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Analytical and Presentation Medium Considerations in Treatment Acceptability Research

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by

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Abstract

The purpose of this two-part thesis was to develop a method for analyzing the treatment acceptability (TA) of brief behavioral interventions for common aberrant behaviors and to assess the influence of presentation medium on TA scores. Mothers of young children viewed video vignettes and read scripts depicting an aberrant behavior (i.e., non-compliance, aggression) and a common behavioral intervention (i.e., differential attention, positive reinforcement via token economy, bribery, response cost, time-out, and spanking). Their responses to a variety of TA questions including the Treatment Evaluation Inventory—Short Form (TEI-SF) (Kelley, Heffer, Gresham, & Elliot, 1989) were analysed individually and as a group. The results indicated that TA was greater for punishment-based interventions than in previous research, that presentation medium impacted TA scores, and that TA data is best analysed at the individual level to ensure variations are not lost through aggregation.

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Chapter I: Introduction and Literature Review

Evolution of Behavior Analysis

Although Skinner envisioned behavior analysis as a science applicable to all aspects of human behavior, we have yet to achieve mainstream relevance. To achieve mainstream relevance, we need to expand our scope of practice beyond the small subset of individuals for whom applied behavior analysis is viewed as helpful (i.e., those with autism spectrum disorders). Brief intervention is a logical next step in the evolution of behavior analysis. As we expand our scope of practice, we must modify our own behaviors according to the environments in which we are beginning to work. Historically, behavior analysts working in Intensive Behavioral Intervention (IBI) programs have worked with clients and their families for 25 to 40 hours per week. The intensity that is required for an IBI program (Lovaas, 1987) also allows practitioners the time to build rapport with families and understand their preferences. As practitioners are increasingly employed in brief interventions or consultative models, they no longer have the luxury of building rapport and earning the trust of consumers over long periods of time. Furthermore, brief interventions and consultative models of behavior analysis regularly rely on the consumer as the interventionist. These two adjustments create a climate where TA is extremely important and we must learn to judge the consumer's response to our initial recommendations.

Applied behavior analysis, particularly in autism intervention, has amassed a large collection of research outcomes that qualify our work as being empirically supported (Foxx, 2008). These evidence-based treatments meet strict criteria such as those identified in Chambless and Ollendick (2001; e.g., "large series of rigorous single case experiments" p. 688).

Unfortunately, we might have focused on client behavior change to the exclusion of measuring whether such change procedures are deemed "acceptable" by the client or those close to the client. Although interventions may be empirically supported, they are not free from cultural constraints. Thus, the acceptability of a treatment might mean more in terms of its implementation than its empirical basis. Kazdin (1980) defined treatment acceptability (TA) as the "judgements about the treatment procedures by non-professionals, lay persons, clients and other potential consumers of treatment" (p. 259). While other terms and definitions have been applied to the same concept (e.g., social validity), Kazdin's will serve as the foundation of this project.

Calvert and Johnston (1990) highlighted the importance of TA, stating that high acceptability should correlate with compliance, motivation, positive behavior changes, treatment satisfaction, and lower attrition rates. In fact, it is the combination of empirically supported treatment, clinical judgement, and TA which Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) termed "evidence-based medicine." To omit an analysis of acceptability could spell disaster for the field and its practitioners. It is to an analysis of acceptance and culture that I now turn.

Treatment Acceptability

The first formal measurement tool for TA, the Treatment Evaluation Inventory (TEI) (Kazdin, 1980), allows for a quantitative measure of acceptability. Kazdin (1980) used the TEI to measure the acceptability of multiple behavioral interventions applied to aberrant behaviors of varying severity. His results showed that the TEI could be used to differentiate the acceptability of treatments based on the behaviors to which they were hypothetically applied. The TEI

remains one of the most used TA measures (Carter, 2007). Since the 1980s, research on TA has increased, resulting in a variety of inventories aimed at measuring TA. These new inventories have been modified and evaluated in an effort to improve the comprehensiveness of assessment and decrease administration time. TA instruments vary based on number of questions, range of rating scale, wording, and reading level (Carter, 2007). Table 1 (see Appendix F) provides a synopsis of the most commonly used TA instruments as discussed by Carter (2007). It is important to note that despite the differences between each measurement tool, no one tool was found to be more comprehensive than another. It appears that instrument selection is typically made based on preference and convenience.

In most TA research, raters are presented with written vignettes depicting an aberrant behavior and an intervention. The raters are asked to read the vignette then respond to a variety of questions using TA rating scales. Over the years, researchers have manipulated variables related to the aberrant behavior (e.g., severity, age of client) and the interventions applied (e.g., effectiveness, intrusiveness, previous exposure to) (Carter, 2007; Miltenberger, 1990).

Factors related to TA have been the subject of much of the TA research. In this area, some common findings have emerged. Kazdin (1980) manipulated the severity of client behaviors when paired with various behavioral interventions. His results showed that TA increased overall when any treatment was applied to the most severe behaviors. Furthermore, more intrusive treatments had higher acceptability ratings when matched with severe behaviors and less intrusive treatments had higher acceptability ratings when matched with less severe behaviors. These finding have since been reproduced in other studies (Carter, 2007; Miltenberger, 1990). The majority of studies have identified reinforcement-based procedures as

more acceptable than punishment-based procedures (Carter, 2007; Miltenberger, 1990). Some variables are known to have an inverse relationship with TA (e.g., time involved in an intervention, cost, severity of side effects), while other factors have been shown to have no influence over TA ratings (e.g., age, gender) (Carter, 2007; Miltenberger, 1990). Spreat and Walsh (1994) used case vignettes with manipulations across nine client variables (e.g., gender, age, description of behavior, frequency of behavior) to assess TA. None of the variables they examined were found to be statistically significant in influencing TA scores. Similarly, age did not influence TA scores on vignettes related to chronic hair pulling (Elliott & Fuqua, 2002).

Variability in TA scores across raters has also been analyzed based on rater characteristics. Many studies found correlations with previous exposure to/use of intervention, household income, educational background and ethnicity (Carter, 2007; Miltenberger, 1990). A potential or actual consumer as a rater (versus lay-persons) has also been shown to impact TA. For example, Gage and Wilson (2000) assessed the acceptability of treatments for Attention-Deficit/Hyperactivity Disorder (ADHD). Their study compared TA ratings of parents with and without a child with a diagnosis of ADHD. Results indicated that parents of children with ADHD found any treatment involving medication to be more acceptable than parents of children without ADHD, which emphasizes the importance of recruiting raters who are actual or potential consumers of studied interventions.

Culture

An important characteristic of any actual or potential consumer is the culture to which they belong. As the field of behavior analysis grows, practitioners are providing services to a greater range of countries and cultures. As of March 2016, the Behavior Analyst Certification

Board (BACB) lists current certificants across 67 countries. The list includes large nations such as the United States, Canada, China, and India, as well as small nations such as Bahamas, Iceland, and Qatar. The Association for Behavior Analysis International (ABAI) has 47 affiliated chapters outside of the Unites States with a reported 11,000 members (ABAI, 2016). These chapters exist in Asia, Australia, Europe, and North and South America. In the past decade, membership in the affiliated chapters has nearly doubled (ABAI, 2016), indicating the rapid growth of the field outside of the United States. While the basic principles of behavior analysis are acultural, the variables which influence their implementation (e.g., parenting style, child behavior, parent perception of child behavior, TA) vary cross-culturally (Borrego, Ibanez, Spendlove & Pemberton, 2007; Matsumoto, Sofronoff, & Sanders, 2007, 2010; Njardvik & Kelley, 2008).

The term culture is defined as "the distinctive ideas, customs, social behavior, products, or way of life of a particular nation, society, people, or period" (Culture, 2016). As Skinner (1953) described it, culture is a set of behaviors that have come to be common within a group due to a history of specific responses being reinforced or punished by members of the group. If we analyze culture through a radical behavioral lens, the community to which one belongs serves as the reinforcing agent. This group-based reinforcement can come from the group as some whole, other subgroups, governmental, educational, religious, psychotherapeutic, and economic agencies (Skinner, 1953). In this way, an individual is met with approval when s/he engages in certain behaviors and met with punishment through criticism when s/he engages in others. As each individual's behavior conforms to the group standard, s/he becomes part of the group with which the behaviors of others are then compared. In this way, the cycle is self-sustaining.

Exactly what is and is not reinforced eventually becomes so characteristic of the group; it is defined as their culture. The group culture applies to parenting styles with the group commonly reinforcing or punishing parent responses to aberrant behavior. The acceptable and unacceptable parenting styles, as the group defines them, influence opinions towards behavioral interventions. In this way, a culture can influence parents to be in favour of or against commonly recommended, effective behavioral interventions.

Cultural Differences in Treatment Acceptability

Other health sciences have been attending to culture as an influential variable on TA scores. Specifically, one group might not agree with an intervention, even though that intervention has been shown to be effective for a particular behavior. Treatment of latent tuberculosis (TB) infection is identified as the primary strategy for eliminating TB, but on average 17% of patients decline treatment altogether and 52% of those treated do not complete the treatment cycle (Horsburgh et al., 2010). In their study, Horsburgh et al. (2010) found cross-cultural variability with 12% of Asian participants, 15% of Hispanic participants, 22% of Black participants, and 36% of White participants declining treatment for latent TB. In psychology, treatment for depression is widely accepted to be medication and counselling. Compared to White patients, African Americans were less accepting of medication and counselling, and Hispanics were less accepting of medication but more accepting of counselling (Cooper et al., 2003). These findings illustrate the variability of TA across cultures in terms of medication. I turn now to the literature on culturally-related TA.

Few studies have been conducted on the variations cross culturally with respect to the TA of behavioral interventions. Njardvik and Kelley (2008) recruited Icelandic and American

parents by sending home surveys with 150 first- or second-grade students in each country. The TA study controlled for socio-economic status (SES), religion, and ethnicity by selecting American private schools which closely matched the homogenous nature of the Icelandic population (i.e., relatively high SES, protestant religions, Caucasian). A single written vignette depicting an aberrant behaviour was paired with seven different treatment descriptions: spanking, time-out, response cost, differential attention, medication, discussion, and redirection. The 136 participants (79 Icelandic and 57 American) completed the Treatment Evaluation Inventory—Short Form (TEI-SF) (Kelley, Heffer, Gresham, & Elliot, 1989) for each treatment. Njardvik and Kelley found significant differences between the groups for all interventions except redirection. Icelandic parents rated discussion as most acceptable, while American parents rated response cost as most acceptable. Most noteworthy was the direct opposition when parents were asked to choose their most preferred intervention; 74.7% of the Icelandic parents chose discussion and only 15.2% chose response cost versus 63.2% the American parents chose response cost and only 26.3% chose discussion. The variation within similar ethnicity, religion, and socioeconomic groups points to the importance of studying TA cross-culturally. With the majority of TA research done in the American population, Njardvik and Kelley warned that we must be cautious in generalizing results to other countries without first considering the cultural impact.

