

Sebastian Dama

Faculty of Social Sciences, Gdańsk School of Higher Education

Synthetic triangulation as a method of research in social science and humanities

Abstract

Triangulation as a tool of location has been known from Antiquity. Notwithstanding in the social sciences, as a research method, it was first used in the middle of the twentieth century. From that time its fate was different. However, the breakthrough was the beginning of the twentieth first century, in which the extended this type of cognition, thanks to N.K. Denzin, has been widely recognized as a research tool. Moreover, this cognitive model has adopted a form of analysis that does not fully explain the cause and effect of certain facts that take place and have relationships with a specific object. Therefore the solution is synthesis as a fuller way of thinking. Based on metaphysical abstraction, it allows reducing not only the errors of quantitative and qualitative method, but also cognitive deficiencies introduced by the analysis, which does not fully use triangulation as a cognitively rich research method.

Keywords: analyse, synthesis, quantitative and qualitative research, metaphysics abstraction, location.

1. Triangulation method. The source and historical context

The triangulation research model became popular in the twentieth century. Earlier, it was not known, but at the beginning of the twenty first century, it become expanded and popularized in the social sciences. Due to its specificity, it showed new fields and possibilities, both before social and natural sciences, although it was originally used in the latter (*The New Encyclopedia Britannica*, 2002). The current example of such use can be found in Ireland or in Poland. In the first one, we can find in Co. *Meath* in which, based on the arrangement of three towers and draining from them on the highest points a straight line between *Athboy*, *Castltown Tara* and *Trim* we obtain an equilateral triangle (Botheroyd, & Botheroyd, 1988). It was used to locate specific objects that were in the field of the described figure above. However, in Poland, we can use a similar system between the peaks of *Ślęza*, *Śnieżnik* and *Karpacz*.

Today such solutions are invoked also social research, due to the changes that have taken place and are still taking place in society. E.J. Webb was a precursor of the triangulation method, apart from it use as a localization tool (Webb, 2000). He believed that this type of cognition could be an accepted research strategy. From that moment, the mixed model of the conducted analyses was considered as a combination of quantitative and qualitative research. Over time, it became more and more popular (Bryman, 2008). This cognitive path, used in social sciences, was most often associated with more than one way of collecting data in order to test the same hypothesis (Frankfort-Nachmias,

& Nachmias, 2001). Thanks to triangulation it is possible to avoid monocausality that can be seen, for example, in the study of Polish emigration, based only on economic factors as motivating to leave the home land of Poles (Dama, 2014). In addition due to the above method, the impact of the specificity of a particular epistemological path on the test result can be minimized by using two or more methods in the same study.

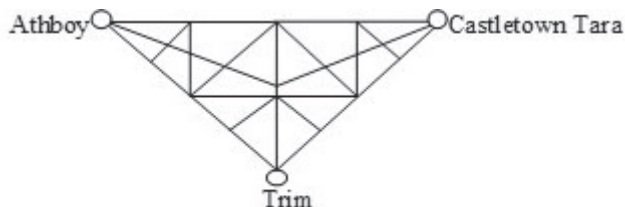


Fig. 1. Ancient triangulation method of location in Ireland

Source: Own elaboration based on: *Słownik mitologii celtyckiej*, S. Botheroyd, P.F. Botheroyd, 1988, Katowice: Wydawnictwo: Książnica.

2. Scientific triangulation method and its types

It also allows to overcome the personal prejudices of the scientist and significantly broadens the field of research. In this way, it is possible to avoid failure to meet the main research criteria like: accuracy, reliability and relevance. Therefore, currently the correctness of conducted qualitative tests performed with the triangulation method is evaluated according to the criteria of truthfulness, rightness, brightness and convinces. That gives to this type of research approach a methodological framework for correctness. In addition, the use of graphs, charts etc. makes easier to visualize the results of the research being carried out by qualitative method (Bryman, 2008). In the early 1970s, N.K. Denzin (1970) disseminated another, more elaborated model of the triangulation in qualitative methods, which he included within the research strategy in participant observation. The author of *The Research Act in Sociology* proposed a way of analysis consisting of four elements: a) triangulation of sources — in it a data from different people and places and from a different time interval are used; b) triangulation of researchers — in which applications from different scientists working on the same problem are compared; c) triangulation of methods — is used to compare the collected data using all available cognitive pathways such as qualitative and quantitative; d) triangulation of the theory — in which the interpretation of data made in different theoretical perspectives takes place (Denzin, & Lincoln, 2009).

