

The happiness turn? Mapping the Emergence of “Happiness Studies” using Cited References.

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Abstract This article analyzes “happiness studies” as an emerging field of inquiry throughout various scientific disciplines and research areas. Utilizing four operationalized search terms in the Web of Science; “happiness”, “subjective well-being”, “life satisfaction” and “positive affect”, a dataset was created for empirical citation analysis. Combined with qualitative interpretations of the publications, our results show how happiness studies has developed over time, in what journals the citing papers have been published, and which authors and researchers are the most productive within this set. We also trace various trends in happiness studies, such as the social indicators movement, the introduction of positive psychology and various medical and clinical applications of happiness studies. We conclude that “happiness studies” has emerged in many different disciplinary contexts and progressively been integrated and standardized. Moreover, beginning at the turn of the millennium, happiness studies has even begun to shape an autonomous field of inquiry, in which happiness becomes a key research problem for itself. Thus, rather than speaking of a distinct “happiness turn”, our study shows that there have been many heterogeneous turns to happiness, departing in a number of different disciplines.

Keywords: happiness studies, cited references, bibliographic coupling, multidisciplinary, citation analysis

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Introduction

The scientific inquiry into human happiness, in the form of a modern empirical field of study, has become an integrated line of research throughout various disciplines. Concepts such as “subjective well-being”, “happiness”, “positive affect” and “life satisfaction” are nowadays employed in various areas; from sociology, economics and psychology, to gerontology, psychiatry and medicine. There is even a specialized field called positive psychology that focuses on strategies for enabling the good life for the individual (see Seligman & Csikszentmihalyi 2000). In the year 2000, the *Journal of Happiness Studies* was founded, and in 2006 the *Journal of Positive Psychology*. However, these thematic and multidisciplinary journals are of a recent date. There exists an interesting earlier historical account of happiness studies that we wish to shed light on from a scientometric point of view.

In this article, we aim at drawing a more precise map of the scientific research contexts in which happiness studies has become a core activity, an integrated part of research, or a peripheral side-activity to normal science within a pre-existing discipline. We will use (quantitative) scientometric methods to explore the places where happiness research has emerged, and furthermore, in which disciplines the core concepts have been put to use for scientific research. Consequently, the aim is to show how a new research field — “happiness studies” — has emerged, consolidated and become integrated into practices of research. But, a purely quantitative account is insufficient for identifying the relevant aspects of the *content* of specific research practices. We will thus, along the lines of Van Heur, Leydesdorff and Wyatt (2012) combine quantitative and qualitative methods. This way, we are able to understand not only the frequency of well-cited authors, articles and journals, but also *why* these units acquire specific importance, what the historical contexts are, and why some attempts to conduct happiness studies disappear from history as research develops and changes.

The impact of happiness studies has grown in relevance during the past two decades. Today, various measurements of happiness are frequently used in cross-national comparisons outside academic research, for example the *United Nations Human Development Report* (UNDP 2013), and the *World Happiness Report* (Helliwell 2012). Happiness and well-being are becoming increasingly important issues in policy-making, which could be regarded as a return of the “greatest happiness principle”, as outlined by Jeremy Bentham and John Stuart Mill in the 19th century (see for example Layard 2005). In the UK, the *Office for National Statistics* even provide regular nation-wide measurements of various aspects of well-being and happiness, as a compliment to GDP (Powell 2014).

Recently, a trend of “positive psychology” has become increasingly popularized for a wider readership (see for example Lyubomirsky 2007, Seligman & Csikszentmihalyi 2000), where the development of concrete strategies for the individual to increase her levels of happiness in life are made

the focus of inquiry. The wide dissemination of happiness studies is, nevertheless, quite a new phenomenon. It seems that there is even a reason for speaking about a “happiness turn” taking place at the turn of the millennium, influencing both the direction of science and politics, and being reported on widely in the mass media and popular culture (Ahmed 2007; 2010). To find the origins of such a “turn”, however, we must go back several decades in time, in order to find its scientific place of birth. Only then is it possible to test the “happiness turn hypothesis” against empirical publication data.

Methodology

To create a broad dataset¹ that includes multiple disciplinary research fields, Web of Science (WoS) topic (TS) searches were based on four search terms: “happiness”, “subjective well-being”, “life satisfaction” and “positive affect”. The selection of search terms were the result of a systematic literature review where core concepts were identified. Our goal was to create a dataset that would encompass a wide variety of studies concerned with human happiness and well-being, yet distinct enough to exclude the much broader field of research which aims at improving “quality of life” in general. In the literature review, we analyzed how the terminology of happiness studies has changed qualitatively over time by consulting a number of authoritative and well-cited literature reviews written by happiness researchers (Wilson 1967; Diener 1984; Diener et al. 1999; Lyubomirsky et al. 2005). This review showed that in the first half of the 20th century, the term “happiness” was commonly used as a distinctive term. Analyzing Wilson’s (1967) *Correlates of Avowed Happiness* displays how term “happiness” had acquired a social-psychological definition during the first half of the 20th century, a distinction that is of interest to us because it marks a departure point for empirical research on happiness, in contrast to a purely philosophical account, which preceded the first social scientific surveys. Then, especially in the field of gerontology, the term “life satisfaction” started to gain momentum in the 1960s, as highlighted by Neugarten et al.’s (1961) *Life Satisfaction Index, a Scale of Measurement*, and it became a widely used concept, even up until today. Moreover, in the same period, Bradburn’s (1965) *The Structure of Psychological Well-being* introduced the concept of “positive affect” as a way of understanding and measuring human happiness. Finally, the term “subjective well-being” picked up speed two decades later with Diener’s (1984) article *Subjective Well-being*, which is one of the most cited articles in our dataset. This article marks the beginning of a conceptual consolidation, evidenced not only by Diener’s 1984 article, but also of the article *Subjective Well-being: Three decades of Progress* (Diener et al. 1999), and, as a recent example, by Lyubomirsky et

¹ Additional visualizations for this article can be viewed at <http://scientometrics.flov.gu.se/happiness/scientometrics/> and the data is archived at the Swedish National Data Service, <http://snd.gu.se/en>.

al. (2005), where 225 articles were included in a large meta-analysis. Analyzing these literature reviews, we have been able to identify four *inclusive* search terms, which are not limited to specific clinical or specialized uses, while simultaneously avoiding the very broad terms of “quality of life” and “well-being”, terms that stretch beyond the scope of a distinct happiness studies field.

