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Self Report Diaries in the Study of Social Interaction

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In the 1970's social psychology was described as in "crisis." The sources of this dissatisfaction and/or concern were numerous, too numerous to describe here. It suffices to note that one was a concern for the validity and utility of the predominant method in use at the time, the controlled laboratory experiment. This methodological emphasis is reflected in the term "experimental social psychology," a term used then (and now) to describe the field, the scientists, the classes, the textbooks, etc. Somehow, the crisis of the 70's ended (with the infrastructure of the discipline relatively intact) and business has continued as usual.

An important product of this period of self-examination was a heightened interest in the use of nonexperimental, naturalistic methods. One such method (or more accurately, group of methods) is the self-report social interaction diary, a good example of which is the Rochester Interaction Record, initially developed by Ladd Wheeler and me (Wheeler & Nezlek, 1977). The method (including variants in use by different researchers) requests participants to describe their social interactions using a standardized, quantitative format. Diary keepers select events to describe, usually based on the criterion of length of interaction, and evaluate the social events using the various scales of the diary. (The exact instructions provided to subjects in RIR studies is contained in Nezlek & Wheeler [1984].) Although the approach is heavily phenomenological, there is an attempt to establish a context that is constant among participants. This method borrows from both traditional

social psychological research (use of a common metric) and from the ethnomethodological tradition that has received so much attention in anthropology and sociology. Other blends of these traditions are possible, but at the least, this one seems to be useful. See Nezlek, Wheeler, & Reis (1983) for a summary of this work.

The version of the RIR used in much of the published research is shown in Figure 1. For a specified period of time, diary keepers complete such a form for every interaction lasting ten minutes or longer. They are given a brief introduction to the scales and are told to represent uniquely each individual with whom they interact. Post study interviews suggest that participants have little or no difficulty maintaining an accurate record.

Date_____ Time_____ am___ Length _____hrs. _____mins.
                             pm____

Initials _____ _____ _____   If more than 3 others:
Sex   _____ _____ _____   # of females   _____
                                     # of males   _____

Intimacy: superficial 1 2 3 4 5 6 7 meaningful
I disclosed: very little 1 2 3 4 5 6 7 a great deal
Other disclosed: very little 1 2 3 4 5 6 7 a great deal
Quality: unpleasant 1 2 3 4 5 6 7 a great deal
Satisfaction: less than expected 1 2 3 4 5 6 7 more
Initiation: I initiated 1 2 3 4 5 6 7 other initiated
Influence: I influenced more 1 2 3 4 5 6 7 other more

Nature: Work Task Pastime Conversation Date

Figure 1

One major disadvantage of using a diary such as the RIR is the complexity of the data analysis. Discussions at conventions often reveal that researchers have gathered diary data but have not analyzed them. Sometimes analyses are started and then stopped as the task becomes too confusing and time consuming. Some researchers unfamiliar with diary methods initially approach diary data

as they would data generated by a 2x3 factorial or opinion survey. One or two quick runs through SPSS, BMDP, SAS, etc. quickly demonstrate, however, that these packages are not well suited to analyze diary data in its raw form. This difficulty is caused by an incompatibility between the data generated by the diary and the level of analysis desired by researchers.

This article will discuss some of these problems in light of the work done on the RIR. Part of this discussion will be a brief overview of the analytic strategy that has been used to analyze data generated by the RIR, including a brief discussion of RIRAP (Nezlek & Wheeler, 1984), a set of programs that analyzes interaction diary data. Following this will be a presentation of some of the present limitations of existing diary research and some suggestions for future work.

Most researchers using diary methods are interested in answering two types of questions: What similarities and differences exist among individuals or groups and how are these differences in social activity related to other differences? Answering such questions requires an individual level of analysis, i.e. calculation of measures that represent an individual's social life during the period the diary was maintained. Unfortunately, the considerable variability among people in their patterns of social interaction, in terms of both the general activity and relative distribution among different types of interactions, causes standard statistical packages (BMDP, SAS, SPSS, etc.) to be rather cumbersome as means to calculate summary indices. Most packages require a fixed number of records (lines, cards, etc.) for each subject or case. Since diary keepers will necessarily produce very different numbers of records, raw interaction data from many people cannot be analyzed using the packages. One could analyze each subject's data separately (treating an individual's diary as a file and each entry as a case); however, this is a time consuming and inefficient strategy. Although packages have become more sophisticated and

flexible in the data transformations they allow, by and large the designers of packages assume that elaborate or complex transformations of the data are done before the data are analyzed by the package.

