WORLD DATABASE OF HAPPINESS
A 'findings archive'

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ABSTRACT
Social scientists are producing an ever-growing stream of research findings, which is becoming ever more difficult to oversee. As a result, capitalization on earlier investment is declining and the accumulation of knowledge is stagnating. This situation calls for more research synthesis and interest in techniques for research synthesis is on the rise.

To date, attention has been focused on statistical methods for meta-analysis, with little attention paid to the preliminary step of bringing the available research findings together. What we need is 1) techniques for describing research findings in a comparable way, 2) a system for storing such descriptions in an easily accessible archive, 3) a means to add research findings to this system on a continuous basis.

The World Database of Happiness is an example of such a tool. The archive is tailored to meet the requirements of assembling research findings on happiness in the sense of the subjective enjoyment of one's life-as-a-whole. The archive includes both distributional findings (how happy people are) and correlational findings (what things go together with happiness).

With its focus on 'findings', this system differs from data-archives that store 'investigations' and from bibliographies that store 'publications'. As yet, there is no established term to describe this type of tool for research synthesis. I call it a 'findings archive'. In this paper, I describe how it works and illustrate its use with an overview of research findings on two topics: 1) the relation between happiness and air-pollution and 2) the relation between happiness and economic growth.

Key words: literature review, research synthesis, methodology, research archive, comparative analysis, happiness, life satisfaction, subjective wellbeing, quality of life, air-pollution, economic growth

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1   HAPPINESS RESEARCH

Over the ages the subject of happiness has absorbed a lot of thought. Happiness was a major theme in early Greek philosophy and gained renewed interest during the later Western-European Enlightenment (Mauzi 1960). The philosophic tradition has produced a lot of ideas, but little factual knowledge, philosophers have raised more questions about happiness than they have answered. Most of the controversies they have raised cannot be solved by the logic of reasoning, and settlement of arguments based on reality checks has long been handicapped by a lack of adequate research techniques.

In the 20th century, the social sciences brought about a breakthrough. New empirical research methods opened the possibility to identify conditions for happiness inductively and to test theories. This instigated a lot of research, most of which is embedded in the then newly established specializations of 'social indicators research', 'health related quality of life research' and more recently in 'positive psychology' and 'happiness economics'.

1.1   Growing number of empirical studies on happiness

The stream of social scientific research is growing fast. The rising number of publications on happiness is depicted in Scheme 1[2]. After take-off in the 1970s, the average annual growth rate has been approximately 5%. The number of research reports published in 2017 on happiness defined as the subjective enjoyment of one's life-as-a-whole (cf. section 2.2) is estimated to be some 750[3].

Reviews of this research literature have been published by Veenhoven (1984), Argyle (1987), Diener (1999), Frey & Stutzer (2002), Dolan et al. (2006) and Diener & Biswas-Diener (2008). The growing interest in happiness also reflects in the establishment of specialized scientific journals, such as the Journal of Happiness Studies, the first issue of which appeared in the year 2000.

Scheme 1 about here

1.2   Intriguing findings on happiness

The new line of research has produced several unexpected results, such as:

- The majority of humanity appears to enjoy life. Unhappiness is the exception rather than the rule. This is at odds with common misery counts in the social sciences (Diener & Diener 1996).

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[2] This count is based on publications about happiness in the sense of 'subjective enjoyment of one's life as a whole' and that passed the test for conceptual fit described in section 2.2.
[3] To date (1-1-2018), we have not yet screened and entered everything published after 2010, so the declining numbers at the right of figure 1 do not denote that less has been published on the subject since then.

- Average happiness is high in modern societies and tends to rise even higher. This finding contradicts longstanding pessimism about modernization (Cummins 2000, Veenhoven 2005, Veenhoven & Hagerty 2005, Inglehart et. al. (2008).
- In modern western nations, happiness differs little across social categories, such as rich and poor or males and females. The difference is rather in psychological competence (Headey and Wearing 1992). This result is at odds with the common notion in sociology that happiness depends primarily on one's social position.
- Differences in happiness within nations (as measured by standard deviations) tend to get smaller. This contradicts claims about growing inequality in modern society (Veenhoven 2002).
- People live happier in individualistic societies such as Denmark, than in collectivistic societies such as Japan (Veenhoven 1999, Verne 2009). This contradicts the view that modern society falls short in social cohesion, such as proclaimed in books like 'Bowling Alone' (Putman 2000).
- People do not live happier in welfare states than in equally rich nations where 'father state' is less open handed. Inequality of happiness does not appear to be smaller in welfare states either (Veenhoven 2000b). This finding conflicts with political left thinking.
- Happiness is not just a matter of being better off than the Jones; though social comparison plays a role, it is not the whole story. This finding challenges cognitive theories of happiness and supports affective explanations (Veenhoven 1991, 1995, 2008).
- Happiness is not very trait like; over a lifetime it appears to be quite variable. This finding does not fit the 'set-point' theory of happiness (Veenhoven 1994b, Ehrhardt et al. 2000, and Headey 2006).

1.3 Stagnating progress in understanding of happiness

All this empirical research on happiness has not yet crystallized into a sound body of knowledge. Preliminary questions about conceptualization and measurement are now fairly well solved, but our understanding of determinants and consequences of happiness is still tentative and very incomplete. There are several reasons for why the growing stream of empirical research has not yet brought better understanding. In addition to complexities in the subject matter, such as contingencies, there are a number of practical problems.

Conceptual confusion
The first reason is 'confusion of tongues'. As there is no consensus on use of words and terminology in the field, it is quite difficult to select the data that pertain to happiness in a particular sense, such as our usage here of satisfaction with one's life-as-a-whole. I will

discuss this in section 2.2.

Some researchers who state their aim is to measure 'life-satisfaction', end measuring something else; e.g. Neugarten et al. (1961) who's 'Life Satisfaction Scale' involves several items that measure social functioning rather than satisfaction with life. Conversely, some investigators focusing on mental health have used indicators that adequately reflect life-satisfaction, e.g. Gurin et al. (1960).

Lack of overview
The second reason for the stagnation in our field is lack of coordination. There is much redundancy in the research on happiness: the same issues are investigated over and over again, in the same way, e.g. the correlation between happiness and income. As a result, the range of variables considered is still rather small and methodological progress slow. A related problem is that the research findings are very scattered and most of the observations cannot be traced in bibliographical systems. Consequently, many of the findings get lost.

Little view on contingencies
A more basic reason for the stagnation in the study of happiness lies in the dominant research approach. The bulk of empirical happiness studies consist of cross-sectional surveys within particular countries. Typically, investigators try to identify universal conditions for happiness using local correlates. For instance, the observation found in American studies that the happy tend to have high incomes is seen to mean that money buys happiness in any country and that the basic underlying mental process is social comparison.