These four terms overlap to some degree, but as the co-occurrence matrix (Table 1) shows, they are not used synonymously. Thus, it is possible to conduct happiness research using only one or two of these terms. We chose not to include terms that were wider in meaning, for example the single terms “affect” or “well-being” without their distinguishing prefixes “positive” and “subjective”, respectively. Not only would we then include a lot of research unrelated to happiness studies, we would also collect far too much data for in-depth analysis (only “affect” gives 1.6M hits in the WoS).

In conclusion, we have thus created a dataset based on both qualitative and quantitative choices. We have tried to balance between two trade-offs: On the one hand, there is a chance we miss out on highly specialized concepts that are qualitatively important for defining happiness studies by limiting our study to only four search terms. We also run the risk of excluding the types of research that employ very general terms when conducting happiness studies, such as “quality of life”, “affect” or “well-being”. However, our qualitative review of the field strongly suggests that the four terms selected are at the core of the canonical literature, and our quantitative analysis shows that these articles belong to the most cited backbone of publications (see also Table 2). Additionally, the use of cited references allow us to identify highly cited publications even if they are not found in our retrieved dataset.

Table 1: Co-occurrence matrix of terms used for happiness research showing the degree of overlap between usage of selected terms based on searches in the “topic” (TS) [title, abstract and author generated keywords fields] search field in the WoS. Because the dynamic nature of the WoS index and because our field work was conducted over a period of several months during 2013/14, the exact amount of articles may vary in small numbers throughout our tables and graphs.

	happiness	subj. well being	life satisfaction	positive affect
happiness	11.247	1.101	1.460	413
subj. well being	1.101	3.551	1.100	243
life satisfaction	1.460	1.100	8.703	396
positive affect	413	243	396	5.250

Clustering technique

We base our study on cited references and the clusters that emerge when these are quantified using the VOSviewer software package (see Van Eck and Waltman 2010). Following Small (1978) we treat cited

references as being *symbolic*, in the sense that they are *representing* “experimental findings, methodologies, types of data, metaphysical notions, theoretical statements or equations – or, in general when dealing with citations, any statement which may be taken as characterizing or describing the cited document.” (Small 1978: 329). In other words, when an author cites an article, he or she *creates its meaning* – this is the symbolic dimension of the citation. But the very act of citing is also performative: statements and scientific findings acquire and change their meaning when they are in the “hands of later users” (Latour 1987: 59). In our study we approach this phenomenon from an aggregated point of view, using bibliographic coupling of sources as a technique to cluster journals in which papers that cite similar literature are found close to each other. The clusters we describe (generated by VOSviewer) are based on cited references that are mapped onto a landscape of journals that is simultaneously created, which we in turn interpret as deriving their consistency from a symbolic dimension, where authors have cited specific articles as a process of incorporating findings, methodologies and theoretical notions that belong to a specific concept or idea (even though this could consist of a broad research problem when working with aggregated data).

An alternative approach would be to use a pre-defined map, such as presented by Rafols et al. (2010). They argue that:

“[...] local maps are very useful to understand the *internal* dynamics of a research field or emergent discipline, but typically they cover only a small area of science. Local maps have the advantage of being potentially accurate in their description of the relations *within* a field studied, but the disadvantage is that the units of analyses and the positional coordinates remain specific to each study. As a result, these maps cannot teach us how a new field or institute relates to other scientific areas. Furthermore, comparison among different developments is difficult because of the different methodological choices (thresholds and aggregation levels) used in each map.” (Rafols et al. 2010: 1873, italics in original)

While we agree that the global map of scientific publications is needed for positioning a field in a “total” scientific landscape, our local map has another purpose. We are interested in any scientific activity that has any connection to happiness studies whatsoever. This is how happiness studies is “constructed” as a dynamic area of research involving heterogeneous scientific actors. Thus, when we discover a consistent cluster in our material, it means that we are describing a concept or idea unfolding in the field of happiness studies; and from a historical point of view, we try to detect these clusters as they emerge over time.

Results

To understand the trends in happiness studies, a historical account is needed, and first and foremost it is necessary to look at the total expansion of the field, compared to the Web of Science average (SCI-e, SSCI, A&HCI; CPCI-S, CPCI-SSH).

