

QUANTITATIVE RESEARCH

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Quantitative research is an empirical investigation aiming at explaining a particular phenomenon through collection of numerical data that can be analyzed through mathematical methods. As a result, there are a number of tools that can be used in data collection that can be used in collecting numerical data for quantitative projects. According to Salmond (2008), every tool has its own degree of reliability and validity. As a result, this essay aims at discussing why the researcher should be aware of the reliability and validity of the data collection tool that he/she is using in collecting data for a quantitative project.

As stated by Salmond (2008), the effectiveness of a particular construct in quantitative research depends heavily on the reliability and validity of the data collection tool used in measuring it. As a result, it is better for the researcher to be aware of the reliability and validity of the tool so that he/she can determine whether the construct is effective, and can be used or not. This can be explained by DeWaters, *et al* (2008) statement that different data collection tools for quantitative projects are not only reliable, but also valid by different groups of people in different fields. This implies that, while one group may consider the tool reliable and valid in their field, others might consider it unreliable and invalid in their fields based on the degree of reliability and validity of results obtained from the tool, resulting to different effectiveness of the construct measured. As a result, it is better for the researcher to be aware of the reliability and validity of the data collection tool to determine if the degree of reliability and validity of the results from the tool will make the construct effective in his/her field or no.

Based on the common saying that "garbage in, garbage out", it is important for the researcher to be aware of the reliability and validity of data collection tool being used. This is in line with Samond (2008) and Kerlinger (2003) arguments that using invalid and unreliable data collection tools will result to unreliable and invalid results. As a result, being aware of

reliability and validity of the data collection tool will enable the researcher to pre-determine the accuracy of the measure in representing the phenomenon that was supposed to be measured. Salmond (2008) gives an example that, when measuring pain, the researcher should be aware of the reliability and validity of the tool to measure exactly measure pain, not related phenomenon such as confusion and anxiety.

According to Burns and Grove (2007), being aware of reliability of the tool helps the researcher to determine the level of consistency or fluctuations in scores of a construct produced by the tool. This will dictate stability and repeatability that will determine if the scores can be replicated by other researchers or the same researcher over time in case similar conditions prevail. This is very important in determining the amount or extent of error presented by the data collection tool. This supports Dewaters, et al (2008) arguments that the researcher should select a data collection tool that minimize random errors in the scores, but maximize replication. As a result, being aware of the tools, reliability and validity enables the researcher to interpret results with great confidence as he/she is sure the same results will be replicated in the same condition, and what has been measured is exactly what was supposed to be measured (Salmond, 2008).

Last but not least, being aware of reliability and validity of a data collection tool in a quantitative research enables the researcher to determine if the tool will measure the exact facets in the construct consistently. This is important in ensuring that the researcher can compare the new data with already existing and accepted data. This is because the researcher will be aware that the tool as measured what was supposed to be measured reliability, and there are no random variations.

References

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