

A tool to promote research planning and conceptualization: SoDaNet research infrastructure's scientific dictionary of social terms

Ioannis Kallas¹ & Dimitra Kondyli²

Abstract

This article examines the contribution of SoDaNet research infrastructure's Scientific Dictionary of Social Terms to empirical social research³. The article records the dictionary functional specifications in regarding to terms, definitions and bibliographic records and analyzes the management issues in user access in relation to the basic functions (search, import, modification and deletion of digital content). In addition, the functions of the dictionary as a research planning tool are analyzed (providing opportunities to search for scientific information necessary to design a new research), conceptualization (providing access to the different meanings of a term through the different definitions given) and scientific documentation. Finally, the function of the dictionary as an element of a research infrastructure is evaluated.

Keywords

Scientific Dictionary, research infrastructure, documentation, research design tool, conceptualization.

1. Introduction

The research infrastructure of SoDaNet, a member of CESSDA, has developed a series of functions aimed at serving the local and international research community based on OIA⁴, as the majority of CESSDA Data Archives, meaning interoperability standards to allow access to digital resources for eLearning, open data and other services. Among them, the Scientific Dictionary of Social Terms was designed to serve the conceptualizing, designing and managing of research that can be searched through the SoDaNet portal⁵. As a scientific dictionary of social terms, it is based on the scientific discourse of the social sciences. Therefore, according to Foucault's discourse theory (1987), the dictionary should meet the following criteria:

1. Refer to terms and concepts that are constructed and used in the context of particular social science practices.
2. Its terms and concepts should be constructed and used in scientific decisions, such as research cases, laws or scientific regularities and scientific theories.
3. Its development should be the work of scientists who have the respective competence to ensure the required validity of its content.

The purpose of the dictionary is the terminological and conceptual support of social research and especially empirical research, which organizes the production and analysis of empirical evidence based on the coding of evidence of experience, with the help of theory. A significant difficulty encountered in empirical social research is the connection of sociological theory with the empirical basis that ensures its empirical control (Schnell et al, 2014, p. 13). This difficulty can be addressed based on the formulation of appropriate research questions and research hypotheses, in tandem with the precise conceptualization of the mentioned objects and phenomena to which the analysis is directed, in order to enable the appropriate codification of the collected information. A scientific dictionary of terms can substantially facilitate this process, especially if it provides access not only to the appropriate terms and their definitions, but also to the bibliography that theoretically substantiates them, as well as to the empirical research that uses them.

Since, according to Althusser (1978), modern scientific research is organized as theoretical production, its development is firmly based on access to both the raw material (empirical data and evidence), as well as the means of production: mainly theoretical tools, such as concepts, theories, and methods, that are already available. Access to both existing raw material and means of production is enhanced drastically by the development of documentation infrastructure. Scientific research, as a collective endeavor, is supported by written communication, which is organized with the help of a global system of scientific publications, but also a system organizing access to and management of scientific texts. With the development of the internet, both access to information and communication have changed dramatically, as scientific texts change from print to digital and their production and management is mechanically supported with the help of information infrastructure. This development helps make scientific activity even more collective. The proposed dictionary was designed to function as an IT application, and in fact as a sub-element of a research infrastructure, the SoDaNet⁶ Infrastructure, which supports the management of empirical social research and its data. As an Infrastructure element, the dictionary has the following features:

1. It is developed as a computer application and therefore its operation is mechanically supported
2. It is developed as a collective product through strict procedures of organizing collective work, which ensure both its continuity and its validity.
3. It develops as a hypertext. This means that:
 - a. It is based on a combination of digital text and data that serve as nodes for its management.
 - b. The digital content that is produced is dynamic and evolves with the help provided by the correlations between the terms, which are constantly created by the authors of the terms enriching and clarifying their meaning.
 - c. It is open to additions and new correlations.

This dictionary, in addition to being a tool for conceptual documentation, aspires to become a tool for conceptualizing empirical research that supports the strict definition and description of objects and phenomena mentioned in social research, as well as a research planning tool.