Borrego et al. (2007) assessed TA for behavioral interventions among Mexican-American parents. The participants, 97 Mexican-Americans living in West Texas, were all parents of children between two and eight years of age. The authors used an acculturation rating scale to measure cultural orientation. Participants were randomly assigned to a vignette with a male or

female protagonist and were asked to complete the TEI-SF to assess TA for seven behavioral interventions: differential attention, medication, positive practice, positive reinforcement, response cost, spanking, and time-out. The results indicated a difference between mothers' and fathers' acceptability of different interventions, but no differences were detected based on the gender of the child in the vignette. Across both parent genders, response cost was seen as most acceptable.

Matsumoto, Sofronoff, and Sanders (2007, 2010) assessed the TA of the Triple P: Positive Parenting Program in Japanese families living in Australia (2007) and in Japan (2010). Triple P is a program which promotes building rapport with your child, teaching new skills and behaviors through the use of reinforcement, and managing aberrant behaviors using negative punishment. The participants, 50 Japanese parents living in Australia (2007) and 54 living in Tokyo (2010), were randomly assigned to a treatment or wait-list group. Measures of treatment effectiveness were employed as well as a survey to assess program satisfaction. Results showed that Japanese parents living in Australia and in Japan were equally satisfied with the intervention.

Although the research on the impact of culture on treatment acceptability is limited, the results are consistent. In each study, variations in treatment acceptability occurred when cultural group was the independent variable. It was the work of the aforementioned authors that inspired our first study.

Chapter II: Study 1

Purpose

The purpose of this study was to develop a method for analyzing the TA of brief behavioral interventions for common aberrant behaviors. We hoped to identify a systematic way of assessing TA across cultures by testing the concept that participants would rate interventions in different patterns/profiles of responding (e.g., rate reinforcement-based interventions highest, rate punishment-based interventions highest, rate one intervention the highest).

Chapter III: Method

Participants, Settings, and Materials

Participants were 45 mothers with children aged three to six years. Of these participants, 55% were 25-34 years, 34% were 35-44 years, and 11% were 45-54 years. See Table 2 (Appendix F) for further information on participant demographics.

This study was conducted using email and Qualtrics Research Suite, web-based survey software which allows various question types, embedded data, randomization, and mobile compatibility (Qualtrics, 2016). Communication with participants was done through email, and no face-to-face interaction occurred between participants and the author.

Video vignettes (VV) consisting of multiple clips were created. Each VV consisted of a scenario and aberrant behavior clip (B), and an intervention clip (C). B clips exemplified one severe and one non-severe aberrant behavior. C clips demonstrated a behavioral intervention adapted from Jones, Eyberg, Adams, and Boggs (1998) and Borrego et al. (2007; see procedure). The same B clip was used in each VV for that behavior to ensure consistency across interventions. By pairing the two B clips with six C clips, 12 VVs were created. Scripts used for VVs are provided in Appendix A.

Video actors consisted of a female Board Certified Behavior Analyst (BCBA) and a 6-year-old female. A female adult was selected based on data indicating mothers typically do more child-related tasks than fathers in two-parent households (Pew Research Center, 2015). A BCBA was selected to decrease training needed to accurately depict a variety of behavioral interventions. The gender and age of the child was chosen arbitrarily, as previous research indicated these variables did not influence TA (Elliott & Fuqua, 2002; Spreat & Walsh, 1994).

Measures

Clinical significance question. Within Qualtrics, participants first viewed each aberrant behavior video clip (B clip). They then rated the clinical significance of the presented aberrant behavior using the Clinical Significance Question (CSQ) (see Appendix B). The CSQ asked "If this was your child, how important would it be to change/stop this behavior?" A 4-point scale was used: 1 (not important), 2 (somewhat important), 3 (important), and 4 (very important), rating how important it was that we change the observed behavior. The order of presentation for B clips was randomly selected to reduce sequence effects.

Treatment acceptability survey. The Treatment Acceptability Survey (TAS) (see Appendix C) consisted of the TEI-SF (Kelley et al., 1989) and two scale-based questions designed to measure likeability and usage of each intervention. The TEI-SF is a widely used TA instrument which consists of nine questions, uses a 5-point Likert scale ranging from "strongly agree" to "strongly disagree," and has an internal consistency of 0.85 (Kelley et al., 1989). We selected this instrument because it is less time consuming, has lower reading difficulty, and was preferred by mothers when compared to the most commonly used TEI (Kazdin, 1980). As part of the TAS, participants responded to the statement, "I believe the intervention I just watched is inappropriate for the behavior shown in the video" using the scale: 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree). A follow-up descriptive question was included to obtain further information on why each participant felt this way about the intervention. To assess the participants' use of each intervention, a final question asked, "When your child engages in this behavior, how often do you use the intervention shown in the video?" The response scale was: 1 (never), 2 (rarely), 3 (sometimes), 4 (often), and 5

(always). A follow-up descriptive question was included to obtain further information on why each participant used/did not use the intervention.

Demographics questionnaire. A demographic questionnaire based on Borrego et al. (2007) and Njardvik and Kelley (2008) determined the participants' gender, age, marital status, ethnicity, education, income, number of children and their ages, and whether they had sought professional assistance in managing their child's aberrant behaviors (see Appendix D).

Procedure

Participants were recruited through Amazon Mechanical Turk (MTurk) and SampleSize Subreddit. MTurk is an internet-based marketplace for accessing a global, on-demand workforce to complete tasks requiring human intelligence (Amazon Mechanical Turk, Inc., 2018). SampleSize Subreddit is an online platform for sharing surveys.

Email and the web-based survey software Qualtrics were used for all content provided to participants. Study completion was entirely web-based and participants did not meet the authors face-to-face. The study was divided into four phases, and each will be described chronologically (see Figure 1, Appendix F).

When "random selection" or "random order" was used each item was assigned a number and Microsoft Excel was used to select a random number within a range.

Phase 1: Video creation. VVs were created based on two behaviors; non-compliance and aggression (B clips). Six behavioral interventions adapted from Jones et al. (1998) and Borrego et al. (2007) were paired with the behaviors. The six interventions (C clips) included three reinforcement (i.e., differential attention, positive reinforcement via token economy,

bribery) and three punishment (i.e., response cost, time-out, spanking) procedures. Of these six procedures, two are considered extreme (i.e., bribery and spanking).

Once the 12 VVs were created, the viewing order was randomly selected to reduce the likelihood of sequence effects.

Phase 2: Clinical significance question. Within Qualtrics, participants first viewed each aberrant behavior video clip (B clip). They then rated the clinical significance of the presented aberrant behavior using the CSQ (see Appendix B). The order of presentation for B clips was randomly selected to reduce sequence effects.

Phase 3: Treatment acceptability survey. Participants viewed a single VV prior to completing the TAS (see Appendix C). This process was repeated for each of the 12 VVs. Results of the TEI-SF portion of the TAS were scored, statistically analysed, and graphed using bar graphs. We analyzed said scores and graphs altogether and individually to identify patterns of responding related to TA across a variety of behavioral interventions and aberrant behaviors.

Phase 4: Demographics questionnaire. Finally, participants completed the Demographics Questionnaire (see Appendix D) for post hoc analysis.

Analysis. In a variation from other TA research, our study focused on the analysis of individual responses. It was our hope that each participant could be categorized into a profile of responding, and that these profiles may be correlated with demographic characteristics (e.g., culture). Sorting of individuals into categories of responding was done a priori.

Due to the unexpected and vast variability at the individual level, categorization was not possible, and we turned to a numerical analysis post hoc. Using the TEI-SF scores, two composite scores were calculated for each individual. The reinforcement composite was

calculated by combining the TEI-SF scores for each reinforcement-based intervention (i.e., differential attention, positive reinforcement via token economy, and bribery). The punishment composite was calculated by combining the TEI-SF scores for each punishment-based intervention (i.e., response cost, time-out, and spanking). The punishment composite score was subtracted from the reinforcement composite score equalling, what we termed, a "profile score". Negative value profile scores indicated the participant preferred punishment based interventions. Positive value profile scores indicated the participant preferred reinforcement based interventions. The further a profile score ranged from the 0 line, the greater the difference in TA scores. For example, an individual with a profile score of -84 scored punishment-based interventions higher than an individual with a profile score of -6. An individual with a profile score of 48 scored reinforcement-based interventions higher than an individual with a score of 3. A profile score of 0 indicated the participant rated punishment-based interventions and reinforcement-based interventions equally.

Chapter IV: Results

When shown the video clips of the two aberrant behaviours, the results of the CSQ showed that participants were most concerned with changing the aggressive behavior. Using the aforementioned four-point Likert rating scale; 98% indicated it was very important to change aggression (*M = 4.0)*; 31% indicated it was very important to change non-compliance (*M* = 3.1). These results confirmed our selection of aggression as the more severe behaviour, and non-compliance as the less severe behaviour.

The TEI-SF data from the TAS were aggregated and analyzed. The graphical comparison of the mean scores for each VV can be seen in Figure 2 (see Appendix F). In general, when paired with non-compliance, participants appear to have similar TA scores for differential attention (*M* = 33.2, *SD* = 8.0), time-out (*M* = 32.6, *SD* = 7.8), response cost (*M* = 32.3, *SD* = 7.7), and positive reinforcement via token economy (*M* = 32.2, *SD* = 9.2). The more extreme interventions, spanking (*M* = 21.8, *SD* = 9.9) and bribery (*M* = 19.1, *SD* = 9.8) were less acceptable. Through amalgamating the raw data, and looking at group statistics, it appears that participants found the four non-extreme interventions to be nearly equal in acceptability. For aggressive behaviour, participants most preferred time-out (*M* = 33.1, *SD* = 8.7) and response cost (*M* = 32.0, *SD* = 7.9). Positive reinforcement via token economy (*M* = 26.6, *SD* = 10.4) and differential attention (*M* = 26.1, *SD* = 10.9) were less acceptable. The least acceptable interventions were the extremes; spanking (*M* = 23.7, *SD* = 10.7) and bribery (*M* = 15.4, *SD* = 7.8). These results show that participants were less accepting of reinforcement-based interventions when the severity of the behavior increased.

The graphical presentations of each individual's TEI-SF scores for the first 25 participants were visually sorted into patterns of responding (see Appendix E for examples). Based on the number of patterns of responding and inability to sort participants into common categories, we moved to a numerical analysis of individual profiles.