Yet, conditions for happiness are probably not the same at all times and in all places. Neither are its consequences. Though there are obviously universal requirements for a happy life (Veenhoven 2010b), some seem to be contingent on the characteristics of a person and situation. For instance, happiness correlates strongest to income in poor and socially unequal countries, and most so among materialistic persons. Usually, such contingencies cannot be detected in single studies in one country, they can only be identified if many studies are compared in a systematic meta-analysis, and this requires that the available findings be compiled in a suitable dataset.

Little view on causality
Correlations say little about cause and effect. If rich Americans tend to be happier, this does not prove that money buys happiness, because happiness can also boost earning chances. Separation of cause and effect requires panel studies and experiments. Such studies are scarce as yet, and the results are difficult to retrieve. Progress in the field requires at least that these scattered findings be brought together.

1.4 Research compilation on happiness required

Because of the problems, main priority is therefore to gather the available research findings on happiness and to present these in a comparable format. Without a complete and detailed view on the available findings, there will be little accumulation of knowledge. This need for a compilation of research-findings on happiness becomes ever more pressing. The higher the pile of research reports, the greater the need for a good overview of the findings they contain.

Now that some 750 studies on happiness appear every year (cf. scheme 1), the heap of findings has grown too big to be handled using narrative research reviews, yet at the same time the stockpile is becoming ever more suitable for quantitative meta-analysis.

Meta-analysis requires much investment in gathering of relevant research and in homogenizing the findings. This investment is particularly high if one wants to cover the entire world's research on a particular topic. Such investments are made in capital-intensive fields such as pharmacological research, but are uncommon in the social sciences. The few meta-analyses of empirical happiness research to date have been based on small collections of research findings, e.g. Stock et al. (1983), Okun et al. (1984), Pinquart & Sörenson (2000, 2001) and Steel et. al. (2006). As yet, all these meta-analyses have been one-time shots, leaving no common database to build on. Hence each new investigator has to make a new start. Not surprisingly few do.

2 THE WORLD DATABASE OF HAPPINESS

The World Database of Happiness (Veenhoven 2017a) is an archive of research findings on happiness defined as the subjective enjoyment of one's life-as-a-whole. It is meant to facilitate research synthesis on this subject. Access to the archive is free available on internet at: http://worlddatabaseofhappiness.eur.nl Below I describe this data-system and present links to illustrative web pages. Technical terms used are summarized below on scheme 2.

Scheme 2 about here

2.1 Aims

The prime aim is to provide an empirical basis for policies that aim at greater happiness for a greater number of people[4] (Veenhoven 2010c). The forming of such policies require

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[4] In moral philosophy, this pursuit of greater happiness for a greater number is known as (political) 'utilitarianism'. The aim is to achieve that a greater part of the population enjoys life (not to increase the number of people) and this concerns not only the present generation but also future generations. A recent account of this creed is given in Layard (2000)

knowledge about conditions for happiness and consequences of happiness, and of possible variations in these across time, place and kinds of people. Empirical evidence on these matters is needed as an antidote for ideological presumption.

A side aim of this project is to add to the technique of research synthesis. The method used here for the gathering of research findings on happiness can also be used for taking stock of research findings on other subjects, such as personal health and wealth. The method helps us to overcome several problems in research synthesis, such as poor visibility of data, incomparable descriptions and lack of continuity. The method allows standard descriptions of research findings to be presented and stored in collections to which scholars can add their findings from all over the world.

2.2 Conceptual focus

Happiness is defined as the *subjective enjoyment of one's life-as-a-whole*. In other words: how much one likes the life one leads. Synonyms are 'life-satisfaction' and 'subjective well-being'. This concept of happiness is currently the most used in the social sciences.

Within this concept of overall happiness, two 'components' of happiness are discerned: an 'affective' component called *hedonic level of affect* and a 'cognitive' component called *contentment*. These components are seen to function as subtotals in the overall evaluation of life. This conceptualization of happiness is delineated in more detail in my book 'Conditions of Happiness' (Veenhoven 1984) and more recently in a paper entitled 'How do we assess how happy we are?' (Veenhoven 2009a).

Selection of publications

All publications that use the word 'happiness' or related words in the title abstract or contents are called in and inspected for fit with the above concept of happiness. This involves a lot of reading, since the start of this project in the 1980s some 20000 publications have been inspected.

Publications that pass the test are entered in the Bibliography of Happiness, discussed below in section 2.5.1. To date (1-1-2018), this bibliography contains about 12000 scientific publications on happiness. Happiness is not always the central issue of these publications, nor is it always called by the same name of 'happiness'. The same phenomenon is sometimes called 'life-satisfaction' or 'subjective well-being' and in the 1950's the terms 'morale' and 'adjustment' have been used to denote what I call 'happiness'.

Selection of empirical studies

If such a publication reports an empirical investigation, the next step is to check whether the measure of happiness used in the study fits the above definition of happiness adequately. This appears often not to be the case, since many questionnaires purportedly dealing with happiness measure broader phenomena, such as 'positive mental health' or

satisfaction with particular domains of life rather than satisfaction with life as a whole. Studies that involve at least one acceptable indicator are described systematically on a 'study page' that will be discussed below in section 2.4.1.

2.3 Building blocks

The basic elements of the database are *pages*, which are linked in various ways. *Pages* are organized in *collections*, from which *reports* are generated**.** *Reports* are bunches of pages on a particular subject. This make-up is presented graphically in Scheme 3. These three elements are described in the next sections: *pages* in section 2.4, *collections* in section 2.5 and *reports* in section 2.6.

Scheme 3 about here

2.4 Pages

Four kinds of *pages* are involved: *pages* on 1) a particular publication, 2) a particular study, 3) a particular measure of happiness and a 4) particular research finding. All these pages use a standard format and a standard vocabulary[5].

2.4.1 *Pages on a particular publication*

Pages of this kind are much like an old-fashioned catalogue card in a library. They enumerate author, title and bibliographical source. Unlike the traditional library card, *pages* also contain a link to the full text. As in a systematic library catalog, publication *pages* also mention the subjects addressed in the publication, using a classification of topics in happiness research. In the case where a publication deals with an empirical study the results of which are entered in a findings collection, the *page* also gives a link to the excerpt of that study. An example of a publication *page* can be found on
http://worlddatabaseofhappiness.eur.nl/hap_bib/src_pubs.php?mode=2&author=8423

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2.4.2 *Pages on a particular empirical study*

If a publication reports an empirical investigation that used an acceptable measure of happiness, that investigation is described briefly on a *study page*. Standard descriptives are: the population under investigation (i.e. public, place, and time), sampling, response rate, number of participants (N) and method of observation, such as face-to-face interview or web questionnaire.