2. The functional specifications of the scientific dictionary of social terms

The dictionary is dynamic and develops gradually over time through the work of many different researchers. It is constantly supplemented with new terms and definitions introduced by different researchers, certified as entry writers. This way of development allows not only the continuous enrichment but also the evolution of the terms, that is, the expansion of their meaning through the formulation of new definitions. Thus, the meanings of a term increase and change over time. This is achieved thanks to the special design of the dictionary based on two elements: First, the multilevel organization of its content, and second, the strict organization and management of the access of those who contribute to its development, thus ensuring its scientific validity.

The information provided by the dictionary is organized on three levels: At the level of terms, at the level of definitions and at the level of bibliographic records. The three levels form a hierarchy, so one can insert, modify or delete the information at one level while the upper levels remain unchanged.

At the *terms level*, the dictionary provides for the introduction of *scientific terms* related to social research. The following information is provided for each term: The term, some comments on the term, the type of term, and the relevant terms. More specifically:

1. *The scientific term* is provided, which *must be mentioned* in both English and Greek. *The pair of Greek and English terms*, which must be unique, is considered a distinct term. This is because sometimes the same term in English corresponds to more terms in Greek or vice versa. It is permissible to formulate new terms that have not yet been recognized in the scientific community, as long as they appear at least once in the bibliography or in some research.
2. The dictionary provides for the introduction of term-level comments by the various entry authors. Comments are required if there are alternative terms, either in Greek or in English, that could be used instead of the suggested term. For example, the term “segmentation” is found in the Greek bibliography both as “κατάτμηση” and as “τμηματοποίηση”. The purpose of the dictionary is to standardize the terminology by choosing one of the equivalent terms as the basic term. The other alternative terms, although not used, are mentioned in the *comments of the term*.
3. The dictionary distinguishes terms into two main categories:
 - a. Terms relating to the different objects or phenomena to which the observation of social empirical research is directed. The terms in this case are distinguished into phenomena, objects, characteristics, relations between objects.
 - b. Terms concerning methodology and epistemology. These terms do not describe phenomena or objects of reality to which observation is directed, but methods, processes or concepts that support recording or analysis and therefore refer to epistemology or methodology (terms such as sampling, conceptual analysis, structure, system, etc.).

The categorization of terms can be more detailed and can be based on one of the available thematic thesauruses (e.g. ELSST⁷).

4. For the same term it is allowed to formulate many different *definitions*, produced in the context of different theories and theoretical approaches and introduced by different entry authors.
5. For each term the introduction and management of *relevant terms* is supported, while allowing navigation from term to term. The relevant terms are explicitly inserted either by the entry author proposing the term for the first time, or by the content manager.

The following information is provided at *definition level*: the text of the definition, some comments on the definition, the entry author, and references in the bibliography are provided for each definition. The following also apply:

1. The scientific term must be constructed in the context of scientific decisions. To ensure this condition, each definition must be substantiated by at least one *reference to the bibliography*. It is not allowed to insert it in the dictionary without this documentation. Of course, it is possible to have more references for the same definition.
2. Each definition is recorded in the dictionary by a certified scholar who is recognized as *the author of the entry* and who is not necessarily *the author of the definition*. The author of the entry refers to the author of the definition directly or indirectly by referring to at least one bibliographic reference. A definition is inserted with quotation marks only if it is quoted. In this case the reference to the bibliography must definitely include the page of the mentioned text. Each definition corresponds to *a single scientific term*, to which it assigns a specific identity. The formulation of a definition is made separately in Greek and English. These formulations are recorded as distinct definitions. But because one is a translation of the other, they have the same definition code (and the codes are given automatically by the system).
3. Each definition may be supplemented by additional clarifications or information in the form of a *comment* if this is deemed useful by the entry author. The comment may include a more

detailed description, explanations or even clarifications if this is deemed necessary. Additional references to the bibliography are given in the comments. More than one comment for the same definition is allowed even by different entry authors.

