0.285

Note. g = general factor; F1 = factor 1; F2 = factor 2; u2 = uniqueness (unexplained variance within item).

matching quantile of the simulated data. This analysis estimated the presence of three factors, therefore suggesting multidimensionality. A bifactor model was fit with one general factor (eigenvalue = 5.24) and two lesser factors (eigenvalues = .70 and .26). The factors were constrained to be orthogonal.

The CFA model run on the test dataset (25% of the sample, $n = 209$) produced satisfactory goodness of fit. $\chi^2 = 28.276$, $df = 31$, CFI = 1, RMSEA = 0, and SRMR = 0.034. The scaled versions of the CFI and of the RMSEA, which are corrected for the violation of the assumption of multivariate normality, still signalled an acceptable fit (0.989 and 0.078, respectively). These results suggest that the model was not overfitted. Table 3 shows the factor loadings in the bifactor model.

This model including all the available data produced satisfactory goodness of fit indexes as well. The uncorrected indexes were $\chi^2 = 85.812$, $df = 31$, CFI = 0.998, RMSEA = 0.046, and SRMR = 0.031. The scaled versions of the CFI and of the RMSEA still showed an acceptable fit (0.982 and 0.085, respectively). The reliability for the general factor was satisfactory too ($\omega = .808$). By contrast, the reliability indexes associated with the two specific factors were low ($\omega_s = .207, .096$). Therefore, while the general factor was found to be a reliable proxy for the construct of interest of the 11-item ERS questionnaire, the two specific factors were not good proxies for any additional independent construct. Rather, they captured some residual common variance probably due to the similarities on how the items were phrased (e.g., both item 8 and item 15 included the word “purpose”). The final 11-item questionnaire is presented in Table 4.

Table 4. The Existential Reflection Scale.

1. I like to reflect on the meaning of my life
2. Trying to understand the grand scheme in which I exist is important to me
3. I sometimes think about what my accomplishments really mean when considering the bigger picture
4. Finding a deeper purpose in life is something that I see as essential to me
5. I enjoy reading about topics related to human existence
6. Discussing matters related to the meaning of life is interesting to me
7. Questions regarding human nature intrigue me
8. Discovering my true nature is an important question to me
9. I sometimes question whether I have managed to understand my purpose in life
10. People who know me well would describe me as a philosophical person
11. I would say that I am very curious about discovering more about my existence

Note. Instructions: 'For each statement below, please rate how much you agree or disagree on a 1 to 5 Likert scale (1 = *strongly disagree*; 2 = *disagree*; 3 = *not sure*; 4 = *agree*; 5 = *strongly agree*).'
Scoring: sum the scores on the 11 items.

The low reliability of the two specific factors indicates that they should not be interpreted as separate subscales. Nevertheless, retaining them in the bifactor model allows residual multidimensionality to be modelled separately from the general factor, which was the primary construct of interest. Thus, although the data showed some residual multidimensionality, the scale was dominated by a strong and reliable general factor and can be regarded as essentially unidimensional for scoring and interpretation. For completeness's sake, we ran two additional models (a unidimensional model and a hierarchical multidimensional model). The ANOVA analysis showed that the bifactor model fitted better than the hierarchical model, which in turn fitted better than the unidimensional model. The difference in fit was highly significant in all the comparisons ($p < 2.2 \times 10^{-16}$; see Supplemental Materials for details) and thus not simply due to model complexity.

Measurement Invariance

Measurement invariance was tested for sex, age, and educational attainment. Age was dichotomised using its median (24) into two groups. Analogously, educational attainment was treated as a binary variable (i.e., participants with a university degree vs. participants with no university degree). This procedure was necessary to reduce the number of parameters to estimate when comparing groups and facilitate convergence.

Table 5. Correlations Between the ERS and the Other Scales Used in the Sample.

Test	Correlation coefficient (Spearman)	N	p-Value ^a
SoMe Meaningfulness	.46	393	.000
MLQ	.56	66	.000
SRS	.53	64	.000
ECQ	.31	118	.000
SoMe Spirituality	.33	210	.000
FFMQ	.41	119	.000
SoMe Harmony	.43	119	.000
Openness (HEXACO)	.35	118	.000

^aAll p-values < .001.

Measurement invariance was tested by calculating the difference (*d*) in fit indexes in increasingly constrained models (Wu & Estabrook, 2016). The thresholds for model rejection were *d*RMSEA > 0.015, *d*SRMR > 0.030, and *d*CFI < −0.010. Measurement invariance was confirmed for all three examined demographic variables. None of the fit indexes reached their thresholds for model rejection except for the metric invariance. These results uphold the idea that the ERS questionnaire measures the latent construct consistently across different groups in the examined demographic characteristics. All the results are reported in detail in the Supplemental Materials.

