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1.1. Mixing methods in organizational ethics and organizational innovativeness research: Three approaches to mixed methods analysis

Elina Riivari

This chapter discusses three categories of mixed methods analysis techniques: variable-oriented, case-oriented, and process/experience-oriented. All three categories combine qualitative and quantitative approaches to research methodology. The major differences among the categories are the focus of the study, available analysis techniques and timely aspect of the study. In variable-oriented analysis, the study focus is relationships between the research phenomena. In case-oriented analysis, the research focus is the meanings and experiences produced by the cases. The process/experience-oriented analysis examines a certain research phenomenon, which might be either a case or a variable, in a specific context over time. Techniques for each category with examples drawn from the research area of organizational ethics and innovativeness research are provided.

Background

The discussion about mixing methods, involving or combining qualitative and quantitative approaches, has been going on since the middle of the 20th century (Onwuegbuzie, Johnson et al., 2009; Sosulski and Lawrence 2008; Tashakkori and Teddlie, 1998). The idea of combining different approaches or methodologies in a same study is not new but it has been noted that the name mixed methods is new (Johnson, Onwuegbuzie et al., 2007; Sosulski and Lawrence, 2008; Tashakkori and Teddlie, 2003), and was established among many other expressions (e.g. blended, integrative or multi-method research) for this methodological approach or movement (Johnson, Onwuegbuzie et al., 2007).

The basic idea of mixed methods studies is to combine qualitative and quantitative approaches within the research methodology of a study or a set of studies (Tashakkori and Teddlie, 1998, p. 17). Using different methods in research can strengthen the biases built into certain research traditions. For example, generalizing and quantifying results might not always be in balance with the vivid context of lived experiences gathered through a qualitative approach,

and fitting quantitative and qualitative research approaches together can bring results that are quite different compared to traditional single-method studies (Sosulski and Lawrence, 2008). Hence, it has been argued that mixed methods should be understood as a third research paradigm together with quantitative and qualitative research paradigms (Creswell, 2013; Johnson, Onwuegbuzie et al., 2007).

According to Johnson et al. (2007, p. 123), mixed methods research can be defined as “the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.” The mixed method research process includes several (13) redundant and active steps starting from determining the goal of the study and formulating research objectives and ending up to analysing data, legitimising research findings and writing the research report.

These steps can be divided into four major phases: first, organising the research (e.g. objectives of the study, motivation for using mixed methods, defining research question); second, planning the research (e.g. sampling and research design); third, implementing the research (e.g. collecting and analysing data); and fourth, publishing research (e.g. writing the report and giving suggestions for future research) (Onwuegbuzie and Corrigan, 2014). Mixed data analysis, meaning analysing quantitative and qualitative data, is a challenging phase in the mixed data research process, as it requires knowledge and understanding of both approaches to analysis and the competence to combine them into a coherent and consistent set (Onwuegbuzie, Slate et al., 2009).

A simple electronic search using the keyword combination “mixed methods” in three leading business ethics journals (Journal of Business Ethics, Business Ethics Quarterly, and Business Ethics European Review) showed that mixed methods research in the business ethics field still seems to be scarce. Five mixed methods articles could be found from the Journal of Business Ethics. These articles were published between 2009 and 2011 and they focused on examining radical change in pioneering organization (Sonpar et al., 2009), investigating the relationship between strategy-making and responsible leadership (Maritz et al., 2011), exploring alternative organizational forms (Pazzaglia, 2010), studying CSR in the professional sports

industry (Sheth and Babiak, 2010), and defining the ethical mind-set in the Australian service sector (Issa and Pick, 2010).

From the Business Ethics Quarterly the simple search gave one result but the article by Vadera et al. (2009) did not apply the mixed methods approach itself, only recommends that future research should use the mixed methods approach. From the Business Ethics European Review, the search gave two mixed methods articles published in 2007 and 2011. These studies focused on corporate philanthropy (Campbell and Slack, 2007), and spirituality and aesthetics in business ethics (Issa and Pick, 2011). However, this simple keyword search might leave out many studies that apply the mixed methods approach, as the authors might not indicate explicitly that the study follows the mixed methods approach with these exact words (see Molina-Azorín and López-Gamero, 2014). For example, in their review article of mixed methods studies in environmental research, Molina-Azorín and López-Gamero (2014) found only 26 mixed methods articles out of a total of 340, which suggests that the amount of mixed methods publications in the business ethics field might not be notable either.