4. Each definition is characterized as either a *nominal* or a *functional* definition. A definition is characterized as nominal when it gives meaning to a term, i.e., without specifying how this definition can be confirmed empirically (Kallas, 2015, p. 190). A definition is characterized as functional when it does not simply give meaning to a term, but when it corresponds precisely to a process of observation, measurement or processing, i.e., to a way of empirically confirming this meaning (Kallas, 2015, p. 193; Babbie, 2011, p.781). For the documentation of the nominal definitions, we refer to theory, while for the documentation of the functional ones, we refer to empirical research. As an example of a functional definition, an unemployed person is defined by Eurostat, according to the guidelines of the International Labour Organization, as: someone aged 15 to 74 (in Italy, Spain, the United Kingdom, Iceland, Norway: 16 to 74 years); without work during the reference week; available to start work within the next two weeks (or has already found a job to start within the next three months); actively having sought employment at some time during the last four weeks. Visual representations of the aforementioned functional definition concerning [unemployed person](#), available via SoDaNet' dictionary follow below (Figures 1 and 2).

SOCIAL TERM: 'Ανεργο Άτομο / Unemployed Person

APPROVED DEFINITIONS FOR TERM: 1

TERM TYPE: Theoretical

DEFINITION (1): According to the guidelines of the International Labour Organization, Eurostat defines the unemployed person, as: “someone aged 15 to 74 (in Italy, Spain, the United Kingdom, Iceland, Norway: 16 to 74 years); without work during the reference week; available to start work within the next two weeks (or has already found a job to start within the next three months); actively having sought employment at some time during the last four weeks”.

DEFINITION TYPE: Operational

DEFINITION WRITER: Kallas Ioannis

REFERENCE: Eurostat (2010). Glossary:Unemployment. 30 June 2010.
(<https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Unemployment>)

Figure 1: English definition

ΚΟΙΝΩΝΙΚΟΣ ΟΡΟΣ: 'Ανεργο Άτομο / Unemployed Person

ΕΓΚΕΚΡΙΜΕΝΟΙ ΟΡΙΣΜΟΙ ΓΙΑ ΤΟΝ ΟΡΟ: 1

ΤΥΠΟΣ ΟΡΟΥ: Θεωρητικός

ΟΡΙΣΜΟΣ (1): Η Eurostat βάσει των οδηγιών της Διεθνούς Οργάνωσης Εργασίας, ορίζει το «άνεργο άτομο» ως: «κάποια/ος ηλικίας 15 έως 74 ετών (στην Ιταλία, την Ισπανία, το Ηνωμένο Βασίλειο, την Ισλανδία, τη Νορβηγία: 16 έως 74 ετών), χωρίς εργασία κατά την εβδομάδα αναφοράς, διαθέσιμη/ος για έναρξη εργασίας εντός των επόμενων δύο εβδομάδων (ή έχει ήδη βρει δουλειά για να ξεκινήσει μέσα στους επόμενους τρεις μήνες), έχοντας αναζητήσει ενεργά εργασία κάποια στιγμή τις τελευταίες τέσσερις εβδομάδες».

ΤΥΠΟΣ ΟΡΙΣΜΟΥ: Λειτουργικός

ΣΥΓΓΡΑΦΕΑΣ ΛΗΜΜΑΤΟΣ: Κάλλας Ιωάννης

ΑΝΑΦΟΡΑ: Eurostat (2010). Glossary:Unemployment. 30 June 2010.
(<https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Unemployment>)

Figure 2: Definition translated in Greek

5. At the *level of bibliographic records*, the following information is provided: Since the comments and definitions, in order to be scientific, refer to the bibliography, each reference is documented with the corresponding bibliographic record that meets the following specifications:
 1. Bibliographic records refer both to scientific publications, i.e., books and articles that have been published and circulated in printed or digital form, and to texts documenting empirical research, such as research reports, working papers or some internal texts of repositories (in the specific case of the SoDaNet Infrastructure), which are gray bibliography available in digital format with a unique identifier (DOI) and stored in repositories.
 2. The entry of bibliographic records follows the APA standard⁸.
 3. Bibliographic records can be continuously enriched even without adding new references. However, the enrichment is achieved mainly either through the introduction and modification of terms and definitions by the authors of the entries, or by the addition of new comments to a definition, even by other entry authors.