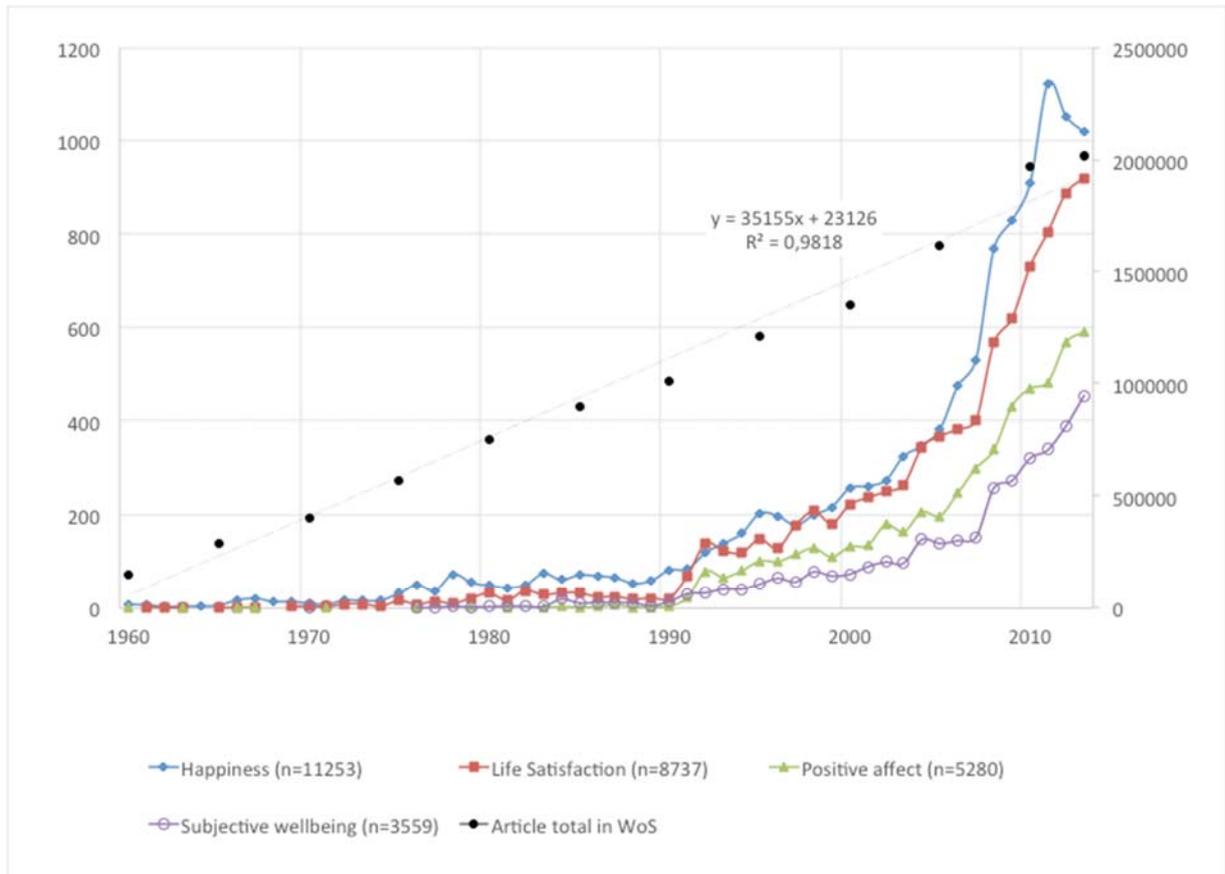


Figure 1. Published articles in absolute numbers. Happiness search terms (left), compared to Web of Science total per year (right).

As shown in Figure 1, “happiness studies” is a relatively young field of study, in terms of publication frequency. From 1990, there was an increase in publications, which accelerated during the first years of the 2000s when all four search terms began to increase drastically. Compared to the almost linear growth of the entire Web of Science during this time, happiness studies began to make a quantitative leap only at the turn of the millennium.

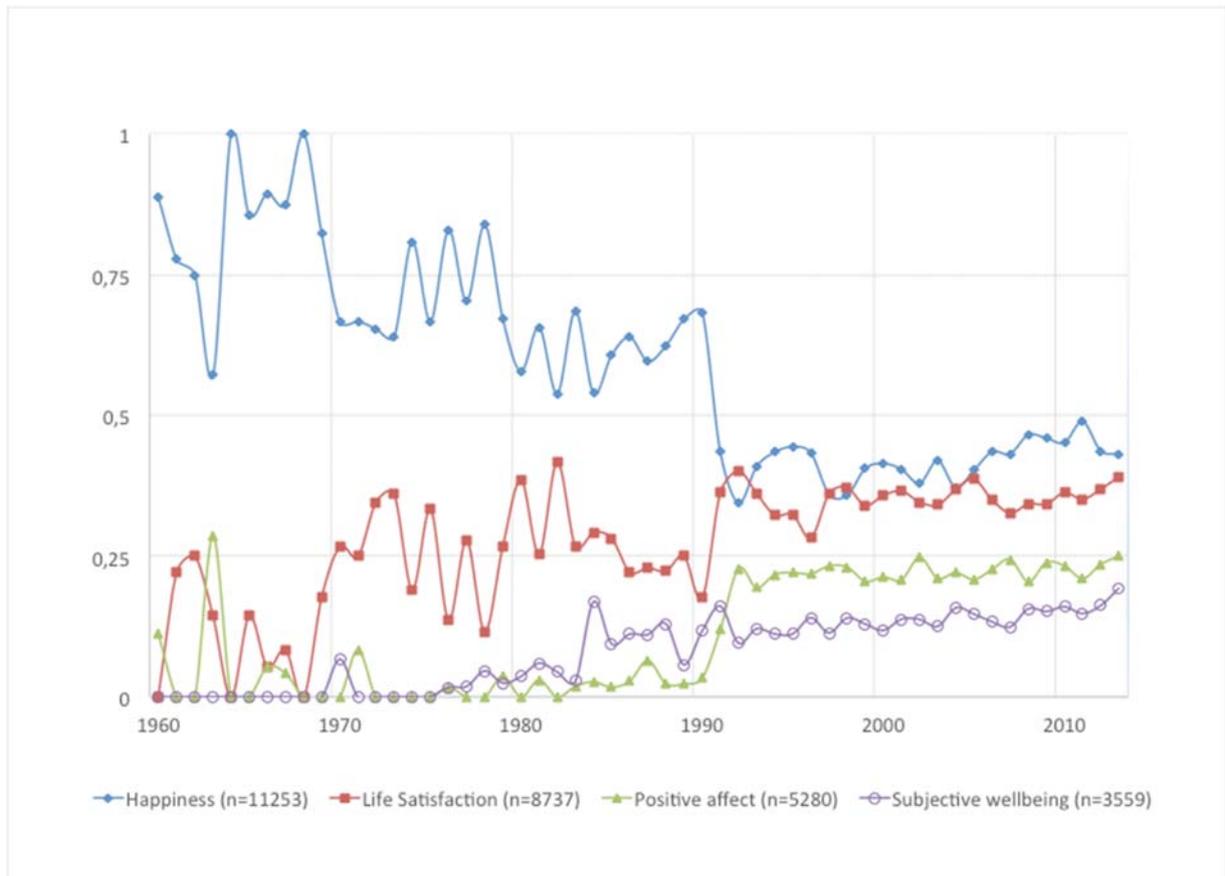


Figure 2. Published articles per search term, as a percentage of the total published papers. Since some papers include more than one of the terms, the sum can be higher than 100 percent. Moreover, prior to the 1990s, as shown in Figure 1, the total number of published articles is very low, hence the straggly patterns in the left side part of the graph.

Moreover, Figure 2 indicates that the four search terms stabilized already in the beginning of the 1990s, as the first increase in publication frequency started. Before this stabilization, “happiness” and “life satisfaction” dominated the area of study, but during the 1990s, an increasing number of publications containing the more technical terms “positive affect” and “subjective well-being” became popular. Today, there is still a quantitative difference in usage among the terms, however much smaller. This also indicates that happiness studies has gained a high enough frequency in publications for us to speak of a field of scientific research that produces meaningful patterns and regularities as objects of analysis.

