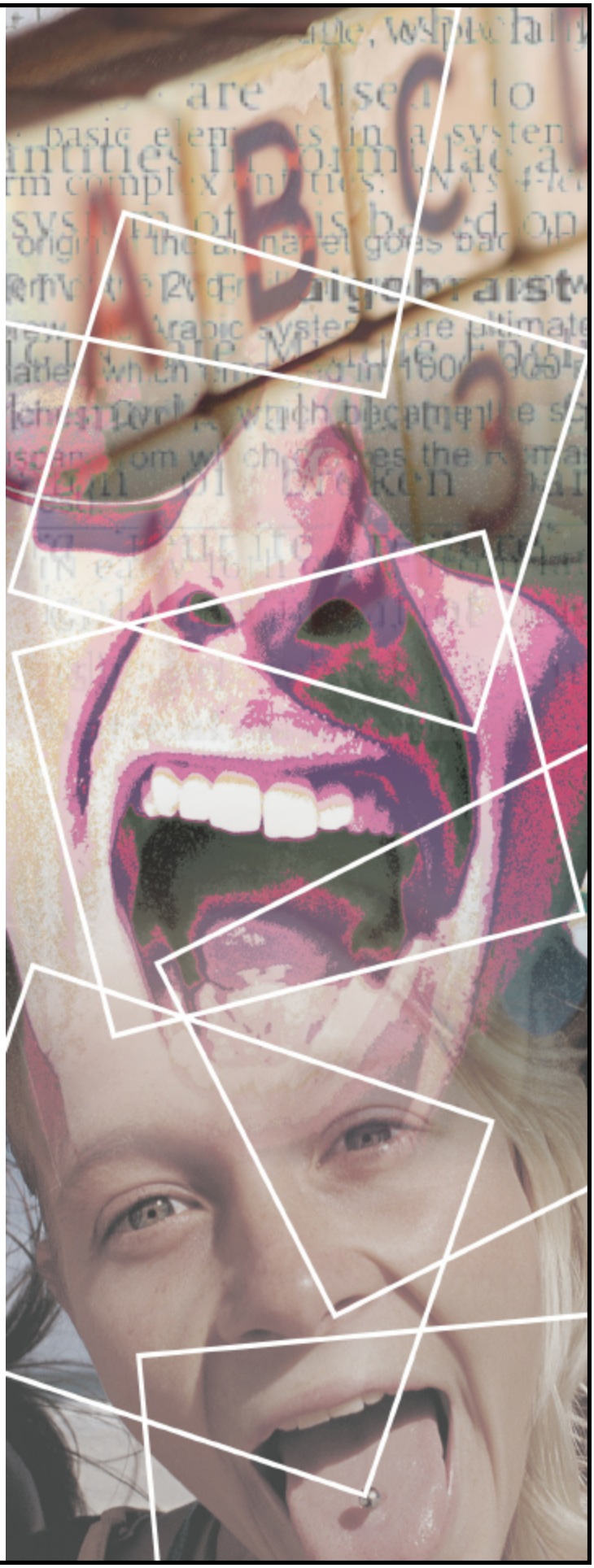
Next Generation Projective Techniques:

Combining Psychological Content Analysis and Text Mining in Market Research



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Abstract:
This Anderson Analytics white paper explores the history of Thematic Appreciation Tests also known as Picture Story Telling Exercises (TAT/PSE), and explains how the combination of new technology such as text mining and psychological coding software can be used to apply this previously qualitative technique on large numbers of respondents for not only deep and meaningful insights, but statistically valid and projectionable results. The paper concludes with an Anderson Analytics case study: a PSE conducted online for a clothing manufacturer.

Introduction: Content Analysis in Market Research

Market Researchers have experimented with various types of projective techniques in qualitative research. Often though, these experiments were lacking in three important ways. First, they were not carried out with the same methodological rigor as their predecessors in the psychology field. Second, due to their small sample sizes, results could not be statistically validated nor could results be projected to the general population, important prerequisites for buy-in with senior management. Finally, results stood alone without the supporting demographic and behavioral data which is necessary in market analysis.