On each *study page* is a reference to the *publication* from which the information is drawn, when possible with a link to the full text. *Study pages* also have links to the *pages* discussed below regarding the 'measure of happiness' used and the observed

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[5] Rules for standard notation of research findings are described at:
http://worlddatabaseofhappiness.eur.nl/hap_cor/introtexts/introcor3.pdf

'distributional' and 'correlational' findings. An example of a *study page* is found at
http://worlddatabaseofhappiness.eur.nl/common/desc_study.php?studyid=15105

The full list of *study pages* is available at
http://worlddatabaseofhappiness.eur.nl/hap_study/study_fp.htm

2.4.3 *Pages on a particular measure of happiness*

Pages of this kind describe a particular way of measurement, mostly survey questions.
Such *pages* present the full text of a question and answer categories and in the case of
multiple questions, also how a sum-score is computed. If available, texts in other
languages are added. In the case of survey question using verbal response scales, the *page*
also mentions 'weights' for particular response options (e.g. 8 for 'very happy'), with
which scores can be transformed into a numerical 0-10 scale. These weights are obtained
in the International Happiness Scale Interval Study (Veenhoven 2009b).

These *pages* also have links to all the studies in which this particular measure is
used and to the findings obtained with that measure in each of these studies. An example
of such a *page* can be found at
http://worlddatabaseofhappiness.eur.nl/hap_cor/desc_hind.php?ind=401

2.4.4 *Pages on a particular research finding*

At the heart of the archive are *pages* that summarize a particular research finding. Two
kinds of findings are involved: a) 'distributional findings', that is, observations on the
spreading of happiness in a particular population, and b) 'correlational findings' about the
degree to which other things than happiness go together with happiness.

a *Distributional finding*

A *page* of this kind describes how happy people are in a particular population, as
observed using a particular measure of happiness. Next to the frequency distribution, the
page reports two summary statistics (mean and standard deviation) and the 95%
confidence interval around these. Information about the people under investigation is
taken from a *study page*; information on the measure of happiness is taken from a
'happiness measure page' and information on the original research report from a
'publication page'. An example of such a page on a distributional finding can be found at
http://worlddatabaseofhappiness.eur.nl/common/desc_study.php?studyid=2195

b *Correlational finding*

This kind of *page* contains the description of the observed statistical associations between
happiness and something else (called a 'correlate') in a particular public and using a
particular measure of happiness. The *page* is partly built from the above-mentioned pages
on a particular 'publication', 'study' and 'happiness measure'. Additional elements are a

description of the correlate and the observed statistical association.

The *description of the correlate* consists of three parts: the name by which the correlate is called in the original research report, detail about the measurement of the correlate and a classification of the correlate by subject matter, using a taxonomy derived inductively from the available research findings.

Description of the *observed statistical association* of the correlate with happiness involves the following elements: the statistics used for quantifying the degree of association and for assessing statistical significance, the values obtained in the study and particular elaborations or specifications.

An example of a *page* with a correlational finding can be found at http://worlddatabaseofhappiness.eur.nl/hap_cor/desc_cor.php?sssid=24629.

2.5   Collections

The above-mentioned *pages* are gathered in *collections*. The World Database of Happiness has four such collections: 1) the Bibliography of Happiness, 2) the collection of 'Measures of Happiness, 3) the collection of 'Distributional findings' and 4) the collection of 'Correlational Findings. The way in which these collections are linked is depicted in the flowchart on the start page of the website at http://worlddatabaseofhappiness.eur.nl/index.html

2.5.1 *Bibliography of Happiness*

All publications on happiness that passed a selection on conceptual fit (cf. section 2.2) are entered in the 'Bibliography of Happiness' (Veenhoven 2017b). This involves the making of a *publication page* as described in section 2.4.1, the bibliography being a collection of such *pages*.

Most publications in the bibliography are books and journal articles; however, the collection is not limited to `authorized' publications. Grey reports are also included. The main reason for this is that the publication process involves some systematic biases, one of which is under-reporting of non-correlations. By deliberately including `unpublished' findings, this database allows a more realistic view on happiness. Synthesis of studies based on this source can therefore yield conclusions that differ from impressions based only on reviews of research published in journal articles.

The Bibliography of Happiness contains a detailed systematic subject index, which allows an easy overview of the field and helps us to trace literature on specific issues. An example of a selection on subject matter can be found at http://worlddatabaseofhappiness.eur.nl/hap_bib/src_pubs.php?mode=1&Subject=1911 Publications can also be searched on author, key words, place, time and medium of publication and on words used in the title.

To date (1-1-2018) the Bibliography contains some 12000 scientific publications on happiness, sorted into some 450 subject categories. The coverage of the literature in English, German and Dutch is almost complete up to 2016.

The direct link to this Bibliography of happiness is:
http://worlddatabaseofhappiness.eur.nl/hap_bib/bib_fp.php

2.5.2 *Directory of Happiness Investigators*

Authors of publications that are entered in the Bibliography of Happiness are automatically listed in the 'Directory of Happiness Investigators', which also lists names of scholars that are otherwise involved in the study of happiness. To date the directory contains some 15000 names for which about half have an e-mail address. Addresses are limited to investigators who have published after 1975. The directory is fairly complete up to 2016.

Since the directory is linked to the bibliography, which is indexed by subject, one can easily select specialists on a particular topic within happiness research and because the bibliography is also indexed by year of publication, one can identify currently most active researchers, authors can also be selected on the country where they live.

The directory is available on request to peer researchers, for scientific purposes only. In the last few years, it has been of great help in creating research networks on and around the theme of happiness.

2.5.3 *Collection of Happiness Measures* *(Item bank)*

As noted in section 2.2, all measures of happiness used in empirical studies are checked for fit with the concept of happiness used here. The selection is quite stringent and about half of the indicators claimed to measure happiness is rejected. One of these is the much-used Satisfaction With Life Scale (Diener 1985), because of the last item in this scale reads: "If I could live my life over, I would change nothing". A positive answer to this question does not necessarily mean that the respondent dislikes the life he/she is actually living, and for that reason, the entire scale is rejected. This restrictiveness has a price: the results of many otherwise good studies are not included in the findings collections. The gain is that we can be sure about what the selected findings mean. Accepted indicators of happiness are described on a *page,* which enumerates the full text of questions or observation schedules and contains links to studies in which these measures have been applied (cf. section 2.4.3). Together these pages constitute the collection 'Measures of Happiness'.

The collection of 'Measures of Happiness' consist of a detailed classification of happiness measures, based on distinctions between happiness-variants, time reference and methods of assessment. To date (1-1-2018) some 1000 variants have been distinguished. This seems to be a lot for the specific concept of happiness at hand (cf.

2.2). however, most of the differences concern minor variations in wording, such as whether the positive end of a response scale is labeled 'satisfied' or 'very satisfied'.

Though such variations may seem trivial at first sight, they can make a difference, for instance when responses to such nearly identical questions are used in trend analysis. Variations in wording or timeframe of questions should also be clear when it comes to explaining divergent outcomes. Research synthesis requires systematic and precise information about measurement and this is what this fine-grained categorization provides.

The *pages* link to the studies that used this particular measure of happiness, and thereby the collection provides an easy overview of the scores yielded using the same measures in different populations. The collection is therefore useful for selecting happiness measures that allow comparison with earlier research. It is also a valuable tool for identifying instrument effects. Users can search the collection on keywords or use the classification for selection on variant, time reference, method of observation or rating scale used.

