

Attitude Certainty and Resistance to Persuasion: Investigating the Impact of Source Trustworthiness in Advertising

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Abstract

This experimental study extended previous research concerning cognitive load and source expertise on attitude certainty by replacing source expertise with another component of source credibility, trustworthiness. Under either high or low cognitive load conditions, participants generated counterarguments to a message either high or low in trustworthiness. Participants became more certain of their attitudes when counterarguing a source low in trustworthiness, but only under low cognitive load. The results of this study indicate that source trustworthiness and source expertise may be quite different in their effects on resistance to persuasion and should be considered separately.

KEYWORDS: Source trustworthiness, Cognitive load, Attitude certainty, Persuasion resistance

1. INTRODUCTION

Previous research has examined a multitude of different ad, source, and audience characteristics which can lead to attitude changes or persuasion. Increasingly these days, ad clutter and how to break through ad clutter in order to make messages noticeable to the intended target is of particular interest to advertisers. Traditionally clutter has been thought of in terms of a variety of ads and messages. However, the availability of cognitive resources to process those messages is another important determinant of comprehension and attitude, especially when more cognitive resources are required than what is available. This is illustrated quite well by Rumbo, who wrote “This daily regimen of advertising messages may exceed the information-processing abilities of most consumers, requiring them to filter out excess visual and aural marketing stimuli” (2002: 128). In today’s world with so much going on in our lives as well as our environment, it is vital to look into the effects of decreased cognitive resource availability on responses to advertising.

Similarly, with increased consumer skepticism, resistance to persuasion has become another hot topic for researchers and practitioners alike. The current study is based upon work by Tormala and Petty (2004b). We attempt to further their findings by incorporating the concept of source trustworthiness, which they had suggested as an intriguing avenue for future research. For the current study, we manipulated sources of trustworthiness and level of cognitive resources available in order to measure quantity and quality of counterarguments against an ad, attitude toward the product depicted in the ad, and attitude certainty.

2. LITERATURE REVIEW

2.1. Attitudes and Attitude Certainty

Attitudes toward the ad, product, or brand are a widely measured dependent variable in advertising research. Attitudes, however, are much more complex than might be considered at first glance. Components of attitudes that have been the focus of past research include attitude strength, complexity, and certainty, among others (for a review, see Fabrigar, MacDonald, & Wegener, 2005). Attitude certainty is the characteristic we are interested in for the present study. Attitude certainty is a measure of how sure an individual is that his or her attitude is correct (Gross, Holtz, & Miller, 1995) and previous studies have demonstrated that higher attitude certainty leads to stronger attitudes, which in turn are more enduring, are more indicative of eventual behavior, and are more resistant to change when challenged (Petty & Krosnick, 1995), all of which are attributes helpful to marketers and advertisers.

2.2. Resistance to Persuasion

The aim of advertisers is persuasion, which has been studied widely in previous literature, but in light of increasing consumer skepticism and advertising clutter, resistance to persuasion has increasingly been the focus of research. Many important characteristics of resistance to persuasion have been identified. For example, individuals tend to resist messages when they know a persuasive attempt is coming (Petty & Cacioppo, 1979) or when attitude strength is higher (Petty & Krosnick, 1995). In addition, there are multiple paths through which a person can engage in resistance. A comprehensive study by Jacks and Cameron (2003) in which participants were actually asked to write about how they would resist a change in opinion for a strongly held belief found evidence of six different resistance strategies which had been proposed by various other studies, and one strategy that had not yet been noticed. These included attitude bolstering, counterarguing, negative affect, selective exposure, social validation, and source derogation, and the new strategy discovered was asserting confidence. Several studies have documented the ability of participants to resist persuasive messages both when instructed to do so (Tormala & Petty, 2002, 2004a, b) and when not instructed to do so (Zuwerink & Devine, 1996; Ahluwalia, 2000).