Correlations With Other Questionnaires

The zero-order correlations between the 11-item ERS total scores and the other questionnaires total scores were all positive and statistically significant, ranging from 0.31 to 0.56. The results are summarised in Table 5.

Discussion

The primary aim of this research was to develop the *Existential Reflection Scale* (ERS) as an instrument that can provide valuable insights into individual differences regarding the interest in, and curiosity about personal existential questions. The secondary aim was to provide preliminary evidence of its validity. The results across seven samples (*N* = 836) have supported an essentially unidimensional measure consisting of 11 items, reduced from the 17 items that were initially developed at the early stages of this research. Moreover, the scale shows a high internal reliability (*ω* = .808). The ERS

was shown to have a relatively high association with three existing scales that have overlapping dimensions. Below, we discuss each of these associations in turn.

The *Meaning in Life Questionnaire* (MLQ, Steger et al., 2006) was the instrument that had the highest positive correlation (i.e., $r = .56, p < .001$) with the ERS. While both the ERS and the MLQ focus on life's meaning and purpose, the MLQ has two subscales: the presence of meaning and the search for meaning. On the other hand, the ERS is focused on the search and the interest with which existential questions are pursued because the presence of meaning is a separate construct that needs special attention within the context of the individual's life, such as the sources that provide the felt sense of meaning and purpose. That is, for some individuals, the sense of meaning and purpose they feel could come from existential reflections, religious beliefs, and secular achievements such as professional or personal ones, or something else completely. Therefore, the ERS has been focused on the interest with which existential questions are pursued, rather than the extent to which one feels meaning and purpose have already been achieved. Moreover, the difference between the ERS and the *search for meaning* subscale of the MLQ is that the latter has general phrases to signify the search such as "*I am looking for. . .*" and "*I am searching. . .*" without a reference to a particular context or means of searching. As such, the search might not manifest in cognitive or behavioural habits, which is what the ERS is attempting to tap into using more specific phrases such as "*I enjoy reading about topics related to human existence*" and "*Discussing matters related to the meaning of life is interesting to me.*" Such items not only provide a measure of the importance of the existential search but also tap into the behavioural ways in which existential reflection is habitual and observable. In addition, the ERS items are also characterised by another level of social context, as is present in the items "*People who know me well would describe me as a philosophical person*" and "*I sometimes think about what my accomplishments really mean when considering the bigger picture.*" These items provide a social dimension to the existential reflection which is not present in the MLQ (and for that matter a number of other existential scales); they aid our understanding of how the individual is perceived by others, as well as how they might question their accomplishments. Within the context of the existential literature, both of these aspects are of central importance. For example, Kierkegaard (Barrett, 1958) placed importance on the fact that the individual is relational in nature, and understands themselves within the social context. Therefore, being perceived in a given way by others is part of the existential validation that the individual has to go through in order to realise his or her own search. As for the other item on the accomplishments, this relates to the Sartrean notion of creating one's meaning through one's achievements, which in themselves

need to be questioned (Sartre, 1948). Hence, this item on the ERS taps into this aspect of existential questioning which forms a cornerstone of 20th-century existential thought. Hence, the MLQ and ERS overlap in some respects, explaining the positive association; however, the differences covered above explain why the association is not higher.

The *Self Reflection and Insight Scale* (SRS, Grant et al., 2002) was the scale with the second-highest positive correlation ($r = .53, p < .001$) with the ERS. For the purpose of our research, we used the two reflection subscales (i.e., the *engagement in self-reflection* and the *need for self-reflection*) of the SRS, and not the *insight* subscale, because the focus of the ERS is to tap into the reflections rather than the achievements of insight. We included this scale to test for concurrent validity of the ERS because the SRS has some well-phrased items on the self-reflection, which despite not being existential in nature, still overlap with some of the reflections that take place within the existential context. For example, “*I frequently take time to reflect on my thoughts*” and “*I am very interested in examining what I think about*” are items that provide some insights into how individuals approach their own thinking (and more generally within the scale, how they are interested in their own emotions and behaviour). As such, the SRS has some metacognitive dimensions to the emotional, cognitive, and behavioural aspects of the individual’s life. The ERS has a similar principle, but more specifically in regard to existential questions, rather than general psychological aspects of the individual’s life. Therefore, there is overlap in the sense that those individuals who are generally self-reflective might be more likely to also be existentially reflective, though obviously for some individuals this will not be the case. This might explain the meaningful but not particularly high association between the two scales.