The direct link to the collection 'Measures of Happiness' is:
http://worlddatabaseofhappiness.eur.nl/hap_quer/hqi_fp.htm

2.5.4 *Collections of Distributional Findings on Happiness*

Distributional findings are about how happy people are in a particular population. As indicated above in section 2.4.4, each of such findings is noted on a separate *page*. These *pages* provide detail about sampling and interrogation and present the full *frequency distribution* of responses, together with *mean* and *standard deviation*. Comparison is facilitated by additional transformation of means and standard deviations to a *common 0-10 scale* and by presenting the *95% confidence interval* around these central tendency statistics. These *pages* are sorted in three 'collections', two of which focus in the first place on happiness in *places* and one on happiness in particular *publics*.

Happiness in Nations

Pages that report a finding on happiness in the general public of a country are gathered in the *collection* 'Happiness in Nations' (Veenhoven 2017d). Findings are ordered by country in *nation reports* (cf. section 2.5.4). In these nation reports findings are grouped by the kinds of happiness measure used and within these categories by year. This sorting provides an easy view on trends over time.

The entire *collection* can be sorted on nation and on measure of happiness. From this *collection,* several further *finding reports* are generated, which will be discussed below in section 2.6.2.

To date (1-1-2018), this *collection* contains some 8500 findings in 175 nations between 1945 and 2017. Though most of the data come from first world countries, the collection contains findings from almost all countries of the world and covers more than

95% of the world's populations. Among these findings are time-series of 25 year and longer for 15 developed nations. The collection is fairly complete up to 2015.

This collection provides a first set of international statistics on happiness. The data on *average happiness* serve to identify the macro-social factors that mark off more and less livable societies. These data are also used for monitoring social progress and decline, e.g. by Veenhoven (2010a). The data on *dispersion of happiness* in nations can be used in comparative studies of inequality in life chances. The uses of these data are spelt out in more detail in (Veenhoven 1993a chapter 8, Veenhoven 2002).

The direct link to this collection 'Happiness in Nations' is:
http://worlddatabaseofhappiness.eur.nl/hap_nat/nat_fp.php?mode=1

Happiness in Regions
Recently a similar collection of distributional findings has been added to the World Database of Happiness on happiness of the general public in geographical area's other than nations. Most of these areas are regions within nations, such as post-1990 Germany and the former East and West parts of the country. The collection also contains data on transnational regions, such as Sub-Sahara Africa. A comparable collection of distributional findings on '*Happiness in Cities*' is in the making.

Most of the findings in this collection of Happiness in Regions are extracted from national samples, often using pooled data from several surveys that use the same question on happiness and contain information about the place of residence of the respondent. Since such samples are designed to represent the population in the country rather than that in regions, the findings in this collection are less representative than the findings in the above-mentioned collection of distributional findings on Happiness in Nations.

To date, this collection contains some 4000 findings, in 2500 regions, mostly provinces, and cities. To view these finding, go once more to http://worlddatabaseofhappiness.eur.nl/hap_nat/nat_fp.php?mode=1 and click the ⊕ icon at the left of a nation. A list of regions will appear, each of which links to an overview of the available distributional findings on happiness in the general population of that area.

Happiness in Publics (particular kinds of people)
Alongside the data on happiness of the general population in *places*, there is also a collection of findings on the degree of happiness among particular *publics*, that is, social categories within nations, such as aged people or psychiatric patients. Some 160 different categories have been discerned, among which are some rather unusual ones such as 'lottery winners' (code L2.2) and 'prisoners' (code P4).

To date (1-1-2018) this collection contains about 2000 distributional findings, most of which concern particular kinds of people in first world nations. The collection is fairly complete up to 2015 and as such less complete than the collection of Happiness in

Nations. The collection can be searched in several ways, on public, on country, on year and on measure of happiness.

The direct link to this collection 'Happiness in Publics' (Veenhoven 2017d) is: http://worlddatabaseofhappiness.eur.nl/hap_pub/pub_fp.php

2.5.5 *Collection of Correlational Findings*

The World database of happiness also provides a large *collection* of 'correlational' findings (Veenhoven 2017f). As noted above in section 2.4.4, research findings are condensed in standard abstracts, which are presented on *pages*. These *finding pages* provide details about a) the population investigated, b) design of the study, c) measures of happiness used, d) measurement of the correlate, e) the statistics used for quantifying the observed statistical association between happiness and that correlate, and f) the observed effect size and statistical significance. Links lead to full detail about the publication in which the finding is reported (ad a), the measure of happiness used (ad c) and the statics applied for quantifying the statistical association between happiness and the correlate (ad e).

To date there are about 15.500 such pages in the collection. Though this is rather a lot, the collection is far from complete; there is about twice as much waiting to be entered.

Pages on correlational findings are ordered by the kind of correlate involved. For instance, there are 204 *pages* about findings on the relation between happiness and 'age'. The subject classification used is fine grained and involves some 3000 categories. Though complicated at first sight, this detailed classification is quite helpful for tracing atypical findings that would otherwise fall out of sight in this expanding field. For instance, the few studies on happiness and 'social mobility 'can easily be found using this subject category and do not get lost in the pile of findings on happiness and 'social status'. The collection can also be searched in several more ways, such as on happiness measure, public, nation and time. Something that is particular useful for identifying causality is that the search mechanism allows follow-up studies to be selected.

The direct link to this collection 'Correlational Findings' on happiness is: http://worlddatabaseofhappiness.eur.nl/hap_cor/cor_fp.htm

2.6 Reports

Selections of *pages* are assembled automatically from each of the above-mentioned *collections* and presented in *reports*. Two kinds of reports are particularly useful in research synthesis: 1) 'publication reports' and 2) 'finding reports'.

2.6.1 *Publication reports*

Reports of this kind list the publications on a particular subject, using the subject classification of the Bibliography of Happiness. Unlike the *finding reports* mentioned

below, these publication reports cover all that is written on the subject, not only research reports but also literature studies and theoretical treatises. Among the research reports mentioned, the *publication reports* do not limit to publications on studies that used acceptable measures of happiness, but also contain publications on studies that are not included in the findings collections. As such, *publication reports* provide a complete overview of the literature, which is helpful in narrative research synthesis.

An example of a publication report on happiness and urban green can be found at http://worlddatabaseofhappiness.eur.nl/hap_bib/src_pubs.php?mode=1&Subject=2262

2.6.2 *Finding reports*

Reports of this kind are more focused and limit to empirical observations yielded using an accepted measure of happiness, that is, one of the indicators listed in the *collection* of 'Measures of Happiness' (cf. section 2.2). *Finding reports* may list either distributional findings or correlational findings and in the case of reports on happiness in specific publics, they present both. The direct link to an overview of all these reports is: http://worlddatabaseofhappiness.eur.nl/findingreportslinkpage.htm

a *Reports on distributional findings*

As mentioned in section 2.5.4, distributional findings are about how happy people are in a particular place and time. To date, the archive contains some 15000 *pages* on this kind of findings and the following kinds of *reports* can be gathered from that pool.