Figure 3 (see Appendix F) shows the Profile Scores for non-compliance and aggression across all participants. Using these Profile Scores to assess scores for non-compliance; 23 participants rated punishment-based interventions highest; 21 participants rated reinforcement-based interventions highest; and 1 participant had equal scores. By comparison, the Profile Scores for aggressive behavior showed more participants with higher TA scores for punishment-based interventions (see Appendix F, Figure 3). When responding to aggression, 35 participants rated punishment-based interventions highest, and 10 participants rated reinforcement-based interventions highest.

The demographic characteristics of the 45 participants in this study are summarized in Table 2 (see Appendix F). Due to the variability in individual responses, correlations between profiles of responding and demographic characteristics were unrealistic. Nonetheless, we have included the demographic information for information purposes. It is important to note that the participants lacked cultural diversity, but varied in age, number of children, marital status, education level, and household income.

Chapter V: Discussion

While the most common practice may be to aggregate the data, our study suggests individual data might be more revealing. Existing research collects individual responses, but analyzes the data to report findings based on the group's aggregated scores. The ideal way to portray this information is by looking at profile scores as a continuum along which individual fall. There were not large groupings of individual profiles; rather, each person's response differed, slightly or significantly, from another. These findings suggest the need to analyze treatment acceptability scores at the individual level..

Contrary to previous research, when individual data were aggregated, this study found greater acceptability of punishment-based interventions overall. For non-compliance the aggregated data showed that participants found less extreme versions of punishment-based interventions to be as acceptable as reinforcement-based interventions. For aggression, the participants, as a group, appear to prefer punishment-based interventions. This greater acceptability of punishment is different from the previous research in this area (Carter, 2007; Miltenberger, 1990). As these researchers used written vignettes, it was our hypothesis that watching a video of a child being non-compliant or aggressive towards their parent impacted the participants' TA scores.

Chapter VI: Study 2

Purpose

The purpose of this study was to present the same scenarios (e.g., aberrant behaviour and an intervention) from Study 1 using different media (i.e., written scripts and video vignettes) to assess if presentation type influenced treatment acceptability scores. We were also interested in whether the CSQ and TEI-SF results from Study 1 would be reproduced.

Chapter VII: Method

Participants, Settings, and Materials

Participants were 46 mothers with children aged three to six years. Of these participants; 55% were 25-34 years; 39% were 35-44 years; 4% were 45-54 years; and 2% were 55 years or older. See Table 4 for further information on participant demographics.

This study was also conducted using email and Qualtrics Research Suite. Communication with participants was done through email, and no face-to-face interaction occurred between participants and the authors.

The same VV's created in Study 1 were used for Study 2; excluding extreme interventions (e.g., bribery and spanking). Prior to the creation of VV's in Study 1, scripts were written for the actors to follow (see Appendix A). We decided to use these pre-existing scripts as written scenarios in Study 2; thereby avoiding biases as these scripts were created with no intention of using them for data collection purposes.

Measures

Clinical significance question. Within Qualtrics, participants first viewed each aberrant behavior video clip and read each aberrant behavior script. As in Study 1, they then rated the clinical significance of the presented aberrant behavior using the CSQ (see Appendix B).

Treatment acceptability survey. The Treatment Acceptability Survey (TAS) (see Appendix C) described in Study 1 was used as the primary measure in Study 2.

Demographics questionnaire. The same demographic questionnaire based on Borrego et al. (2007) and Njardvik and Kelley (2008) was used in Study 2 (see Appendix D).

Procedure

As in Study 1, participants were recruited through Amazon Mechanical Turk (MTurk) and SampleSize Subreddit.

The web-based survey software Qualtrics was used for all content provided to participants. The study was divided into four phases, and each will be described chronologically (see Appendix F, Figure 4).

When "random selection" or "random order" was used each item was assigned a number and Microsoft Excel was used to select a random number within a range.

Phase 1: Scenario creation. Scenarios consisted of two aberrant behaviors (i.e., non-compliance and aggression) paired with four behavioral interventions (i.e., differential attention, positive reinforcement via token economy, response cost, and time-out). The two interventions considered to be extreme (i.e., bribery and spanking) were excluded from Study 2 as they were rated the least acceptable interventions in Study 1.

Each scenario was presented in two ways: as a VV from Study 1 and as a written script originally used to create the VV. The viewing order was randomly selected to reduce the likelihood of sequence effects.

Phase 2: Clinical significance question. Within Qualtrics, participants first viewed or read about an aberrant behavior. They then rated the clinical significance of the presented aberrant behavior using the CSQ (see Appendix B).

Phase 3: Treatment acceptability survey. Participants viewed a single VV or read a script prior to completing the TAS (see Appendix C). This process was repeated for each of the eight scenarios. Results of the TEI-SF portion of the TAS were scored, statistically analysed,

and graphed using bar graphs. Again, we analyzed said scores and graphs altogether and individually to identify patterns of responding related to TA across a variety of behavioral interventions, aberrant behaviors, and presentation type.

Phase 4: Demographics questionnaire. Finally, participants completed the Demographics Questionnaire (see Appendix D) for post-hoc analysis.

Chapter VIII: Results

The mean TEI-SF scores from the TAS for each VV were compared to those from Study 1 (see Appendix F, Figure 5). Based on previous standards for assessing TA, the statistical and visual analysis of the aggregated data would be sufficient to conclude replication of the first study's results. The primary focus of Study 2 was on presentation type as the independent variable.

The results of the CSQ replicated the results of Study 1 by showing participants were most concerned with changing the aggressive behavior. Using the aforementioned four-point Likert rating scale; 74% indicated it was very important to change aggression (M = 3.7; Study 1 M = 4.0); 33% indicated it was very important to change non-compliance (M = 3.2; Study 1 M = 3.1).

We then compared the results of the CSQ for aberrant behaviour across presentation types. While the mean scores were nearly identical across presentation type for non-compliance (script M = 3.13, video M = 3.15) and aggression (script M =3.70, video M = 3.72), the individual analysis showed some variability. Based on the individual CSQ scores for non-compliance; seven participants (15%) rated the video as more concerning than the script; and 13% rated the script as more concerning than the video. For aggression, four participants (9%) rated the video as more concerning than the script; and five participants (11%) rated the script as more concerning than the video. While the aggregated data appears to indicate the two presentation types are functionally equivalent, the individual analysis is evidence to the contrary.

When the mean TEI-SF scores for Study 2 were compared based on presentation type, written scripts and video vignettes appeared to be functionally equivalent (see Appendix F,

Figure 6). When we shifted to an individual analysis, however, the findings differed (see Appendix F, Table 3). Fewer than 40% of participants rated each scenario the same based solely on presentation type (range = 13% to 39%). This strengthens our finding that statistical analysis of aggregated data leads to a loss of important individual variations. By graphing the individual differences in TEI-SF scores for each intervention, across presentation type, a visual emerges that demonstrates the variability between presentation types at the individual level (see Appendix F. Figures 7-10). It is important to note; we did not find any consistent patterns of responding when presentation type was the independent variable. Responses varied as a function of presentation type, but the variations were inconsistent in score and direction.

The demographic characteristics of the 46 participants in this study are summarized in Table 4 (see Appendix F). The participants in this studied varied in age, number of children, marital status, cultural identity, education level, and household income.

Chapter IX: Discussion

Study 2 shows that although videos and written scripts are statistically equivalent, they are individually distinct. The mean CSQ scores across videos and written scripts were nearly identical; the individual data were not. The mean TEI-SF scores for each behaviour and intervention were also relatively consistent across videos and written scripts; the individual data were not. When we aggregate data the loss of individual variations results in conclusions that are flawed. In our study, the aggregated data indicated our presentation media were functionally equivalent. However, the majority of individual participants scored scenarios differently when presentation medium alone was manipulated. This is an important finding, as it establishes the media with which we present our scenarios as an important variable to be considered, manipulated, and controlled.

While our findings support the need to look at individual data, the replication of results in aggregated data is also noteworthy. The majority of previous studies have identified reinforcement-based procedures as more acceptable than punishment-based procedures (Carter, 2007; Miltenberger, 1990). Both our studies demonstrated greater TA for punishment-based interventions; either matching the TA of reinforcement-based interventions or surpassing them. Given the relative infrequency with which TA is the sole dependent variable, and the expansive timeline over which the existing research spans, it is possible that these changes are a function of time. Any inferences, however, would be nothing more than conjecture as our second study simply confirms that the shift is not isolated to one group of participants.

It is possible that our recruitment forum (i.e., MTurk and Reddit) correlated with a certain profile of participant. While we do not believe this to be true; given the variation in demographic characteristics and participant TA scores, it is a possibility.

Chapter X: General Discussion

The results of these studies show: (a) participants might have greater TA for punishment-based interventions than previously reported, (b) presentation type is an important variable in TA research, and (c) TA data is best analysed at the individual level. It is our hope that future research will take these findings into consideration.

Care and consideration should be put into determining how to present scenarios in TA research. While video creation is more time consuming, we cannot assume all presentation types are functionally equivalent. Future research should work to identify what variables distinct to different media are functionally related to differential responding.

Finally, less focus should be placed on the use of means and standard deviations as the only measures of TA. More emphasis should be given to the individual data, as it is there where the details were found. Although aggregated information was less time consuming to interpret, important information was lost when individual scores were reported as group means. TA itself is aimed at understanding what people like and dislike. By aggregating the data, we lose the individual characteristics we sought to understand in the first place.

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Appendices

Appendix A: Scripts

The following scripts were used for video clips depicting a scenario and an aberrant behavior (B clips):

Non-compliance

Parent is building Lego with their child.

Child: "Look mom, I finished this piece on my own."

Parent: "That's awesome. When we're done the tower it's going to be time to get ready for bed, okay?"

Child finishes tower.

Parent: "Good stuff. Ok, time to clean up."

Parent starts to clean up.

Child: "NO."

Child keeps building tower.

Parent continues to clean up.

Parent: "Come on, come clean-up."

Child shakes head no.

Aggression

Parent is building Lego with their child.

Child: "Look mom, I finished this piece on my own."

Parent: "Awesome. When we're all done building the tower it's going to be time to get ready for bed, okay?"

Child finishes tower.

Parent: "Good stuff. Let's clean up."

Parent starts to clean up.

Child hits parent's arm.

Parent gasps.

Child hits parent's arm two more times.

The following scripts were used for video vignettes depicting a variety of behavioral interventions (C clips):

Differential Attention

Parent ignores the inappropriate behavior. As soon as the inappropriate behavior stops the parent provides attention for the appropriate behavior.

Parent: "There you go. That's cleaning up. Good listening."

Token Economy

Parent ignores the inappropriate behavior. As soon as the inappropriate behavior stops and the child engages in the appropriate behavior…

Parent: "Thank you for helping me cleanup. You just earned a checkmark; two more and you earn a movie."