This paper explores the history of content analysis used in Thematic Appreciation Tests (TAT's), also known as Projective Story Exercises (PSE's), and their recent rebirth and use as a powerful hybrid technique by Anderson Analytics. Combining the advanced coding schemes of psychology with new technologies such as text analysis and text mining, and adding an interface which today's respondents more easily identify with, the future of PSE's as a meaningful research tool looks very promising, and represents one of the better opportunities for consumer insights with deeper meaning.

Historical Background

Content analysis is the examination of verbal text for words or themes associated with psychological constructs. Verbal text includes a wide berth of materials/speeches (Winter, 1987, 1988), letters (Suedfeld, Corteen, & McCormick, 1986), therapy transcripts (Peterson, Luborsky, & Seligman, 1983), plays (Simonton, 1983), poems and sonnets (Simonton, 1990), song lyrics (Zullow, 1991), spontaneous remarks (Hermann, 1980), and corporate annual reports (Zajac & Westphal, 1995). Content analysis has also expanded beyond the bounds of words and into nonverbal text, such as musical pieces (Simonton, 1980) and comic book strips (Sales, 1973).

The genesis of content analysis in personality psychology can be traced to work by Morgan and Murray (1935, 1938) on the Thematic Apperception Test. The scoring for this projective test involves showing participants ambiguous images and asking them to write stories about the picture. The stories are then analyzed for themes and imagery associated with specific motives and needs. McClelland (1953) and his student John Atkinson furthered this work by developing a content-analytical scoring system using experimental manipulation of motives. Unlike the TAT scoring system by Morgan and Murray (1938) that was based on clinical intuition or theoretically based criterion, Atkinson and McClelland (1948) aroused motives in randomly assigned subjects, administered the TAT, then compared the results with a control group. Systematic cross-validation on stories would identify themes and imagery specifically associated with experimentally aroused motive. Winter (1973) continued Atkinson and McClelland's (1948) work by adapting their scoring scheme to verbal text — the coding scheme yields an imagery score per 1000 words of any oral or written text. This technique allowed researchers to measure motives from virtually any historical document about their subject.
For example, in their analysis of President Nixon, Winter and Carlson (1988) quantitatively measured Nixon on three personality motives, the need for power, achievement, and affiliation.

Winter and Carlson content analyzed Nixon's inaugural addresses using Winter's (1973) at-a-distance scoring scheme for each motive. From his addresses, Winter and Carlson determined a personality profile for Nixon — he was high in

achievement and affiliation, and moderate in the power motive. They also found that his paradoxical behavior in office, such as the Watergate scandal, corresponded to this personality profile, thus providing a psychological explanation for one of the most perplexing presidents in history.

The at-a-distance technique used by Winter and Carlson (1988) is not limited to the measurement of personality motives. Suedfeld, Tetlock, and Streufert (1992) devised an at-a-distance scoring technique for integrative complexity. To assess how political figures might differentiate or integrate complex information, researchers can now quantitatively measure levels of integrative complexity by scoring documents from letters to speeches to interviews. For example, Suedfeld, Corteen, and McCormick (1986) measured General Robert E. Lee's level of integrative complexity during six major battles. They scored dispatches, orders and private letters written by Lee and his opposing generals. They found that when Lee was higher in integrative complexity than his opposing commanders, Lee would win the battles. Only General Ulysses Grant was higher in complexity, and Lee lost both battles to Grant.

Creating a Coding Scheme

Content analysis involves coding categories that signify the presence of some personality dimension. These categories are determined in one of two ways: **a priori construction** and **experimental** derivation. A priori construction coding schemes identify categories well before data collection and the construct identifiers are developed in conjunction with theory, research findings, or even a pre-existing psychometric scale. Two examples illustrate this first method of identifying categories. McCrae (1996) investigated behaviors and correlates of the Five-Factor Model dimension of Openness. In this study, McCrae identified several behaviors and thoughts akin to Openness. He also expanded the scope of the construct by linking it with other established personality characteristics, such as authoritarianism, attitude formation, and political affiliation. Using these characteristics of Openness as his construct identifiers, he content analyzed Jean-Jacques Rousseau's biography and used the French philosopher as a an example of an individual high in Openness.