Nation reports: These *reports* present an overview of observed distributions of happiness in the general population in nation states. The reports limit to findings in representative samples of the general population. These findings are ordered by the kinds of happiness measure used and within these blocks by year. The direct links to the list of *nation reports* is http://worlddatabaseofhappiness.eur.nl/hap_nat/toc_secondary.php?mode=1

Rank reports: These *reports* draw on the above *nation reports* and select findings yielded using the best comparable measure of happiness. Currently this is a single question on life-satisfaction, responses to which are rated on a numerical scale ranging from 0 to 10 (measure types 122D+E). The current rank report is based on responses to this question in the last 10 years. When the question has been used in several surveys during this 10-year period, the average is given in the *rank report*. The selected findings are marked in yellow in the *nation reports.*

Nation ranks are presented in four separate reports on respectively: 1) *average happiness* in nations, 2) *inequality of happiness* in nations, as measured using the standard deviation, 3) *inequality-adjusted happiness,* which is an index combining mean

and standard deviation and 4) *happy life years*, which is a combination of average happiness and life-expectancy.

Within these *rank-reports,* the user can sort either alphabetically on name of the nations or on observed degree of happiness, by clicking in the head of the table. The direct link to the rank report on average happiness is:
http://worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/RankReport_AverageHappiness.php

Trend reports: These *reports* also draw on the above-mentioned *nation reports* and focus on the ones that involve repeated responses to the same question over the years. Trend *reports* are limited to countries for which at least 15 such data points are available over a period of at least 20 years. To date (1-1-2018), there are 14 such cases.

As with the above *rank reports*, there are four kinds of *trend reports* on happiness in nations, respectively on change over time in: 1) *average happiness*, 2) *inequality of happiness*, 3) *inequality-adjusted happiness* and 4) *happy life years*.

An example of the trend report on average happiness can be found at
http://worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/TrendReport2007-1.pdf

b   *Reports on Correlational Findings*

Finding reports can also be generated from the *collection* of 'Correlational Findings' on happiness. These reports assemble *finding pages* on the same subject, using the main topics in the subject classification of that collection. To date (1-1-2018), there are about 100 such *reports* in the database, some of which contain more than a hundred *finding pages,* such as the *finding report* on 'Income'.

Reports on correlational findings start with a sub-classification of the available findings in this subject category and enumerate the number of findings in each of these categories. This sub-classification follows a standard categorization into: 1) *Over-time* correlations, for instance the relation between earlier income and present happiness. This category is labeled 'career'. 2) *Same-time* correlations, such as the association between present income and present happiness. This sub-category is labeled as 'Current'. 3) *Attitudes* to the subject matter, rather than the subject itself, e.g. the observed correlation between income-satisfaction and happiness.

Further distinctions are made within each of the sub-categories, for instance in the case of 'current income' between 'personal income' and 'household income'. These classifications of correlates of happiness are further tailored to the available findings on the particular topic involved and continuously refined. The richness of the available data is thus brought to the eye of the users. An example of such a classification of correlational findings on happiness and local environment can be found at
http://worlddatabaseofhappiness.eur.nl/hap_cor/desc_topic.php?tid=2810

The *reports* lay the foundation for research synthesis. They provide a set of research findings that is about a well-defined concept of happiness and the findings are presented in a comparable way, using a standard format and a standard terminology. Conceptual and terminological ambiguities being cleared away, the real meta-analysis can start.

The full list of reports on Correlational Finding is available at:
http://worlddatabaseofhappiness.eur.nl/hap_cor/CFmainsubj_reports.php

c   *Reports on happiness in special publics*
This kind of *report* gathers distributional findings and correlational findings observed in a specific public, other than the general population. The findings are not presented as such, but the reports present links to the *finding pages*. To date, there are 160 such *finding reports* on happiness among particular kinds of people. The full list of *public reports* is available at http://worlddatabaseofhappiness.eur.nl/hap_pub/pub_fp.php

3   USES OF THIS FINDINGS ARCHIVE FOR RESEARCH SYNTHESIS

Reviews of research typically summarize the main trends in research findings in verbal statements, followed by references to publications in which such findings have been reported. Though the source publications are listed at the end of the paper, they are not easily assembled by the reader and therefore the reviewer's interpretation cannot easily be controlled.

This World Database of Happiness allows a new format that takes advantage of the online availability of detailed information. Review papers can now be directly linked to elements in the findings archive, such as to particular *finding pages.* Examples of such presentations are given below in schemes 4 and 5.

This way of summarizing research findings has several advantages over traditional reviews that are limited to the possibilities of printed paper. Checking with the available data is easier as the links provided in the text will lead the reader directly to standardized descriptions of research findings, all of which still contain a traditional reference to the original research report. Referencing is also more complete; traditional reviews must often cite selectively, since they cannot mention all the available data in the limited space available in a printed journal article. This method allows all research reports to be taken into account and should avoid the danger of 'cherry picking'. This new method also allows a more complete description of the findings. While traditional reviewers typically have to condense information into a few columns of a summary table, our new method allows easy access to much more detail in online *finding pages*. In short: this technique allows reviewers to make controllable statements about main trends in data

without burdening the reader with detail, yet the reader can seek, and easily find, more detail if they wish.

3.1   Air-pollution example

There is only a small amount of research literature on the relation between happiness and air-pollution in places. An overview of that literature can be obtained as follows.

Overview of publications
Scientific publications in which the relationship between happiness and air-pollution is a main topic are gathered in two subject-sections of the Bibliography of Happiness, the section pollution in the living environment. Both sections are linked and can be found in searches using the keywords 'pollution' and 'smog'. To date (1-1-2018), this section lists 31 publications, of which 25 contain information that is eligible for entering in the findings archive, 12 of which have been actually entered, that is, half the available research. In this example I limit to the results reported in these 12 publications

Overview of correlational findings in table
Together, the 12 publications yield 11 separate *findings pages,* 7 of which are rubricated in the collection of correlational findings under environmental quality in nations, 2 under environment in region and 2 under local air-pollution. Again, the subject sections are interlinked and can be found using the same keywords. Some of the *pages* report more than one finding, typically because the same data have been subjected for different analyses. Together the 11 *pages* yield 20 findings.

Below I show how all these research findings can be presented in the table presented on Scheme 4. In this table, positive correlations are denoted '+' non-correlations '0' and negative correlations '─'. When statistically significant, plus and minus signs are printed in bold (**+** **─**). Each of the signs used contains a link to the *finding page* in the World Database of Happiness, where the reader will find full detail of the research finding.

