A Comparison of Observer and Actor Coding of the Role Category Questionnaire

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This experiment compares the (a) rank ordering of cognitive differentiation scores by observers and actors, and (b) methods of construct sampling based on instructional set. Results indicate that observer and actor codings are inconsistent but that two different methods of sampling are consistent. Additionally, data suggest that the particular score of the RCQ assigned by observers using the established procedures may not reflect the actual construct system of the individual (actor).

Subsequent to the O'Keefe and Sypher article (1981), constructivists have relied almost exclusively on the Role Category Questionnaire (RCQ) to measure cognitive complexity (Allen, 1990; Beatty, 1990). Not surprisingly, a debate has ensued about the interpretation of what the RCQ elicits from subjects (Allen, 1990; Allen, Mabry, Banski, Carter, & Stoneman, 1990; Allen, Mabry, Banski, & Preiss, 1991; Allen, Mabry, & Preiss, 1991; Beatty 1987, 1990; Beatty & Payne, 1984, 1985; Burleson, Applegate, & Delia, 1991; Burleson, Applegate, & Neuwirth, 1981; Burleson, Waltman, & Samter, 1987; Miller & Wilson, 1979; Powers, Jordan, & Street, 1979). Specifically, the debate centers on the relationship between the words elicited by the RCQ and the inference about an individual's cognitive complexity. That is, are individuals arrayed by RCQ scores in the same rank order as their level of cognitive complexity? It must be assumed that the validity of rank ordering is directly related to the adequacy of the sampling technique used to tap the domain of constructs. Moreover, a rank ordering is meant to preserve a certain isomorphism between words and the cognitive structures represented. Consequently, the answer to the question above depends on two corresponding sub-issues of (a) the sampling procedure of the RCQ, and (b) the isomorphism of the written descriptions to the underlying cognitive structures.

THE RCQ AS A SAMPLING TECHNIQUE

The RCQ is a method for sampling constructs (Burleson, Applegate, & Delia, 1991). The typical two-person version of the RCQ asks an individual to

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consider separately both a liked and disliked person. The subject then writes
descriptions of each of those persons. The resulting descriptions are coded
using the rules developed by constructivists for identifying the number of
constructs (Burleson & Waltman, 1988; Crockett, Press, Delia, & Kenney,
1974). Essentially, each unique individual descriptor (usually an adjective or
noun) counts as one “construct” (unless part of a larger idiomatic phrase),
and the sum of the unique terms across the two descriptions is a score
representing a person’s level of cognitive differentiation. Arguments and
counter arguments exist about possible confounding of cognitive differen-
tiation measurement with other concepts like intelligence, motivation, and/or
loquacity (see Allen, 1990 or Beatty, 1990 for a review of the research). This
manuscript, however, focuses on the issue of construct sampling pertaining
to the RCQ.

The current version of the RCQ has individuals generate “as many”
constructs as they can in their descriptions of the liked and disliked others
(Burleson & Waltman, 1988). The problem is that the use of alternative
sampling techniques can generate quantitatively different samples of con-
structs than the RCQ. Allen, et. al. (1990), for example, asked people to
generate “at least 40” constructs for both liked and disliked persons (a
number more than 4 standard deviations above the average for the other
instruction format). The rest of the instructions and coding procedures
remained unchanged from the traditional sampling method employed in the
RCQ. Results from a between person comparison (study 1) and a within
person comparison (study 2), indicate that the two methods (“as many” and
“at least 40”) for sampling constructs reflect differences of the mean number
of constructs elicited, and the rank order of the score for individuals. In other
words, cognitive differentiation scores were sensitive to the particular
stimulus used to generate the sample.

In response, Burleson et. al. (1991) argue that the replacement of the
term “as many” with the term “at least 40” distorts the intent of the RCQ. The
authors charge that the new instructions place a demand characteristic for a
particular number of constructs which distorts the “naturalness” of the
RCQ’s method of eliciting a description. Any test for this effect must leave the
“naturalness” of the description, but change the method of construct
sampling.¹

One method of responding to the criticism leveled by Burleson and his
colleagues, involves leaving the term “as many” in the instructions, and,
replacing the traditional answer format with 40 numbered blanks. This
change leaves the directions the same (using the term “as many”), but
provides a different context for answering. If the Burleson, et. al.’s (1991)
criticism of the “naturalness” of the instructions used in Allen et. al.’s (1990)
investigation is correct, then leaving the instructions the same and only
changing the answer format should produce no change in the number of
constructs elicited.