Another important area of research is the effect of resistance to persuasion. Tormala and Petty (2002) showed that persuasive attempts which are resisted may actually lead to a strengthening of the original attitude, leading to more difficulty in persuasion later. The researchers suggested that an individual's level of metacognition might be one way to explain these findings. For example, a person is likely to know that they have resisted persuasion, and therefore once they have successfully resisted a message, they may believe that their original attitude is correct, especially if they were able to resist a message they perceived as strong. Of course, effective metacognition would depend on the availability of cognitive resources and elaboration, which is a concept addressed by Tormala and Petty (2004a, b). One of their studies found that when high elaboration takes place, attitude certainty increases in situations in which a message perceived as strong is resisted (the same is not true for a message perceived as weak) (Tormala & Petty, 2004a). Later research found that if an individual is engaged in other tasks and does not have the required cognitive resources available to elaborate on the message and their thoughts, resisting a message does not lead to attitude certainty (Tormala & Petty, 2004b).

Some later studies showed different results. Specifically, when participants were asked to counterargue a source low in credibility, but were then given feedback that they had done so in a weak (rather than strong) manner, their attitude certainty decreased (Tormala, Clarkson & Petty, 2006). However, counterarguing "weakly" (or, rather, being told that their counterarguments were weak) against an expert source did not lower attitude certainty.

2.3. Source Credibility

Source credibility is a term used to indicate the level of reliability of a message source for correct and true information (Kelman & Hovland, 1953). It is comprised of two separate concepts: source expertise which refers to a source's ability to provide correct information (Rhine and Severance 1970), and source trustworthiness, which describes the intention of the source to provide correct information (Mills & Jellison, 1967). Although many studies have focused on endorser or celebrity credibility, some research has investigated other levels of message credibility, such as corporate or message source credibility in general (for example, Lafferty, Goldsmith, & Newell, 2002). Typically, prior research has shown that higher source credibility levels lead to increased persuasion (Petty & Wegener, 1998), but many variables can affect the impact of source credibility on persuasion. For example, whether an individual processes a message using the central or peripheral route of persuasion (from the ELM) impacts the mechanism through which source credibility effects persuasion (Petty, Cacioppo, & Goldman, 1981; Chaiken & Maheswaran, 1994).

2.4. Cognitive Load

The Elaboration-Likelihood Model makes predictions about how source credibility will be used in the processing of messages, and also posits that when individuals have more motivation and/or ability to process a message, they will engage in central route processing, in which they think more in depth and elaborate more about a message (Petty & Cacioppo, 1986). The ability to engage in more effortful and effective processing may be hampered by internal or environmental factors that tie up cognitive resources, a notion suggested by the cognitive resource matching (CRM) hypothesis, an outgrowth of ELM (Keller & Block, 1997).

Previous research has used memorization of long (short) digit strings in order to manipulate high (low) cognitive load (Gilbert & Hizon, 1991; Tormala & Petty, 2004b). Differences in cognitive load (and therefore the ability of cognitive resources not used up by the number memorization task) have been shown to bring about differing levels of attitude certainty after exposure to an expert source providing a counter-attitudinal message. Lower levels of cognitive load have been demonstrated to lead to increases in attitude certainty (Tormala & Petty, 2004b). In addition, a fascinating interaction between source credibility (specifically source expertise) and cognitive load emerged in the same study such that cognitive load was only related to high attitude certainty when paired with a high credibility source. When looking at low cognitive load situations, attitude certainty was higher with the high source expertise condition, whereas in the high cognitive load condition, attitude certainty was elevated with a low credibility source. The authors explained these findings by pointing out that the higher cognitive load condition may have brought about lower levels of confidence about the ability to resist the message, especially when that message originated from a high credibility source, which may then have resulted in lower attitude certainty scores.