Even if data analysis is a crucial stage when doing mixed methods research, there are not too many publications on the topic. Therefore, this article describes a three-dimensional framework for mixed method analyses (originally presented by Onwuegbuzie, Slate et al. (2009)) that integrates qualitative and quantitative data analyses to create a coherent mixed methods study. This article contributes to the discussion of mixed methods research by describing the three categories of mixed methods analysis techniques introduced by Onwuegbuzie, Johnson et al. (2009) and Onwuegbuzie, Slate et al. (2009), and introducing each category with study examples related to organizational ethics and innovativeness.

Therefore, this article focuses on techniques in mixed method studies, rather than the epistemological and ontological discussion that is on-going in the mixed methods research literature (Creswell, 2013; Morgan, 2007). As the main objective of this article is to address how to apply mixed methods research and analysis in organizational ethics and innovativeness research, it discusses the process of analysis in research. The examples featured frame a discussion of issues to consider when deciding when and how to apply different methods. Following an overview of mixed methods research and analysis techniques, three examples are provided of how quantitative and qualitative elements could be combined in the different

categories of mixed methods analysis. The article concludes with a summary about using different mixed data analysis techniques.

Mixed methods research and analysis

According to Johnson and Onwuegbuzie (2004) and Johnson et al. (2007), mixed methods research can be defined as a type of research where quantitative and qualitative research techniques, methods, approaches or concepts are mixed or combined in a single study. Furthermore, Creswell and Tashakkori (2007) have defined four perspectives to discuss and examine mixed methods: method, methodology, paradigm and practice perspectives. From the method perspective, which is applied in this article, strategies and methods for collecting and analysing data in mixed methods research are the point of focus.

Onwuegbuzie, Slate et al. (2009) have defined five principles of data analysis that combine five types of generalizations that researchers should take into account when combining qualitative and quantitative methods; that is, (1) external statistical, (2) internal statistical, and (3) analytical generalizations, (4) case-to-case analysis, and, finally, (5) naturalistic generalizations. To succeed in completing these generalization phases, the study should achieve interpretive consistency, which refers to the integration and clarity of the research design, analyses and conclusions.

Even if previous research suggests that combining qualitative and quantitative research approaches may provide a greater understanding of research phenomena than one approach alone (Creswell and Plano Clark, 2011), it is not self-evident that mixed methods research fundamentally prevails over a single method study (Molina-Azorín and López-Gamero, 2014). It is important to consider if a mixed method study best addresses the research objectives, problems and questions compared to a single-method study. One of the ways of creating a better understanding in mixed methods research is the element of triangulation. By bringing alternative sets of results together it is possible to enhance the validity of assumptions, and, therefore, overcome the weaknesses of the single method study (Molina-Azorín and López-Gamero, 2014).

The idea of *triangulation* was first introduced by Campbell and Fiske (1959), the “pioneers of mixed methods”, whose article can be viewed as the starting point for discussions around combining different research methods (Johnson, Onwuegbuzie et al., 2007). However, it was not until 1978 that Denzin defined different ways to use triangulation (e.g. data, researcher, theory)

and specifically noted that the methods can also be triangulated. According to Denzin (1978), *methodological triangulation* means combining different methods in a study of the same phenomenon. Mixed methods research uses methodological triangulation that contains “the use of both qualitative and quantitative methods and data to study the same phenomena within the same study or in different complementary studies” (Tashakkori and Teddlie, 1998, p. 18).

Denzin (1978) also recognised the difference between *within-methods triangulation* and *between-methods triangulation* from which the first refers to the use of various quantitative or qualitative approaches, and second to the use of both quantitative and qualitative approaches. According to Denzin, triangulation can bring convergence, inconsistency, and contradiction to the research. No matter which of these triangulation outcomes is obtained, mixed methods give the researcher an opportunity to create exceptional interpretations of the research phenomena (Johnson, Onwuegbuzie et al., 2007).