Parent puts checkmark on a token board with 3 spaces and a movie photo at the end.

Bribery

Parent: "Just stop. If you help me clean up, I'll give you Smarties."

Response Cost

Parent: "That's it, I know you earned a movie before bed, but now you've lost it."

Timeout

Parent: "That is not ok. Go to timeout."

Child walks to timeout spot in the room.

Parent: "And you're in timeout for 6 minutes."

Spanking

Parent: "You do not do that."

Parent spanks child on the bum.

Appendix B: Clinical Significance Question (CSQ)

Participants viewed each aberrant behavior video clip (B clips) and rated the clinical significance of the identified behavior using the scale below.

1) If this was your child, how important would it be to change/stop this behavior?

1 (not important) 2 (somewhat important) 3 (important) 4 (very important)

Appendix C: Treatment Acceptability Survey (TAS)

Please complete the items listed below by selecting a response next to each question that best indicates how you feel about the intervention. Please read the items very carefully because a selection accidentally placed in one column rather than another may not represent the meaning you intended. Questions are a modification of the Treatment Evaluation Inventory – Short Form (Kelley et al., 1989).

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I find this intervention to be an acceptable way of dealing with the child's problem behavior.					
2. I would be willing to use this procedure if I had to change the child's behavior.					
3. I believe that it would be acceptable to use this intervention without children's consent.					
4. I like the procedures used in this intervention.					
5. I believe this intervention is likely to be effective.					
6. I believe the child will experience discomfort during the intervention.					
7. I believe this intervention is likely to result in permanent improvement.					
8. I believe it would be acceptable to use this intervention with individuals who cannot choose interventions for themselves.					
9. Overall, I have a positive reaction to this intervention.					

10. I believe the intervention I just watched is **inappropriate** for the behavior shown in the video.

1 (strongly disagree) 2 (disagree) 3 (neither agree nor disagree) 4 (agree) 5 (strongly agree)

11. Why do you feel this way? What is it about this intervention that makes you feel so strongly?

12. When your child engages in this behavior, how often do you use the intervention shown in the video?

1 (never) 2 (rarely) 3 (sometimes) 4 (often) 5 (always)

13. Why do you use/not use this intervention?

Appendix D: Demographics Questionnaire

1) What is your gender?
    - Male
    - Female
    - Other
2) What is your age?
    - 24 or under
    - 25-34
    - 35-44
    - 45-54
    - 55 or older
3) How many children under the age of 16 live in your household?
    - 1
    - 2
    - 3
    - 4 or more
4) What are the ages of these children?
    - _____
    - _____
    - _____
    - _____
    - _____
    - _____

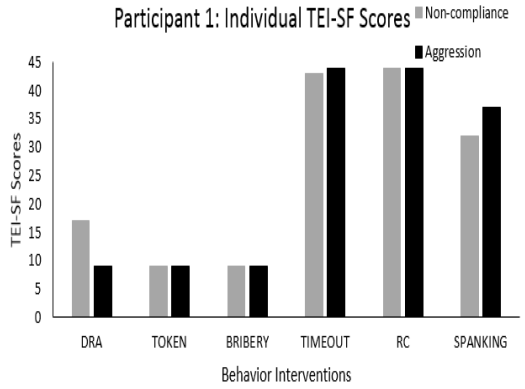
5) What is your current marital status?
    - Single
    - Common-law
    - Married
    - Separated/Divorced
    - Widowed
    - Prefer not to answer
6) How would you identify yourself?
    - Caucasian/White
    - African American/Black
    - Arab
    - Asian/Pacific Islander
    - Hispanic
    - Indigenous or Aboriginal
    - Latino
    - Multiracial
    - Prefer not to answer
    - Other: _____

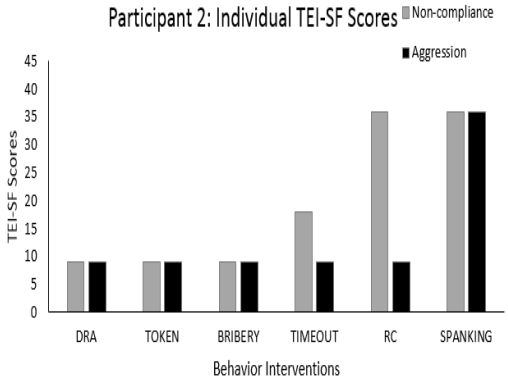
7) What is the highest level of education you have completed?
    - Some high school
    - High school or equivalent
    - Some college
    - Bachelor's degree
    - Master's degree
    - Doctoral degree
    - Professional degree (MD, DDS)
    - Other: _____
8) What was your approximate household income in the previous tax year?
    - Under $10,000
    - $10,000 to $37,500
    - $37,501 to $91,000
    - $91,001 to $190,000
    - $190,001 to $412,000
    - $412,001 or more
    - Prefer not to answer
9) Have you ever asked for, or received help for, your child's behavior (e.g., doctor, behavior analyst, occupational therapist, psychologist, counsellor)?
    - Yes
    - No

Appendix E: Patterns of Responding

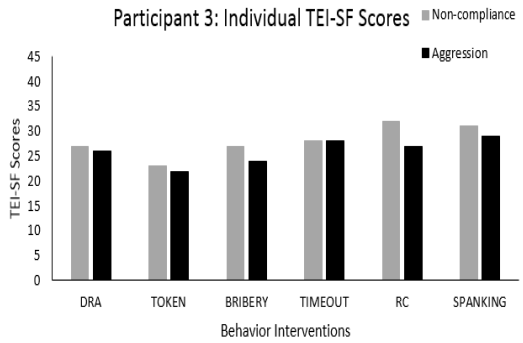
Examples of categories used, as well as some of the graphs in their correlating categories.

Those Who Prefer Punishment

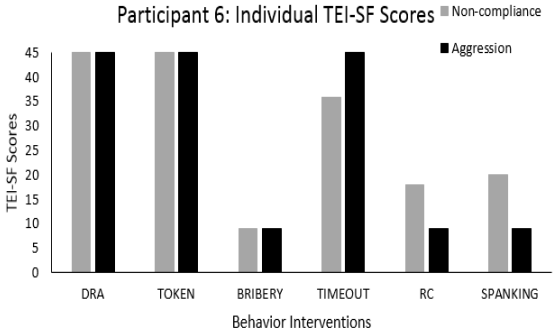




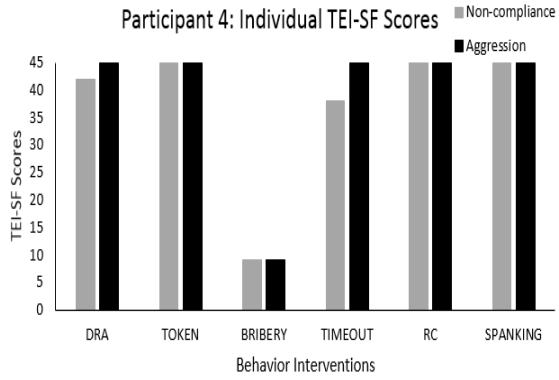
Those without a Distinct Difference

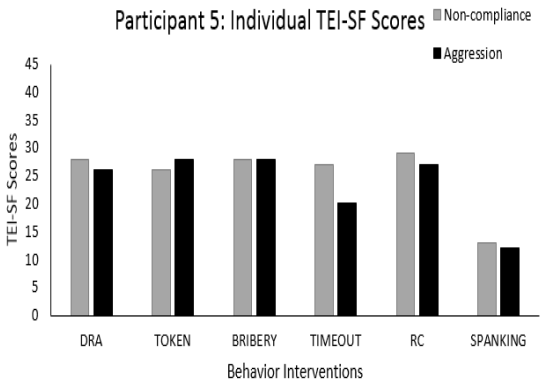


Those with a Distinct Difference

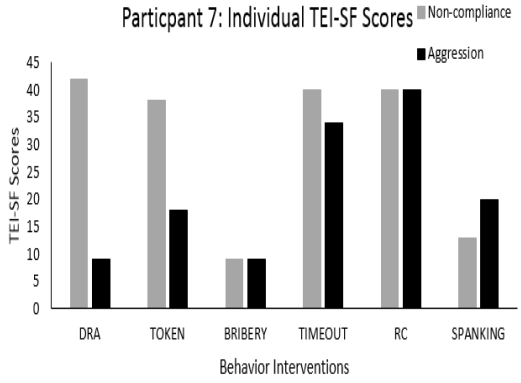


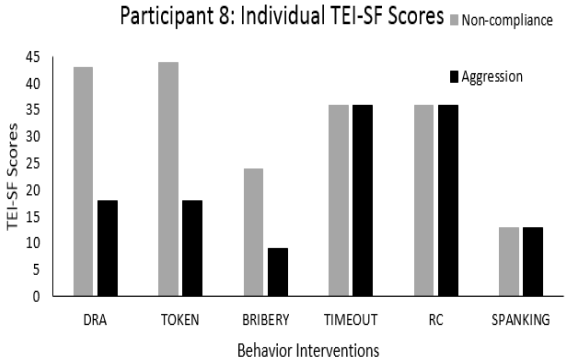
Those Who Dislike the Extreme Interventions





Those Who Prefer Punishment for Aggression





Appendix F: Tables and Figures

Table 1

Comparison of Treatment Acceptability Instruments

Name of Tool	Author/Citation	Number of Questions	Rating Scale Length	Distinguishing Features	Reliability
Treatment Evaluation Inventory (TEI)	Kazdin (1980)	15	7	First and most frequently used	0.35 to 0.96
Treatment Evaluation Inventory – Short Form (TEI-SF)	Kelley, Heffer, Gresham & Elliott (1989)	15	5	Reduced completion time	0.85
Treatment Acceptability Rating Form (TARF)	Reimers & Wacker (1988)	15	7	Includes cost of treatment as a factor	0.80 to 0.91
Treatment Acceptability Rating Form – Revised (TARF-R)	Reimers, Wacker & Cooper (1991)	20	7	Includes understanding of treatment as a factor	0.92