The available findings on happiness and air-pollution are presented in this way in scheme 4. At a glance one can see that air-pollution relates negatively to happiness. The findings leave no doubt that air-pollution tends to reduce happiness. Spurious correlation is unlikely to be involved, given the many partial correlations that are negative, though one study in Italy found a small positive correlation in an analysis that involved many control variables. Reverse correlation is not only unlikely in this case (unhappiness causing air-pollution) but the longitudinal and experimental findings demonstrate that causality runs from air-pollution to lower happiness.

Scheme 4 about here

3.2 Overview of research findings on economic growth and average happiness in nations

There is a considerable research literature on the relation between happiness and economic growth in nations, most of which has been inspired by the 'Easterlin Paradox' (Easterlin 1974), which holds that individual income does add to happiness, but that a rise in the national income per head does not.

Overview of publications

To date (1-1-2018), 127 *publications* on this subject have been listed in the Bibliography of Happiness in the subject category Economic growth/decline, which links to the related subject category of personal income.

Overview of correlational findings

To date (1-1-2018) 36 *finding pages* on this subject are available in the collection of Correlational Findings, in the subject category Economic growth/decline, which links to the related subjects of personal income and relative income.

Presentation of correlational findings in a stem-leaf diagram

Most of the 36 *finding pages* contain information about strengths of the statistical relationship observed between economic growth and change of average happiness in nations. This allows presentation in a stem-leaf diagram, as shown in scheme 5 (taken from Slag 2017). At a glance one can see that economic growth goes typically with rising happiness and the few zero-correlations at the bottom of the diagram show that the Easterlin Paradox describes exceptions rather than the rule.

Scheme 5 about here

3.3 Further research syntheses using this world Database of Happiness

The 1984 review study 'Conditions of Happiness' was an early book-variant of this method and drew on a 'Databook of Happiness' (Veenhoven, 1984a and 1984b). A more recent overview of the research literature using the now available website has been published in the article 'Informed pursuit of happiness' (Veenhoven 2015) which gives involved many links to *finding reports*, such as the report on average happiness in nations 2005-2014. More recent papers of that kind are: the review of research on Happiness and Consumption by Burger et.al (2015), the review of research on Freedom and Happiness in Nations by Abdur & Veenhoven (2017) and the above-mentioned meta-analysis of research findings on Happiness and Economic Growth by Slag (2017).

References

Abdur Rahman, A. & Veenhoven, R. (2017)
Freedom and happiness in nations: A research synthesis
Applied Research on Quality of Life, **Open Access**. **Erratum**

Argyle, M. (1987)
The psychology of happiness
Methuen, London, UK

Burger, M., Chiperi, F., Kang, X. & Veenhoven, R. (2015)
Happiness and consumption: a research synthesis
Resource paper prepared for the 14th International Conference on Travel Behaviour
Research, Winsor UK July 19-23 2015

Cummins, R.A. (ed.) (2000)
Happiness and Progress
Journal of Happiness Studies, 1 (3) (special issue)

Diener, E. (1999)
Subjective wellbeing, three decades of progress
Psychological Bulletin, 125: 276-301

Diener, E. & Diener, C. (1996)
Most people are happy
Psychological Science, 7: 181 -185

Diener, E., Emmons, R.A., Griffin, S & Larsen, R.J. (1985)
The satisfaction with life scale
Journal of Personality Assessment. 49: 71-75

Diener, E. & Biswas-Diener, R. (2008)
Happiness. Unlocking the Mysteries of Psychological Wealth
Blackwell Publishing, 2008, USA

Dolan, P., Peasgood, T & White, M. (2006)
Review of research on the influences on personal wellbeing and application to policy making
Defra report, London, UK

Easterlin, R.A. (1974)
Does Economic Growth Improve the Human Lot? Some Empirical Evidence.
David, P.A., Melvin, W.R. Eds.: "Nations and Households in Economic Growth",
Academic Press, 1974, New York, USA, 89 - 125.

Ehrhardt, J., Saris, W. & Veenhoven, R. (2000)
Stability of life-satisfaction over time in a national panel
Journal of Happiness Studies, 1: 177-205

Frey, B. & Stutzer, A. (2002)
Happiness and economics
Princeton University Press, New York

Gurin, G.; Feld, S.; Veroff, J. (1960)
Americans view their mental health: A nationwide interview survey
Basic Books, New York

Headey, B, & Wearing, A. (1992)
Understanding happiness, a theory of subjective wellbeing
Longman Cheshire, Melbourne, Australia

Headey, B (2006)
Happiness: Revising set point theory and dynamic equilibrium theory to account for long term change
Discussion Paper 607, DIW, Berlin, Germany

Inglehart, R., Foa, R.& Peterson, C. (2008)
Development, Freedom, and Rising Happiness
Perspectives on Psychological Science, 3: 264 - 285

Mauzi, R. (1960)
L'Idée du Bonheur dans la Littérature et la Pensée Française au 18e Siècle
(The Idea of Happiness in French Thought in the 18th Century)
Librairie Armand Colin, Paris

Neugarten, B.L.; Havighurst, R.J.; Tobin, S.S. (1961)
The measurement of life satisfaction
Journal of Gerontology, 16: 134 -143

Okun, M.A.; Haring-Hidore, M.J.; Stock, W.A.; Witter, R.A. (1984)
Health and subjective well-being: A meta-analysis.
International Journal of Aging and Human Development, 19, 111 – 132

Pinquart, M.& Sörensen, S. (2000)
Influence of socioeconomic status, social network, and competence and subjective well-being in later life: A meta-analysis
Psychology and Aging, 5:187 – 224

Pinquart, M.& Sörensen, S. (2001)
Gender differences in self-concept and psychological well-being in old age: A meta-analysis
Journal of Gerontology: Psychological Sciences, 56B: 195 - 213

Putman, R.D. (2000)
Bowling alone: The collapse and revival of American community
New York, Simon and Schuster

Slag, M. (2017)
Tests of the Easterlin Paradox: A meta-analysis
Master thesis, Erasmus University Rotterdam. School of Economics

Steel, P.; Schmidt, J.; Shultz, J. (2008)
Refining the relationship between personality and subjective well-being
Psychological Bulletin, 134: 138 – 161

Stock, W.A., Haring-Hidore, M.J., Okun, M.A. and Witter, R.A. (1983)
Age differences in subjective wellbeing: A meta-analysis
Evaluation Studies review annual, pp. 279-302

Veenhoven, R. (1984)
Conditions of happiness
Kluwer Academic (now Springer, Dordrecht, Netherlands

Veenhoven, R. (1984b)
Databook of Happiness
Source book with Conditions of Happiness, Kluwer Academic (now Springer) Dordrecht, Netherlands

Veenhoven, R. (1991)

Is happiness relative?
Social Indicators Research, 24:1-34

Veenhoven, R (1993)
Happiness in nations: subjective appreciation of life in 56 nations 1946-1992
RISBO, Erasmus University Rotterdam, 365 p

Veenhoven, R. (1995)
Developments in satisfaction research
Social Indicators Research, 37: 1-46

Veenhoven, R. (1999)
Quality of life in individualistic society
Social Indicators Research, 48: 157-186