The emergence of “happiness studies” in scientific journals

To understand the various contexts of research that have been involved in the making of happiness studies, we visualized the bibliographic coupling of sources cited in the data set. The four search terms yielded sporadic search hits dating back to 1904, but the hits before 1960 are too few to produce meaningful quantitative results². We divided the material in two 15-year intervals for the period 1960–1989. From 1990–2013 we employed 5-year intervals, although the last set only comprises the broken interval of 4 years 2010–2013. This irregular division is motivated both by the increase in publications, as described in Figure 1 and 2, and because a higher degree of resolution is needed to spot the emergence of new fields of study that adopted happiness measurements from the 90s and onwards. In the presentation of these results, there is a methodological “lag” of two kinds. Firstly, citations are delayed due to the slow process of publication (some fields of study, such as the social sciences, are especially slow in citations as indicated by a larger cited half-life (compared to the natural sciences)) and a higher citation rate of older literature (Nederhof 2006). Secondly, new journals are delayed for inclusion to the WoS because of the index inclusion criteria³. Thus, our results must be interpreted with such “lag effects” in mind.

1960–1974: The gerontological emergence

So where did happiness studies come from, as a scientific enterprise? Finding the origin of a multidisciplinary research field, such as happiness studies, is of course difficult using only quantitative data. However, when analyzing the publications between 1960 and 1974, a pattern emerges. The publications in this phase are few, but clearly centered around the journals *Gerontologist* and *Journals of Gerontology*. When looking into the publications from this period, a central research problem concerns well-being and happiness in relation to “successful aging”. The researchers in this field want to understand and measure how aging populations feel, and what the correlates are that make them feel happier during their final years in life. Moreover, there are also eight articles in the *Journal of Marriage and The Family*, where most titles concern research on “marital happiness” and family-related well-being. There is also a small cluster around *Psychological Reports* that consists of articles treating various problems, from sexual behavior and happiness, to geriatric and marital correlations with happiness levels.

² For the period 1904–1959, see additional online material at <http://scientometrics.flov.gu.se/happiness/scientometrics/>

³ For details, see <http://wokinfo.com/essays/journal-selection-process/>

Two publications⁴ (see Table 2) are of special relevance in this gerontological departure phase. The article “The Measurement of Life Satisfaction” by Neugarten et al. (1961) introduces the “Life Satisfaction Index”, an important scale for measuring satisfaction with life. This article will be cited frequently in the future, throughout all our data, but especially within gerontological publications. Moreover, Bradburn’s book *The Structure of Psychological Well-Being* (1969), is a constitutive publication for the emerging field of happiness studies, as it introduces another scale of measurement: the “Affect Balance Scale”, which measures positive and negative affect.

Thus, according to our findings, the first iteration of “happiness studies” takes place primarily in connection with gerontological research on “successful aging”. To understand the research problems that this line of research was occupied with, and how these problems were promoted by factors external to science, can only be revealed properly by further qualitative in-depth analyses. The scientometric analyses, however, provide a picture of both the type of journals and the central publications of this formative period. Moreover, during this first 15-year period, the scarcity of publications (indexed in the WoS) on the topics studied here, needs to be taken into account when assessing the validity of quantitative measures.

1975–1989: Consolidation of Gerontology. Emergence of Social Indicators and Social Psychology

The first gerontological phase consolidates during the next period of analysis. Gerontological research and family/marriage studies start to share similar references, as shown by their cluster proximity. This could be interpreted as gerontology and family studies are sharing conceptual structures that produce this citational proximity when happiness is the object of study. In other words, when these researchers want to study happiness, they retrieve similar concepts, which in turn are integrated in their research.

⁴ For additional visualizations of co-citation analyses of individual publications, see additional material at <http://data.thehappysociety.net/scientometrics/>

looking only at the publications in the core journals: *Journals of Gerontology*, *Gerontologist* and *Social Indicators Research*. They do, however, meet in broad literature reviews such as Diener (1984), and in some cases when, for example, the *Life Satisfaction Index* of Neugarten et al. (1961) was cited by a researcher publishing in *Social Indicators Research*. It is, thus, reasonable to conclude that the fields of gerontology and social indicators research have separate citational origins, and will not influence each other in any direct sense until they are combined later on in literature reviews.

1990–1999: The emergence of clinical and medical happiness research. Breakthrough for Diener and Watson.

Starting in 1990, we see a sudden growth in our dataset (see Figure 1, 2). As a consequence, the fields of gerontology, social indicators, marriage and family, and personality psychology crystallize as competing centers of gravity (Figure 4). The complete domination of gerontological and geriatric publications is from now on broken, especially by the emergence of *Social Indicators Research*, which could be seen already in Figure 3 in the previous decade.

There are also new clusters arriving from all sides. Our search terms appear also in publications from medical and clinical sciences. Here we find journals such as *Medical Care*, where publications concerning life satisfaction and happiness in relation to chronic disease, injuries and surgery are published. However, we also find, on the opposite side, the *Journal of Consumer Research*, in which articles that measure shopping experiences and consumer product choices in relation to happiness begin to appear. We may conclude that in the 1990s the central clusters are accompanied by a diverse range of specialized journals that measure happiness in different ways, for very different reasons.