Table 2

Study 1: Summary of Participant Demographics

Variable	**Level**	**Total (*N* = 45)**
Gender	Female	45 (100%)
Age	25-34	24 (55%)
	35-44	15 (34%)
	45-54	5 (11%)
	1	10 (22%)
Number of Children <16 in Home		
	2	18 (40%)
	3	14 (31%)
	4	3 (7%)
	Single	4 (9%)
Marital Status		
	Common-law	2 (5%)
	Married	33 (73%)
	Separated/Divorced	5 (11%)
	Widowed	1 (2%)
	Caucasian/White	41 (92%)
Identify Themselves		
	African American/Black	1 (2%)
	Asian/Pacific Islander	1 (2%)
	Indigenous or Aboriginal	1 (2%)
	Multiracial	1 (2%)
	High School or Equivalent	3 (7%)
Highest Level of Education		
	Some College	17 (38%)
	Bachelor's Degree	18 (40%)
	Master's Degree	5 (11%)
	Professional	2 (4%)
	Under $10,000	1 (2%)
Approximate Household Income		
	$10,000 to $37,500	10 (22%)
	$37,501 to $91,000	20 (45%)
	$91,001 to $190,000	11 (25%)
	$190,001 to $412,000	1 (2%)
	Would Rather Not Say	2 (4%)
	Yes	11 (24%)
Previously Sought Professional Help for Child's Aberrant Behavior		
	No	34 (76%)

Table 3

Study 2: Comparison of TEI-SF Scores for Written Scripts vs. Video Vignettes

	Non-compliance			
	Number of Participants With			
Interventions	Equal Scores	Higher Script	Higher Video	Greatest Difference
Differential Attention	10 (22%)	19	17	18
Token Economy	15 (33%)	15	16	31
Time-out	11 (24%)	21	14	18
Response Cost	9 (20%)	21	16	21
	Aggression			
	Number of Participants With			
Interventions	Equal Scores	Higher Script	Higher Video	Greatest Difference
Differential Attention	17 (37%)	9	20	30
Token Economy	15 (33%)	13	18	19
Time-out	18 (39%)	20	8	18
Response Cost	6 (13%)	27	13	28

Table 4

Study 2: Summary of Participant Demographics

Variable	**Level**	**Total (*N* = 46)**
Gender	Female	46 (100%)
Age	25-34	25 (55%)
	35-44	18 (39%)
	45-54	2 (4%)
	55 or older	1 (2%)
	1	10 (22%)
Number of Children <16 in Home		
	2	20 (43%)
	3	15 (33%)
	4	1 (2%)
	Single	3 (7%)
Marital Status		
	Common-law	2 (4%)
	Married	39 (85%)
	Separated/Divorced	2 (4%)
	Caucasian/White	31 (68%)
Identify Themselves		
	African American/Black	1 (2%)
	Asian/Pacific Islander	10 (22%)
	Hispanic	2 (4%)
	Multiracial	1 (2%)
	Would Rather Not Say	1 (2%)
Highest Level of Education	High School or Equivalent	3 (7%)
	Some College	10 (22%)
	Bachelor's Degree	19 (41%)
	Master's Degree	11 (24%)
	Doctoral Degree	2 (4%)
	Other	1 (2%)
	Under $10,000	4 (9%)
Approximate Household Income		
	$10,000 to $37,500	12 (26%)
	$37,501 to $91,000	22 (48%)
	$91,001 to $190,000	7 (15%)
	Would Rather Not Say	1 (2%)
	Yes	16 (35%)
Previously Sought Professional Help for Child's Aberrant Behavior		
	No	30 (65%)

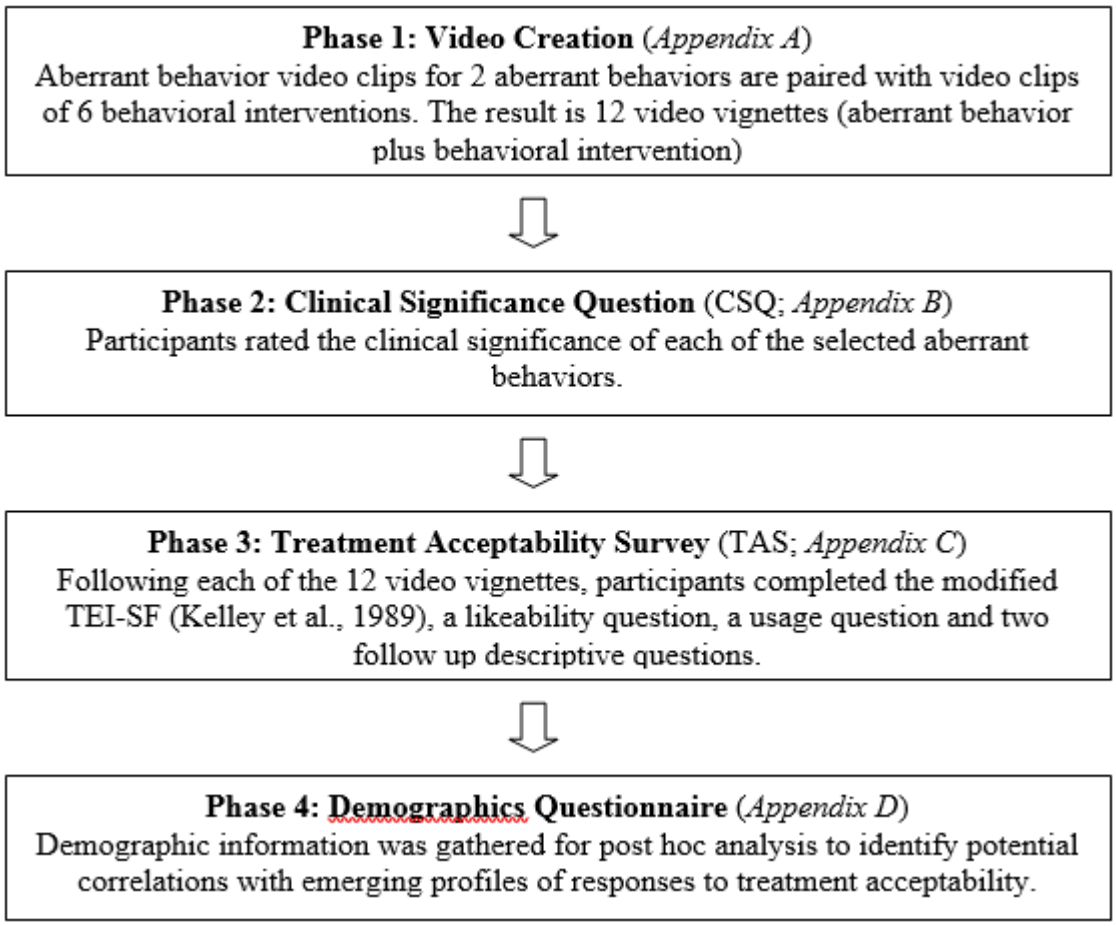


Figure 1. Study 1: Procedures and Associated Measures

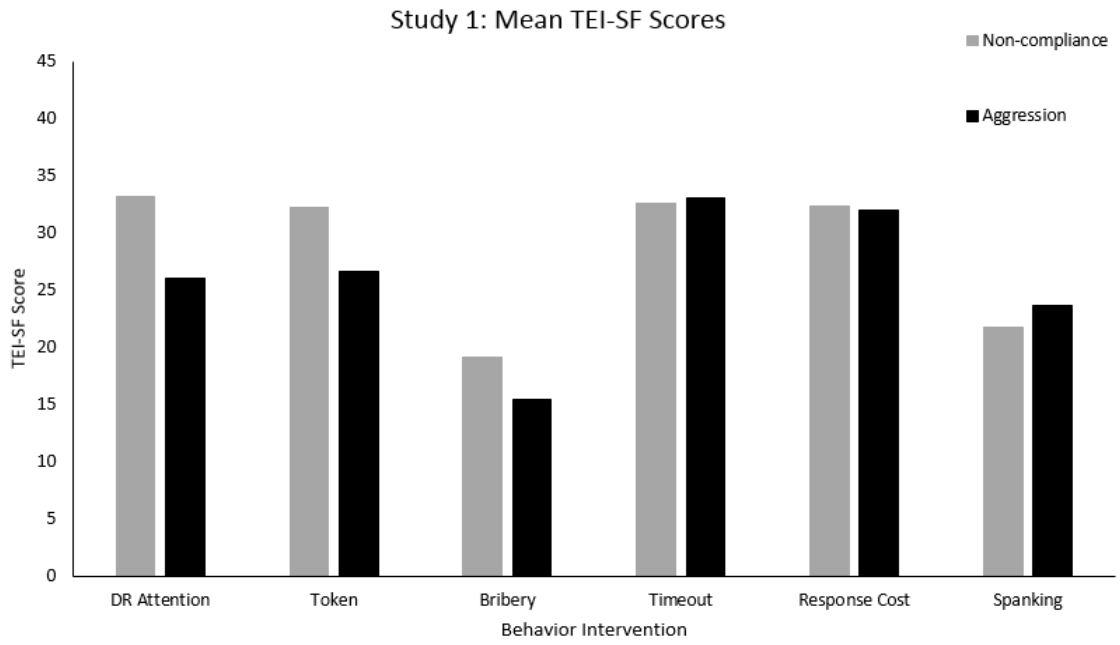


Figure 2. Study 1: Mean TEI-SF Scores by Intervention Across Behaviours.

