Intercoder Reliability Assessment of Supplemental Document Coding in a Quantitative Content Analysis Study of Police Crime in the United States

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Abstract

Dr. Stinson maintains an object-relational research database in OnBase, Bowling Green State University's enterprise-level content management system. An analysis of the intercoder reliability of the supplemental articles indexed in OnBase during the years 2012-2014 was conducted to determine and promote reliability among research assistants. This project is important because reliability is the hallmark of any research database, and because the institutional memory is short with annual turnover of student research assistants working in Stinson's research group. Training recommendations are made from the findings of this study for the purpose of improving the reliability of document coding in the project object database.

Introduction

The purpose of this research study was to analyze the supplemental articles scanned and indexed in OnBase between 2012-2014 and determine the percentage of intercoder agreement between two coders. Until this project, an intercoder reliability test had not been completed for this specific stage in the ongoing research. The project is impactful because the institutional memory is short, and recommendations for adequate training modules for research assistants will improve the overall quality of the police crime research. A major concern with any research group is ensuring the reliability of their data. Intercoder reliability tests analyze the level of agreement between two, or more, coders. For this project, 10% (326 cases) were examined by a second coder. A Coding sheet was used to document all the case numbers and officers' names mentioned in the articles, video files, and related material for each of the 326 cases. After the second coder completed the case, with their view of which cases and officers were mentioned, they then compared their results with the previous coder. Any problems found were brought to Stinson's attention and fixed, or were deemed not an issue. Each case has a certain number of documents. A case can have anywhere between 1-100+ documents. Each document has a various number of pages that can range from 1-50+ pages. Therefore, the project required the entirety of the 10 weeks to be completed, because large cases needed a significant amount of time and effort.

Methods

Design: The project is part of a larger study utilizing a quantitative content analysis design. This project assessed the intercoder reliability of indexed supplemental case files (primarily news articles) included in Stinson's police crime database from arrest cases during the years 2012-2014.

Measurement: The unit of analysis is arrest case. Each document indexed in OnBase is coded with the relevant case number(s). The unit of observation is "document." Within each case number there could be numerous electronic documents. Some of these documents are individual news articles, while in other instances a document may consist of numerous news articles and other records over a period of time. A document can consist of 1-50+ pages of news articles, court records, or other relevant information. The size of some of the documents required more time and effort than other cases with few documents that contained only a few pages.

Sampling: A random sample of 10% of all arrest cases in the database from the years 2012-2014 (326 cases) was generated using the random sample generator in SPSS Statistics.

Reliability: A project coding sheet was developed to record reliability checks for each case (the unit of analysis) and each document (the unit of observation).
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Results

Seven Types of errors were documented throughout the 326 cases studied. The level of impact these errors have on the overall research project do vary, because as some are organizational issues, other errors impact the project's primary variables.

