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Week 3

Overall, the readings this week presented a nice survey of topics related to methods of evaluation and analysis for relational experiments. This helps to present various techniques to be used when conducting an experiment, what methods to use in the analysis of the results and comparison to previous work. They also help to give new perspective to how the human-computer relationship should be viewed.

Kenny. The Analysis of Data from Two-Person Relationships

Synopsis

This work provided an easy to read and quite through presentation of the faults of using more traditional statistical methods for use in dyadic studies. It also presents a nice systematic presentation of recommended methods to use in dyadic studies and how to asses what method to use based on the features of the study. In terms of the class, this paper conjures questions about how the computer-human relationship should be viewed, how it should be assessed, and how it should be related to previous studies.

Reading Highlights

I think that one of the most valuable aspects of this reading was the systematic breakdown of statistical methods to use and how to setup an experiment. The differentiation between comparative and time series data collection gives a nice perspective of how to model an experiment depending on the population size. Perhaps combining the two methods can increase the data set size which may be helpful in analysis. However, as presented in the paper, each data subset would utilize different techniques.

The presentation of the four difficulties of dyadic research (two-sided nature relationships, chicken & egg influence problem, indistinguishable members, level of analysis) provided a nice construct to consider the human-computer interaction. I found the level of analysis particularly enlightening and the discussion of treating a person as a unit versus the dyad as a unit and intra-class correlation to make me more deeply consider the relationship between human and computer. One question that was raised here was the difference between non-independent and dependent? Is there a difference? Other than that, just the discussion of the statistical toolkit and what problem attributes fit what tool was helpful.

Two pertinent questions came to mind in terms of my project and the class from my reading of this paper. First, do the statistical method problems that are presented in the Two-Person Relationship Analysis transfer to the Human-Computer Relationship Analysis? The reason I ask this question is that in the paper Kenny states that designs which all persons interact with the same partner, so called confederate studies, are handled by standard statistical methods. It seems that the relational computer application

would be the "same partner" across all persons. This seems contradictory to his presentation of the four difficulties of dyadic research which seem to apply to this case and which he says causes difficulties for the traditional methods.

The second question stems from the first in a way. It relates to the question of independent variables, both within and between the human-computer dyads, and what their nature is in the human-computer relationship. Specifically, what are the within and between dyadic independent variables? Also, more interestingly, for a computer-human relationship are these independencies constant over time? Do they have to be? Should they be?

Harvey & Tucker. Self-Report Methods in Studying Personal Relationships

Synopsis

Where the Kenny work was focused on the analysis of relational data, this work is focused on the collection of relational data - namely the popular method of Self-Report. I found this work to be the most interesting of the four papers this week. It raises a lot of questions about how data about the user's relationship with the computer should be collected and how a machine is equipped to facilitate this collection.

Reading Highlights

Two key points are that researchers use self-report to "understand what other's imputation of meaning for what occurs in their lives." In turn, people use experience from their personal relationships to help inform personal meaning. Thus, since self - report reveals personal meaning of a situation and personal meaning is influenced by personal relationships, self -report can indirectly inform us about the affect of personal relationships on both short term and long term personal understanding.

Since the presentation of components of relational research was not as interesting as the self-report methodology I will give a synopsis of the later and skip a discussion of the former. Four methods of self report are presented:

- Questionnaires
  - Provide macro process view
  - Usually a supplementary assessment due to ambiguity and complexity
- Interviews
  - Expensive
  - Involve 3rd party who becomes a variable
  - More adaptive assessment
  - Retrospective
- Behavioral Records
  - Provides specific, molecular evidence about specific event or behavior.
  - Misses big picture in some respects

- o Can bridge gap between questionnaire and observation
- o Filled out daily so memory and distortion less of an issue
- Diaries
  - o Provides detailed account
  - o Just-in-Time assessment questioning
  - o Mass data to filter to find key aspects
  - o Can have a self discovery effect which may or may not be beneficial
  - o Different media for collection
  - o Response bias can be an issue to give a skewed perspective

The discussion of self-report validity with respect to the subject presents an opportunity for other data collection methods to offset the self-report issues such as bias and reactionary responses. A big issue with the researcher is how to aggregate or understand the summation of the results. The Kenny paper helps in a way with this issue. Finnaly, and perhaps most interestingly, the relationship between the participant and the researcher can be a precipice, especially when studying relationships. A certain rapport must be maintained, but enough distance so that the researcher does not become a heavily influencing variable.

This paper makes it clear that self-report is a viable evaluation method for my project due to the low cost and the ability of the application to facilitate the more reliable methods of self-report. In terms of my project I think questionnaires, behavioral self-report, and a diary would be appropriate. Shortly, questionnaires could be implemented in the obvious likert scale manner. Certain events or a number of accumulated target event or information could automatically trigger a questionnaire. The behavioral self-report form could be presented in a just-in-time manner as a result of some features and a classification, such as physiological responses and the classification of an affective state. Finally, a diary, both textual and verbal input enabled, could be always available for subject use. Also, to overcome the tendency of not using the diary, the contextual factors mentioned in behavioral self-report could be used to remind the user to log a diary entry.

Horvath & Greenberg. Development and Validation of the Working Alliance Inventory

Synopsis

This work is somewhat of a deeper dive into the self-report topic. While the methodology of the development and validation of the self report method was somewhat informative, I found that the discussion of the Working Alliance Inventory (WAI) and the implications of the change in the relational dynamics to be more interesting.

Reading Highlights

Of particular interest was the search for the generic, orthogonal variables that account for a large proportion of the outcome variance common to different forms of a specific intervention. This is valuable in that it induces thought about these variables in other

domains besides counseling. Also, it raises the question, even though not addressed more than briefly, as to whether the generic variables change depending on what stage a relationship is in. That is, each stage uses a subset of the overall number of generic variables. This also helps to understand why a person moves from one stage of a relationship to the next. Also a question of what is pivotal variable(s) contribute to the failure of passing a certain stage is raised. If these variables could be discovered and the model of the specific relationship defined, then a measure of each variable could be created and interventions to promote positive progression through a relational stage could be developed.

Another key point in the development of the assessment method discussed is making the evaluation invariant to different theoretical backgrounds. This could translate into finding the variables that need to be invariant in a certain intervention.

For my project an interesting question is if one relational model is sufficient to model the behavioral progression the intervention is meant to address or do multiple relational models need to be fused, each being used at a different stage of the intervention?

Wheeless & Grotz. The Measurement of Trust and Its Relationship to Self-Disclosure

Synopsis

This work, as the others, presented a nice example of how to statistically test and verify hypothesis. The context of self-disclosure and trust was interesting and the results surprising.

Reading Highlights

Paper presented a nice definition of trust and self-disclosure. It also presented a fine sub-categorization of self-disclosure that is dimensions that can be varied in testing. Also, a nice presentation of the axiomatic ideas that are held about trust and self-disclosure was presented. The most interesting part of the paper was the results. First, the importance of identifying the dimensions of a more board measure is shown. The interesting result is that trust does not guarantee disclosure. That is, event if a person is trusted, it does not mean one will disclose information to that person. Trust is however related to the depth and intent to disclose. This may bode badly for the human-computer interaction since even though a machine is trusted, a humans perspective of the machine as a machine may not instill high enough levels of trust for non-elicited disclosure or disclosure deep enough to be meaningful. On the other hand, perhaps this machine view will help the user perceive disclosure to the machine as a tool for self-report and the user will disclose to the machine as though it was a diary. This latter view however may hinder the goal of creating a human-human like relationship with the machine.