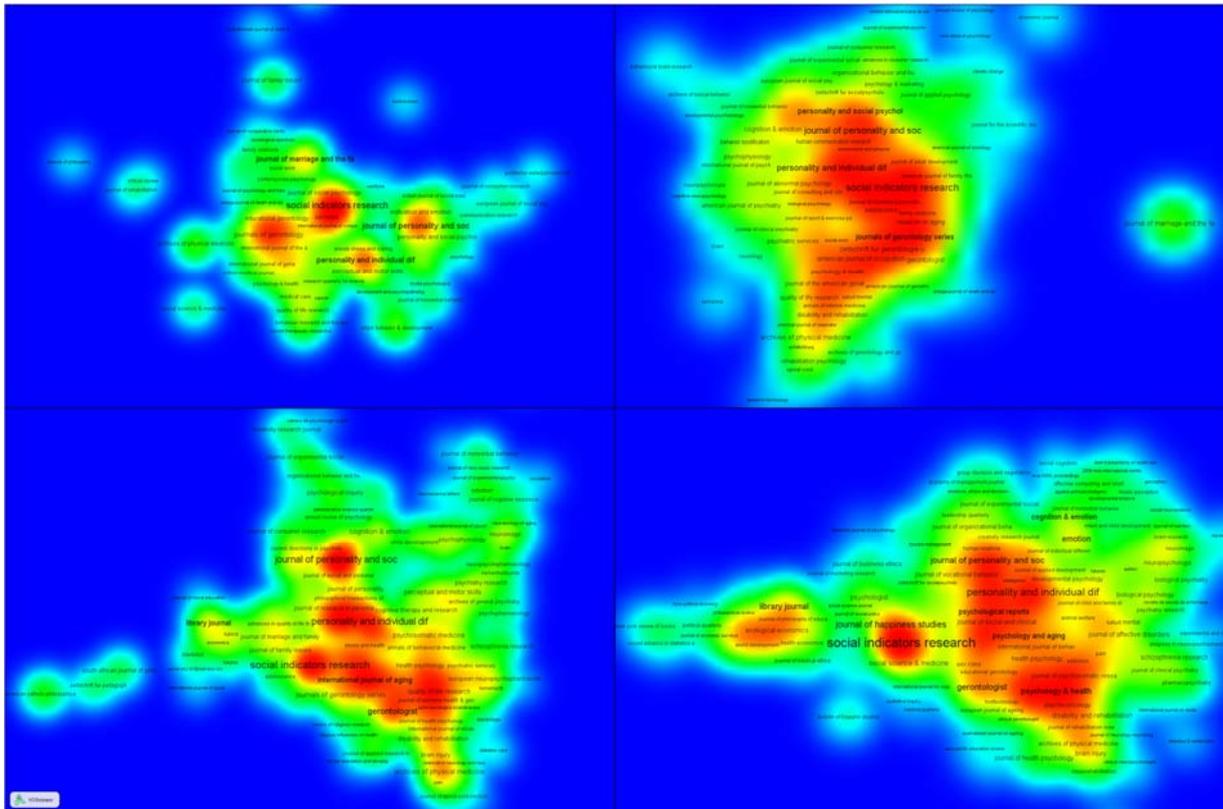


Figure 4: Development of happiness studies during the period 1990–2009. Upper left: 1990–1994, upper right: 1995–1999, lower left: 2000–2004, lower right: 2005–2009. Minimum number of documents of a source has been kept to two⁷.

On the author level, there is a clear trend throughout the 1990s. Two teams of researchers create three publications that overshadow much of the landscape, in terms of cited references (Table 2). Ed Diener’s (1984) *Subjective Well-Being* is a large review of what the author identifies as the body of scientific work that has led up to a new scientific concept: “Subjective well-being”. One year later, Diener, together with Emmons, Larsen, and Griffin, published the article *The Satisfaction with Life Scale* (1985), which introduced a new way of measuring life satisfaction. This article, in terms of citations and because of its similar object of measurement (life satisfaction/satisfaction with life), could be said to outcompete the Neugarten et al. 1961 *Life Satisfaction Index* (see Table 2) during the mid-1990s. The third article, Watson, Clark and Tellegen (1988) defines another important scale, the *Positive and Negative Affect Schedule*, which measures affect in a similar way as Bradburn’s *Affect Balance Scale* (as mentioned above). Watson et al. will outcompete Bradburn in terms of citations during the 1990s (Table 2). Thus, during this period, there is a re-shuffling of the most central articles in the field of happiness studies. Even

⁷ For each individual cluster map as high resolution picture, see <http://scientometrics.flov.gu.se/happiness/scientometrics/>

though the new articles of Diener et al and Watson et al. propose new scales of measurement, they still set out to measure the same study object (life satisfaction/affect), but with more precise methods.

As shown in Figure 4, the latter half of the 1990s crystallizes in a centripetal movement. The center of happiness studies is a firm axis that ranges from social psychology, via social indicators research, to gerontology. From the sides, however, there are new types of research emerging. Journals in neuropsychiatry, spinal cord rehabilitation, rehabilitation psychology and psychophysiology start to make an imprint in terms of citations, but they have not yet shaped distinct clusters.

2000–2009: The Diener–Watson dominance and the emergence of the Journal of Happiness Studies

During the first five years, after the turn of the millennium, there is a consolidation of references to Diener et al. and Watson et al., as described above. Their publications have by now become the “gold standard” for measuring subjective well-being as they contain the SWLS and PANAS scales, which in turn have become established methodological tools. When conducting happiness studies, chances are high that one of the two scales are used. Moreover, there is another wave of growth occurring during the first decade of the 2000s, in which publications more than double in numbers for the entire field of happiness studies. Nevertheless, there is also a further diversification of the field: *Social Indicators Research* is beginning to detach (Figure 4) from its position between the “personality cluster” (*Journal of Personality and Social Psychology; Personality and Individual Difference*) and the “gerontology cluster” (*Gerontologist; Journal of Gerontology Series; International Journal of Aging*). In the lower right corner of Figure 4, this movement clarifies even further, as a new journal appears in close proximity – the *Journal of Happiness Studies*.

There are also new clusters. First and foremost, there is a concentration of research emerging around the *Archives of Physical Medicine and Rehabilitation* in the lower left section of Figure 4. In this journal, there is a specialized line of research that concerns the problem of life satisfaction among victims of severe disability, often brain- or spinal cord injuries that result in permanent disability. The “happiness” aspect of these studies, concerns how patients cope with life, and their strategies for well-being. Moreover, shown only as peripheral dots in the upper right corner of Figure 4, there is an emerging cluster around economic research at the turn of the millennium. Economic studies are still not widely published, but they will emerge from this position in later years.

Moving on to the second half of the first decade of the new millennium, we see the beginning of a consolidation of the economics cluster in the lower right side of Figure 4. This is the time when *Ecological Economics, Journal of Economic Psychology* and *Journal of Economic Behavior and*

Organization begin to make an imprint in the publication maps. Moreover, *Social Indicators Research* is now accompanied by the *Journal of Happiness Studies*, which was founded in the year 2000 (but only indexed in the WoS from 2008), and they approximate each other in a distinct spot. There is also a continued growth in terms of specialized clinical disciplines. Areas such as schizophrenia research, biological psychiatry and various forms of brain- and neurosciences are appearing, even though they do not shape their own clusters within happiness studies.

Concerning authors, both Neugarten et al. and Bradburn have disappeared from the top cited authors (Table 2), and there is a continued domination for Diener et al. and Watson et al. However, there are two articles that are of special interest in this period: Ryff's (1989) article "Happiness Is Everything, or Is It?" and Ryan & Deci's (2001) "On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being" (Table 2). The reason for these new articles to appear on the list of most cited articles is that they propose a different way of thinking happiness, following Aristotle's notion of "eudaimonic happiness" (see Aristotle 1991). Here, an alternative conceptualization and operationalization of human happiness is presented, one that takes personal autonomy, self-acceptance and positive relations with others into account. Thus, from around 2005 and up until today, there are competing ways of thinking human happiness among the most cited articles. On the one hand, the satisfaction with life scales (Diener et al. 1985) and the positive/negative affect measures (Watson et al. 2008) depart in what may be called "hedonic" concept of happiness, where the experience of what makes life pleasant and unpleasant are at the center of investigation. On the other hand, researchers working with "eudaimonic happiness" instead tend to shift away from the completely subjective aspect, instead focusing on the realization of one's true potential and living a life in accordance with one's "true self". Happiness studies is, one could say, a divided field in terms of core concepts⁸.

