



Parameters of Content Analysis

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Abstract

This study defines the content-analysis under three sub-headings "meta-analysis, meta-synthesis and descriptive content analysis" and illuminates the parameters of the content analysis expected to be published in the special issue. It is aimed to outline the guidelines for the researchers concerning how to do a systematic content analysis instead of simple descriptive one. Overall, it is thought that the meta-analysis and descriptive content analysis, which take the criteria into account, will get the educational researchers, practitioners, policy makers and institutions to grasp the outcomes demanded.

Keywords

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Introduction

TED Education and Science Journal has assigned the 2015 March issue to "**meta-analysis and content analysis**" special issue. The aim of this special issue is to provide foresights for the future studies by evaluating the effects of a growing body of Turkish *educational researches*. Hence, it is expected that handling holistically and systematically the studies in a certain sub-discipline of educational sciences provides new methodologies and guidelines for the future studies. In addition, it is intended that these systematic content analyses will emerge a rich data source for policy makers, researchers and practitioners to assist in identifying prior future research fields. Moreover, it is also proposed that these systematic analyses of educational studies will give an opportunity for the researchers to spend their times effectively and lessen their work-loads, for example, accessing, reviewing and analysing the published studies (Çalık, Ünal, Coştu & Karataş, 2008; Çiltaş, Güler & Sözbilir, 2012; Göktaş, Küçük et al., 2012; Umdu Topsakal, Çalık & Çavuş, 2012).

In this study, the content analysis will be initially grouped under three sub-headings "*meta-analysis, meta-synthesis and descriptive content analysis*" and briefly illuminated. Also, the parameters of the content analysis expected to be published in the special issue will be explained. Thereby, it is aimed to outline the guidelines for the researchers concerning how to do a systematic content analysis instead of simple descriptive one. By this way, to appear originality and richness of the content analysis studies in the special issue is strived.

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Types of Content Analysis

Content analyses are research syntheses which play a crucial role in disseminating research knowledge and in shaping further research, policy, practice, and public perception (Suri & Clarke, 2009). The content analysis can, in general, be grouped under three sub-headings “*meta-analysis, meta-synthesis (thematic content analysis) and descriptive content analysis*”.

Meta-analysis, which combines, summarises and reviews the findings of the previous quantitative researches independently carried out in a specific research case, is a quantitative application with statistical techniques (Wolf, 1986; Durlak, 1995). Hence, the meta-analysis compares and yields changes of the analysed research fields using their effect-sizes that are common parameters/criteria for these studies (Bayraktar, 2000). Thereby, it is aimed to produce more reliable, consistent, congruent and accurate results of the studies under investigation throughout a holistic perspective (Cohen & Manion, 2001; Şahin, 2005). In brief, because the meta-analysis merely includes experimental studies that meet its own criteria, the number of the studies excluded from the meta-analysis may be very high.

Meta-synthesis (thematic content analysis) synthesizes and criticises the results of studies conducted in a specific content area by creating themes or matrixes. Hence, it enables to gain a better understanding of the general framework of the investigated research topic (Au, 2007) and to help identifying the priorities through a holistic perspective. Further, meta-synthesis, which synthesizes and exemplifies similarities and differences of the studies under investigation, becomes valuable resources for policy makers, researchers and practitioners who are unable to access to all related studies (Çalık,, Ayas & Ebenezer, 2005 ; Ünal, Çalık, Ayas & Coll, 2006; Ültay & Çalık, 2012). In other words, meta-synthesis, which is the qualitative synthesis of mostly qualitative studies implemented in a particular research topic, appears comparatively their similarities and differences. Therefore, the number of studies (sample size) included in a meta-synthesis is generally limited as compared with those of meta-analysis and descriptive content analysis.

Descriptive content analysis is a systematically review that aims to identify and describe the general trends and research results in a particular research discipline (Çalık et al., 2008; Gökteş, Hasançebi et al., 2012; Jayarajah, Saat & Rauf, 2014; Lin, Lin & Tsai, 2014; Selçuk, Palancı, Kandemir & Dündar, 2014; Suri & Clarke, 2009; Sözbilir, Kutu & Yaşar, 2012; Umdü Topsakal et al., 2012). In other words, through the descriptive content analysis, independent qualitative and quantitative studies are reviewed to identify their general trends (Selçuk et al., 2014). Thereby, the prospective researchers, who are planning to study in the particular discipline, are informed about the general trends of previous studies (Cohen, Manion & Morrison, 2007; Selçuk et al., 2014). However, since the number of studies investigated in the descriptive content analysis is high, it is hard to make in-depth interpretation and to synthesize their outcomes.