3. Managing dictionary access

To ensure its validity, a scientific dictionary is developed by scientists. To the extent that this dictionary is meant to be the work of many authors and is constantly open to input from new authors including beginning researchers as well, it must be able to effectively manage their access to it. Access management is not just about controlling who has rights, but also what kind of rights they have to the basic functions of searching, inserting, modifying and deleting digital content. Dictionary access is divided into the following levels:

1. The level of the ordinary user
2. The level of the entry authors
3. The level of the content managers of the repositories maintained by the operators of the SoDaNet Network⁹
4. The level of the SoDaNet Infrastructure Administrator

Access to the dictionary as a simple user is free to anyone interested. They use only the dictionary application, having only the right to search. They cannot modify or delete the contents of the

dictionary or insert new content. Ordinary users are allowed *to search terms from the dictionary* in both Greek and English. The search for terms can be done in the following ways:

1. By term. In this case, the exact term in Greek or English must be entered for search
2. By keyword. In this case the term must be entered in Greek or English as a keyword, i.e., without its wording being accurate and complete. One part of the word is enough. In this case all the terms that meet the criterion show up
3. By definition. In this case the term must be entered as a word in Greek or English. In this case the search for the word is not done in the terms but in the definitions, and as a result, all the terms whose definitions contain the keyword show up. Such a search makes it easier to find terms related to what we are looking for, even if they have not been explicitly identified as relevant terms by the author of the corresponding entry.

Many different scholars are allowed to introduce content into the dictionary once they have been certified as entry authors, thus ensuring the scientific validity of the dictionary. Therefore, the author of an entry is responsible for any new term or definition that is introduced, which suggests either a new term and at least one definition, or a definition of an existing term. Entry authors are not necessarily the creators of definitions. Thus, entry authors are responsible for the wording of a definition, without, however, necessarily having created the definitions they introduce. The introduction of definitions includes at least: a) the introduction of the term if it does not already exist, or the selection of an existing one, b) the introduction of at least one definition for the specific term, c) the possibility of inserting a comment on the specific definition if the author of the entry deems it useful, d) the introduction of bibliographic records to which the definition or comment refers, if they have not already been entered; and e) the introduction of at least one reference to bibliographic records.

Entry authors are responsible for the definitions they suggest. Therefore, the modification of the definitions and the data related to them (reports, comments, etc.) is done only by the authors of the definitions. This is ensured by the finalization of the definition by the content administrator who certified the entry author. Once the definition is finalized, modification is impossible. If the entry author wants to make a modification, they must ask the content administrator to remove the finalization.

The digital content managed by the SoDaNet Infrastructure is distributed across many distinct repositories. Specific research bodies that make up the SoDaNet network are responsible for the maintenance of the contents of each repository. Each body appoints a *content manager* of its own repository, who is responsible for the digital content of that repository. The Content Manager may be assisted by a Scientific Committee.

The content manager has all the responsibilities of the entry author and in addition the following responsibilities: certification of new entry authors, as well as revocation of certification; finalization of a definition, as well as revocation of the finalization when the entry author wants to make a modification; deletion of a definition after informing the entry author, as well as modifying the elements of a term. Only the administrator of research infrastructure has the right to delete terms from the dictionary.

The overall management of the infrastructure is the responsibility of the Infrastructure Manager, who has the technical ability to intervene in both the applications and the content of the infrastructure. However, their intervention in the contents of the repositories is institutionally prohibited without the permission of the competent body. Regarding the management of the dictionary, the Infrastructure

Manager has the responsibilities of certifying the content managers at the request of the competent body and deleting terms for all the repositories.

Deleting a term follows a standard interdependent procedure that consists of deleting references for each term definition, term comments, definitions, and finally the term itself.

