The Danish Clearinghouse for Educational Research

*Concept note on the Quality of Research*
The Danish Clearinghouse for Educational Research, Department of Education, University of Aarhus, Copenhagen 2012.

The Danish Clearinghouse for Educational Research is a unit at the Department of Education, University of Aarhus, which opened in May 2006. The purpose of the Clearinghouse is to identify evidence-based research for good practice in the educational system.

This concept note is a statement showing how the Clearinghouse evaluates the quality of research, which is a part of research-mapping and syntheses. It is a dynamic paper, which will be revised continuously, as the employees and collaborators in the Clearinghouse become more experienced and the international research in this specific area develops.
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The quality of research is always evaluated by the Clearinghouse using peer-review. This implies that at least two independent parties, an employee and a member of a review group establish an agreement on the quality of the research. This assessment is carried out and based on the viewpoints which are accounted for in the following.

The question of quality in research involves several parameters, which refer to the philosophy of science regarding the criteria for sound knowledge. Research is done by considering the questions regarding the researches validity and reliability, and how the study relates to the question of generalizability. Before considering these questions, the research is evaluated with regards to how the researcher defines and delimitates his subject, and in the way the subject of study is operationalized. If there is consistency in the study - in other words coherence between the research terms, data and conclusions. Initially the considerations over the research quality must work with the question regarding the degree of relevance for researching the problem area in question and also taking into consideration whether the researcher has succeeded in defining and delimitating the research area in such a way that it appears plausible and is accessible to study.

The next step is the evaluation of whether the study is planned and implemented in an appropriate way, and if the study actually achieves its goals. After these considerations the research is evaluated looking at the questions of validity, reliability and generalization. These are furthermore evaluated regarding the terms, the researcher has set for the study. It should be emphasized, however, that the research at this point can be evaluated simply by looking at how the results are publicized, in other words what the researcher has stated. In cases where references are made to other statements from the study, and these are not accessible, the study will be evaluated simply by using what is accessible. This is also the case when the study is part of a larger research project, even though this larger project can have a different quality than the smaller accessible project.

Usually the quality of the research is evaluated separately from the question whether the research complies with ethical criteria regarding collection and selection of data (i.e. consideration of the individual’s rights) and final reporting. However coincidences can occur where the researches quality is challenged by the research ethics i.e. if consideration for the individual entails that there are facts the researcher cannot process or finally report on with sufficient transparency of his research. In cases like this, a part of the evaluation will question whether the researcher could have solved this problem in a better way, so that transparency was maintained without losing anonymity. Also regarding the question of research ethics, it should be taken into consideration if the study considers the consequences for the group that is part of the study. This takes on another character when the group being studied consists of children (or the involved lack legal capacity). The demands toward the researcher thus indicate that he is aware of the responsibility that lays in the selection of data (i.e. statements and observations).

The above mentioned conditions in relation to research quality can also be elaborated on as following:
Guiding questions

Delimitation of the research subject/problem area
This regards in part:

- Relevance – in other words whether and in which way the study places itself and contributes to the research area, and also whether the research overlaps other research.
- Whether the researcher has succeeded in defining the problem area – in other words delimiting it in relation to what lays beyond the research area, including what lays inside the research area.

Formulation of the research question/problem statement
This regards:

- Whether the researcher has succeeded in formulating a question that is evident and relevant in regards to the delimitation of the research area/object and specifies the goal of the research. A poor delimitation of the research area will become apparent in a poor research question.

Operationalization
This regards:

- The way the researcher choses to organize the study of the operationalization, that has been delimitated in the research question. This requires some considerations of whether the researcher by using the chosen methods to collect and analyze data will be capable of answering the research question.

Correlation
This regards:

- Whether there is correlation between the premises and conclusion of the research – or if the aim of the research is fulfilled – in other words if the research gives an answer to the underlying basis of the study.