Hypothesis 1: Using numbered blanks instead of blank lines on the RCQ will not increase the
number of constructs generated by subjects.
CONSTRUCTS VERSUS VERBAL LABELS

A second issue, critical to the validity of the RCQ as a measure of cognitive complexity, focuses on the assumption of isomorphism between the words elicited by the RCQ and the constructs they represent. Generally, each elicited word is treated as if it represents a different cognitive construct (except for certain idiomatic phrases). The problem with that procedure is that it ignores the possibility that one construct might be represented verbally by a number of different words. For example, “Saddam Hussein” may be described as a “manipulative, lying, cheating, Machiavellian leader.” This example invites examination of whether these words are separate constructs or if the words are interrelated descriptors of just one construct.

The presumption of one to one linkage between constructs and verbal labels precludes the possibility that certain constructs may be subsumed in the RCQ through a variety of verbal labels. For example, it is possible that a person could use the words “cheat,” “liar,” or “scumbag” to mean “dishonest.” Of course, another person might use those four words to point to four completely separate constructs. Any consistent tendency on the part of some people to use more verbal labels per construct than others would necessarily alter the rank ordering of individuals’ cognitive complexity. Similarly, constructs can be represented by verbal labels that point to either of its two poles (e.g., “honest” or “dishonest”; “sincere” or “insincere”). Again, any consistent tendency by some individuals, more than others, to reference both poles of constructs would alter the resultant rank ordering of cognitive complexity for those individuals. Only when verbal labels are different from each other (do not point to the same construct; do not involve opposite poles of an already referenced construct) would there be a case for the independence of constructs.

The RCQ coding manual (Burleson & Waltman, 1988) specifically states that if terms lack complete isomorphism, the coder should consider the terms to be independent. Whenever a coder has doubts about whether a given verbal label points to the same construct or not, the coder is to presume it does not. The coding protocol assumes that the use of the coding rules permits observers to generate representations of individuals’ cognitive systems that do not depart significantly from how individuals’ themselves construct their cognitive system.

One alternative to the observer coding system takes the terms (verbal labels) generated in the description and asks the individuals who generated the terms to assess their conceptual relationship, that is, whether each pair of verbal labels are similar, opposite or different to each other in meaning. Words similar in meaning could be considered alternative verbal labels for the same construct. Words with opposite meanings could be considered to reference different poles of the same construct. Words with meanings different from each other can be said to point to different constructs.

Optimally, estimates of individuals’ cognitive complexity determined by the observer based coding of the RCQ should match the actors’ meaning for
the use of those terms. This "match" does not require precision in the
estimation of the actual number of constructs each person has. The RCQ is
only intended to provide an estimate of the relative levels of cognitive
complexity, and not a precise measure of the actual numbers of constructs in
a person's cognitive system. Consequently, this observer-actor match only
needs to demonstrate a similarity in rank orderings of individuals used to
reflect their cognitive complexity. High or low complex individuals should
maintain their positions, regardless of the coding system used. Based on this
analysis, a second hypothesis is posited:

Hypothesis 2: The observer and actor codings of the RCQ will be positively correlated.

METHODS

The twenty eight participants came from a small liberal arts college in the
Midwest. They were members of a communication class given extra credit for
participation in this study. Each person responded to a four person RCQ. The
first two descriptions (one liked and one disliked) asked the subjects to
provide descriptions based on directions identical with the traditional
administration of the RCQ (Burleson & Waltman, 1988; Crockett, Press, Delia,
& Kenney, 1974). The second two person descriptions were only modified to
use a series of forty numbered blanks, in two columns of twenty, instead of
the traditionally lined sheet.