In addition to triangulation that allows the verification and validation of data, combining different research and analysis techniques includes the element of complementarity, which refers to clarifying, explaining and elaborating the analysis results. In addition, the development element in a mixed analysis concerns sampling, data collection and analysis techniques in future mixed methods research (Sandelowski, 2000).

According to Creswell (2013), mixed methods studies demonstrate the iterative process of moving between induction and deduction at different points of the study process to find answers to research questions. From this perspective, mixed methods studies demonstrate a natural course of action. However, mixed methods studies require researchers to have a strong and genuine foundation in different methodological approaches and punctuality with organising (e.g. planning, implementing, evaluating, and documenting) the research design (Creswell, 2013; Johnson, Onwuegbuzie et al., 2007).

Previous literature has discussed different types of designs that can be used for mixed methods studies (e.g. Creswell, 2013; Creswell and Plano Clark, 2011; Tashakkori and Teddlie, 1998). In sequential studies or two-phase studies, the researcher separates qualitative and quantitative phases of the study, so that one is completed first and then the other completed later. In parallel or simultaneous studies, the researcher conducts qualitative and quantitative phases at the same time. In equivalent status design studies, the researcher uses both methodological approaches evenly to understand the research phenomenon. In dominant-less dominant studies,

the researcher conducts the study within a certain dominant design but includes a small element from another design to complete the study. In multilevel studies, the researcher combines different methods at different levels of data collection (Creswell, 2013; Tashakkori and Teddlie, 1998). In conclusion, mixing methods and combining qualitative and quantitative analysis techniques should reflect the researcher's viewpoint, which defines what techniques will be mixed, how and why they are utilised (Sandelowski, 2000).

Mixed data analysis should address the objectives and mixed research questions of the study, and the sampling and research design. The mixed analysis phase is the most crucial of the steps in the mixed research process, as it can either strengthen or undermine the whole study. It is important that each of these analyses is chosen carefully; the analyses should support each other and be reciprocal and fixed for the current study to evolve integrated and consistent study results and conclusions (Onwuegbuzie, Slate et al., 2009). A fluent combination of qualitative and quantitative analysis is one way to prevent interpretive inconsistency, referring to an unsteadiness between the research design and the conclusions made in the study and the analytic adequacy, which refers to the appropriate use of data analysis techniques in relation to the primary research questions (Collins, Onwuegbuzie et al., 2007).

Three categories of analysis techniques for mixed methods research

Onwuegbuzie, Slate et al. (2009, respresented by Onwuegbuzie, Johnson et al., 2009) presented a three-dimensional model for systematizing mixed methods analysis. This framework reframes qualitative and quantitative analyses as 1) variable-oriented, 2) case-oriented, and 3) process/experience-oriented analyses.

The first category, i.e. variable-oriented analyses, contains conceptual and theoretical analyses that have a tendency towards generalizations. These analyses focus on examining the relationships between objects or ideas that might have certain presumptions. These objects under examination are considered variables. As these analyses are more interested in certain variables and the intercorrelations among them, quantitative research is best suited to them. For example, descriptive analyses, correlation analyses, t-tests, ANOVA, factor analyses, regression analyses, and Structural Equation Modelling (SEM) are suitable analysis techniques for variable-oriented analyses. Even if variable-oriented analyses are usually more interested in large data and relationships among variables, small samples can also be useful. Therefore, qualitative analysis

techniques, such as classical content analysis, word count, network analysis, and theme analysis are relevant analysis techniques for this category as well (Onwuegbuzie, Slate et al., 2009).

The second category, case-oriented analyses, focuses principally on certain cases, which analyse the meanings, experiences, attitudes, and opinions of at least one person. In these analyses, the propensity is to systematise and create analytical generalizations. As these types of analyses work best for identifying patterns for one or a limited number of cases, qualitative analysis fits well for case-oriented analyses. For example, content analyses, conversation analyses, discourse analyses, secondary data analyses, categorisation, network analyses or narrative analyses are possible techniques for qualitative research in case-oriented analyses. However, analyses can be used for any number of cases, and, therefore, quantitative research, for example, descriptive analyses, cluster analysis, single-subject analysis, multidimensional scaling, and profile analysis are relevant in these cases (Onwuegbuzie, Slate et al., 2009).

Kommentti [RE1]: Aurelija had a question about secondary data analyses. Actually, in the original article, secondary data analyses are considered suitable for qualitative analysis stage in every category.