Given the aforementioned issues, meta-synthesis will be given priority in the special issue "meta-analysis and content analysis." However, the studies of the descriptive content analysis that systematically review the research reports published in a particular research discipline for a long time-period to elicit the general issues/trends are also considered.

A list of the essential components of the meta-synthesis or descriptive content analysis that needs to be taken into consideration is as follows:

1. The meta-synthesis or descriptive content analysis should be original. Its distinction from the previous similar studies should meticulously be described.
2. The aim(s), problem(s) and research question(s) of the meta-synthesis or descriptive content analysis should be clearly stated.
3. The theoretical and practical significance of the meta-synthesis or descriptive content analysis should be explicitly expressed.

4. Adequate number of the studies to deploy a meta-synthesis in the selected area should be obtained. If it is a descriptive content analysis, the number of studies involved should cover a significant extent of time or period to show the general trends/issues in a particular discipline.
5. The access procedure for the reviewed studies (key words, data bases etc.) and the criteria of inclusion should be explained. Moreover, to contain optimally different types of such research reports as proceedings, papers and thesis is important.
6. The continuum of the meta-synthesis or descriptive content analysis should be clearly described.
 - a. The dimensions of the meta-synthesis or descriptive content analysis and their interrelationships (matrixes) should be explicitly addressed.
 - b. Analysis and coding processes employed in the meta-synthesis or descriptive content analysis should be reasonably depicted.
 - c. The limitations of the meta-synthesis or descriptive content analysis should be clearly stated (i.e. narrowing years for the studies under investigation).
 - d. The precautions taken for validity and reliability of the meta-synthesis or descriptive content analysis should be explicitly explained. Types of any alternative analysis/synthesis and its benefits/outcomes (if possible) should be mentioned.
7. The codes, dimensions and/or themes appeared in the meta-synthesis or descriptive content analysis should visually be presented via tables, charts, diagrams etc and exemplified.
8. The similarities, differences and inter-dimensional relationships of the studies under investigation should be clearly drawn out and discussed in the meta-synthesis or descriptive content analysis.
9. The themes/matrixes elicited through the meta-synthesis or descriptive content analysis should be critically evaluated and synthesized to respond each research question.
10. Given the results of the meta-synthesis or descriptive content analysis, implications for researchers, practitioners and policy makers should be explicitly and moderately displayed.

A list of the references in the current study can be revised for sample studies of the meta-synthesis or descriptive content analysis that are in a harmony with the foregoing criteria.

Conclusion and Suggestions

A considerable increase in the number of educational research studies has occurred in Turkey since 1990s (Çalık, Ünal, Coştu & Karataş, 2008; Çiltaş, Güler & Sözbilir, 2012; Sozbilir, 2013; Umdü Topsakal, Çalık & Çavuş, 2012). This has resulted in an increase in the amount of independent studies of educational sciences (Selçuk et al., 2014). Therein, in order to suggest significant implications for future studies, practices and politics (Calik, 2013; Suri & Clarke, 2009), these applied educational studies through systematically reviews need to be synthesized and evaluated for their general trends and results. Hence, matches and mismatches of the current educational research literature in any particular research topic/issue not only come out (Selçuk at al., 2014) but also prevent to replicate dozens of similar studies in order for leading new different perspectives. However, the descriptive content analysis cannot go beyond identifying "What the case/issue/position is." For this reason, it is thought that critical meta-synthesis looking for answers to the questions "why?, what for? and how?" will shed more light on quality and functionality of educational system (Çalık et al., 2008; Karadağ, 2009; Göktaş, Küçük et al., 2012; Umdü Topsakal et al., 2012).

Demand of the special issue "meta-analysis and content analysis" that has to be fully or partly include in Turkish educational researches, will aid to develop strategic plans and/or road maps to overcome Turkish educational problems. Thereby, it is desired to capture conceptual frameworks to enhance and improve the functionality of current educational theories as depicted by Mortimore (2000). Such kinds of systematic reviews propose to refrain the educational researches from repeating the similar studies in a disconnected nature. Additionally, it is intended to inform the teachers and researchers who are willing to track the developments of the educational researches despite of pitfalls of work-load and access to the published studies. Overall, it is thought that the meta-analysis and descriptive content analysis, which take the aforementioned criteria into account, will get the educational researchers, practitioners, policy makers and institutions to grasp the outcomes demanded.

The authors, who are planning to submit the studies of the content analysis to the special issue, are intimately suggested to revisit the sample studies listed in the references or published elsewhere.