4. The dictionary as a tool of scientific documentation

This dictionary is a tool for scientific documentation for two reasons: first, because it supports the documentation of new scientific terms, and second, because it provides access to information on scientific terms and their definitions. More specifically:

1. It provides access to social science terms as well as corresponding definitions. The content of the definitions is documented and supplemented with comments and references in the bibliography, which are constantly enriched. The documentation should even include gray bibliography and mainly references to empirical research reports where required.
2. Access to search its digital content is open to all without restrictions. However, the ability to insert, modify, or delete digital content is controlled to ensure validity.
3. The function of the dictionary is mechanically supported, thus ensuring increased potential for searching and navigating its digital content, as well as the possibility of maintaining it for a long time. For example, it is possible to search for relevant terms that are not directly stated as such, but that are indirectly related to others as long as they are referred to, in their definitions. A thematic classification and search of terms is also possible with the help of a thesaurus (e.g. ELSST) (see above).
4. It is set up collectively under the supervision of a network of universities and research organizations, the SoDaNet Network. This choice was based on the view that, because science is a collective endeavor, the development of a dictionary of scientific terms and definitions cannot be the work of individual scientists, but of the scientific community collectively. Thus, the operation of this dictionary supports the potential participation of the entire scientific community in the production of terms and definitions. The development of the digital content of the dictionary is implemented gradually, through the action of many independent researchers and research teams, which are constantly producing new terms and mainly new definitions in their current scientific activity. This process is supervised by the SoDaNet Infrastructure Repositories. The SoDaNet Network oversees the development and operation of the dictionary by one or more Network operators wishing to undertake this task. Each body appoints a content manager, who is responsible for overseeing content. The content administrator then certifies those scholars who want to undertake the introduction of terms and definitions as entry authors.
5. The dictionary, as a result of both its collective structure and its mechanical management, is constantly evolving, expanding and improving its digital content through the constant addition of new terms, definitions, comments and references, and through the contribution of many different scholars.

This dictionary was designed to meet the needs of the Greek-speaking scientific community. However, in order to meet this goal with scientific competence, it must provide its documentation in both Greek and English. This is necessary since science, as an internationalized practice, is based on the ability of all scientists to communicate regardless of nationality. In order to achieve this, it is necessary to have a language that will function in practice as an international scientific language, as a lingua franca. The English language is now recognized as such. The terms are mandatory in both Greek and English because the dictionary aims to contribute to the development of a bilingual terminology. Their definitions and comments are mandatory in Greek. In many cases the definitions are found in the English bibliography. In that case they are introduced in English and translated into Greek. However,

definitions are not introduced in other languages, which means that definitions originating in other languages must be translated into English or Greek before being entered. Bibliographic references refer to a specific item (book, publication, gray bibliography) and are formulated in the reference language of the item. It ensures the validity of its content, ensuring that the introduction and modification of its digital content is done only by those who have the required scientific competence and taking into account certain restrictions. The introduction of definitions must be accompanied by the corresponding bibliographic reference. The introduction of new terms and definitions as well as their modification is allowed only to scientists approved by the bodies responsible for the development of the dictionary. The modification of the terms, definitions and references in the bibliography after their finalization is communicated and approved by the content managers of the SoDaNet Network.

5. The dictionary as a tool for conceptualizing empirical research

Empirical research is basically composed of three categories of research processes, which concern conceptualization/codification, data production and analysis. Conceptualization is defined as the mental process through which vague and inaccurate concepts take on a more specific and rigid nature (Babbie, 2011, p.778). In empirical research, the concept refers mainly to the definition but also to the strict theoretical description of the mentioned objects and phenomena. Conceptualization is necessary for the codification of the indications of reality. Conceptualization is based on the search for appropriate theories and hypotheses and the selection of appropriate scientific terms, usually after a systematic review of the literature. Conceptualization is based on both theory and conceptual analysis. In any case, however, it is based on nominal or functional definitions of the terms it uses. Access to well-documented scientific terms and definitions is important to support conceptualization and codification in both quantitative (Kallas, 2015, p.196-202; Schnell et al, 2014, p. 412) and qualitative research (Braun and Clarke, 2012, p. 57, Willig, 2015, p. 161-162, Tsiolis, 2014, p. 107). It is therefore obvious that a dictionary like the one proposed can be a *tool of conceptualization*.

The conceptualization is based on scientific concepts and not everyday concepts, the construction of which is done either with the help of theory or with the help of the conceptual analysis of the available empirical evidence. Each term of the dictionary is a *focal point* of at least one *theoretical approach* associated with the corresponding nominal definition. Given that in the social sciences there is no single scientific example, a term is usually not a focal point for a single theoretical approach, but functions as a *meteoric signifier*, as it takes on different meanings through different definitions given in the context of different theoretical approaches. Easy access to the different meanings of a term through the different definitions given is important for conceptualization.

