4 Studies Proving the Validity of the Gottschalk-Gleser Content Analysis Scales in German-Speaking Countries*

Uwe Koch

I would like to review the studies conducted in German-speaking countries that have used the content analysis method first introduced by Gottschalk and Gleser. The various possible uses and the value of this instrument will be discussed. In the last 10 years approximately 30–40 studies have been conducted in German-speaking countries that employ this technique, most of which have been done by a research group of the Sonderforschungsbereich 115 in Hamburg. One member of this group, G. Schofer, has translated the Gottschalk-Gleser Scales for German usage. As in the early studies conducted by Gottschalk, these studies concentrated on the Anxiety and Hostility Scales and omitted the later content analysis scales developed by these investigators [1–4]. First, let me review a series of basic research investigations, and then I would like to discuss some clinical studies that have employed this method.

4.1 Basic Research

Schofer, Koch and Balck [5, 6] assessed 406 subjects, who were randomly selected from, and thus representative of, the population of Hamburg, using the Gottschalk-Gleser Scales. We investigated the relationship between Anxiety and Hostility Scales, on the one hand, and such variables as sex, socioeconomic status, and age on the other. Among the Hostility Scales, the Hostility-Directed-Inward Scale showed a relationship to sex, whereas more substantial correlations were evident for the Anxiety Scales (separation, diffuse anxiety, and total anxiety) (woman showing more anxiety). Socioeconomic status appeared to play an even more important role in the hostility and anxiety scores. The trend we found suggested that persons of lower socioeconomic status tend to report more anxiety and hostility. The age dependency on the Anxiety and Hostility Scales was not substantial and did not lead to unequivocal interpretation (the highest scores were found for the age group between 40 and 49 years). Further findings of this study were:

1. The average rate of refusal to participate was 14%.
2. The interrater reliability averaged between $r = 0.82$ and 0.94.
3. To determine the temporal stability of the Gottschalk-Gleser method, the scores of

two speech samples that were evoked within an hour were compared. The low correlation coefficients we found (under 0.20) agree with Gottschalk's contention that the scales assess states that fluctuate considerably over short periods of time.

4. Split-half reliability was tested by splitting up the speech segments using the odd-even method. The average correlation that resulted was 0.60.

Kordy, Lolas and Wagner [7] investigated the stability of the Gottschalk scores by employing the speech-sampling method. They considered the first 1000 words of an interview, the responses to a TAT picture, and the content of a complete-the-story test. These authors concluded that some scales exhibit a certain amount of stability over time and situations, for example, the Hostility-Directed-Inward and Shame Scales.

Bruhn, Stemmler and Koch [8] investigated the influence of different instructions on the Gottschalk scores. The instructions were either the standard version or a variation that contained cues for anxiety and hostility. We found that even slight variations from the standard instructions elicited considerable changes in the affect scores. In the same study, we investigated the effect of experimental manipulation on the affect scores by analyzing the subsequent speech segments. Hostility, anxiety, and joy were experimentally induced. A considerable increase in the anxiety scores was evident following experimental manipulation for the anxiety condition. The magnitude of this difference was, however, less than that induced by a variation in the instruction set.

In several studies [6, 9], we tested the influence of the interviewer's sex during the interviews. The findings suggested that the interaction between the interviewer’s sex and the sex of the subject was important. The same-sex combination yielded higher scores on a number of scales compared to the opposite-sex combination.

Stemmler, Thom and Koch [10] and Muthny [11] looked at the relationship between the Gottschalk-Gleser affect scores and a series of psychophysiological variables. The results pointed to a modest to low covariation between these variables. In contrast, Gottschalk et al. [12] and Gottlieb et al. [13] in the United States found a significant correlation in anxiety scores and a decrease in skin temperature over the time interval during which the speech sample was obtained. Stegie [14] also reported negative results concerning a possible relationship between patients' transcripts of dreams and Gottschalk-Gleser anxiety and hostility scores. While dreaming, various psychophysiological variables were recorded, and it was attempted to relate these to the anxiety and hostility scores, without much success.

Gottschalk et al. [15], however, reported finding a significant positive correlation between anxiety scores derived from 15 min of rapid-eye-movement dreaming and increases in plasma free fatty acids (an indirect measure of adrenergic secretion).

Correlations between the Gottschalk-Gleser scores and questionnaires that are related in content yielded some significant though modest correlation coefficients that corresponded to expectations [5, 11]. The Hostility-Directed-Inward Scale correlated at 0.35 with a standardized aggression questionnaire developed by Koch [16]. Correlations between corresponding scales of the Gottschalk-Gleser instrument and the Mood-Adjective Checklist by Hecheltjen and Mertesdorf [17] were surprisingly low.

Engel and von Rad [18] compared responses to the Holzmann Inkblot Technique and the Gottschalk-Gleser affect scores. Their findings suggested relatively high correlations between these techniques (r between 0.60 and 0.70), if both classification systems used the same material. If these techniques were employed independently of each other and one after the other, the correlations were low.