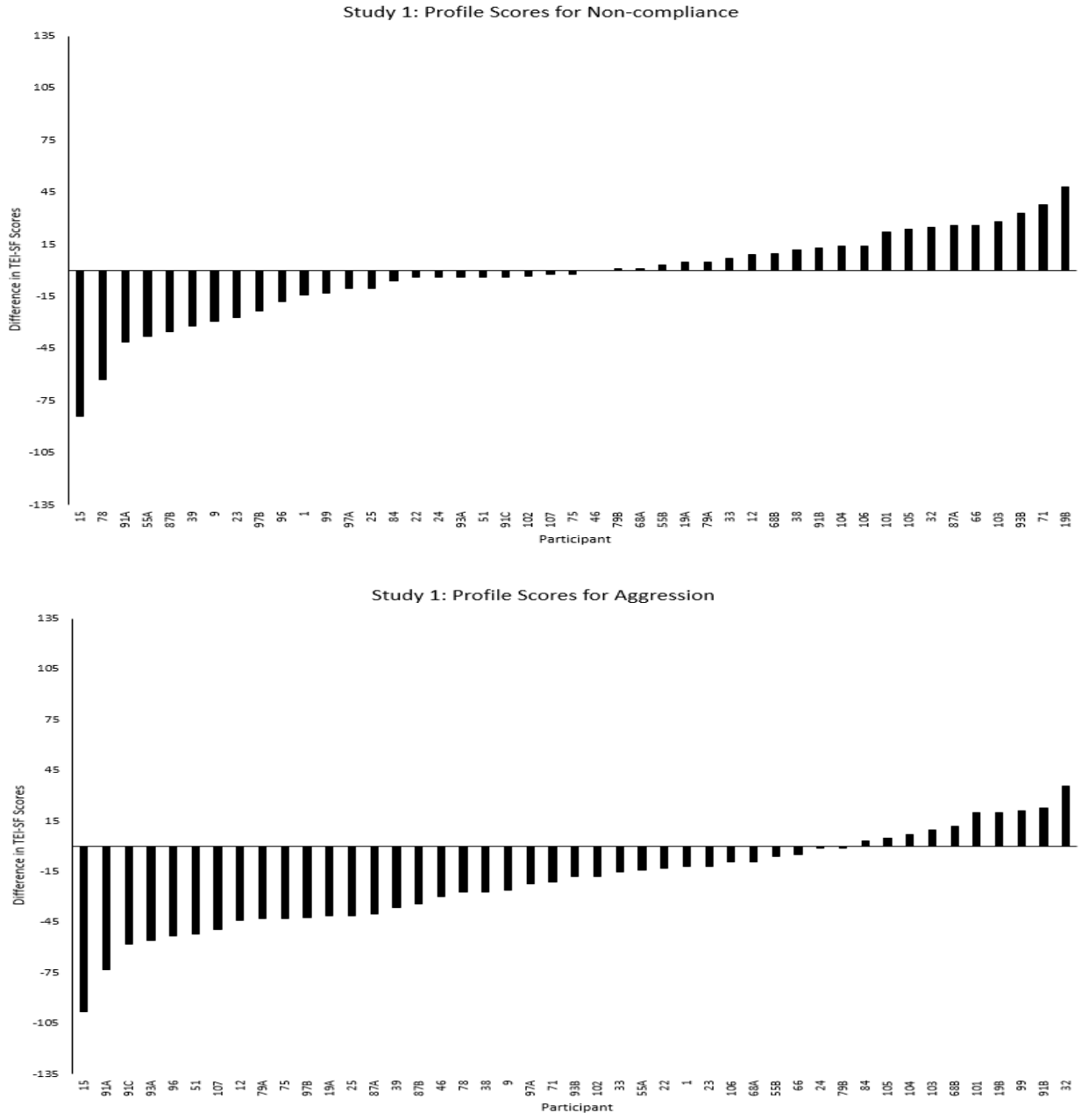


Figure 3. Study 1: Profile Scores for Non-compliance and Aggression. Negative values indicate higher scores for punishment-based interventions; the lower the value the greater the difference. Positive values indicate higher scores for reinforcement-based interventions; the higher the value the greater the difference. Zero values indicate no difference in composite TEI-SF scores for reinforcement versus punishment.

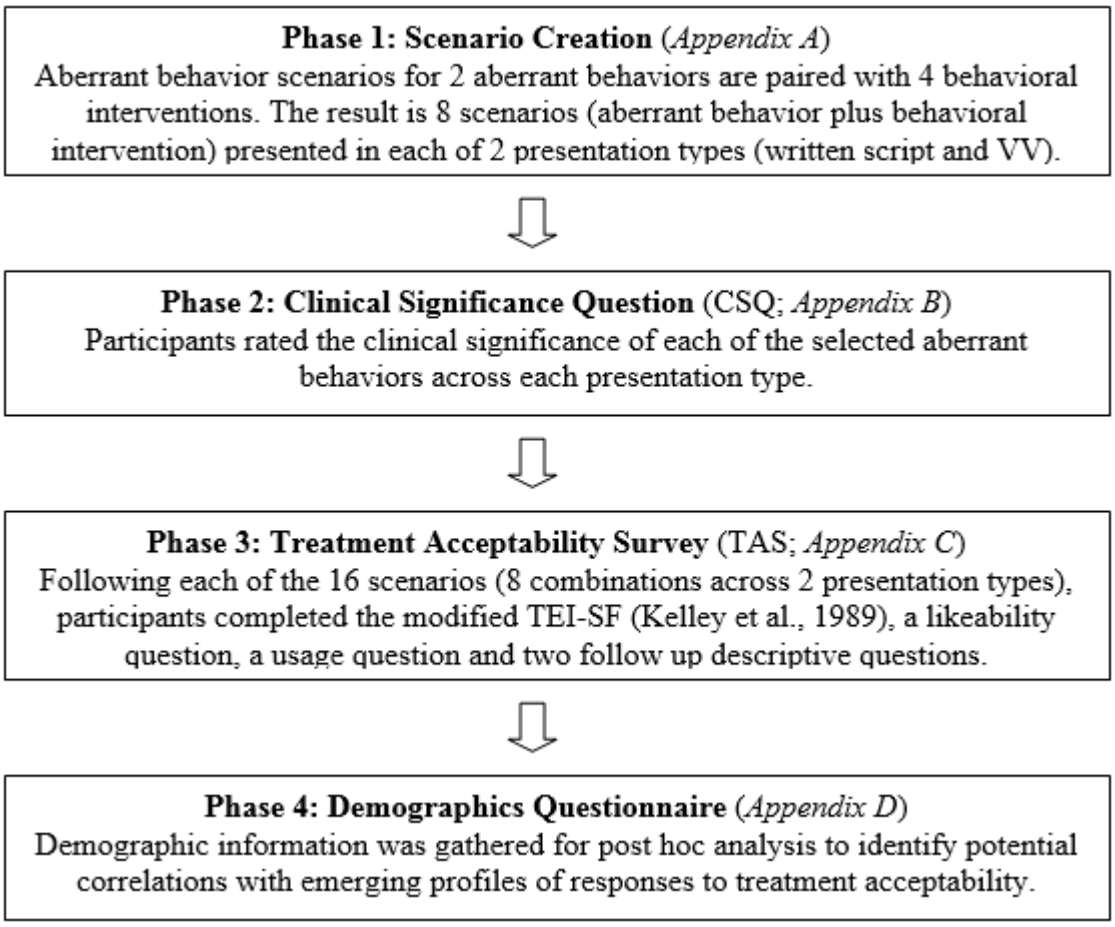


Figure 4. Study 2: Procedures and Associated Measures

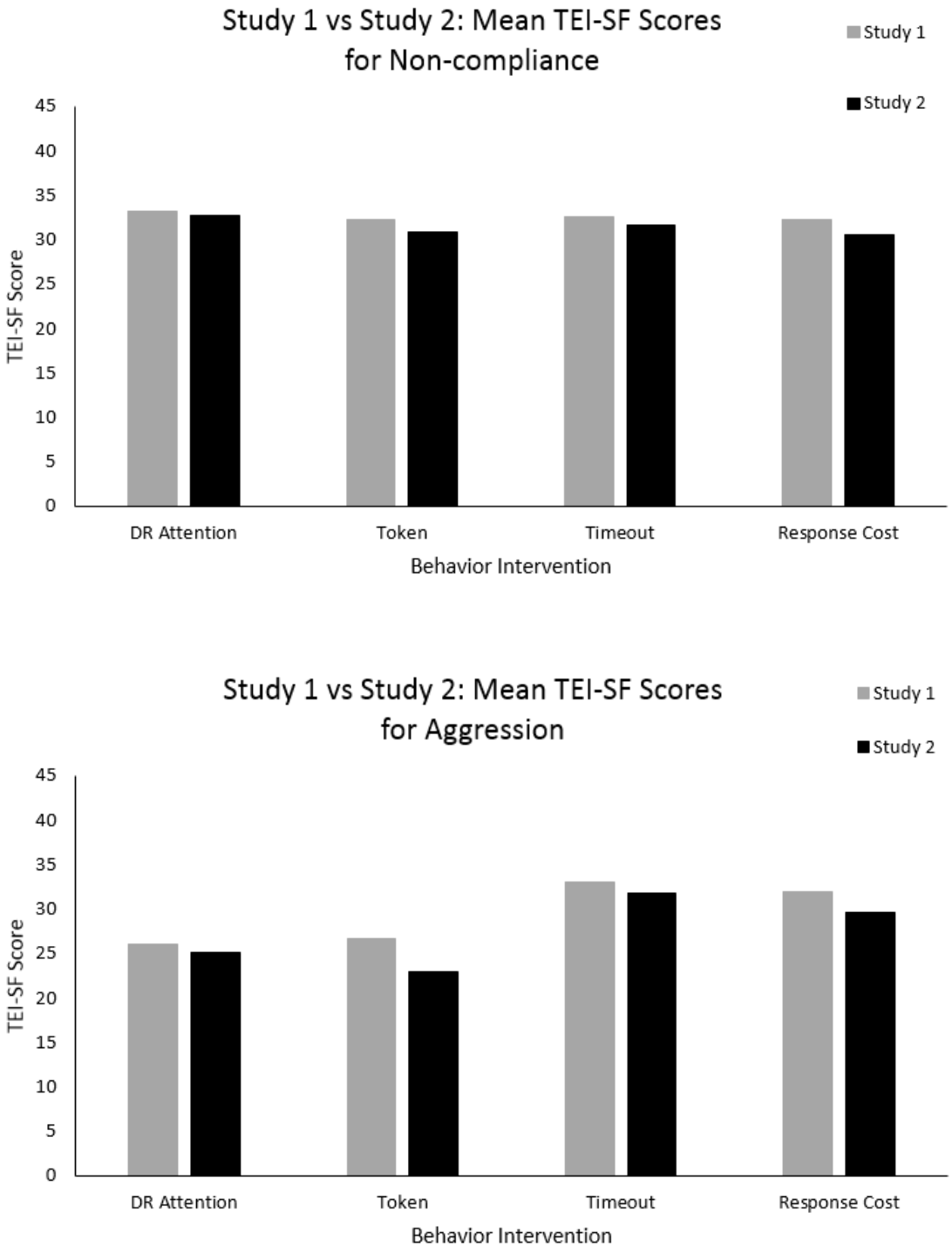


Figure 5. Comparison of Mean TEI-SF Video Scores from Study 1 and Study 2.