Coding

The RCQ forms were first coded using the traditional rules for the scoring
of constructs. Two persons coded 10 forms and achieved 94% exact
agreement. After coding, the unique terms extracted from the first two
descriptions were returned to the respondents. Subjects received a form with
their own terms and were asked to complete a randomly ordered, planned
comparison test that took each term and compared that term to every other
term. They were asked whether each set of two terms were (a) similar in
meaning, (b) opposite in meaning, or (c) different in meaning. These
assessments of relationships between terms were used to determine the total
number of constructs based on actor (self) coding. The total number of
constructs based on actor coding did not count duplicate verbal labels for the
same construct or verbal labels that referenced the opposite pole of a
construct that already had been included.

RESULTS

Comparing the Two Forms

To test the first hypothesis the number of constructs generated by the two
forms of the RCQ (as coded by the observers) were compared. The
comparison demonstrated that the traditional form (M = 27.4, s = 7.40)
generated significantly fewer constructs (t = -5.29, df = 26, p < .001) than
the form using numbered blanks (M = 39.3, s = 14.43). These data
demonstrate that hypothesis one was not supported, and suggest the possibility that the forty numbered blanks did significantly increase the number of constructs generated by subjects.

The correlation between the scores on the two forms in this investigation was high ($r = .69$, $p < .05$). The rank order correlation of the first and second two person descriptions in this investigation was compared to the same correlation from an earlier investigation (Allen, Mabry, Baski, Carter, & Stoneman, 1990). The average correlation across the two investigations is moderate ($r = .49$, $N = 66$, $p < .05$) and homogeneous (100% of variation due to sampling error). Therefore, data suggest that some correlation exists between the two forms of the RCQ. The homogeneity of the correlations indicates that the results from this investigation are consistent with the earlier investigation.

Comparing Observer and Actor Codings

The second analysis compares the two different coding systems (actor versus observer) and whether or not the rank order changes. This analysis used both Pearson and Spearman correlation coefficients. The correlations indicate no significant correspondence between the observer and actor codings (Pearson correlation $= .11$, $p > .05$, Spearman correlation $= .17$, $p > .05$). The results reveal insignificant correlations between the actor coded totals and the observer coded totals. Hypothesis two is not supported and no evidence exists of agreement between the two methods of coding RCQ protocols.

CONCLUSIONS

Hypothesis 1 was not supported in this experiment. The number of constructs increased as a result of changing the format of the answer sheet while leaving the directions unchanged. A rank order comparison of two different versions does present a significant correlation between the alternative forms. The size of the correlation ($r = .69$) suggests that the two measures may be considered alternative indicators of the same underlying variable. A comparison and averaging of previous research, however, suggest that additional investigations may be warranted.

The data do not support Hypothesis 2. The results demonstrate some inconsistency between observer and actor codings of the RCQ. The correlation between the coding used by the RCQ generates a different number and rank ordering of constructs for individuals when compared with actor coding of the terms. The implication of the findings is that the relative amount of cognitive differentiation depends on the orientation of the coders. Alternative coders yield different rank orderings. These results support the Miller and Wilson (1979) argument that the observer coding of the RCQ measures only verbal labels and not the actual underlying constructs. Traditional coding does not appear to accurately reflect the potential gap between observer and actor coding.
Theoretically, the results provide some perplexing possibilities. The above analysis indicates that the conceptual mapping of the individual alters the understanding of the cognitive map. The concept of complexity may involve both differentiation within a construct (the application of more refined labels for various degrees of the construct, similar to an Eskimo’s 21 names for snow), and an ordering of a system of the constructs into some complex arrangement of subordinate or superordinate terms.

The current project continues to provide evidence, by testing the assumptions of the RCQ, that the continued acceptance and use by communication researchers may prove troublesome. This examination of the RCQ questions the assumptions, not of constructivist theory, but rather questions the use of a particular methodological device within that domain of theoretical thinking. The ability of communication scientists to generate alternative measures of constructs to the RCQ would alleviate these concerns.

ENDNOTES

1. No explication is offered by Burleson, Delia, and Applegate (1991) about exactly what sampling techniques are to be considered “natural” and which should be considered “unnatural.” The exploration and establishment of sampling criteria for measures of cognitive differentiation requires further empirical investigation.

REFERENCES