The incompatibility between interaction diary data and the requirements of the statistical packages (and tests) used by most researchers can be eliminated by pre-analyzing raw diary data, i.e. by calculating summary indices describing subjects' social lives and then using these indices as the data upon which statistical tests are performed. Individually calculated indices allow the comparison of different groups of people (e.g. males and females [Wheeler & Nezlek, 1977]) and also allow the determination of relationships between social interaction measures and other individual differences (e.g. social activity and physical attractiveness [Reis, Nezlek & Wheeler, 1980]). Within this framework social interaction measures are individual differences, to be treated (conceptually) just as any other individual difference measure. Just as in analyses of other individual difference measures, individuals contribute equally, regardless of their level of social activity. This analytic strategy is traditional, and is compatible with the requirement of most statistical packages that all subjects have the same number of records. Within this framework, all participants are described with the same variables (summary indices) that are merged with other data.

The foregoing strategy guided the development of the programs used to analyze the RIR, the Rochester Interaction Record Analysis Package (Nezlek & Wheeler, 1984). RIRAP consists of four programs that calculate the summary indices that have been the basis for all the published work using the RIR. One program checks the data for errors, another provides rank ordered lists (separately for same and opposite sex) of those with whom the subject interacted, and the third computes the various summary measures that are later used in statistical analyses. A fourth program provides variable names, missing values, and an input format for the data generated by the other three.

The aggregation strategy contained in the program represents work done on the RIR over a ten year span.

Interactions are classified in three ways. One set of measures describes the overall pattern of interaction and includes all interactions. A second set describes same, opposite, and mixed sex interactions separately. The third set provides separate measures for each of the subject's first three best friends and for these friends as a group, separately for same and opposite sex friends. For each of these classifications of interactions, RIRAP summarizes both quantitative and qualitative aspects of interaction. Quantitative indices describe how much or how often a certain type of interaction occurred. Two sets of quantitative indices are calculated. One set represents absolute levels of activity adjusted per day, e.g. number of same sex interactions per day. The second set represents levels as a proportion of interactions, e.g. percent of all interactions that are same sex. The first set of measures controls for the fact that diary keepers will not always keep the diary for the same number of days. The second set of measures controls for the fact that absolute levels of interaction vary considerably among individuals. This second control is particularly important, e.g. an individual may report seeing her best friend 10 times; however this absolute level takes on different meanings if it represents 10 of 20 or 10 of 100 total interactions.

Qualitative indices summarize participants' ratings of interactions using the scales provided on the diary form, e.g. average intimacy in same sex interaction. Separate indices are calculated for each rating within each of the classification systems described above. Missing values are not included. These measures (and other incidental variables) are fully described in Nezlek and Wheeler (1984). RIRAP is convenient, economical, and accurate. A recent analysis of a data set took approximately four hours to analyze and put onto tape. This can occur when the data are relatively error free and in the appropriate format.

The aggregation strategy embodied by RIRAP assumes that the sexual composition of an event (same, opposite, or mixed) and the degree of acquaintance among interactants are important

dimensions for describing social interaction. This strategy is based on research on sex differences, self-disclosure, friendship formation, and our experience in analyzing diary data. Earlier versions of RIRAP classified interactions as a function of size, a distinction that was not productive. The present version calculates indices for the three most popular interactants. Earlier versions included the five most popular, however the addition of numbers 4 and 5 was not meaningful. The structure of this strategy is not flexible within the programs, although some options are available. Users can change the scales employed, for example. The form contained in Figure 2 was recently used by Linda Sullivan (1988) in a study of social support.