Contemporary Happiness Studies

So, what is happiness studies today? First of all, it is a field that grows very rapidly. 36 % of the articles that we extracted from the Web of Science since 1904 were published as late as between 2010 and 2013. There is a clear indication that this diverse field is indeed very productive. Today, it covers a broad spectrum of scientific disciplines and areas of study, which can be seen clearly when reading Figure 5 from right to left. First, we encounter what could be labeled as biological, neurological, clinical and psychiatric journal titles. These studies are often specialized and focus on a specific group of patients

8 In a forthcoming article, we will follow this conceptual controversy further, exploring also how it has affected the scales of measurement used in happiness studies.

and/or disorders, where happiness measures are integrated into clinical evaluations and assessments of the efficacy of a particular therapy. Next, we find psychological journals that border with social psychology, personality studies and gerontology. This section comprises a large body of the citing references, and may be thought of as one of the mainstreams of happiness studies. In the very center of the figure, we find the *Journal of Positive Psychology*, which is rather interesting from an emergence perspective. It was founded in 2006, but is only indexed in the WoS from 2009.

Still closely related in terms of cited references, the *Journal of Happiness Studies* and *Social Indicators Research* form a gateway to the societal-level studies, which often compare the happiness levels among nations and cultures. Further along, the economics journals have formed a distinct cluster to the left extreme, similar as in Figure 4 but now even more distinct. Perhaps, one could soon speak of a specific happiness economics, influenced by such authors as Daniel Kahneman and Richard Layard.

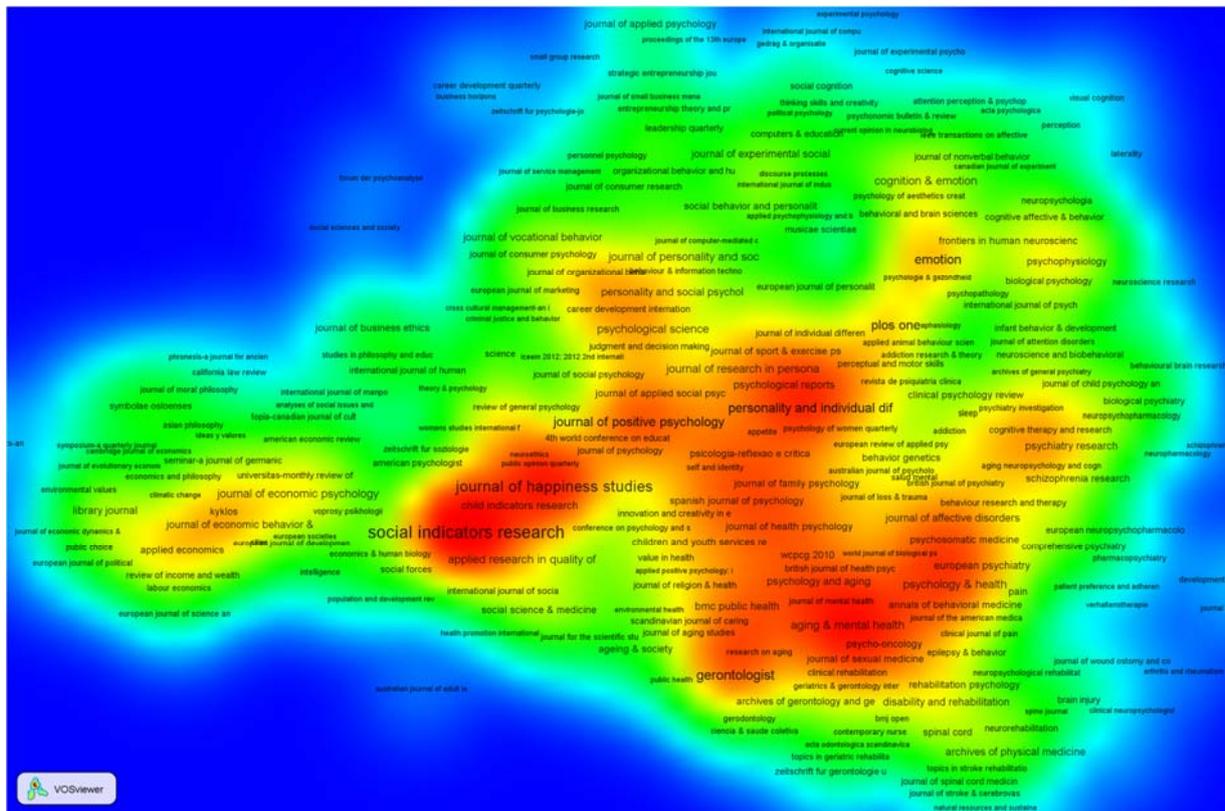


Figure 5: 2010–2013. Minimum number of documents of a source has been kept to two.

As revealed already in Figure 1, this 3-year period marks a steady growth in absolute numbers of publications, a continuation of a trend beginning at the turn of the millennium. But, as seen in Figure 5, it also entails a horizontal growth. Happiness studies has diversified, in terms of journals. Measurements of happiness have been included in articles published in such diverse areas as library science, economics,

vocational science, gerontology, all forms of psychology, genetics, neuroscience and physical medicine. On a qualitative level, the various studies found in these disciplines all have quite different connections to happiness studies. Some of them would not even say they are conducting research in this area, especially in the medical sciences, where subjective well-being and life satisfaction often are closely related to specific treatments or therapies.

Conclusion – A “happiness turn”?

Depending on where you are situated in the social-, behavioral- or medical sciences, the field of “happiness studies” may look very different. The use of scientometric data in general, and cited references in particular, is a productive way of attempting to define and study this emerging field of research. We have found that happiness research took off (in the shape of empirical and publishable studies) in the fields of gerontology and social indicators research. These were the fields of study where measurements of life satisfaction and positive/negative affect were conducted to tackle the problem of “successful aging” and how to find relevant indicators of perceived life quality.

During the late 1970s and the 1980s, the difference between the gerontological studies and the social indicators movement became more defined. Even though both camps explored life satisfaction and well-being, they drew on slightly different bodies of literature as their main references. Also, during the mid-1980s, a handful of important articles concerning scales and methods of measurement were published. These articles would have large impact later on, during the 1990s.