From highest impact to lowest impact on the Police Crime database:
1. A new case discovered that was in no relation to the focal cases.
2. A New arrest discovered in relation to the focal cases.
3. Individuals not meeting database police officer criteria.
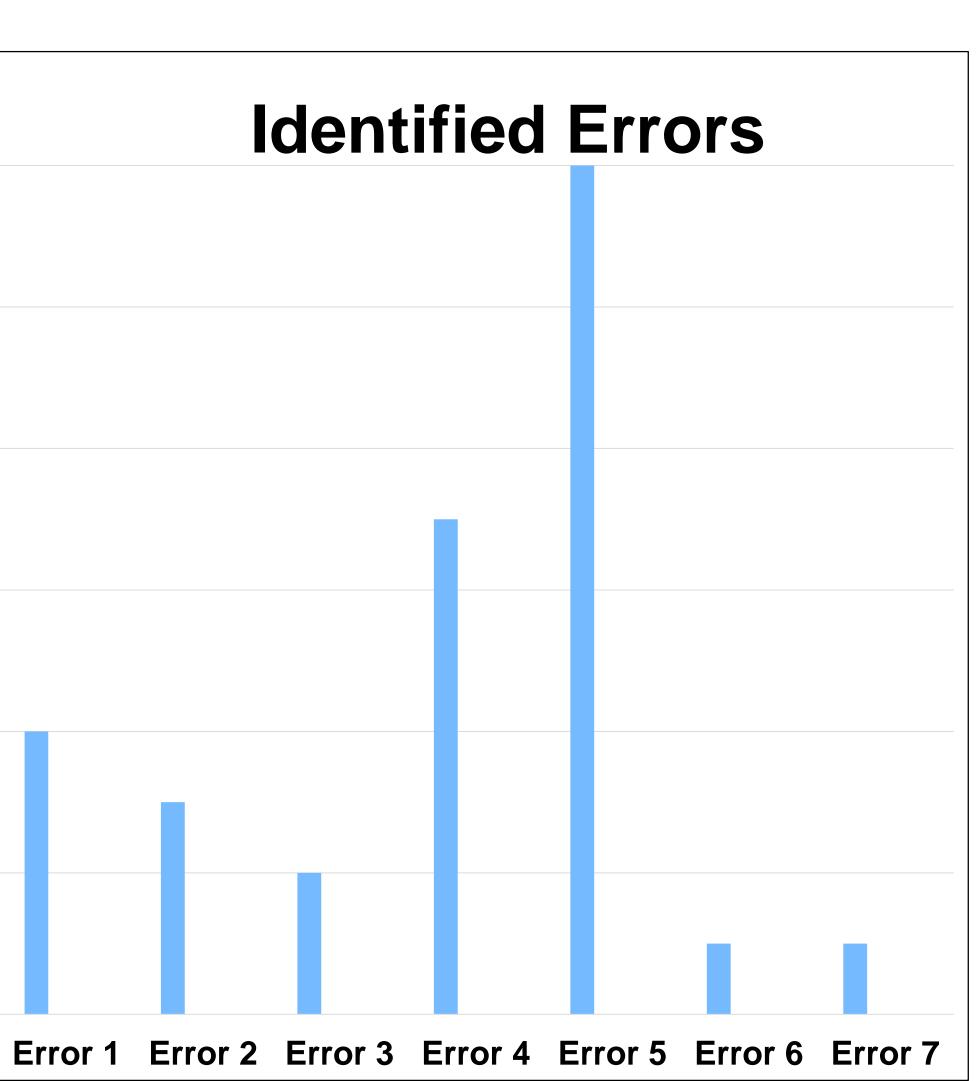4. Documents found solely pertaining to another case.
5. The case numbers of the article and the case numbers in the database do not correspond with one another.
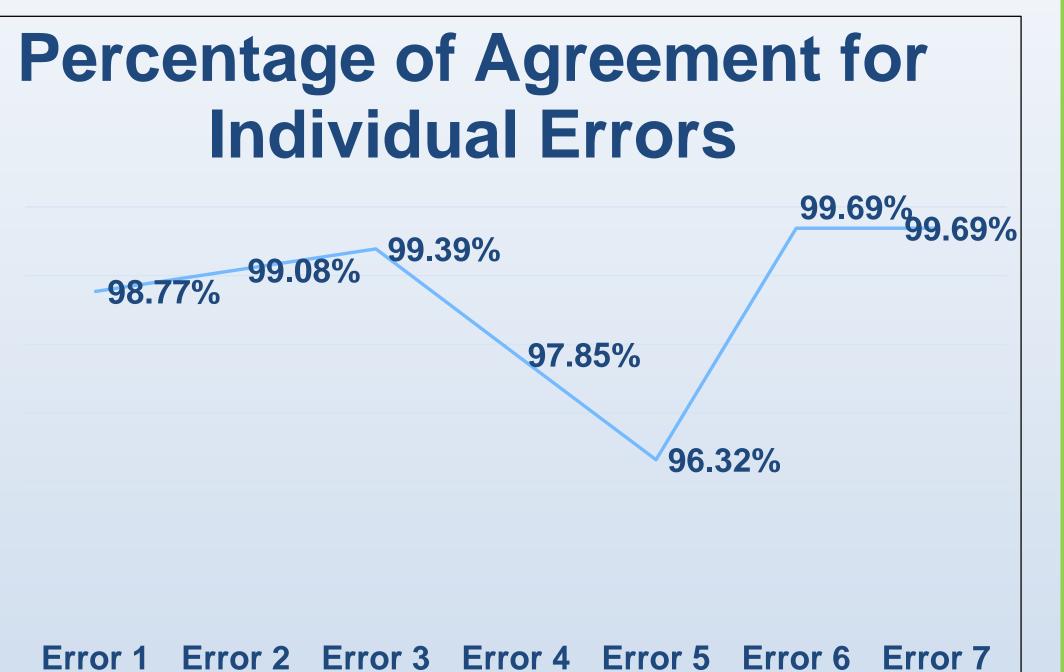6. The database is missing the officer's middle name.
7. Incorrect arrest date recorded.

Identified Errors

Errors 1, 2, and 3 were ranked as having the highest impact, because they impact the number of offenders included in the database. The police crime research is reliable when all police officers, meeting the database's criteria, are recorded. Errors 4, 5, 6, and 7 are considered to have lower impacts on the overall research, because they are typically organizational errors that do not impact overall calculations.

Percentage of Agreement for Individual Errors

The test of intercoder reliability that was used in this study was the simple percentage of agreement across the variables of interest between two coders. The overall percentage of intercoder agreement between two coders is 90.8%. There were 30 cited errors out of the 326 cases studied. Each individual error yielded higher than 95% agreement between two coders.

Discussion

The 2012-2014 cases resulted in an acceptable percentage of agreement between coders, as 90.8% is above the recommended 80% agreement. Although the study concluded that the intercoder reliability within the police crime research is at a highly acceptable percentage, the intercoder assessment successfully identified errors to address for future training modules. This research has practical implications because the results will be used for training student research assistants in Dr. Stinson's research group.

Conclusion

A major concern with new research assistants is them not understanding the "big picture" of the research project. Problems like not coding the article for all officers and cases mentioned might occur because the research assistant is not examining the articles as closely as they should be. Research assistants must see the importance in ensuring that all information, all cases, and all officers are accounted for. Therefore, the training modules need to consist of an explanation of the impact the research has on real policies or procedures, the importance of quality data, and how the supplemental articles play an important role in the overall project.

Training modules must stress the importance of closely reading all of the articles. From start to finish, the reader needs to be paying attention to identify all cases, new and old, mentioned throughout the article. We recommend the development of digital practice exercises, possibly through Canvas, that will lead the new research assistant through various steps in the research. Homework style modules will assist the new researcher in learning the steps, while giving feedback to those in charge of training. The feedback will provide results including areas of concern that the new research assistant struggles with. After completing the training modules on their own in order to gauge a new researcher's ability to follow directions, every new research assistant should be given one-on-one training. This one-on-one training should be completed by anyone in the research group that has shown competence and extensive knowledge of OnBase.

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