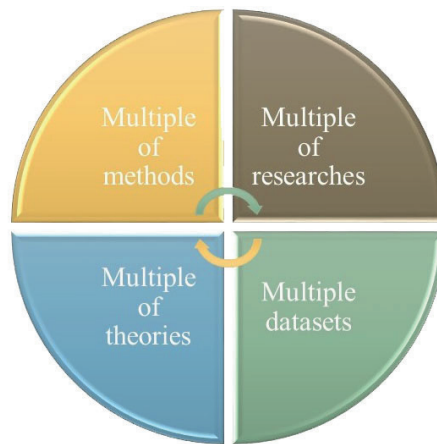


Fig. 2. N. Denzin's types of triangulation

Source: Own elaboration based on: *Action Research in Hindi*, 2017, retrieved from: <http://nchsbands.info/2017/action-research-in-hindi.html>.

Moreover, the same sociologist believed that cognition conducted in such a way would enable control of data sources in qualitative research in order to prevent subjective distortions of reality by scientists conducting particular analyses. Thanks to this, it is possible to generate empirical data and adapt them to the phenomena being studied. However, this is not as much as the need to have a certain logically reliable research strategy, but to look for a comprehensive image of the phenomena being explored, their richest description in order to understand and explain, both acting entities and happening social phenomena. Notwithstanding, according to Konarzewski (2000) triangulation in qualitative research is more a strategy to control the consolidation of knowledge, than the guarantor of reliability and accuracy, which concepts are basically inappropriate in qualitative research. This is due to the fact that accuracy is an expression of the effectiveness of the used tool. Thus, it is an expression of what the researcher believes should be measured by the tool. Therefore, it is an expression of the ideal type (Weber, 2002) of the test result formula, where quantitative analysis is it — as Wawrzynek suggests (2007) — normal curve (Gaussian distribution — S.D). This is expressed by the search for types of rational and general rules, unambiguity of concepts that fit into the paradigm of the rationality of Atlantic civilization (Weber, 2006) Similarly, the reliability of this type of cognitive path is also an expression of cultural need enforced by Western European rationalism (Dama, 2010). Possibility of measurement repeatability, in other words, a laboratory test feature, is to be an expression of coherence the results obtained with the reality being examined, which is also supposed to guarantee the law of large numbers. These assumptions are supposed to have the expression of “objectivity”! A.J. Karpiński (2010b, p. 105) wrote: *Being human was and is a constant subjectivisation of objectivity and objectivization of subjectivity in the direction of multiplication, enriching it, and thus transforming from this “inappropriate” into “proper” (M. Heidegger)*. For this reason, it is difficult to achieve absolute objectivity, both from a rational and empirical point of view (Benton,

& Craib, 2003). Although referring to the first one, it is not always possible because, as H. Simon pointed out, it has a limited character (Marshall, 2008).

In addition, validity in the research carried out using the qualitative method makes it look different than in the quantitative study, because in this case, social facts are always “someone’s”. Reality is always a subjective interpretation of some other subjectivity. Hence, in the qualitative study, relevance is not so much important as the consolidation of knowledge acquired in non-partial and non-targeted research. On the other hand, certain events can be read in a specific individual, socio-cultural and historical context. This determines the necessity of using the quantitative method which, in turn, will allow for reliable and fully exploring the space of human action, it is his culture.

It is therefore necessary to use the triangulation method. As N. Denzin emphasizes, currently conducted social analyses are strongly influenced by many paradigms (Denzin, 2009). This makes the need to find a common denominator found in social sciences. This is an expression of the social need to break the subject-object paradigm for the subject-subject (Karpinski, 2010b). This seems to coincide with Paulston’s (2003) theory, the empirical proof of which is the existence, i.e. the reflective current in cognition (Bourdieu, & Wacquant, 2001) and the increasingly popular use of triangulation studies (Denzin, 2009). Such analyses do not have a totalizing approach to humanistic disciplines. According to the author of *Interpretive Interactionism*, they give way to pluralistic and open catches. In this case, we have to deal with the attempt to capture the emerging new form of social reality for a methodological discussion, which is also a mixed method. It is a signal for the world of science, that there is a need to broaden the boundaries of traditional methodology, to go beyond the existing limitations and to really know the problems existing in social reality. We can see this in the works of R. Shaldrake (Fox, & Shaldrake, 2011; Shaldrake, 2006) and Karpinski (2006; 2015).