Another example of a priori construction is the adaptation of preexisting standard instruments for content analytical use. For instance, Simonton (1998) used the Holmes-Rahe Social Readjustment Scale (Holmes & Rahe, 1967), an established psychometric tool, and adapted it to measure King George III's stress level at-a-distance. King George was the infamous British monarch who reigned during the American Revolution. His time on the throne was marked with bouts of mental and physical breakdowns that branded him as Mad King George. Numerous academics have posited their theory for his breakdown (see Runyan, 1983 for a review), yet no one ever tested the very simple possibility that King George was stressed. Raters, blind to the subject and hypothesis of the study, read biographical timeline of King George's life and rated his level of stress using the adapted Holmes-Rahe scale. Simonton was able to uncover a relationship between breakdowns and stressful events, a correlation that was overlooked because stressful events preceded breakdowns by an average of six months.

Need for Standard Coding

In contrast to *a priori* schemes that are the result of top-down processing, experimentally derived content analysis schemes are somewhat "data driven." Coding schemes are derived from a comparison between a control group and a group known to exhibit a certain characteristic. Atkinson and McClelland (1948) devised this technique to investigate how theoretically relevant manipulations in a laboratory would affect subject's imagery on the TAT. They chose to study hunger because it would be easier to manipulate levels of this motivation. They systematically controlled subjects' eating schedules and found imagery on the TAT varied according to hours since subjects last ate. In addition, they found that images were not necessarily affected the way they had anticipated. They concluded that implicit motives could not be coded with *a priori* schemes, since experimenters may not be able to accurately anticipate images associated with particular motives.

As a result of Atkinson and McClelland's discovery, subsequent coding schemes for implicit measure have utilized experimental or quasi-experimental designs to identify coding categories (Suedfeld & Rank, 1976; Winter, 1973). For example, Donley and Winter (1970) experimentally aroused power motivation in a group of college students by showing them a video clip of President Kennedy's 1961 famous inaugural address and administered the TAT immediately afterwards.

He compared and blind cross-validated the TAT stories from this group with TATs from a control group. The resulting images and themes unique to the experimental group were used as the power motive at-a-distance scoring scheme.

Applications for Marketing Research

The possible application of content analysis in marketing research are many and range from customer satisfaction, attitude and usage, and advertising studies to customer segmentation. For instance in advertising or copy testing, the sample can be split into three groups: a control group, a group exposed to advertisement "A", and a group exposed to advertisement "B". Each might see a TAT/PSE image of a particular scene. For instance if the commercial is for an auto manufacturer a TAT showing a customer and a car sales person talking might be shown.

In the survey the first group would directly be asked to tell a story about what is taking place in the picture, what took place immediately before the picture, and what will take place afterwards. Groups 2 and 3 would be asked to complete the same exercise, but would first be exposed to the priming condition, such as one of the two different ads, or the same ad but

featuring different manufacturer brands or products. The stories are then analyzed, not only as explicit qualitative feedback, but also for deeper psychological motivation. The resulting insights are far more telling than traditional focus group or survey information, as they help explain the deeper emotive impact brands and advertising have on consumers within a specific context.

TAT/PSE in Online Discussion Boards

While these projective techniques work well in traditional focus groups, the special conditions of online discussion boards are even more ideal. Here the more iterative approach, with groups running two to five days, allows additional time for psychological analysis and subsequent probing. Discussion boards cut down on costs as participants can be recruited from different cities and time zones, and the moderator or psychoanalyst can easily join in.

TAT/PSE in Online Surveys

Due to advances in text analysis, specifically text coding and text mining software such as SPSS Text Analysis, SPSS Clementine's Text Mining, ProfilerPlus, and Leximancer, etc. TAT/PSE's can actually be incorporated into online surveys, finally bridging the gap between qualitative and quantitative research.

