

QUANTITATIVE ANALYSIS PAPER

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Research Methods
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I disagree that you cannot tell good research from the less good. You did fine here. You may not be a statistician, but that was never the intent of the course. Don't be so hard on yourself.

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After a grueling search for literature with statistics that I could comprehend, I decided to compare Kathleen A. Hansen's article, "The Effect of Presearch Experience on the Success of Naive (End User) Searches," (JASIS 37(5):315-318, 1986), with Senter's, Reynolds' and Gruenenfelder's article, "The Presidency and the Media:Who Controls the News?" (The Sociological Quarterly 27(1:91-105,1986). Both articles used simple statistical procedures to test their hypotheses.

In Hansen's article, 14 subjects (naive end-users),"were assigned two different experimental conditions and given conceptual instruction in online searching." Seven of the subjects were assigned to search an electronic database and then to use manual indexes, while the other seven were assigned to do the opposite. Hansen set out to test two hypotheses:

- 1)Search order (a manual search preceding an electronic search versus an electronic search preceding a manual search) will affect the precision of the naive users electronic search. A manual/electronic search will be more precise than an electronic/manual search.
- 2)Search order will affect the total number of relevant items located by the naive searcher. An electronic/manual search will locate more relevant items than a manual/electronic search.

Hansen's method of analysis involved both quantitative and qualitative tests. On the quantitative end, "electronic searchers were evaluated by the standard measure of precision, that is, the number of searcher determined relevant hits divided by the total number of items found. Mean precision for the electronic/manual^{Searches} were compared to mean precision for the manual/electronic searches using a t-test, as were mean total searcher-determined relevant items

located by subjects in each search order condition." The qualitative analysis involved the use of unobtrusive observation and evaluation of strategies by the experimenter.

Hansen found that neither hypothesis was supported by standard methods of statistical significance. She attributes this to sample size, and adds that, even though the t-test did not support her hypotheses, the direction of effect did support each one.

Upon analyzing Hansen's article, it became apparent to me that she had probably never taken a research methods course in school, for had she done so, she would have known that if one is to use a test statistic such as the t-test, that there are certain underlying assumptions that have to be met before the test can be used effectively. These include: a random sample, an underlying normal distribution, and a sample large enough to invoke the Central Limit Theorem. Obviously, Hansen's sample was too small, a point she readily acknowledged.

Because the variance was not given for the different sets of data, I was unable to replicate the t-test. However, overall, the experiment seemed sound, except for the small sample size and the qualitative part of the analysis, which was not explained in enough detail. It also seemed that Hansen glossed over the literature review too quickly, leaving me to wonder what had actually been done before on the topic. I came away from this article thinking that the author had not done her homework, and that perhaps she was one of the many victims of the publish or perish syndrome.

~~On the other hand,~~ I found the article by Senter, Reynolds and Gruenenfelder to be much more interesting. Their paper concerned the relationship between the press and the presidency, and whether

or not the latter has any control over the former. Three competing perspectives termed media-subordinate, moderated effects, and media autonomous, were used to explain the press's response to criticism from the presidency. The authors then used these perspectives to come up with a set of hypotheses regarding this relationship. They then tested their predictions with data from 475 American newspapers.

Using a 3x3 chi-square test, the authors were able to show that the high rate of change in newspaper policy found in the data supported the media-subordinate and moderated effects perspectives, but not the media autonomous perspective. (The chi-square tests were significant for the first two perspectives, but not the third).

This study was a bit more complex than the first one, although it only used the chi-square statistic. What made it more complex was the authors' use of indices measuring 'professionalism' and 'conservatism.' My main problem with the use of these indices was that I didn't think ~~that~~ they actually measured what they were supposed to, especially the 'professionalism' index. In terms of replicating the statistics, I was once again unable to do so because I didn't know how to do a 3x3 chi-square test. It seemed, however, that unlike Hansen's article, the present one did provide *If does* all the necessary information.

In conclusion, I liked the article on the press and the presidency more than the one on end-user searching, primarily because I knew that Hansen really goofed when she decided to use a sample of only fourteen people. At least the study on the press had a good sample size. I wish I could have explained the articles better and that I could have replicated the statistics, but like I said, I was ✓

not able to do so. I have found that statistics is much more involved than what we covered in class. It would have been nice to have had the time to go over more of this material, and even to go over some of these studies. As it stands now, I still don't think I can really tell whether a piece of research is good research. I think that in order to do so, one needs to have a better grasp the types of statistics used.