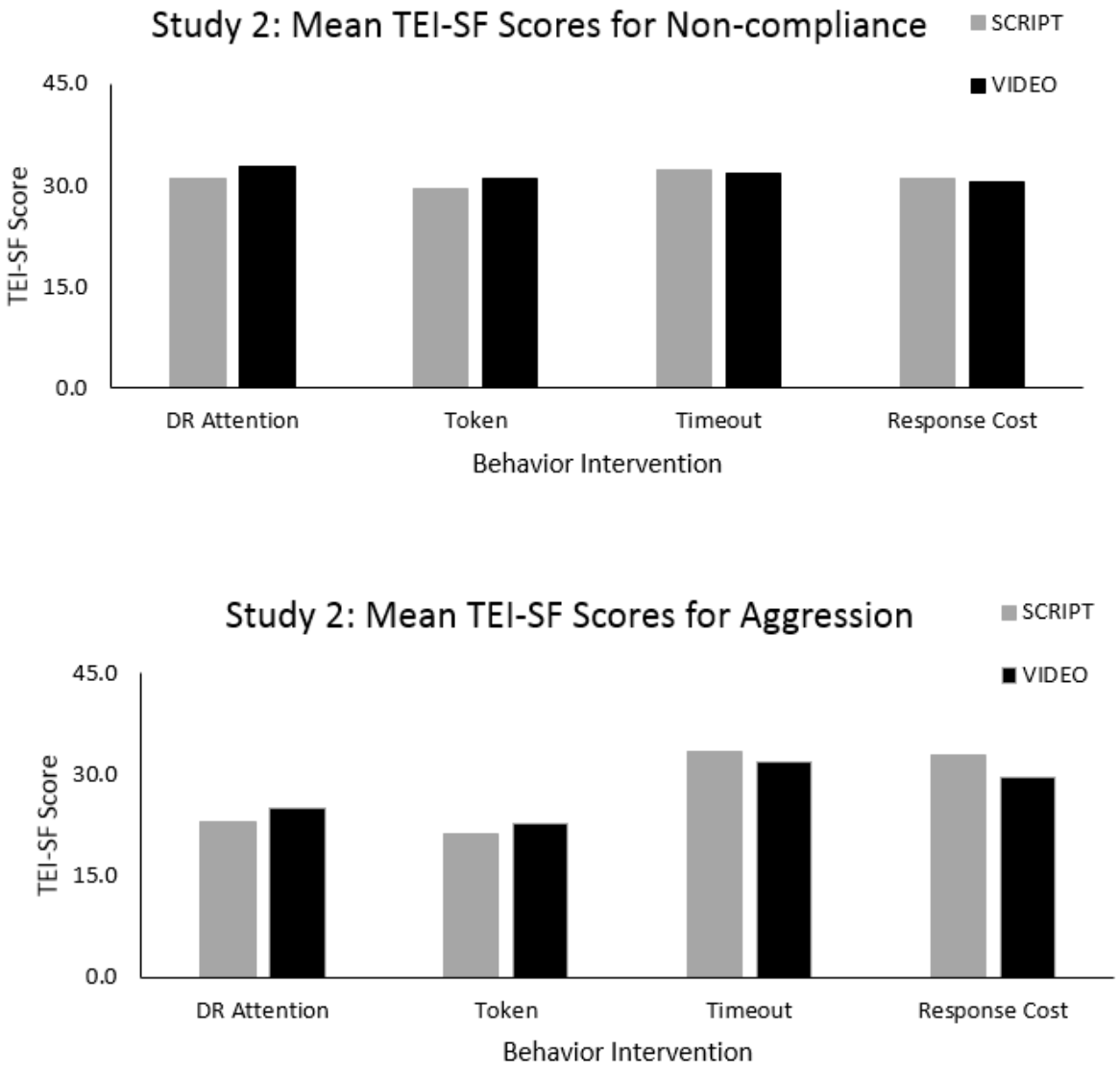
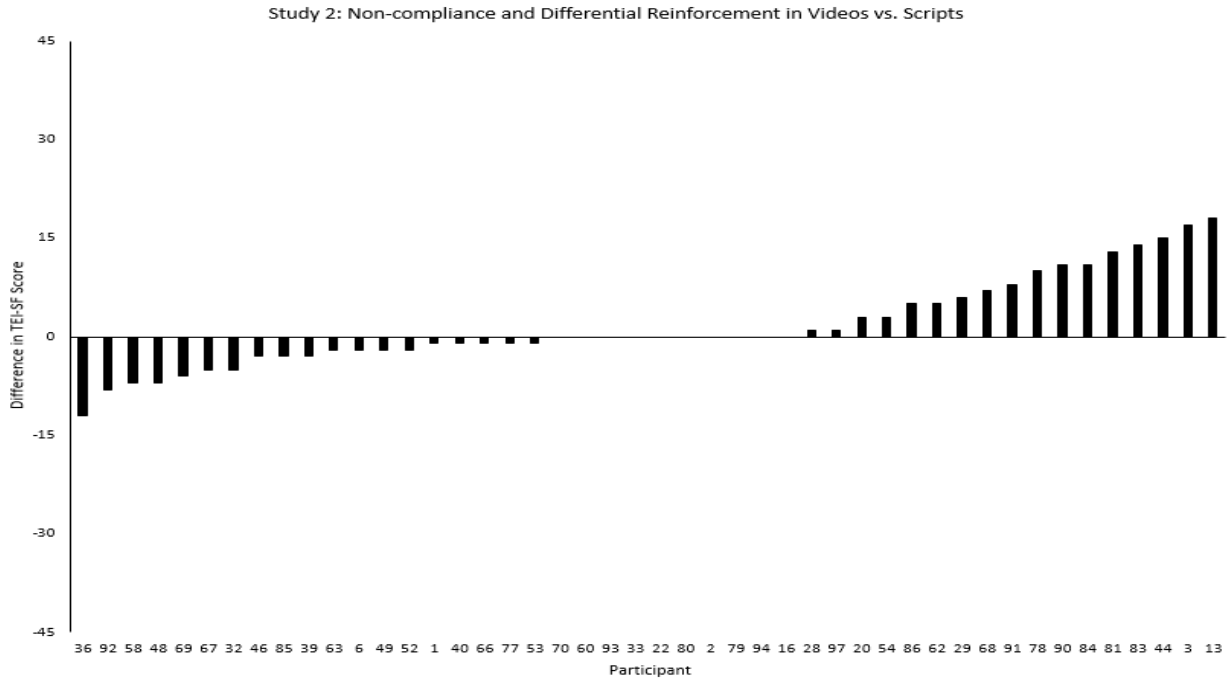


Figure 6. Study 2: Mean TEI-SF Scores for by Intervention Across Presentation Type. A graph for each behavior is included.



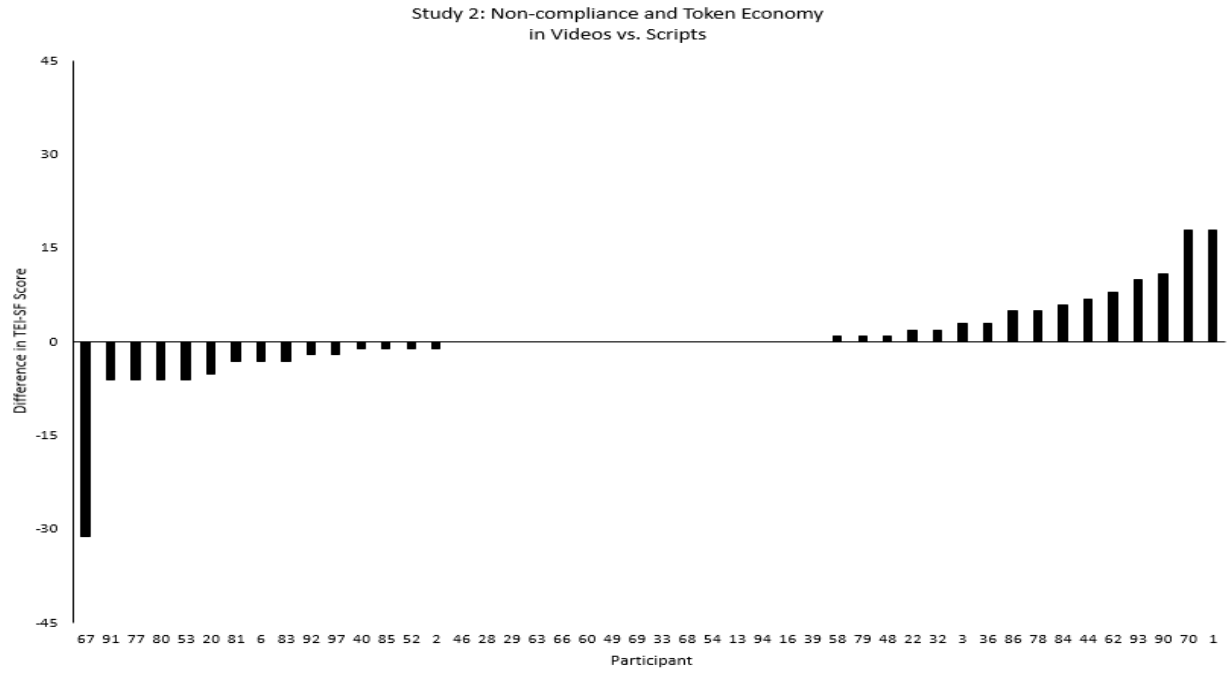


Figure 7. Study 2: Individual Differences in TEI-SF Scores across Presentation Type for Non-compliance and Reinforcement Scenarios. Negative values indicate higher TEI-SF score for script versus video. Positive values indicate higher TEI-SF score for video versus script. Zero value indicates no difference in TEI-SF score for video versus script.