Veenhoven, R. (2000)
Wellbeing in the welfare state: Level not higher, distribution not more equitable
Journal of Comparative Policy Analysis, 2: 91-125

Veenhoven, R. (2002)
Return of inequality in modern society? Trends in dispersion of life-satisfaction in EU-nations 1973-1996
Published in German in: Wolfgang Glatzer, Roland Habich, Karl Ulrich Maier (Hrsg.), 'Sozialer Wandel und Gesellschaftliche Dauerbeobachtung. Festschrift für Wolfgang Zapf', Leske + Bundrich, Opladen, Deutschland, pp.273-294

Veenhoven, R. (2005)
Is life getting better? How long and happily do people live in modern society?
European Psychologist, 10: 330 – 343

Veenhoven, R. (2008)
Sociological theories of subjective well-being
In: Michael Eid & Randy Larsen (Eds.), "The Science of Subjective Well-being: A tribute to Ed Diener", Guilford Publications, New York, pp. 44-61

Veenhoven, R. (2009a)
How do we assess how happy we are?
In: Dutt, A. K. & Radcliff, B. (eds.) 'Happiness, Economics and Politics: Towards a multi-disciplinary approach', Edward Elger Publishers, Cheltenham UK, pp. 45-69

Veenhoven, R. (2009b)
International scale interval study: Improving the comparability of responses to survey questions about happiness
in: Valerie Moller & Dennis Huschka (Eds.) 'Quality of life and the millennium challenge: Advances in quality-of-life studies, theory and research', Social Indicators Research Series, vol. 35, Springer, pp. 45-58

Veenhoven, R. (2010a)
Life is getting better: Societal evolution and fit with human nature
Social Indicators Research 97:105-122

Veenhoven, R. (2010b)
How universal is happiness?
In Ed Diener, John F. Helliwell & Daniel Kahneman (Eds.) 'International Differences in Well-Being', New York Oxford University Press, pp. 328-350.

Veenhoven, R. (2010c)
Greater happiness for a greater number: Is that possible and desirable?
Journal of Happiness Studies, 11: 605-629

Veenhoven, R. (2015
Informed Pursuit of happiness: What we should know, do now and can get to know
Journal of happiness Studies, 16 (4) 1035-1071

Veenhoven, R. (2017a)
World Database of Happiness: Continuous register of scientific research on subjective enjoyment of life
Erasmus University Rotterdam, The Netherlands
Available at: http://worlddatabaseofhappiness.eur.nl

Veenhoven, R. (2017b)
Bibliography of Happiness
World Database of Happiness, Erasmus University Rotterdam
Available at: http://worlddatabaseofhappiness.eur.nl/hap_bib/bib_fp.php

Veenhoven, R. (2017c)
Measures of happiness
World Database of Happiness, Erasmus University Rotterdam
Available at: http://worlddatabaseofhappiness.eur.nl/hap_quer/hqi_fp.htm

Veenhoven, R. (2017d)
Happiness in Nations
World Database of Happiness, Erasmus University Rotterdam
Available at: http://worlddatabaseofhappiness.eur.nl/hap_nat/nat_fp.php?mode=1

Veenhoven, R. (2017e)
Happiness in Publics
World Database of Happiness, Erasmus University Rotterdam
Available at: http://worlddatabaseofhappiness.eur.nl/hap_pub/pub_fp.php

Veenhoven, R. (2017f)
Correlates of Happiness
World Database of happiness, Erasmus University Rotterdam
Available at: http://worlddatabaseofhappiness.eur.nl/hap_cor/cor_fp.htm

Veenhoven, R. & Hagerty, M. (2005)
Rising happiness in nations 1946 - 2004: A reply to Easterlin
Social Indicators Research, 79: 421 – 436

Veenhoven, R. & Berg, M (2010)
Income inequality and happiness in 119 nations
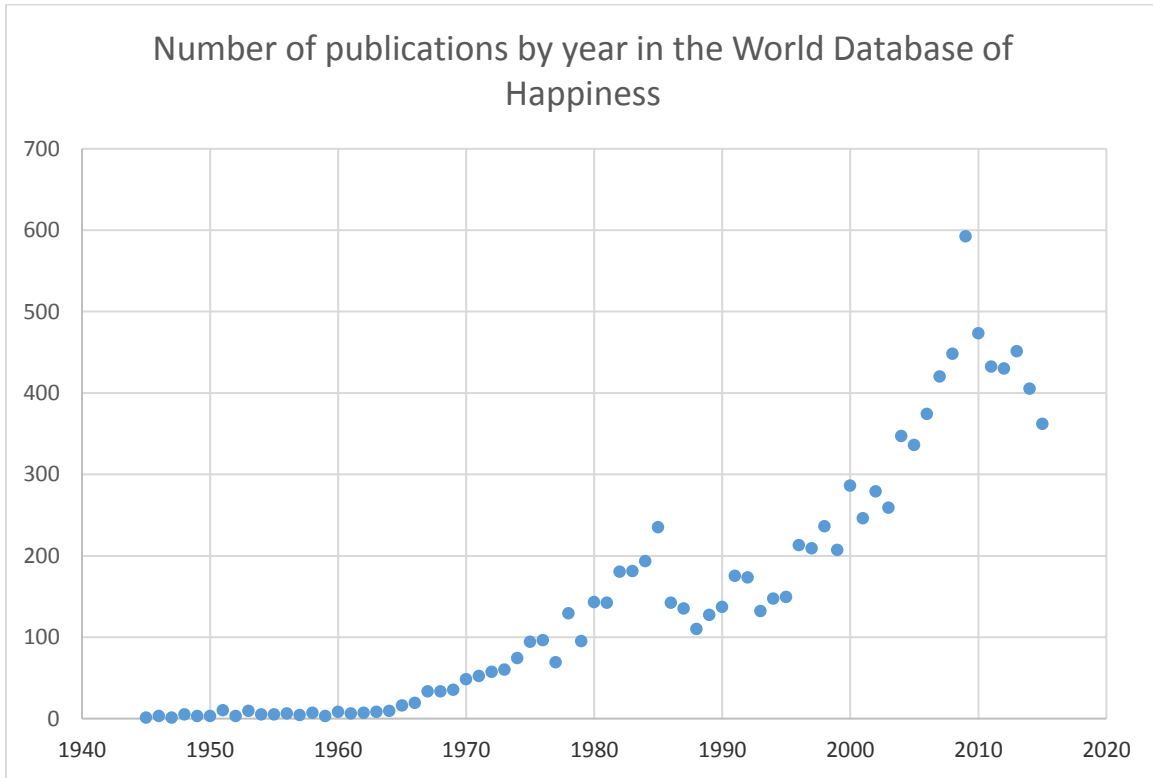In: Bent Greve (Ed.) 'Social Policy and Happiness in Europe', Edgar Elgar, pp.174-194

Verne, P. (2009)
Happiness, freedom and control
Journal of Economic Behavior & Organization, 71, 146 – 161