In the 1990s, wider psychological and social psychological research started to emerge, in which happiness measures were integrated. Also, during this prolific century, clinical and medical studies began to use measures of happiness, thus widening the field considerably. The key development in the decade before the turn of the millennium was the widespread acceptance of two standard scales for measuring subjective well-being: Diener et al.’s (1985) *Satisfaction with Life Scale* and Watson et al.’s (1988) *Positive and Negative Affect Schedule*. These two publications began to dominate the field of happiness studies, and continue to do so even today. Consequently, the field strove towards a kind of conceptual unity, where particular common procedures contributed also to a steady expansion of the field.

With the turn of the millennium, and the decade that followed, economists started to conduct research on the effects of the economy on happiness (and vice versa). Even though the relationship between income and happiness had been explored earlier (see for example Easterlin 1974), it is during this time that a citational pattern emerges in the scientific literature. Moreover, this phase also gave birth to positive psychology and specialized journals, such as the *Journal of Happiness Studies* and *Journal of Positive Psychology*.

Yet, as proposed in the introduction of this article, is it really reasonable to speak of a “happiness turn” taking place at the turn of the millennium? Many of the influential authors in the field claim that to be the case. For example, Layard writes that a “new psychology now gives us real insight into the nature of happiness and what brings it about” (Layard 2005: 6). And Emmons claims that, “[t]he field of positive psychology, initiated by Martin Seligman in the late 1990s, has begun to mature as a scientific discipline” (Emmons 2006: 1). This latter quote not only reconstructs the scientific advances to have taken place further back in time, it also is a case of where a reference functions as a rhetorical “device”, as discussed in Gilbert (1977). Even a notable critic of happiness research claim that there has been a significant happiness turn in this period of time (Ahmed 2007; 2010).

Our data suggests that there has indeed been a significant increase in happiness studies publications over the last decade, a trend that peaked in the period 2010-13, and seems to continue to expand in contemporary research. The notion of a “happiness turn”, however, implies that there was another trend or focal point *before* the turn. Some of the leading authors in the field write in such a key, arguing that the center of attention has shifted *away* from purely economic measurements *towards* subjective forms well-being and happiness (see Layard 2005). Evaluating such a claim requires a different methodology than ours. What we are able to show is perhaps not so much a turn, as it is a study in a *rapid diffusion and growth* of happiness studies, which appears in heterogeneous and scattered areas of study. Thus, we suggest that there is not *one* singular turn to happiness. Rather, measurements of happiness and well-being may be interpreted as what Bruno Latour calls *immutable mobiles* (Latour 1999: 306–307; 2013: 77–78). In other words, the methodologies and standardized practices of measuring happiness and well-being (manifested especially in scales of measurement) have been made plastic enough to travel between scientific disciplines, reaching further and further into specialized areas of study, without losing their identity. This way, we may say that happiness studies has a “coverage” across disciplines, without implying that it necessarily is part of the core research activity. Happiness studies may, on the one hand, be the very object of study in itself. This is the case when reading articles in for example *Journal of Happiness Studies*. However, and equally important for our attempt at studying the emergence the field, there is on the other hand plenty of research in which measurements of well-being and happiness are instead *auxiliary* components of a larger research question.

Perhaps is it then not so much an “happiness turn” that we have rendered visible, but rather the *emergence* of a focal point for research, as many different disciplines have *turned towards happiness*, especially during the past two decades. Such a turning towards happiness cannot be solely understood from an internalist perspective on science. The accelerating interest in happiness measurements must rather be thought of as deeply intertwined with the common production of science and society.

References

- Ahmed, S. (2007). The Happiness Turn, *New Formations*, 63(7), 7–14.
- Ahmed, S. (2010). *The Promise of Happiness*, Durham and London: Duke University Press.
- Andrews, F. M., & Withey, S. B. (1976). *Social Indicators of Well-being: Americans' Perceptions of Life Quality*, New York: Plenum Press.
- Aristotle (1991). *Nicomachean Ethics*, Translated by W. D. Ross, New Jersey: Princeton University Press.
- Bradburn, N. (1969). *The Structure of Psychological Well-Being*, Chicago: Aldine Publishing Company.
- Diener, E. (1984). Subjective Well-Being, *Psychological Bulletin*, 95(3), 542–575.
- Diener, E., Suh, E.M, Lucas, R. E., & Smith, H. L. (1999). Subjective Well-being: Three Decades of Progress, *Psychological Bulletin*, 125(2), 276–302.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction with Life Scale, *Journal of Personality Assessment*, 49(1), 71–75.
- Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence, in David, P. A. & Reeder, M. W. eds., *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, New York: Academic Press, Inc.
- Emmons, R. A. (2006). Editorial, *Journal of Positive Psychology*, 1(1), 1–2.
- Gilbert, G. N. (1977). Referencing as Persuasion. *Social Studies of Science*, 7(1), 113–122.
- Helliwell, J., Layard, R., & Sachs, J. (2012). *World Happiness Report*, The Earth Institute, Columbia University, <http://www.earth.columbia.edu/sitefiles/file/Sachs%20Writing/2012/World%20Happiness%20Report.pdf>. Accessed 2 September 2014.
- Layard, R. (2005). *Happiness – Lessons from a New Science*, London: Allen Lane.
- Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, Mass.: Harvard University Press.
- Latour, B. (1999). *Pandora's hope: essays on the reality of science studies*, Cambridge, Mass.: Harvard University Press.
- Latour, B. (2013). *An Inquiry into Modes of Existence – An Anthropology of the Moderns*, Cambridge, Mass.: Harvard University Press.
- Lyubomirsky, S. (2007). *The How of Happiness: A Practical Guide to Getting the Life You Want*, London: Sphere.
- Lyubomirsky, S., King, L., & Diener E. (2005). The Benefits of Frequent Positive Affect: Does Happiness Lead to Success?, *Psychological Bulletin* 131(6), 803–855.
- Nederhof, A. J. (2006). Bibliometric Monitoring of Research Performance in the Social Sciences and the Humanities: A Review. *Scientometrics* 66(1), 81–100.
- Neugarten, B. L., Havighurst, R. J., & Tobin, S. S. (1961). The Measurement of Life Satisfaction, *Journal of Gerontology*, 16(2), 134–143.
- Powell, T. (2014). *National Well-Being Measures, March 2014*, Office for National Statistics, http://www.ons.gov.uk/ons/dcp171766_355476.pdf. Accessed 10 June 2014.