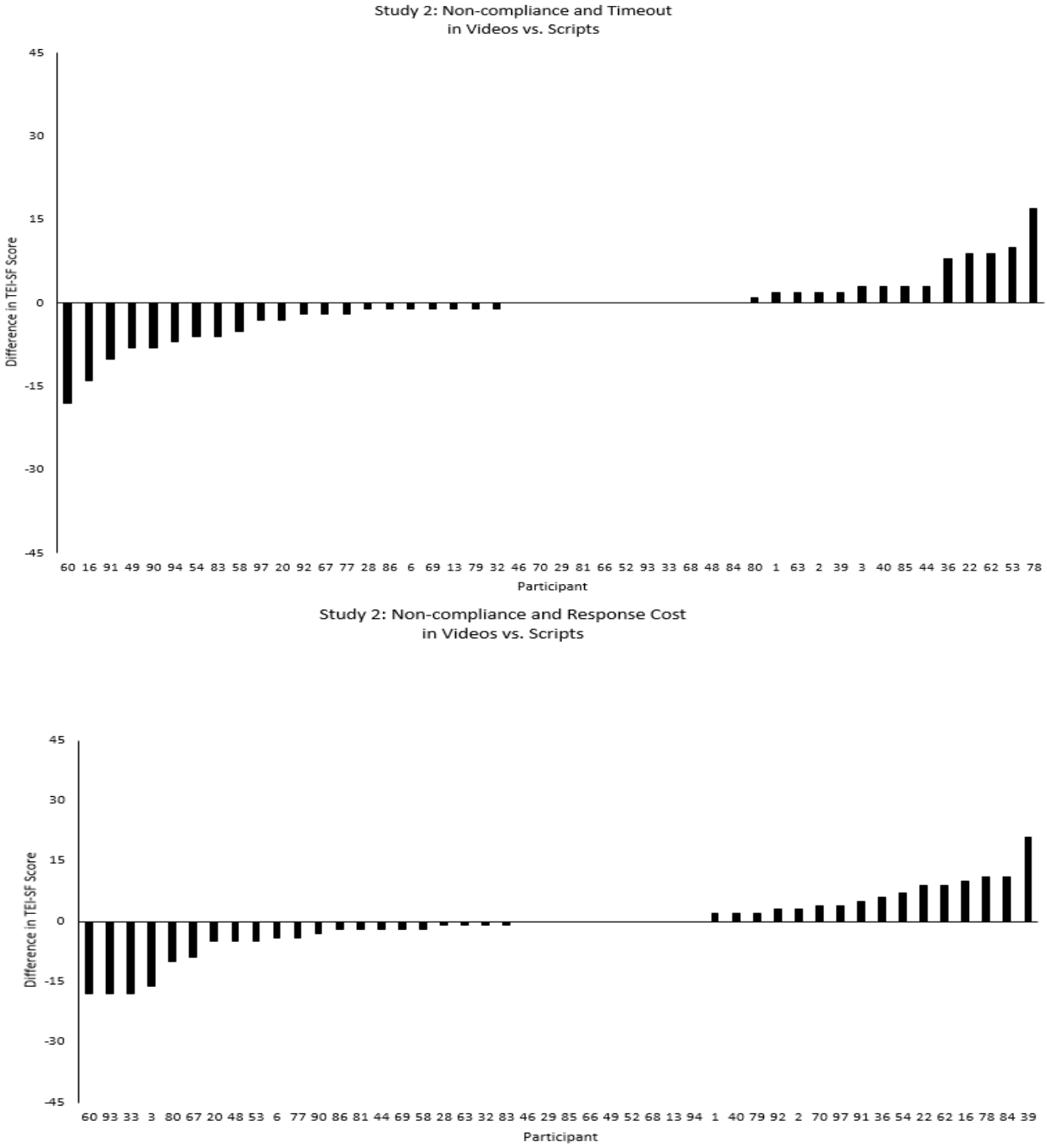


Figure 8. Study 2: Individual Differences in TEI-SF Scores across Presentation Type for Non-compliance and Punishment Scenarios. Negative values indicate higher TEI-SF score for script versus video. Positive values indicate higher TEI-SF score for video versus script. Zero value indicates no difference in TEI-SF score for video versus script.

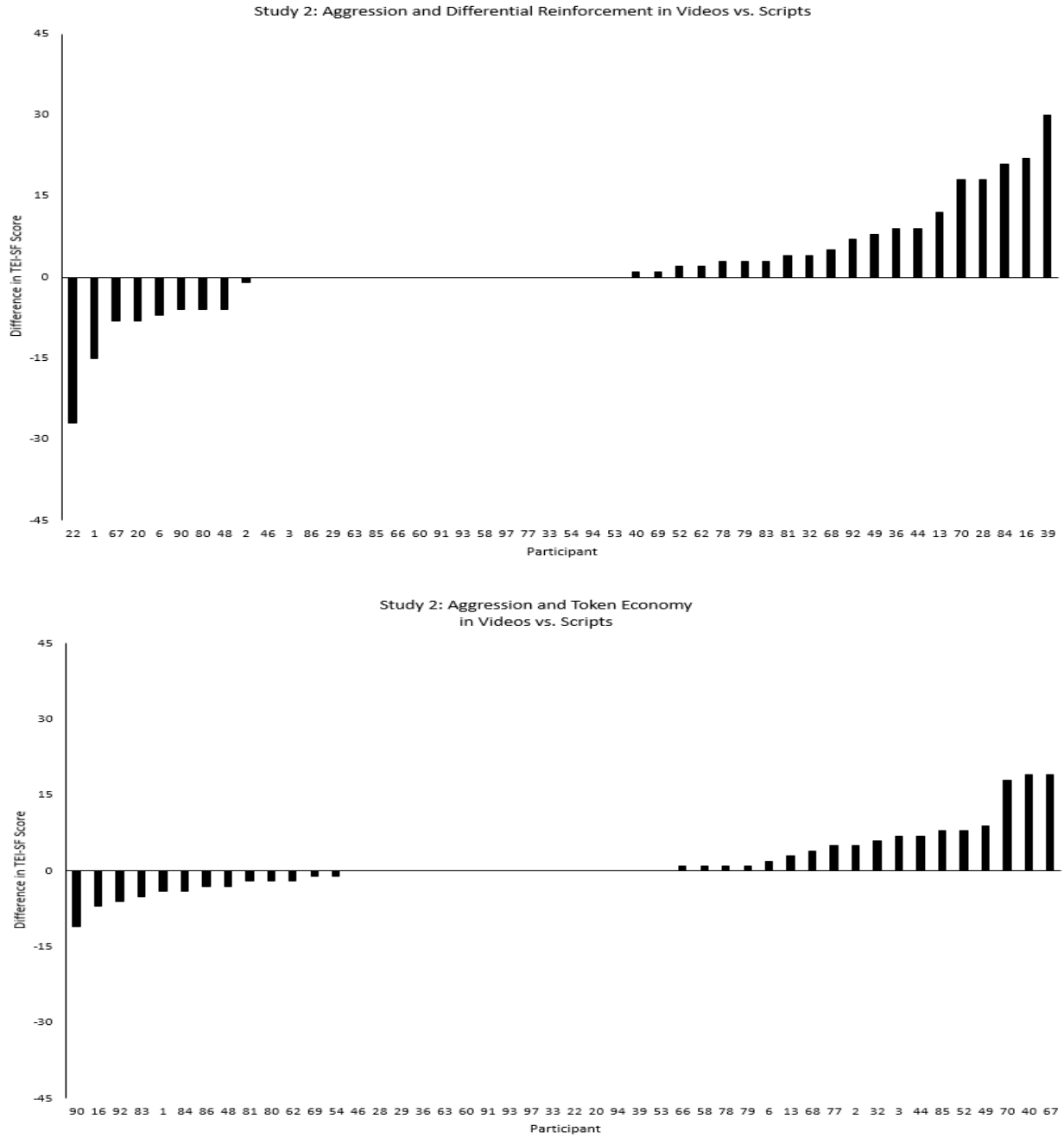


Figure 9. Study 2: Individual Differences in TEI-SF Scores across Presentation Type for Aggression and Reinforcement Scenarios. Negative values indicate higher TEI-SF score for script versus video. Positive values indicate higher TEI-SF score for video versus script. Zero value indicates no difference in TEI-SF score for video versus script.

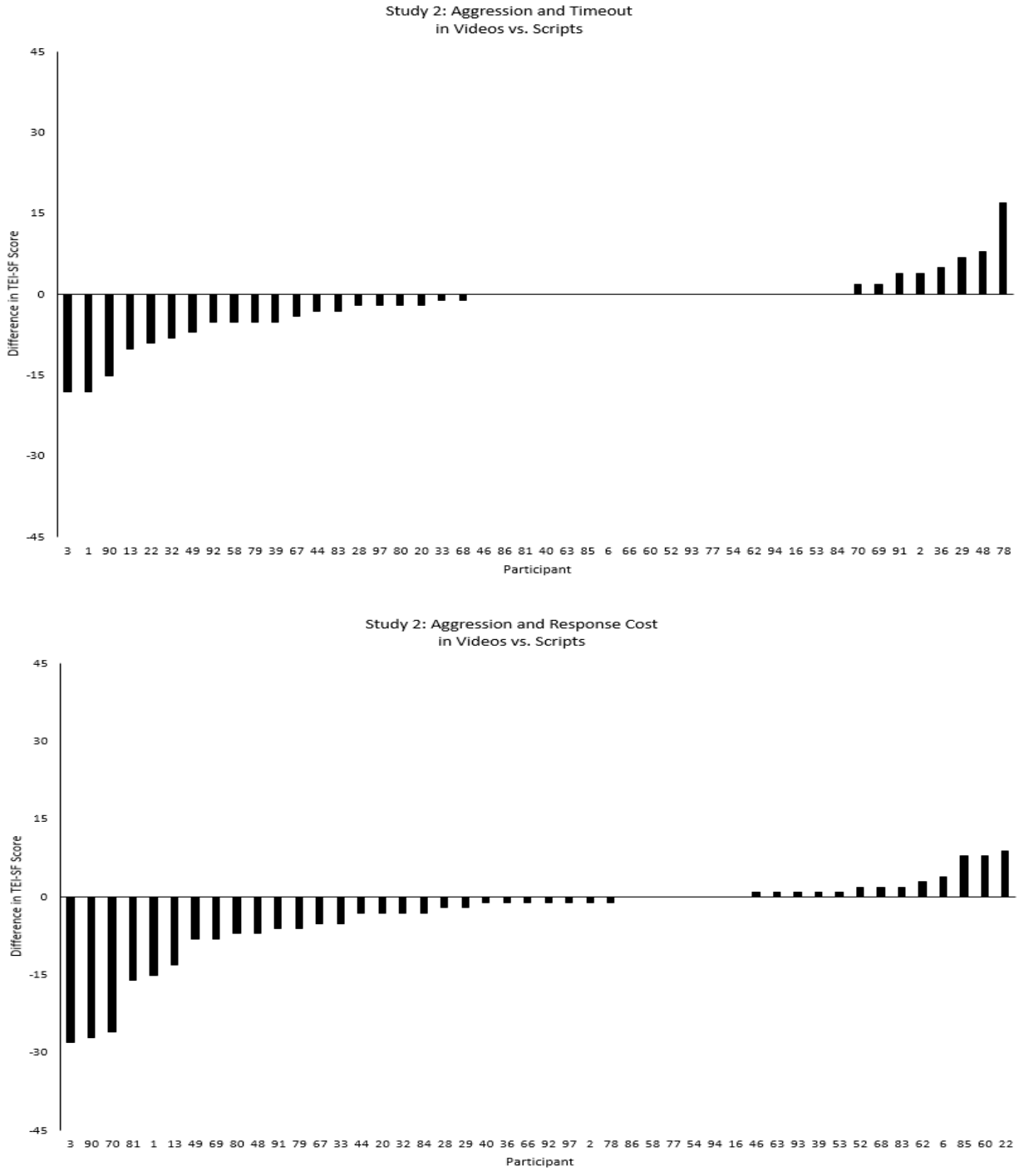


Figure 10. Study 2: Individual Differences in TEI-SF Scores across Presentation Type for Aggression and Punishment Scenarios. Negative values indicate higher TEI-SF score for script versus video. Positive values indicate higher TEI-SF score for video versus script. Zero value indicates no difference in TEI-SF score for video versus script.

Appendix G: List of Video Clips

The following video clips are supporting items for this thesis:

1. Non-Compliance Video Clip
2. Aggression Video Clip
3. Differential Attention Video Clip
4. Positive Reinforcement Via Token Economy Video Clip
5. Bribery Video Clip
6. Response Cost Video Clip
7. Time-Out Video Clip
8. Spanking Video Clip