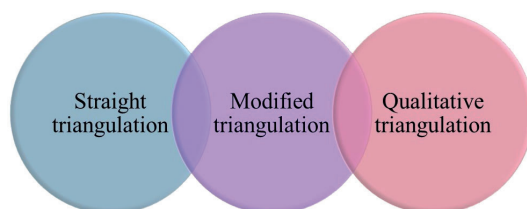


Fig. 3. S. Dama’s types of triangulation

Source: Own elaboration.

Moreover, it should be emphasized, that in the study in using triangulation do not mix different ways of research, but try to complete it completely. For this reason, when dealing with a new social phenomenon, it is necessary to use a combination of different types of analyses. On the one hand, get rid of the methodological deficiencies found in the study. On the other hand, pay attention to a more accurate and fuller description of the subject being studied. Therefore, the following cognitive models can be used in the study as: a) straight triangulation — a group of quantitative and qualitative methods; b) modified triangulation — a combination of quantitative method

with several qualitative methods; c) qualitative triangulation — a connection of sources, researchers, research methods and theory using only a qualitative approach. The choice of the triangulation model depends on the subject being studied and the testing possibilities.

Taking into account the above arguments, it is worth using the triangulation method to understand the causes and effects of a particular phenomenon. However, apart from such a methodological approach, the way of interpreting the obtained data is important, so as not to analyse, but to synthesize the studied phenomenon.

3. The sense of synthesis in triangulation method

According to E. Kant, the analysis should be understood as a kind of thinking that adds nothing to the meaning of a particular subject, but only breaks it down and knowledge about it into the constituent concepts that existed in it, but they were not understandable, imprecise or unclear. Synthesis, for its part, will bring new knowledge to a given subject. This, in turn, will enable you to get to know the object under study (Sztumski, 2010) in the whole spectrum of events that take place in its surroundings and in itself. Describing not only the consequences, but also the reasons, both internal and external and the relationships between them. Therefore, the analysis — from this point of view — is only a cognitive tool that does not contribute anything to the study. Synthesis on the contrary, creates a whole form of individual elements, for example, resulting from specific analyses. For this reason, it is important to pay attention to the judgment and its type, which determines the states of things, both vertically and horizontally defined object.

It is worth noting here that among the existing predicates like (verb-plus-direct-object predicate, verb-plus-indirect-object-plus-direct-object predicate, verb-plus-prepositional-object predicate, verb-plus-object-plus-adjunct predicate, verb only predicate, verb-plus-object-plus-predicative-noun predicate, verb-plus-predicative-prepositional-phrase predicate) only the first one do not have such an important function from the synthesis point of view as the earlier one. The most frequently used is verb-plus-object-plus-predicative-noun predicate, which is easy to use in defining the examined phenomena or objects. What is important here is the existence of a linking verb, where the former makes it easy to transform them into a definition, first of all by matching the latter to an essential element of the definition, which is also a link in the definition (Lat. *copula*). This applies in particular to explicit definitions (i.e., stipulative definitions, descriptive definitions, explicative definitions, dictionary definition) which are based on a classical definition model that uses an enthymematic assumption of the truth of the classical definition of truth deciding on a given fact or object, which is only a hypothesis (the researcher's intellectual act — S.D.) and actualizing realistically during the study, as their result describing the whole functioning of reality as a system and not only its fragment, as in the case of analysis, which taking the form of the following equation: $a_1 + a_2 + a_n = A$. However the synthesis would look in this case as: $A_1 + A_2 + A_n = S$.

On this basis, a specific judgement is built, which arises as a result of analysis or synthesis. In the first case the subject belongs to the prejudice. In the second situation

subject lies beyond the notion of subject, but remains with him in a relationship. Thus, in the first types of courts we deal with the association of the judgment by identification (explanatory judgments — S.D.) and the other is connected, but without identification (extending judgments — S.D.). Let's say that we describe the light. In this case, brightness belongs to any type of light. Whereas, having a particle or wave structure is not unambiguous, but using the analysis in this case, will be not enough. Therefore, it will be necessary to use a synthesis to show whether we are dealing with a particle and a wave that gives off a certain brightness, commonly called as light. Hence the specificity of the use of synthetic triangulation, which will not only aim to eliminate the disadvantages of the methods of cognition used in it — as suggested by N.K. Denzin — but also to show new elements of social reality revealing themselves as individual elements of the whole social system in which the subject of the study is located.