This allows for not only quantitative/statistical validation and projectionability of results, but the merging of these projective techniques with behavioral and demographic data also collected in the survey.

Respondents can be classified into specific segments based on their answers to the TAT/PSE, and/or standard likes, dislikes and product mentions can be tabulated and t-tested just like normal quantitative data. The combination of the two approaches can finally satisfy both the marketing manager who asks, who?, how many?, how often? With the marketing manager who asks, but why? What else?

TAT/PSE Case Study

Attitudes, psychological profiling, and brand tracking: Case study of "Momentum Clothing"

Like many companies who wish to increase their position in the Youth Market, Momentum Clothing Company (MCC) hoped to implement a two-fold strategy. First, they needed to investigate what young people thought of their clothing line. Second, they hoped to gain a better understanding of what factors were most important to this demographic group. Specifically, they desired to know what makes products attractive or repulsive to teens, issues that tend to weigh heavily on their minds, and most importantly, what motivates their buying decisions.

Initially, MCC surveyed 2,000 high school and college students across the nation. They asked poignant questions that required teens to rate their preference for different clothing brands, including their own. In addition, they asked the youth to rate how important different factors were when deciding to purchase clothing. To this regard, the survey contained 15 different brands of clothes and 50 different factors that MCC thought would influence decisions to buy clothes.

After analyzing the results, MCC was disappointed to find that there was very little variability in students' answers to their questionnaire. Even with advanced statistical analysis, MCC learned little about their target population. All MCC had learned was that youth had placed MCC on par with other leading clothing brands. Even worse, MCC still had no idea what made youth tick or what the key drivers behind purchasing were. It was clear that the factors they had included in the survey were either obvious, or showed little variability, and were not insightful factors in consumer behavior. The question remained, what factors drive consumer behavior in this category?

MCC decided to employ Anderson Analytic's AA-Projective techniques to help better understand the Youth Market. Anderson Analytics administered two TAT/PSE exercises to 300 high school and college students over the internet. The initial assessment provided a baseline psychological profile of young people without the influence of brands or marketing messages.

In the second part of the survey the students were randomly assigned to one of three cells/groups. The first group watched an MCC commercial currently in circulation. The second group watched a commercial from MCC's direct competitor, "Expedite Clothing, Inc" (ECI). The third group did not watch any commercial. This last group served as a control group for the purpose of comparison. Finally, all three groups were given an additional round of TAT/PSE tests.

To track MCC as a brand, or specifically, how teens perceive MCC in comparison to competitors, Anderson Analytics compared the last round of TAT/PSEs with the first round of tests. After watching commercials for MCC or ECI, the stories written directly reflect the influence these commercials had on youth's perceptions of the category. Therefore, any differences between the first and second rounds of TAT/PSE could directly be attributed to the commercials. In this regard, AA-Projectives yielded important, yet subtle, differences in how the MCC brand messaging impacts youth.

With respect to gaining insight on attitudes, Anderson Analytics compared the last round of TAT/PSEs from the MCC commercial group against the other two groups. Using content analysis, Anderson Analytics coded responses for positive/negative affect, action/attraction versus passive/repulsion dimensions, and operational codes to discern two important factors. First, were youth who watched MCC commercials more or less likely to buy clothing? Second, did MCC leave a different impression on youth than ECI or no commercials?

Since the youth write their own answers, the attitudes and potential behaviors are "projected" onto the TAT/PSE images. Therefore, information from these test are "organic," or true assessments of what goes on in consumers/ minds. In addition, since content-analysis was used in conjunction with text analysis on a large sample, results were both rigorous and objective, in essence, the design merged the strengths of both quantitative and qualitative analyses.

As a result of the study, MCC was able to fine tune messaging to better coincide with the deeper psychological needs of youth in the category. Further more results indicated that two very different groups of youth, both potentially valuable, existed. Ultimately, MCC was able to address the needs of both groups in the same advertising campaign.