- Rafols, I., Porter, A.L., & Leydesdorff, L. (2010). Science Overlay Maps: A New Tool for Research Policy and Library Management, *Journal of the American Society for Information Science and Technology*, 61(9), 1871–1887.
- UNDP (2013). *Human Development Report 2013. The Rise of the South: Human Progress in a Diverse World*, New York: United Nation's Human Development Programme.
- Ryff, C. D. (1989). Happiness is Everything, or is it? Explorations on the Meaning of Psychological Well-Being, *Journal of Personality and Social Psychology*, 57(6), 1069–1081.
- Ryan, R. M., & Deci, E. L. (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being, *Annual Review of Psychology*, 52, 141–66.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive Psychology – An Introduction. *American Psychologist*, 55(1), 5–14.
- Small, H. G. (1978). Cited Documents as Concept Symbols, *Social Studies of Science*, 8(3): 327–340.
- Van Eck, N. J., & Waltman, L. (2010) Software Survey: VOSviewer, a Computer Program for Bibliometric Mapping, *Scientometrics*, 84(2), 523–538.
- Van Heur, B., Leydesdorff, L., & Wyatt S. (2012). Turning to Ontology in STS? Turning to STS through 'Ontology', *Social Studies of Science*, 43(4), 341–362.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales, *Journal of Personality and Social Psychology*, 54(6), 1063–1070.
- Wilson, W. (1967). Correlates of Avowed Happiness, *Psychological Bulletin*, 67(4), 294–306.

Appendix

	1960-74 % (N=214)	1975-89 % (N=1300)	1990-94 % (N=1367)	1995-1999 % (N=2502)	2000-2004 % (N=3700)	2005-2009 % (N=6726)	2010-2013 % (N=9072)						
<i>Bradburn N. M., 1965, Repor</i>	7.5	<i>Neugarten BL, 1961, J Geron</i>	8.8	<i>Diener E, 1984, Psychol Bull</i>	8.4	<i>Diener E, 1984, Psychol Bull</i>	8.5	<i>Watson D, 1988, J Pers Soc</i>	9.0	<i>Diener E, 1985, J Pers Asses</i>	10.4	<i>Diener E, 1985, J Pers Asses</i>	13.5
<i>Gurin G., 1960, Am View The</i>	6.1	<i>Bradburn NM, 1969, Structu</i>	8.4	<i>Andrews F. M., 1976, Social</i>	7.8	<i>Watson D, 1988, J Pers Soc</i>	8.4	<i>Diener E, 1985, J Pers Asses</i>	9.0	<i>Watson D, 1988, J Pers Soc</i>	9.5	<i>Watson D, 1988, J Pers Soc</i>	11.2
<i>Neugarten BL, 1961, J Geron</i>	6.1	<i>Andrews F. M., 1976, Social</i>	7.7	<i>Bradburn NM, 1969, Structu</i>	7.0	<i>Diener E, 1985, J Pers Asses</i>	6.7	<i>Diener E, 1984, Psychol Bull</i>	5.4	<i>Diener E, 1999, Psychol Bull</i>	6.6	<i>Diener E, 1999, Psychol Bull</i>	7.3
<i>Cumming E., 1961, Growing</i>	2.8	<i>Larson R, 1978, J Gerontol,</i>	7.3	<i>Campbell A., 1976, Quality A</i>	6.9	<i>Bradburn NM, 1969, Structu</i>	6.1	<i>Diener E, 1999, Psychol Bull</i>	4.6	<i>Diener E, 1984, Psychol Bull</i>	4.4	<i>Diener E, 1984, Psychol Bull</i>	5.1
<i>Terman L, 1938, Psychologic</i>	2.8	<i>Campbell A., 1976, Quality A</i>	6.7	<i>Neugarten BL, 1961, J Geron</i>	5.3	<i>Andrews F. M., 1976, Social</i>	5.5	<i>Radloff L S, 1977, Applied P:</i>	4.0	<i>Baron RM, 1986, J Pers Soc</i>	4.2	<i>Lyubomirsky S, 2005, Psych</i>	4.3
<i>Wilson W, 1967, Psychol Bu</i>	2.8	<i>Palmore E, 1972, J Health Sc</i>	5.1	<i>Watson D, 1988, J Pers Soc</i>	4.6	<i>Watson D, 1985, Psychol Bl</i>	5.1	<i>American Psychiatric Associa</i>	4.0	<i>Pavot W., 1993, Psychol As:</i>	3.9	<i>Baron RM, 1986, J Pers Soc</i>	4.2
<i>Burgess E. W., 1939, Predicti</i>	2.3	<i>Edwards JN, 1973, J Gerontc</i>	4.5	<i>Watson D, 1985, Psychol Bl</i>	4.2	<i>Radloff L S, 1977, Applied P:</i>	5.0	<i>Andrews F. M., 1976, Social</i>	3.9	<i>Ryan RM, 2001, Annu Rev Ps</i>	3.3	<i>Pavot W., 1993, Psychol As:</i>	3.9
<i>Knox D, 1971, Marriage Hap</i>	2.3	<i>Cantril H., 1965, Pattern Hur</i>	4.1	<i>Diener E, 1985, J Pers Asses</i>	3.8	<i>Campbell A., 1976, Quality A</i>	4.8	<i>Baron RM, 1986, J Pers Soc</i>	3.8	<i>Aiken L S., 1991, Multiple Ré</i>	3.0	<i>Radloff L S, 1977, Applied P:</i>	3.7
<i>Locke H. J., 1951, Predicting</i>	2.3	<i>Spreitze E, 1974, J Gerontol,</i>	4.1	<i>Larson R, 1978, J Gerontol,</i>	3.7	<i>Neugarten BL, 1961, J Geron</i>	3.4	<i>Bradburn NM, 1969, Structu</i>	3.4	<i>Ryff CD, 1989, J Pers Soc Ps</i>	2.9	<i>Ryan RM, 2001, Annu Rev Ps</i>	3.7
<i>Palmore EB, 1968, Gerontol</i>	2.3	<i>Gurin G., 1960, Am View The</i>	3.6	<i>Radloff L S, 1977, Applied P:</i>	3.2	<i>Rosenberg M., 1965, Soc Ad</i>	3.1	<i>Pavot W., 1993, Psychol As:</i>	3.4	<i>American Psychiatric Associa</i>	2.8	<i>Ryff CD, 1989, J Pers Soc Ps</i>	3.5

Table 2: Yearly top cited articles (Note different time periods)