The third category, process or experience-oriented analyses, focus on examining processes that are usually associated with variables or experiences that are usually associated with people. The difference between these and case- and variable-oriented analyses is that in process/experience-oriented analyses, the focus is on examining these variables or experiences in a specific context and over time. Both quantitative and qualitative analysis techniques are suitable for process/experience-oriented analyses. From quantitative analysis techniques, for example, descriptive analyses, dependent t-tests, time series analysis, panel data analysis, repeated ANOVA and MANOVA, and SEM suit well for this category. From qualitative analysis techniques, word count, classical content analysis, conversation analysis, discourse analysis, secondary data analysis, narrative analysis, and network analysis fit well for this category (Onwuegbuzie, Slate et al., 2009).

Onwuegbuzie, Johnson et al. (2009) and Onwuegbuzie, Slate et al. (2009) note that these three categorisations illustrate a continuum rather than a dichotomy. Therefore, they agree with other researchers that there are numerous ways to involve mixed methods analyses. Mixed methods analyses involve the use of both qualitative and quantitative analysis techniques either at the same time or sequentially in some phase of the whole research process starting from the data collection (Onwuegbuzie, Slate et al., 2009).

As both case-oriented analyses and variable-oriented analyses are suitable for both qualitative and quantitative analysis techniques and methods, mixed methods analyses include

the use of these analysis frameworks in some relevant combination. It is possible to combine these two analysis categories in four ways: first, using variable-oriented analyses both in qualitative and quantitative phases; second, using case-oriented analyses for both in qualitative and quantitative phases; third, using variable-oriented analyses for qualitative phase of the study and case-oriented analyses for the quantitative stage of the study, and finally fourth, using case-oriented analyses for the quantitative part of the study and variable-oriented analyses for the qualitative stage of the study (Onwuegbuzie, Slate et al., 2009).

As mentioned earlier, case-oriented analyses are more natural for qualitative analyses, and variable-oriented analyses are more natural for quantitative analyses, and it is important for the whole study how these categories are combined. The emphasis of the whole research is influenced by the analysis approach, if it is qualitative-dominant, quantitative-dominant or equal-status mixed research. In a qualitative-dominant study, the emphasis is on the qualitative research process, but at the same time, the quantitative approach accompanies and enriches the descriptions and interpretations. In quantitative-oriented mixed methods study, the quantitative viewpoint is dominant, but at the same time, the qualitative approach deepens and provides support for the resulting understanding (Johnson et al., 2007). In an equal-status mixed methods study, both approaches have even roles (Onwuegbuzie, Slate et al., 2009).

In the following section, examples are provided to demonstrate how these three categories, i.e. variable-oriented analyses, case-oriented analyses, and process/experience-oriented analyses, can be applied in a mixed methods study. These examples are mainly hypothetical and illustrate how the mixed methods approach could be used in studying organizational ethics and innovativeness.

Variable-oriented mixed method analysis

Variable-oriented analyses are interested in relationships and intercorrelations between certain phenomena that are understood as variables (Miles and Huberman, 1994). Usually, variable-oriented analyses are conceptual and theory-driven and they aim to make external statistical generalizations. Therefore, variable-oriented analyses are usually quantitative in nature. Even if making generalizations is natural in the quantitative research paradigm in particular, variable-oriented analyses can also be used to make internal statistical generalizations or analytical generalizations that are relevant to smaller samples. Therefore, variable-oriented

analyses are also relevant for qualitative research and different qualitative analysis techniques are suitable for this class of analysis. (Onwuegbuzie, Slate et al., 2009).

When a mixed-methods study has a variable-oriented focus in both qualitative and quantitative phases of the study, it is more likely that the study involves a quantitative-oriented mixed research approach (Onwuegbuzie, Slate et al., 2009). In variable-oriented analyses, the focus is on identifying relationships and studying certain variables (Onwuegbuzie, Johnson et al., 2009) and their intercorrelations (Miles and Huberman, 1994). From qualitative analysis techniques, for example, content analysis, secondary data analysis, and different types of network analyses suit well for variable-oriented analyses. From quantitative analyses, several different types of analyses are applicable: e.g. descriptive analyses, correlation analyses, variance and covariance analyses, and regression analyses fit well for identifying relationships and interrelations between different research phenomena (Onwuegbuzie, Johnson et al., 2009; Onwuegbuzie, Slate et al., 2009).