1. The purpose of the concept is to describe what is said with the help of scientific terms and decisions, that is, with concepts and decisions that are inscribed in the conceptual framework of the social sciences. The search for appropriate concepts and decisions is therefore crucial. In the dictionary, each term is theoretically documented both with the required *bibliographic references* and with the necessary *comments*. Therefore, the conceptualization is theoretically substantiated and supported with the help of the dictionary through access to the appropriate bibliography, but also the appropriate clarifications and information provided by the commentary.
2. Concepts often get their exact meaning from their relationships with concepts. The existence of *correlations between the terms* therefore provides important help for conceptualization. Not only correlations based on experience provided to us by conceptual analysis, but also correlations based on theory that reinforce analogical thinking. The dictionary allows one term to be related to others and thus makes it possible to navigate from term to term. The correlation of the terms can be *direct*, that is, introduced by the authors of the entries and the

content managers. An indirect correlation arises from the search of all the terms that include the term we are looking for in their definitions.

3. Conceptualization aims to produce not only concepts that fit into the theoretical framework of the social sciences, but also concepts suitable to support the codification of empirical research data. Support for this process requires access not only to nominal definitions but mainly to functional ones. In addition to *nominal definitions*, which are linked to a theoretical framework through references to theory, the dictionary also provides *functional definitions*, which are linked to the specific uses of a term in the context of specific empirical research with a corresponding reference to them. By linking to specific empirical research, the dictionary supports *codification* as well as *conceptualization*.

6. The dictionary as a research design tool

The dictionary can also be used as a *research design tool*, mainly because it is a tool for searching for scientific information necessary for the design of new research. The scientific terms to which this dictionary gives us access are the key points in the construction of scientific discourse. They can therefore be used as keys for searching and navigating the digital content of both this dictionary and other empirical research documentation infrastructures. Using one or more terms, the researcher can: search and compile a bibliography, locate relevant empirical research and information on units of analysis and observation as well as methods.

1. The dictionary-supported search and navigation can be used in conjunction with the thematic classification thesauruses commonly used by empirical research documentation infrastructures such as the ELSST. To the extent that the dictionary allows the thematic classification of its terms, with the help of such thesauruses, one can use the dictionary to identify the available scientific terms for each thematic category of a thesaurus as well as the thematic categories related to a specific term. Thus, one can expand one's search criteria, starting with a term and identifying the relevant thematic categories, and from there identifying new related terms.
2. The dictionary provides information not only on terms and definitions, but also on the theoretical and research context in which these terms are used. This is achieved both through the commentary on terms and definitions and through references in the bibliography that include not only theoretical texts, but also research reports. The purpose of the comments is to include a definition in a specific theoretical framework and to link it to specific theories through access to the appropriate bibliography. This bibliography is not limited to the publication containing the stated definition, but is supplemented by other references that provide comments or clarifications related to the term or definition, allowing a fuller understanding of the term.
3. In addition to supporting search and navigation in the available digital stock of social science knowledge, the dictionary also provides information that is directly useful for the design of empirical research, both theoretically and methodologically: Theoretically, by contributing directly to the theoretical overview of the research field by providing terms, definitions and bibliographic references and supporting the conceptualization, and methodologically by providing information on methods and research procedures, provided that the terms of the dictionary are not limited to the definition of objects of observation and phenomena but also extend to the definition of methods, research procedures or even epistemological approaches that are necessary for the construction of the methodology. To facilitate this process, the dictionary distinguishes the terms into theoretical and methodological. One can thus immediately seek information on terms relating to methods, such as their definitions, some critical references for their definition and description, as well as references to empirical research that contributed to the development of these methods.