The meaningfulness subscale of the SoMe (Schnell, 2009) was the scale that had the third-highest positive association ($r = .46, p < .001$) with the ERS. Similarly to the MLQ, this scale measures the extent to which the respondent believes that they live a meaningful life, or as the MLQ puts it: the presence of meaning. As discussed above, this is not the aspect of existential tendencies that the ERS aimed to tap into. However, based on these meaningful associations with this SoMe subscale and the MLQ, it would appear that those who generally invest in existential reflection through their reflections and search tend to also perceive more meaning in their lives.

The ECQ had a lower correlation with the ERS ($r = .31, p < .001$) compared to the three scales discussed above, which is what we expected given that the focus of the ECQ is on existential anxiety, rather than on existential reflection. However, theoretically, it could be argued that those who score higher on existential reflection would be expected to be higher in anxiety as well because the existential thinking makes more salient the concept of death,

which according to terror management theory is likely to cause anxiety in most individuals (Greenberg et al., 1986). While the existentially reflective individual might be curious about existential questions, one by-product of these reflections could be such an existential anxiety. This could explain why there is a statistically significant association between the two measures.

The harmony ($r = .43, p < .001$), dispositional mindfulness (FFMQ; $r = .41, p < .001$), and spirituality ($r = .33, p < .001$) measures were also all positively associated with the ERS. These three measures have in common that the individual pays attention to their own thoughts, emotions, and bodies, as well as to their environment. These measures also contain items that tap into prioritising habits that are conducive to presence of mind, and appreciating daily experiences to enrich one's perspectives. The overlap with the ERS might in part be that it measures reflective tendencies that are also centred around using daily experiences to further one's appreciation for one's existence, and being in search of answers related to what it means to be alive. Given that these three measures are not focused on existence per se but rather on more generic tendencies and perspectives, the correlations are not particularly high. However, two of the five items on the spirituality subscale of the SoMe can be said to be existential in nature: "*There is a reason for everything happening the way it does*" and "*I think that there is another reality to the one we already know*." The former could be said to tap into a tendency to reflect on reasons for why events in our lives unfold the way that they do, and the latter could be said to measure a belief in alternative ways of existing. These two items may in particular be responsible for the association between ERS and spirituality.

While the openness subscale of the HEXACO had a relatively lower association with the ERS ($r = .35, p < .001$), this is still a statistically significant finding that deserves some attention because of the theoretical overlap between the two constructs. While openness is a wider construct, covering domains such as personal experience, creative interests, curiosity, and intellectual interests, existential reflection is a narrower construct that overlaps with openness mostly in the intellectual and philosophical aspects related to which there are four items (e.g., "*I find it boring to discuss philosophy*" [reverse item] and "*I've never really enjoyed looking through an encyclopaedia*" [reverse item]) on the 10-item openness scale. The remaining six items pertain to the arts, imagination, and ideas in general. This might explain why there is a meaningful, yet relatively low correlation between openness and the ERS.

Limitations

Based on the present investigation, the ERS is a psychometrically reliable, essentially unidimensional scale with concurrent validity when tested against

existing measures of meaning and purpose in life; however, unlike some of the existing scales, the focus of the ERS is not on whether meaning and purpose have been found but rather the interest and curiosity with which the individual seeks meaning and purpose. As such, the ERS has a narrower focus on one particular aspect of individual differences in existentialism. However, it offers a more nuanced insight into the ways in which individuals reflect on their existence, and has both cognitive and behavioural components. Therefore, depending on whether a given investigation aims to explore the reflective tendencies or existing sense of meaning and purpose, a scale can be chosen accordingly.

A limitation of the initial validation of the ERS is that it has been conducted in a British sample; hence, validations in other countries and cultures need to be carried out in the future in order to establish the scale's cross-cultural validity. However, the samples used in the studies presented here were varied in terms of ages, though predominantly Caucasian in ethnicity. Another limitation is that the present studies did not explore how the reflective tendencies measured by the ERS might predict cognitive and behavioural tendencies in other contexts, such as how existentially relevant material is processed.

Also, the combined sample was disproportionately male. Although measurement invariance across sex supported the comparability of the scale's measurement properties, this does not rule out possible differences in mean levels of existential reflection. Future studies should recruit more balanced samples, report sex-stratified descriptive statistics, and examine whether population norms should be differentiated by sex. Finally, another limitation of this study is that the order of the scales used in the different samples was not randomised, which could have led to some order effects between the different variables measured.