An example of this type of mixed variable-oriented analysis would be a study that focuses on the relationship between an organization's ethical culture and organizational innovativeness. The focus in this study would be on certain selected study variables or phenomena; for example, the organization's ethical culture and innovativeness, not in the context where these study items occur, nor in certain individuals and in their experiences or ideas of ethical culture and innovativeness. The objective for this type of quantitative-oriented mixed methods study applying variable-oriented analyses could be to study the relationship between organizational innovativeness and ethical organizational culture. The study could consist of at least two components representing both quantitative and qualitative data analysis approaches. In the following, an example of a three-phase study is given to illustrate how the relationship between ethical organizational culture and organizational innovativeness can be investigated. This example follows the idea of variable-oriented analysis in each phase of the research.

In the first phase, the relationship between the study items was tested in a pilot study. The study by Riivari et al. (2012) is an example of this kind of a pilot study which was conducted to validate the measures/scales used in the questionnaire in the research context and to explore whether there is a relationship between ethical organizational culture and organizational innovativeness. This quantitative empirical study (n=147) was conducted in public sector organizations. A regression analysis was conducted to examine if the research variables were

related and how they were related. The results of the study showed that ethical culture and organizational innovativeness were positively related in Finnish public sector organizations, and this confirmed that the topic and relationship should be studied further with a larger sample. As the relationship between ethical organizational culture and organizational innovativeness had not been studied extensively in previous literature, this study started to fill a gap in the field.

In the second phase of the investigation, a quantitative study was conducted with a more diverse sample focusing on the relationship between ethical organizational culture and organizational innovativeness (Riivari and Lämsä, 2014). The objective of this study was to confirm and further study the relationship between ethical organizational culture and organizational innovativeness and the multidimensional aspect of the research phenomena. The empirical data were collected from three public and private sector organizations (n=719). The results of this study confirmed the interrelation between the study variables. Ethical organizational culture was found to be specifically important in process and behavioural innovativeness, and from the specific dimensions of an ethical organizational culture, the congruency of management was an especially important determinant of organizational innovativeness.

Finally, in the last, qualitative phase of the investigation, the objective was to study how the ethical culture of an organization supports organizational innovativeness and to identify those ethical virtues of organizational culture that support organizational innovativeness. For this phase of the research, altogether 39 interviews were collected in three Finnish organizations, the same as in the second phase. In these interviews, the participants could share in detail their perceptions and ideas about ethical organizational culture and organizational innovativeness and could describe their experiences of them. Qualitative content analysis is used to analyse the data. Based on the preliminary results, certain ethical virtues of organizational culture, such as feasibility (e.g. sufficient resources such as time, money and tools to meet ethical expectations), supportability (encouraging members of the organization to identify and engage with official expectations and to behave ethically), discussability (providing opportunities to discuss ethical topics at the workplace), and congruency of supervisors and managers seem to have a special role for organizational innovativeness, especially for innovative processes and procedures, and innovative behaviour.

As Onwuegbuzie, Johnson et al. (2009) and Onwuegbuzie, Slate et al. (2009) suggest, there are several ways to apply qualitative analysis techniques in a variable-oriented analysis. As the research task in this third phase of the study is to deepen our knowledge of the interrelations between ethical organizational culture and organizational innovativeness it is useful to apply qualitative content analysis to classify, categorise and summarise the gathered interview data. This final and qualitative step of analysis provides further information about which ethical virtues support innovativeness in the organization and how, and therefore, it deepens our knowledge of the relationship between the research phenomena.

With this combination of quantitative and qualitative analysis techniques, it will be possible to grasp meta-conclusions about the interrelations between ethical organizational culture and organizational innovativeness so that combining quantitative and qualitative analyses brings clearer research results and triangulation to the study. This combination of different variable-oriented analysis techniques also brings both external statistical generalizations (quantitative phases of the study) and analytical generalizations into this mixed methods study, and, therefore, provides meta-conclusions for the study as a whole (Onwuegbuzie, Slate et al., 2009).