7. The data model of the Scientific Dictionary of Social Terms

The scientific dictionary of social terms was designed as part of a broader documentation infrastructure of empirical research. The dictionary becomes part of a broader documentation infrastructure mainly because it is designed to be shared with tools provided by the various social research documentation infrastructures. This is achieved to the extent that the data model on which its development is based is part of a more general data model used to develop empirical research documentation infrastructures. This more general model is described in Figure 3 below. Yellow indicates the entities that are directly related to the dictionary data model and have already been implemented in the corresponding application. The entities that are regularly implemented in research infrastructures for documentation of empirical research are generally shown in green, usually according to the DDI (2012), without, however, the dictionary being linked to them yet. The two models, yellow and green, allow correlations between their entities (such as those shown in red) without the need for the two models to be implemented in a common computer application. Thus, the connection of the definitions with the units of analysis and observation, as well as the methods of analysis and recording, stems from the fact that the latter share with the former a term and a definition.

The function of the dictionary as an element of a wider documentation infrastructure is based on the idea that scientific terms, and not just some words of everyday language, should be the key words for navigating the scientific discourse and searching for scientific information. The dictionary therefore provides access to the scientific terms of the social sciences, effectively providing access to the appropriate keywords to search for the digital content corresponding to a scientific discourse. Even if the dictionary is not fully integrated into the computer system of a research infrastructure, it can still be used in parallel with it, providing the researcher with the appropriate terms to then use as keywords in any other application.