References

- Au, W. (2007). High-stakes testing and curricular control: A qualitative metasynthesis. *Educational Researcher*, 36, 258-267 DOI: 10.3102/0013189X07306523
- Bayraktar, Ş. (2000). *A meta-analysis study on the effectiveness of computer assisted instruction in science education*. Published PhD Thesis, Ohio University. UMI Number: 9980398
- Calik, M. (2013). Effect of technology-embedded scientific inquiry on senior science student teachers' self-efficacy. *Eurasia Journal of Mathematics, Science & Technology Education*, 9(3), 223-232 DOI: 10.12973/eurasia.2013.931a
- Cohen, L. & Manion, L. (2001). *Research methods in education* (5th Edition), New York: Rotledge Falmer.
- Çalık, M., Ayas, A. & Ebenezer, J.V. (2005). A review of solution chemistry studies: Insights into students' conceptions. *Journal of Science Education and Technology*, 14(1), 29-50
- Çalık, M., Ünal, S., Coştu, B. & Karataş, F.Ö. (2008). Trends in Turkish science education. *Essays in Education*, Special Edition, 23-45.
- Çiltaş, A., Güler, G. & Sözbilir, M. (2012). Türkiye'de matematik eğitimi araştırmaları: Bir içerik analizi çalışması. *Kuram ve Uygulamada Eğitim Bilimleri*, 12(1), 565-580.
- Durlak, J.A. (1995), *Reading and understanding multivariate statistics*. Washington, DC: American Psychological Association.
- Göktaş, Y., Küçük, S., Aydemir, M., Telli, E., Arpacık, Ö., Yıldırım, G., & Reisoğlu, İ. (2012). Educational technology research trends in Turkey: A content analysis of the 2000-2009 decade. *Educational Sciences: Theory & Practice*, 12(1), 191-196.
- Göktaş, Y., Hasançebi, F., Varisoğlu, B., Akcay, A., Bayrak, N., Baran, M., & Sözbilir, M. (2012). Trends in educational research in Turkey: A content analysis. *Educational Sciences: Theory & Practice*, 12(1), 443-460.
- Jayarajah, K., Saat, R.M. & Rauf, R.A.A. (2014). A review of science, technology, engineering & mathematics (STEM) education research from 1999–2013: A Malaysian perspective. *Eurasia Journal of Mathematics, Science & Technology Education*, 10(3), 155-163 DOI: 10.12973/eurasia.2014.1072a
- Karadağ, E. (2009). Eğitim bilimleri alanında yapılmış doktora tezlerinin incelenmesi. *Ahi Evran Üniversitesi Eğitim Fakültesi Dergisi*, 10(3), 75-87.
- Lin, T.C., Lin, T.J. & Tsai, C.C. (2014). Research trends in science education from 2008 to 2012: A systematic content analysis of publications in selected journals, *International Journal of Science Education*, 36(8), 1346-1372, DOI: 10.1080/09500693.2013.864428.
- Mortimore, P. (2000). Does educational research matter? *British Educational Research Journal*, 26 (1), 5-24.
- Selçuk, Z., Palancı, M., Kandemir, M. & Dündar, H. (2014). Eğitim ve bilim dergisinde yayınlanan araştırmaların eğilimleri: İçerik analizi. *Eğitim ve Bilim*, 39(173), 430-453.
- Sözbilir, M., Kutu, H., & Yaşar, M. D. (2012). *Science education research in Turkey: A content analysis of selected features of papers published*. In J. Dillon & D. Jorde (Eds). *The World of Science Education: Handbook of Research in Europe* (pp.341-374). Rotterdam: Sense Publishers.
- Sozbilir, M. (2013). Chemistry education research in Turkey. *Chemistry International*, 35(2), 12-14
- Suri, H. & Clarke, D. (2009). Advancements in research synthesis methods: From a methodologically inclusive perspective. *Review of Educational Research*, 79(1), 395-430.
- Şahin, M.C. (2005). *İnternet tabanlı uzaktan eğitimin etkililiği: Bir meta analiz çalışması*. Yayınlanmamış Yüksek Lisans Tezi, Çukurova Üniversitesi.
- Umdu Topsakal, Ü., Çalık, M. & Çavuş, R. (2012). What trends do Turkish biology education studies indicate?. *International Journal of Environmental and Science Education*, 7(4), 639-649

- Ünal, S., Çalık, M., Ayas, A. & Coll, R.K. (2006). A review of chemical bonding studies: needs, aims, methods of exploring students' conceptions, general knowledge claims, and students' alternative conceptions. *Research in Science & Technological Education*, 24(2), 141-172
- Ültay, N. & Çalık, M. (2012). A thematic review of studies into the effectiveness of context-based chemistry curricula. *Journal of Science Education and Technology*, 26(6), 686-701 DOI 10.1007/s10956-011-9357-5.
- Wolf, F. M. (1986). *Meta-analysis: Quantitative methods for research synthesis*. London: Sage Publications.