Case-oriented mixed method analysis

According to Miles and Huberman (1994), case-oriented analyses focus primarily on a selected case. Case-oriented studies analyse and paraphrase ideas, attitudes, opinions and/or experiences of one or several individuals. As case-oriented analyses focus on the case as a whole entity, they usually tend to frame and make analytical generalizations. This type of analysis is most suitable for a relatively small number of cases and for qualitative analyses. However, the number of cases does not have to be an issue and this type of analysis can be used for larger amounts of cases as well (Miles and Huberman, 1994). Even if case-oriented analyses are usually qualitative in nature, quantitative analysis techniques are also relevant (Onwuegbuzie, Slate et al., 2009).

When both qualitative and quantitative phases of mixed methods research have a case-oriented focus, it is more likely that the study represents a qualitative-oriented mixed methods approach (Onwuegbuzie, Slate et al., 2009). As Onwuegbuzie, Johnson et al. (2009) and Onwuegbuzie, Slate et al. (2009) suggest, there are several appropriate techniques of analysis for both qualitative and quantitative phases of the study. For example, content analysis, discourse

analysis, and narrative analysis are commonly used in the qualitative part of a case-oriented study. From quantitative techniques, descriptive analyses, cluster analyses, panel data analyses, and profile analyses are suitable for a case-oriented study.

If the researcher applies a case-oriented approach to studying organizational innovativeness and ethical culture and chooses to keep this approach in the combination of analyses, the objective of the study could be to analyse and interpret the meanings, experiences, attitudes or opinions of some person or a group of people; for example, how the supervisors of an organization identify patterns related to organizational innovativeness and ethical culture that are common to this specific group or case (see Onwuegbuzie, Johnson et al., 2009). The objective for this type of study could be to analyse the characteristics that supervisors relate to organizational innovativeness and ethical culture and investigate how these supervisors evaluate organizational innovativeness and ethical culture in their organization.

This mixed methods investigation could be conducted in two phases. First, the qualitative part of the study could consist of interviews and/or focus group discussions about organizational innovativeness and ethical organizational culture to gather information about the characteristics of these research phenomena. Depending on the chosen qualitative analysis method or technique, it would be possible to analyse the discourses of organizational innovativeness and ethical organizational culture that the supervisors produce in their speech, or, for example, apply a narrative analysis technique to analyse the qualitative data and highlight stories that illustrate organizational innovativeness and ethical culture of the organization. Using the qualitative approach in this case-oriented analysis it would be possible to make analytical generalizations about the supervisors' perceptions of organizational innovativeness and ethical organizational culture.

The second and final stage of this investigation would be quantitative in nature. In this phase, a questionnaire either developed on the basis of the results of the interviews in the first stage or applying existing validated measures for organizational innovativeness and ethical organizational culture would be used to gain more information about supervisors' evaluations of the study topics. As suggested by and Onwuegbuzie, Johnson et al. (2009) and Onwuegbuzie, Slate et al. (2009), for example, descriptive analyses (e.g. means and other central tendency measures, variability, position) and profile analysis are suitable techniques for the quantitative phase in a case-oriented study. In this study, descriptive analyses and profile analysis could be

used to identify differences among supervisors and possibly create groups based on the evaluations of organizational innovativeness and ethical culture to study what makes a difference in evaluating these topics. This quantitative part of the study would also offer the possibility to make external statistical generalizations about the studied topic.

Process/experience-oriented mixed method analysis

Variable-oriented and case-oriented analysis categories themselves do not mention or include the timely aspect of data collection. If a researcher collects data over a period of time (e.g. months, years), the datasets acquire a longitudinal aspect. The other way to include the timely aspect into the mixed methods research is to collect the data about experiences or processes that have developed over a period of time (e.g. childhood experiences). This aspect could be called long-term data collection. If a mixed methods study involves either a longitudinal or long-term aspect, this should also be noted in the analysis categorisation. Onwuegbuzie et al. (2009) call such mixed methods analyses process/experience-oriented analyses because both processes and experiences have a temporal aspect. They also note that 'processes' in the name of this category are related to variables and 'experiences' to people (i.e. cases). Analyses in this category focus on investigating either processes (variables) or experiences (cases) as they apply to one or several cases in a certain context over time.