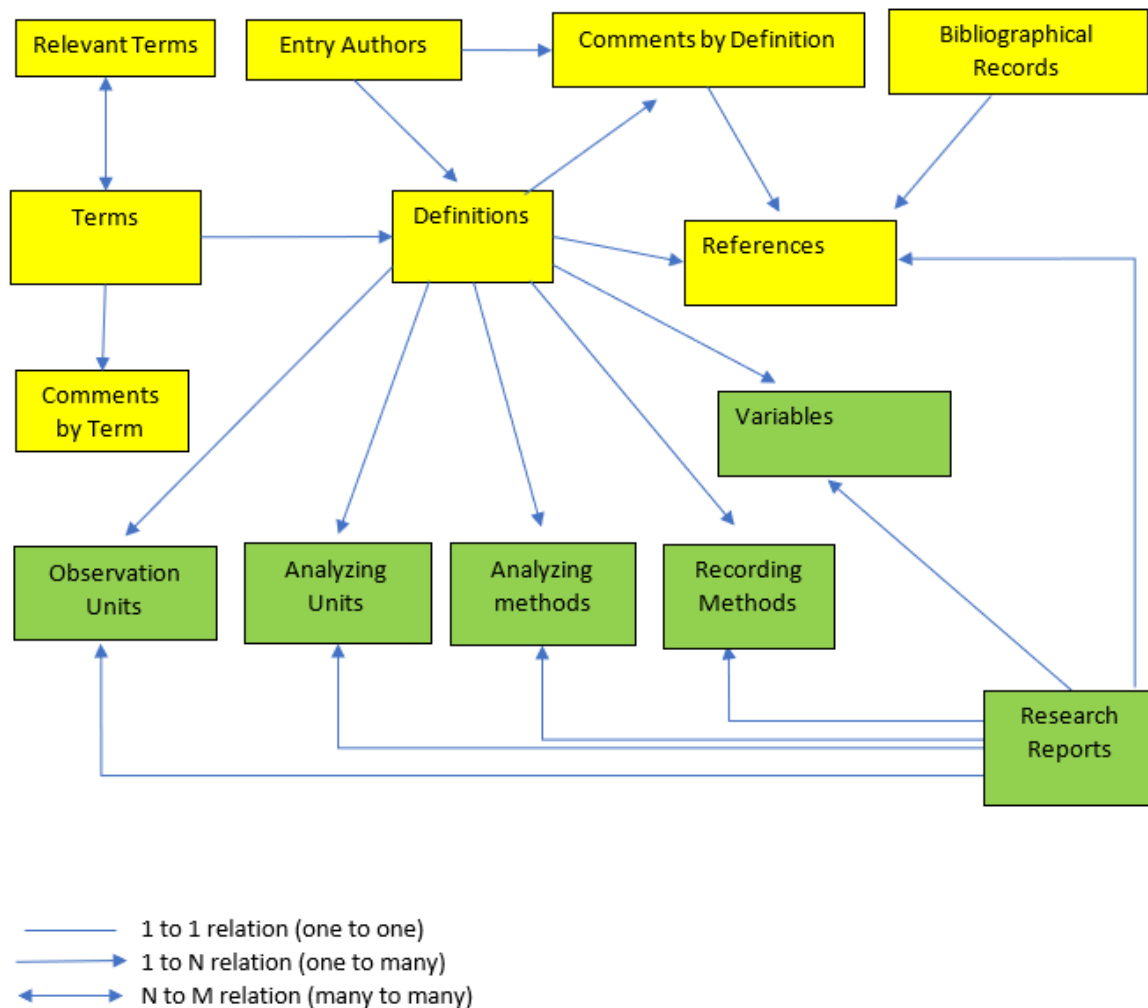


Figure 3: Entity-relationship diagram showing the interconnection of concepts, terms, research and coding books.

8. Conclusion

The Scientific Dictionary of Social Terms operates as an independent application within the SoDaNet research infrastructure, with the ultimate goal of being linked to its research. It supports the terminological and conceptual support of social research and especially empirical research, which organizes the production and analysis of empirical evidence based on the coding of evidence of experience, with the help of theory. The dictionary is dynamic and develops gradually over time through the work of many different researchers and through processes provided within a research infrastructure. It is bilingual, can be thematically linked to the ELSST, and it can also contribute to the design of new research together with other available digital resources, to design the research questions and hypotheses of a new research.

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Endnotes

¹Ioannis Kallas is Professor at the University of the Aegean and can be reached via email:

i.kallas@soc.aegean.gr

² Dimitra Kondyli is Research Director at the National Centre for Social Research (EKKE) – Institute of Social Research in Greece and can be reached via email: dkondyli@ekke.gr or dkondyli@gmail.com

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⁴ Open Archives Initiative Protocol for Metadata Harvesting enables harvesting metadata from a data repository and must support metadata in Dublin Core. It seeks to develop and promote interoperability standards that aim to facilitate the efficient dissemination of content and has its roots in the open access and institutional repository movements. More

<https://www.cessda.eu/Training/Training-Resources/Library/Tutorial-Access-and-Dissemination/Data-discovery> and <https://www.openarchives.org/pmh/>

⁵ It was developed in the framework of the project for the development of research infrastructures for the social sciences entitled '*EPAE Aegean: Application development and data processing and documentation*' and continued in the project '*SoDaNet in Action*'.

⁶ SoDaNet is the Greek Research Infrastructure for Social Sciences, member of the Consortium for European Social Science Data Archives (CESSDA ERIC). CESSDA has been on the European Strategic Forum for Research Infrastructures (ESFRI) roadmaps since 2006, became an ESFRI Landmark in 2016, and as of 2017 it has been assigned European legal status as an ERIC: European Research Infrastructure Consortium.

⁷ The European Language Social Science Thesaurus (ELSST) is a broad-based, multilingual thesaurus for the social sciences, owned and published by the Consortium of European Social Science Data Archives (CESSDA) and its national Service Providers. It is currently available in 14 languages and it includes 3,000 concepts covering the core social science disciplines: politics, sociology, economics, education, law, crime, demography, health, employment, information and communication technology and, increasingly, environmental science (CESSDA ELSST Thesaurus, 2021). The ELSST is also a controlled vocabulary for the social sciences and comprises a structure that consists of terms that relate hierarchically (broader/narrower) or non-hierarchically (related and synonymous). Thus, the increase in bilingual terms is planned to be linked to individual hierarchies of the European dictionary, adding value to existing terms and acting as an incentive to enrich SoDaNet's scientific dictionary terms.

⁸ APA (American Psychological Association) style is one of the most commonly used to cite sources within the social sciences.

⁹ The network of Organizations which constitute the Greek Research Infrastructure are one Research Centre , the National Centre for Social Research and six university departments, namely University of Aegean-Faculty of Sociology, University of Athens-Department of Political Science and Public Administration, Panteion University - Department of Political Science and History, Democritus University of Thrace - Department of Social Policy, University of Crete - Department of Sociology, University of Peloponnese: Department of Social & Educational Policy. See more at <https://www.sodanet.gr/>