Detailed questions

Validity
Generally seen this regards:

- Estimating to what degree the data collection can be deemed to answer the object of the study (for quantitative studies: if the measuring instrument is suitable).
- Transparency of the research; if it is clear which documents have been collected, who has been interviewed or which observations have been made. This also includes the researchers account for the choice and collection of empirical data, including a description of the context of where it has taken place.
- A reason for the choice of design – also in relation to the research area traditions.
The following also needs consideration:

- Can the analysis of data answer the object of the research?
- To which degree does the research document/give reason for the analysis and interpretation by making it transparent, i.e. by using citations? The citations must be representative of what the researcher is studying and it must be clear, that they are not chosen to verify a thesis, but are part of the object that is being studied.
- Possibly the participants can be involved as co-researchers.
- The analysis of data should be done based on and in collaboration with background literature, and also be done in discussion with the literature and to verify one’s own contention. It should therefore be apparent that the intention is to elaborate results and not merely to substantiate one’s own results.
- Are problems and limitations regarding the collection of empirical data, which constitute the analysis and conclusions, accounted for?
- Do the presented data supplement and complement each other, when considering the combination of data collection methods?
- Is the researcher biased – in other words does the researcher have a specific connection to the context where the empirical data has been collected? And how is this used? Does the researcher take this issue into consideration? It has to be completely clear, that the researcher is not merely trying to confirm an already (i.e. through practice) established thesis but is actually studying the field. Bias (both problematic/“suppressed” and acknowledged) can appear in both qualitative and quantitative research.

**Reliability**

**General**

- Throughout the study clearly defined concepts are used. I.e. in questionnaires concepts should be understandable and clearly defined for the respondents.
- The more convergent interpretations that are available, the more likely it is that they are representative put in other words that several people have convergent perceptions of a phenomenon i.e. that several researchers in the observation process have noted the same observations.
- Reliability can be strengthened by looking at the same study from several different perspectives (triangulation), i.e. by using several research methods. The hypothesis being, that the greater agreement there is between data from different sources about the same, the more reliable the data are. It is essential that the researcher has established correlation across results that have been found using different methods. Alternatively the study will appear as several detached studies.

**Quantitative research**

- Test-Retest reliability: If the study can be repeated, and obtain the same results/in other words how precise data the study methods can produce.
- Parallel Forms reliability: Whether a similar measurement tool will produce the same results.
• Inter-Rater reliability: Whether two persons obtain the same results i.e. if two persons answer a questionnaire or observe.

**Generalizability**

• Refers to the extent and degree the results of a study can be presumed universal – in other words always be valid.

• Generalizability *can* be the aim of the study, but is not necessarily so. Research which aim is not generalizability, is not less serious research, than research that strives after generalizability. However it is necessary that it is evident in the study, that the researcher has considered the question.

• Generalizability gives rise to put forward a form of legality, as is found in the legality of natural sciences i.e. the law of gravity. In this way it will also be possible to make premonitions, which is amongst the things that make generalizability desirable.

• It is difficult to maintain the criteria for generalizability in absolute sense in other scientific disciplines than the natural sciences. Therefor one works with different degrees and types of generalizability within the human- and social sciences:
  a) Generalizability in absolute sense – see above.
  b) Generalizability as representativity – in other words that the results are representative in relation to the population/group, that the study refers to.
  c) Generalizability as general knowledge – in other words that the circumstances are generally recognizable and it there for must be presumed, that what is found in the study will also be present in other similar circumstances.
  d) Context: It is here evaluated if the specific characteristic (culture) has bearing on, whether the results can be generalized across different contexts or can be maintained general with in other (specific) contexts. It is also evaluated if the researcher has considered the contexts specific features and whether it is possible to generalize across different contexts.

**Criteria for evaluation**

When the Danish Clearinghouse for Educational Research evaluates research, the point of departure is taken in a given review question. This question adds a dimension to the research and indicates that Clearinghouse products are meta-research. Through this process, research that does not address the review question is discarded. This does not mean that research that is not included is inadequate research; merely that it does not address the review question in question. The quality criteria for a systematic review in this way follow the above stated criteria for the quality of research, including the criteria of transparency.

Finally the included research is evaluated on a scale from low to high. This is done by considering how well the researcher manages to shed light on and report on the above mentioned criteria. Whether the question of generalizability is part of this evaluation is primarily conditioned by the degree to which this has been an aim for the researcher and also how the researcher relates this to his own results. In this way generalizability does not have to be the aim of the research, for a study to be rated high. On the other hand it can give a poor evaluation of the research if the researcher maintains his results are generalizable.
without giving sufficient documentation of this. But regardless: the question should be taken into consideration by the researcher.