In this category of mixed methods analysis, time is the differentiating factor. For example, in the qualitative study, the time-ordered analyses make the aspect of time, and the historical and chronological order of events or experiences visible, and adds this aspect to the analysis (Miles and Huberman, 1994). It is possible to create time-ordered displays for both single-case and cross-case analyses. In the single-case analysis the display of the timely aspect is simpler (e.g. event listings, critical incidents charts) than in multiple-case analysis (e.g. meta-matrices, scatterplots for several cases at the same time).

It would be of course possible to investigate the organizational innovativeness and ethical organizational culture from a process/experience-orientation. For example, the variable-oriented example **that was presented above** could be repeated several times, and, therefore, it would have either a longitudinal or long-term aspect. If the same questionnaire respondents could be tracked, the study could be called longitudinal and it would add a change aspect. This would give the researchers a chance to study how the evaluations of organizational innovativeness and ethical

Kommentti [RE2]: Was this text in read meant as a comment to me or is this just your own note?

organizational culture change over time and try to analyse the reasons for the changes (e.g. organizational factors, contextual factors etc.). This process-orientation would also contribute to the theory in this study, as it would bring a more continuous aspect to the investigation of the research phenomena. Therefore, the timely aspect would give the researchers the possibility to investigate causal relationships between the phenomena, which is not possible in a cross-sectional study.

All three approaches to mixed methods analysis have the same type of analytical process involving several steps, starting from defining the goal and formulating the research objectives, including data collection, data analysis and finally describing the findings and writing the research report (Onwuegbuzie, Slate et al., 2009). This article focussed on describing the decisions that a mixed methods researcher makes especially in the data analysis stage and how the data analysis changes when a different analytical orientation is selected.

Table 1. Main differences between the three approaches to mixed methods analysis

| <i>Type of analysis technique</i> | <i>Variable-oriented</i> | <i>Case-oriented</i> | <i>Process/Experience-oriented</i> |
|--|---|---|--|
| Focus of the study | Interrelations among study variables | Experiences, attitudes, opinions, perceptions of one or more individuals | Timely (longitudinal/long term) aspect to processes (variables) or experiences (cases) |
| Typical orientation to analysis | Quantitative: making statistical generalizations | Qualitative: making analytical generalizations | Qualitative/Quantitative |
| Available analysis techniques | QUAL: classical content analysis, word count, theme analysis QUANT: correlation analysis, t-test, regression | QUAL: discourse analysis, narrative analysis, categorisation QUANT: descriptive analysis | Different types of techniques dependent on the research orientation and focus of the study |

| | | | |
|----------------------|-----------------|-----------------|------------------------|
| | analysis | | |
| Timely aspect | Cross-sectional | Cross-sectional | Longitudinal/Long term |

The key differences among variable-oriented, case-oriented, and process/experience-oriented approaches to mixed methods analyses concentrate on how the central research topic or phenomenon is defined. Variable-oriented analyses are interested in analysing the interrelations among study variables/phenomena. Case-oriented analyses focus on analysing certain cases and, more specifically, certain experiences, attitudes, perceptions, opinions and so on, for one or more persons. Finally, process/experience-oriented analyses might include either a variable-oriented or case-oriented approach but in addition this approach has the timely, either longitudinal or long-term, aspect in the study (see Table 1).

Summary and conclusions

As in every research, in mixed methods research different research objectives and purposes require different research designs and analysis techniques (Knafl and Howard, 1984). Choosing either a case-oriented, variable-oriented or process/experience-oriented approach to analysing data depends on the specific research purpose and question. It should be also noted that even if only three imaginary examples of mixed methods analysis approaches were presented in this article, there are several ways to combine quantitative and qualitative techniques in the analysis. Furthermore, mixed methods “analyses involve the use of case-oriented analyses and variable-oriented analyses in some meaningful combination” (Onwuegbuzie, Slate et al. 2009, p. 18). In other words, it is possible to combine case- and variable-oriented analysis approaches in a particular mixed study, so that these approaches can complement each other and provide a more diverse view to the analysis.

This three-dimensional approach to mixed methods analysis can be used in designing each analysis phase of a mixed methods study. This three-dimensional model can also be useful for mono-method researchers, as it clearly presents different analysis techniques related to different research orientations.

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