Date_____ Time_____ am____ Length _____hrs. _____mins.

pm____

Initials	____ ____ ____	If more than 3 others:
Sex	____ ____ ____	# of females____
		# of males_____

Support needed/desired: none 1 2 3 4 5 6 7 a lot
Support received: none 1 2 3 4 5 6 7 a lot
Intimacy: not at all 1 2 3 4 5 6 7 very
Quality: unpleasant 1 2 3 4 5 6 7 pleasant
Support provided: none 1 2 3 4 5 6 7 a lot
Difficulty: very easy 1 2 3 4 5 6 7 very difficult
Support other needed/desired: none 1 2 3 4 5 6 7 a lot

Nature: Work/study Socializing Relaxing Life Necessities Other

Figure 2

There is space for seven one-digit scales, but only one-digit scales can be used. Users can also select interactions with specific interactants for analysis through manipulation of an interim file.

Changes in the form of the record are possible but require changes in the actual programs. For example, I have used a form that allowed subjects to record up to four different interactants (the RIR permits three) and that requested subjects to provide specific ratings about individual interactants (see Figure 3).

The general logic of the program used to analyze these data is identical to those used in RIRAP, but the programs themselves are quite different. Unless researchers want to modify RIRAP or write their own programs, they should gather data in a form compatible with the existing RIRAP format.

Scale:

	1	2	3	4	5	6	7	8	9
	not at all		slightly	somewhat		quite			very

A.M.
Date _____   Time _____   P.M. Length _____

Others'

Initials: _____ _____ _____ _____
Your
Reactions   Sex: F / M   F / M   F / M   F / M

_____ Enjoyable   _____ _____ _____ _____

_____ Influential   _____ _____ _____ _____

_____ Close   _____ _____ _____ _____

_____ Responsive   _____ _____ _____ _____

_____ Confident   _____ _____ _____ _____

_____ Fragrance   _____ _____ _____ _____

Group: Female Male   Mixed   No._____

Activity _____

Figure 3

The RIRAP strategy has been useful, but it is not the only aggregation strategy possible. There are no hard and fast rules to guide the classification of interactions and the accompanying aggregation strategy; other researchers with other interests could generate equally interesting and informative schemes. There are many ways to classify interactions. They can be classified as a function of where they took place, e.g. indoors *vs* outdoors, public *vs* private spaces, or familiar *vs* unfamiliar territory.

Indeed, earlier versions of the RIR asked people to note if an interaction occurred on "my turf" or "their turf," but was not a focus of research and the distinction was dropped. Interactions can be viewed as being role dependent or role independent; interacting with another because one wants to or because one is required to do so by a role. In general, there has been little attention paid to environmental influences in studying social interaction. Most of the emphasis has been on finding relationships between social interaction and other individual differences such as loneliness, physical attractiveness, etc. Such an emphasis reflects a bias that includes only half of the person-in-the-environment model that is considered to be a dominant theme in contemporary psychology.

Present diary research on social interaction treats descriptions of people's social lives almost as another personality measure, albeit a rich and multi-dimensional one. Aggregating across time ignores differences within individuals to an extent. Common sense and experience (and an examination of any subject's interaction diary) indicate that there is considerable variability within people's interaction patterns. Some days are more active than others. Activities are sometimes lumped together, at other times they are spread out. There will be days of regular interactions, followed by days of irregularity. The complex conceptual schemes and frameworks used to describe people are not reflected in how their social behaviors are studied. Are there such things as "morning" and "night" people, and, if so, how are they different? Does social interaction follow some sort of hydraulic model: if one has a lot does one need a rest, and if one does not have much does one seek out interaction?

The primary obstacles to increasing the variety of questions addressed by diary research is the amount of work required to analyze the data. Different aggregation strategies require different computer programs, not simply different applications of existing packages. Interaction researchers need to define and operationalize their interests in detail and then prepare programs that embody their ideas. The programs do not have to use sophisticated techniques, and the logic is simple.

Interactions are read one at a time and classified according to the desired scheme. Running tallies of the desired measures are maintained. When the last record of an individual is read, the running tallies are converted into indices, which are sent to a separate file, and the process begins anew. The RIRAP programs are sufficiently well documented (including comments in the programs themselves) to provide a moderately experienced programmer with an outline of the process. Appropriate programs can be written for personal as well mainframe computers. It is important, however, for researchers to recognize their limitations. Knowing how to use SPSS or WordStar does not make one a programmer. It may be appropriate for many researchers to write out what they want the program to do in English, add the desired formulas, and have a programmer take it from there. Most of the difficulty is in the first step. The programmer should have a clear idea of what to do from the description. There should be some give-and-take between researcher and programmer, but the process should not be back-breaking.