The element supporting synthesis in the triangulation method is metaphysical abstraction (Arystoteles, 2003a; 2003b) which in its specificity separates the essence (Arystoteles, 2003a; Kant, 1957) from its manifestation (Kant, 1957; Karpiński 2010). The philosopher from Königsberg wrote (Kant, 2004, p. 9–11):

In the above discussion of this basic concept, apart from the features belonging to the explicit knowledge of the subject, I also took some account of its dual origin from the nature of the mind. This explanation can serve as an example of deeper penetration into the method (applied) in the area of metaphysics, thereby it seems to me fully recommendable. For what is different — when the parts are given — to think about assembling a whole with an abstract intellectual concept, and to bring this general idea to another as a kind of rational task, with the help of sensual cognitive power — that is to introduce them “in concerto” through clear visibility. The first is made thanks to the concept of submission in general, as long as (parts) are captured under it (in a mutual relation) and thus ultimately by means of intellectual and general ideas. The second one is supported on time conditions, as long as the part is connected to the part. Thus the concept of a complex thing is possible due to manufacture — that is, thanks to synthesis and belongs to the laws of eyewitness. In the same way, if only a complex substance is given, it is easy to come up with the idea of simple parts, ending the intellectual notion of submission in general. Therefore, what remains when you remove any connection is simple parts. Notwithstanding, according to the laws of visual cognition, this is only then — that is all submission are abolished — when we move back from the whole to all possible parts, that is to say, thanks to the analysis, which for its part is supported on the condition of time. However, since the complex matter requires a multitude of parts and all of them, neither analysis nor synthesis will be complete and therefore neither the simple concept nor the concept of the whole will emerge from the first, since both cannot be completed in a certain finite and determinable time.

For this reason an important element of synthetic triangulation, in contrast to analytic triangulation, is the fact that, it recognizes specific relations between individual objects of the study. In the first case we deal with the product of the relation, which will take a shape: $\forall xA \cdot Sy \leftrightarrow xAy \wedge \forall xSy$. It means all possible cases, that can happen in the field determined by the elements recognized in the determined specific triangulation. Here we will deal with a relationship that will capture relations like:

reverse, non-returnable, anti reverse, symmetric, asymmetrical, asymmetric weakly asymmetric and transitive, intransitive and anti-transitive.

On the other hand, in the second analytic triangulation, which in the form of the propositional calculus would take the form: $\forall xA + Ry \leftrightarrow xAy \vee \forall xRy$. In this case, the relations between the arguments appear as a sum, where it can appear as a relation: reverse, non-returnable, anti reverse, symmetrical, asymmetrical, weakly asymmetric, transitive, intransitive or anti transitive. This way of description allows to indicate the fact, that in the first case we deal with the cognitive way of examining the phenomenon, which is synthetically caught and in the second analytically; where the quotient allows for any interpretation of the phenomena caught, in the second case such a possibility does not exist, due to the nature of the functions used.

4. Findings

Summing up, the triangulation study which use synthesis, based on a particular type of judgment, will bring specific names to our language and thus contribute to the discovery, introduction of a novelty that has not existed in a certain syntactic, semantic and pragmatic form so far. This is not possible, when using an analysis, that considers a given phenomenon or thing from the point of view of itself *in concreto*. In addition, because it is a triangulation study, it is possible to use all workable cognitive fields, both in quantitative and qualitative form, while eliminating errors brought by particular research tools and taking into account those things or phenomena, that did not fit into the set of examined objects by us, but which might be significant to the outcome of our study.

Scientific work using the synthetic triangulation method is also a chance to learn phenomena and things in the future, especially in the era of globalization and high technological progress, where the possibility of making mistakes can be large as well as the causes of some new phenomena and things related to them.

Another important element is the fact that, we have the opportunity to combine the sources of research on their results and the researchers themselves, which also eliminates errors resulting from the used cognitive tools, but also allows to use synthesis as a way of creating extension courts allowing the recognition of what is associated with the subject of the study, but it does not fit into its subject, which favours scientific discovery what is not possible in the analysis.

References

- Action Research in Hindi*. (2017). Retrieved from: <http://nchsbands.info/2017/action-research-in-hindi.html>.
- Arystoteles. (2003a). *Dzieła wszystkie*. Warszawa: PWN.
- Arystoteles. (2003b). *Dzieła wszystkie*. Warszawa: PWN.
- Arystoteles. (2003c). *Dzieła wszystkie*. Warszawa: PWN.
- Barańska, Z. (2000). *Podstawy metod statystycznych dla psychologów*. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.
- Bauman, Z. (2000). *Ponowoczesność jako źródło cierpień*. Warszawa: Wydawnictwo Sic!
- Benton, T., Craib, I. (2003). *Filozofia nauk społecznych. Od pozytywizmu do postmodernizmu*. Wrocław: Wydawnictwo Dolnośląskiej Szkoły Wyższej Edukacji.