Future Directions

In addition to testing and validating the ERS in other cultures, future studies can further explore what behaviours can be predicted by ERS. For example, do individuals who score high on the ERS show fewer defensive reactions to mortality salience inductions, where death is primed through text or video material. Previous studies (for a review of the literature, refer to Burke et al., 2010) have shown that mortality priming leads to self-esteem defensive strategies. However, we predict that this would not be the case with individuals who score high on the ERS because they enjoy reflecting on existential questions, including their own mortality. Exploring the role of ERS scores in moderating the response to mortality salience would be a valuable avenue for future research, as it would provide a more nuanced understanding of when

mortality salience has the previously identified cognitive, emotional, and behavioural consequences for the individual.

Another area of research could be to explore the extent to which high ERS scorers show a confirmation bias when processing existentially relevant information, and more generally social stimuli that may be interpreted existentially (e.g., a conversation about mortality). Previous studies (e.g., Knobloch-Westerwick et al., 2020) have identified a general confirmation bias when it comes to political information, while other studies have shown that such biases might not always occur in certain religious groups when it comes to specific religious topics (e.g., Yousaf & Gobet, 2016). Given the fact that high ERS scorers by definition enjoy reflective stimulation regarding existential questions, they may not show the confirmation bias when it comes to selecting and processing attitude-inconsistent information. That is, they may not seek *confirmation* but rather *existential reflection* and *stimulation* even if the information that they encounter clashes with their existing attitudes. Such research could add valuable insights to our understanding of how existentially reflective individuals process information in different social contexts.

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Supplemental Material

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Omar Yousaf is a Senior Lecturer in social and personality psychology at the University of Hertfordshire and has published empirical work in the social psychology of religion (such as religious cognitive dissonance and selective information processing), mindfulness, health psychology, and more recently in existential psychology. He uses a variety of methods, including experimental designs, cross-sectional studies, as well as qualitative methods such as interviews and focus groups.

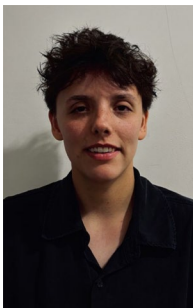


Fernand Gobet is Professorial Research Associate at the London School of Economics. He has carried out extensive research on modelling the acquisition of first language, computational scientific discovery, computational modelling, and the psychology of expertise and talent. He has authored and co-authored over 300 refereed publications and thirteen books. His latest book, published in 2024 by Cambridge University Press, is *Transition expertise and identity: A study of individuals who succeeded repeatedly in life and career transitions* (with Christopher Connolly).



Giovanni Sala is a cognitive and data scientist interested in statistically modelling human cognition in experimental, clinical, and educational settings. In 2017, he completed a PhD in Psychology at the University of Liverpool (UK) with a thesis on cognitive training programmes, which earned him the APS Rising Star Award 2021. After the PhD, he moved to Japan and spent 5 years in several universities and medical institutions working on the cognitive, psycho-social, and biological

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Annie Thomas studied psychology and education at Bath Spa University and completed her dissertation in research relating to individual differences in paranormal beliefs and meaning of life. Furthermore, for her education dissertation she investigated how the Covid-19 pandemic impacted autistic children in school and home settings which eventually led to her pursuing a career in SEND education.



Ana Greenwood is a Trainee Education Mental Health Practitioner within the Swindon Mental Health Support Team, undertaking the PGDip Mental Health Practice in Education Settings (EMHP) at the University of Exeter. She delivers Low Intensity Cognitive Behavioural Therapy to children and young people and supports schools to implement a Whole School Approach. She has worked with children and adults in school and community settings, including individuals with special educational needs, disabilities, and mental health difficulties. Her undergraduate research project explored person-

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Alexandre Ravara completed their undergraduate degree in Psychology at Bath Spa University, where their dissertation research examined existential anxiety, investigating how demographic variables—including age, gender, socioeconomic background, and ethnicity—shape its manifestation and severity. Since graduating, they have worked as a consultant on Human Capital projects, drawing on their psychological training to inform approaches to organisational behaviour and



Sophia Ingham is a psychology graduate with a particular interest in addiction, recovery, and mental health. She works within the addiction recovery field, supporting individuals through their recovery journeys and developing her understanding of the psychological and social factors that influence addiction and wellbeing. Her undergraduate dissertation explored individual differences and their impact on emotion regulation, further strengthening her interest in the ways psychological factors can shape emotional wellbeing and behaviour.