In addition to considering the inferences, aggregation strategies, implicit in diary research, important questions about the validity of the work exist. Most of the published social psychological diary studies have studied collegiate populations. Initially, our rationale for this was that students would have fewer constraints on their behaviors than other populations. In turn, this relative freedom would permit both a more accurate assessment of people's "natural" patterns of interaction and a clearer determination of the relationships between social behavior and other individual differences. Although students may have fewer constraints on their behavior than many others, it is not clear that this lack is more "natural." In fact, it can be argued that students are unusually non-representative in terms of their social behaviors and that the results of diary studies using students should not be generalized to other populations. This argument can be settled empirically, by performing diary studies with non-

students. Not only would such studies address the generalizability issue, they could also provide valuable information for other disciplines. For example, the diary method seems to be an excellent way to study family interaction or social networks in organizations. By expanding the variety of populations for which we have descriptions of social interaction patterns we may be able to discover patterns and relationships that are cross-situational ("natural") from those that are more situationally determined, and at the same time expand the knowledge base in other disciplines and provide better integration of social psychology and other disciplines. An excellent example of such an application is a recent study that compared Chinese and American students (Wheeler, Reis & Bond, 1989). Although both samples were students, the cultural differences are quite interesting.

Even if such an expansion occurs, important questions about generalizability will remain. Due to its nature, maintaining a social interaction diary requires considerable cooperation. Participants cannot be coerced (although they can be cajoled). Some decline when asked, and there are considerable differences among participants in their interest and motivation in maintaining the diary and in their reactions to the experience. None of the analyses of studies using the RIR have found relationships between these reactions and the patterns revealed through the diaries. However, this is not to say that some unmeasured relationships did not exist, or that relationships might not exist in other populations or when other instruments are used. In most of the RIR studies, women have found participation somewhat more satisfying than men, and there are other data indicating that women enjoy keeping diaries more than men and are more likely to do so (Nezlek & Sullivan, 1986). A diary study I recently conducted at William & Mary with Glenn Shean will shed some light on this issue. As part of the mass testing of an introductory psychology class, we asked people if they would be willing to participate in an interaction diary study for $25. Approximately 40% said they would. We intend to compare volunteers with non-volunteers on a variety of other measures that were part of the mass testing. Although these other measures were

not administered for this purpose, we expect the results to be informative. More attention needs to be paid to this issue to determine the generalizability of the results of diary studies that require the cooperation and motivation of participants.

In addition to understanding the influences of the population studied on the result of diary studies, the influences of the specific method used needs to be examined. A demonstration of the convergent validity of different diary methods should ease concerns about the validity of these methods. One such study has been conducted. Sullivan (1986) asked participants to describe what they did during the day using a six category system to describe each 20 minute interval of the day. This included both social and non-social activities. The sex differences found in this study were very similar to those found using the RIR. Furthermore, the relationships found between social behavior and academic performance using the two methods were quite similar (Nezlek & Sullivan, 1987). The CAPS (Computer Assisted Panel Survey) system at the University of North Carolina is also providing data to conduct a similar study (Nezlek, in preparation). To some degree, the correspondence between the data generated by the RIR and those from paper and pencil measures, such as loneliness (Wheeler, Reis & Nezlek, 1983) supports the contention that the RIR is valid. However, further inquiry comparing multiple diary measures is still needed.

In sum, diary-style research in social psychology is at an interesting point. Many feel that it is very valuable, but too cumbersome. Such researchers should examine the RIR and RIRAP, which have an established record and allow meaningful modifications depending upon one's specific interests. This will meet the needs of researchers who are content with the data aggregated by the system. Other researchers who have different interests will need to modify the package (not so hard if you know PL 1) or write their own programs. Regardless of this choice, we need to move off campus (and you probably won't need permission from your parents to do so)

and see how the rest of the world spends its time. A bit of advance planning and the guidance of theoretical perspective will go a long way to easing this task. Self report diaries of social interaction can be very valuable tools. We must learn more about how to use them and what they can tell us. They hold great promise, but they must be used to realize these benefits.

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