Scheme 1
Yearly number of scientific publications on happiness since 1900

Number of publications by year in the World Database of Happiness

Source: Bibliography of Happiness: http://worlddatabaseofhappiness.eur.nl/hap_bib/bib_fp.php

Scheme 2
Glossary of terms used

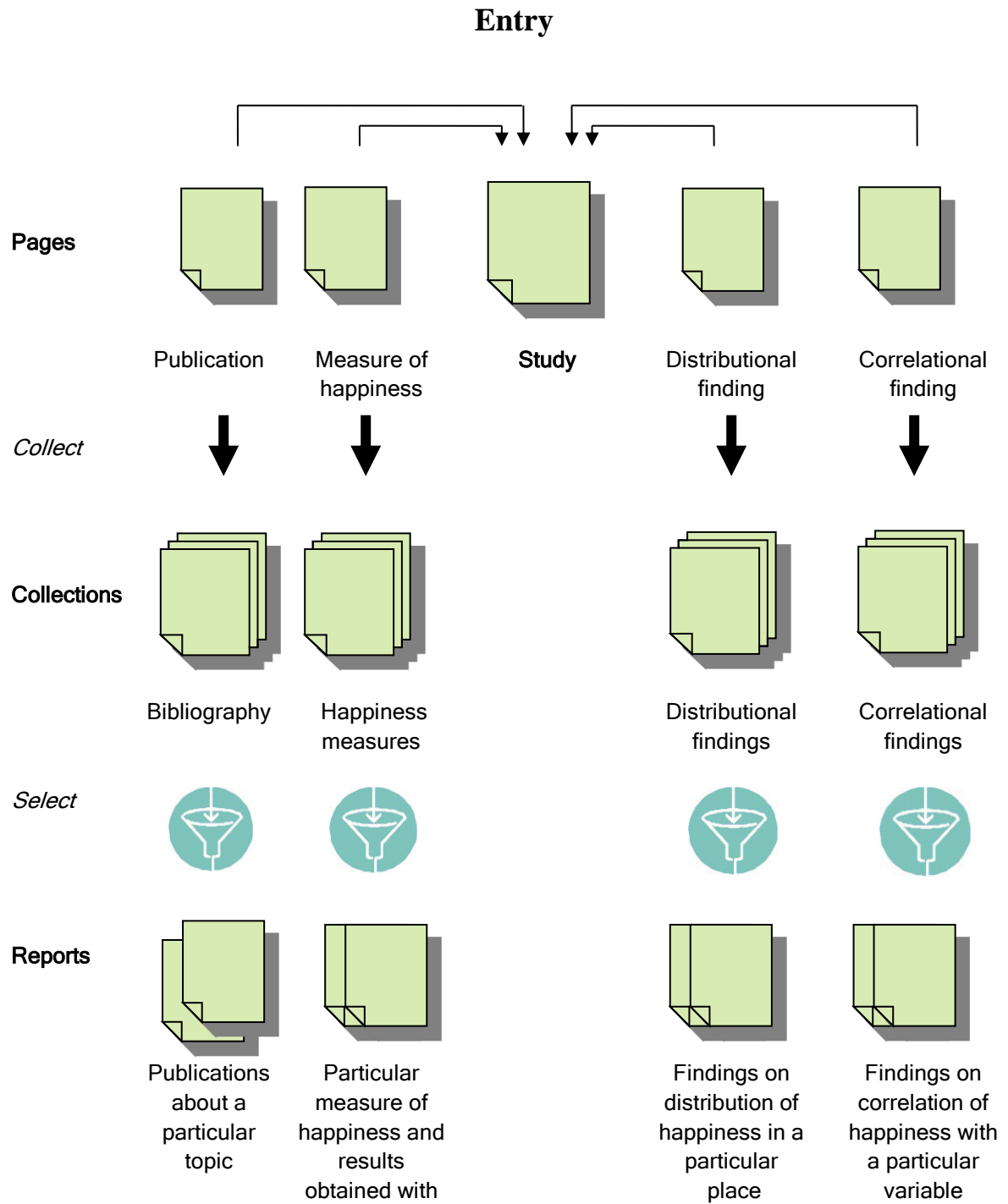|	
Publication	A written report of scientific research on happiness, such as articles, books, dissertations and working papers. All publications that involve information about happiness in the sense of subjective enjoyment of life are gathered in the Bibliography of Happiness. One publication can report more than one different studies 'studies'
Study	Investigation on happiness in a particular population.
Public	Kind of people investigated. Next to the *general public* in nations, this data base distinguishes several *special publics*, such as the elderly and housewife
Measure of happiness	Method for assessing how much people like the life they live
Finding page	A structured presentation of a single research finding, which involves 1) the publication in which this result was reported, 2) the population in which this result was observed, 3) the method used to obtain the result, 4) the observed distribution of happiness in the population and 5) the observed co-variates of happiness. Finding pages are 'dynamic', that is, they are made up instantly in response to a request from different collections in the data systems. Finding pages can be copied and saved in pdf.
Finding report	Structured combination of multiple research findings. Examples are: The Rank reports of Happiness in Nations reports of Correlational findings on particular topics such as on the relation between Happiness and Income
Findings archive	Collection of results of empirical research, such as means and correlations.

Scheme 3
Building blocks of the findings archive

Entry

Pages	Publication	Measure of happiness	**Study**	Distributional finding	Correlational finding

Collect

Collections	Bibliography	Happiness measures		Distributional findings	Correlational findings

Select

Reports	Publications about a particular topic	Particular measure of happiness and results obtained with		Findings on distribution of happiness in a particular place	Findings on correlation of happiness with a particular variable

Use

Scheme 4

20 Research findings on happiness and air-pollution

AREA	METHOD					
	Cross-sectional		**Longitudinal**		**Experimental**	
	zero-order	partial	zero-order	partial	zero-order	partial
National						
Actual	−	− − − − − − + − −				
Perceived						
Regional						
						−
Local						
actual		+ − − − − −				
perceived		−				

Signs denote direction of correlation

+ = positive and significant, + = positive not significant, 0 = no correlation, − = negative, not significant, **‒** = negative significant

Signs involve links to detail in the World Database of Happiness. Use control+click

Scheme 5

Stem/leaf diagram of observed statistical relationships of economic growth on (change in) average happiness in nations

+1	
+0.9	
+0.8	
+0.7	
+0.6	3
+0.5	1 8
+0.4	1 1
+0.3	1 4
+0,2	0 **1** 3 4
+0,1	**7**
+0.0	01 01 01 01 02 02 03 05 06 08 1 7 **8**
-0.1	
-0,2	
-0,3	
-0.4	
-0.5	
-0.6	
-0,7	
-0.8	
-0.9	
-1,0	

Each sign represents a correlational finding reported in the World Database of Happiness. Use Control+click to see the details.

All blue numbers link to findings that are significant at the 5%-level. Orange findings are not significant at the 5%-level.

Source: Slag (2017)