- Botheroyd, S., Botheroyd, P.F. (1988). *Słownik mitologii celtyckiej*. Katowice: Wydawnictwo: Książnica.
- Bourdieu, P., Wacquant, L.J.D. (2001). *Zaproszenie do socjologii refleksyjnej*. Warszawa: PWN.
- Bryman, A. (2008). *Social Research Methods*. Oxford: Oxford University Press.
- Dama, S. (2010). W poszukiwaniu sensu. Racjonalizm i co dalej? *Humanistyka i przyrodoznawstwo*, 16, 197–212.
- Dama, S. (2014). *Nomadyczne środowisko wychowawcze na przykładzie polskiej emigracji w Irlandii*, (PhD dissertation). Uniwersytet Gdański, Gdańsk.
- Denzin, N.K. (1970). *The Research Act in Sociology*. London: Butterworth.
- Denzin, N.K., Lincoln, Y.S. (2009). *Metody badań jakościowych*. Warszawa: PWN.
- Fiske, D.W. (1986). *Metatherapy in Social Science*. Chicago: University Chicago Press.
- Fox, M., Sheldrake, R. (2011). *Naturalna łaska. Dialogi o nauce i duchowości*. Warszawa: Virgo.
- Frankfort-Nachmias, C., Nachmias, D. (2001). *Metody badawcze w naukach społecznych*. Poznań: Wydawnictwo Zysk i S-ka.
- Giddens, A. (2002). *Nowoczesność i tożsamość*. Warszawa: Wydawnictwo Naukowe PWN.
- Handy, Ch. (1996). *Wiek paradoksu. W poszukiwaniu sensu przyszłości*. Warszawa: Wydawnictwo ABC.
- Kant, E. (1957). *Krytyka czystego rozumu*. Warszawa: PWN.
- Kant, E. (2004). *O formie i zasadach świata dostępnego zmysłom oraz świata inteligibilnego. O pierwszej podstawie różnicy kierunków w przestrzeni*. Kraków: Wydawnictwo Zielona Sowa.
- Karpiński, A.J. (2003a). *Kryzys kultury współczesnej*. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.
- Karpiński, A.J. (2003b). *Słownik pojęć filozoficzno-socjologicznych wyrazów obcych i wyrażen powszechnie stosowanych*. Gdańsk: Wydawnictwo „Gaja”.
- Karpiński, A.J. (2006). *Wstęp do socjologii krytycznej*. Gdańsk: Wydawnictwo Gdańskiej Wyższej Szkoły Administracji.
- Karpiński, A.J. (2010a). *Klasyczna filozofia niemiecka*. Computer script.
- Karpiński, A.J. (2010b). *Prywatna własność środków produkcji. Od ojcostwa do syna marnotrawnego*. Gdańsk: Wydawnictwo Gdańskiej Wyższej Szkoły Administracji.
- Karpiński, A.J. (2014). *Wstęp do sofiologii*. Retrieved from: <http://www.adamkarpinski.pl/?wstep-do-sofiologii,18>.
- Karpiński, A.J. (2015). *Wstęp do nauk o mądrości*. Gdańsk: Wydawnictwo Gdańskiej Szkoły Wyższej.
- Kołąkowski, L. (1966). *Filozofia pozytywistyczna. Od Hume'a do koła wiedeńskiego*, Warszawa: PWN.
- Konarzewski, K. (2000). *Jak uprawiać badania oświatowe. Metodologia praktyczna*. Warszawa: Wydawnictwo Szkolne i Pedagogiczne.
- Kwieciński, Z., Witkowski, L. (1993). *Spory o edukację. Dylematy i kontrowersje we współczesnych pedagogikach*. Warszawa: Instytut Badań Edukacyjnych.
- Marshall, G. (2008). *Słownik socjologii i nauk społecznych*. Warszawa: PWN.
- Sheldrake, R. (2013). *Nowa biologia. Rezonans morficzny i ukryty porządek*. Warszawa: Virgo.
- The New Encyclopedia Britannica*. (2002). London: Encyclopedia Britannica.
- Wawrzynek, J. (2007). *Metody opisu i wnioskowania statystycznego*. Wrocław: Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu.
- Webb, E.J. (2000). *Unobtrusive measures. Nonreactive research in the social sciences*. London: Sage Publication.
- Weber, M. (2002). *Gospodarka i społeczeństwo. Zarys socjologii rozumiejącej*. Warszawa: PWN.
- Weber, M. (2006). *Etyka gospodarcza religii światowych*. Kraków: Zakład Wydawniczy Nomos.