Another study found that when consumers perceive an ad as having an intent to manipulate, they process the ads analytically, but that under conditions of high cognitive load, this processing is limited and the effects of manipulation intent are decreased (Wentzel, Tomczak & Herrmann, 2010). Although it may be through different mechanisms (Tormala, Brinol & Petty, 2007), source credibility seems to lead to more positive attitudes in general, in both high and low cognitive load conditions. Therefore,

H1: Source trustworthiness will be positively associated with attitude toward the product, regardless of cognitive load conditions (low/high). Specifically, participants who experienced an ad high in source trustworthiness will show more positive attitudes toward the product than will participants who have been exposed to an ad low in source trustworthiness.

Following the logic of Tormala and Petty (2004b), participants who are able to elaborate more about their thoughts and attitudes (due to being in a low cognitive load condition) will be affected more by the source trustworthiness manipulation. Therefore,

H2: Source trustworthiness will interact with cognitive load to influence attitude certainty. Specifically, source trustworthiness is expected to moderate the effect of resistance on attitude certainty only in the high-elaboration conditions (low cognitive load) conditions, but not in the low-elaboration (high cognitive load) conditions.

3. METHOD

The current study extended research by Tormala and Petty (2004b) based upon their suggestions for future research. One major change was made in terms of the independent variables measured, and a few minor changes were made in the methodology in order to enable the researchers to conduct the experiment without the use of computers.

3.1. Experimental Design

A 2 (cognitive load: low/high) X 2 (source trustworthiness: low/high) between subjects experimental design with 1 external control group was utilized. Participants were randomly assigned to conditions.

3.2. Participants

A total of 125 undergraduates at a large southeastern university participated in the study in exchange for extra credit points.

3.3. Materials

A pre-test involving 34 undergraduates was conducted to assist with the design of the manipulations for trustworthiness. The ads to be used in the study were developed with assistance from a graduate student familiar with graphic design.

3.4. Procedure

Participants were given a packet of experiment materials. The first page following the informed consent document provided instructions, which were also explained by the experimenter. Participants first read a paragraph explaining that the purpose of the study was to examine reactions to advertisements, and that they would be asked to generate counterarguments against advertisements they would be viewing. Next, the participants read an excerpt concerning the product in the ads, AspirinForte. This product is not sold in the United States so it was unlikely that this brand had been experienced by many of the participants. The paragraph stated:

“You will first be looking at a new aspirin product, *AspirinForte*. We are especially interested in *AspirinForte* because it has been receiving some negative press. Specifically, in preliminary trials, human test subjects complained that the pills were difficult to swallow and unpleasant tasting. Also, the aspirin contains a chemical additive that is harmless to humans who ingest it, but potentially damaging to the environment when produced in mass quantities.”

Following the reading of the negative product information, the cognitive load manipulation occurred. In the high cognitive load condition, participants were instructed to rehearse an 8 digit number (46732418) whereas in the low cognitive load condition, participants rehearsed a 3 digit number (321). Participants read the following paragraph:

“It is important to make this experiment as real as possible. In the real world, people are often exposed to ads and other persuasive communications in busy or distracting contexts, and it is important to simulate these conditions in the experiment. Therefore, we would like you to mentally rehearse the number below while viewing the ad and listing counterarguments. This technique has been shown in previous research to effectively mimic real-world conditions.”

After rehearsing the number as long as they liked, participants turned to the next page of the packet, which featured the full-color ad stimulus. They were instructed to refrain from returning to any page once they had left the page. No participants were witnessed disobeying these instructions. After viewing the ad for as long as they wanted, the participants read the following instructions:

“Now that you have seen the advertisement for the product, we would like to collect the arguments you can raise against it. Please do your best to list as many as you can.”

Participants were given the majority of a blank 8.5” X 11” sheet of paper on which to list any counterarguments they had against the product. After listing as many counterarguments as they wished, the participants responded to questions designed as manipulation checks for cognitive load and trustworthiness, as well as completing measures of attitude toward the product, attitude certainty, and perceived difficulty in listing counterarguments.

3.5. Independent Variables

3.5.1. Cognitive Load

Cognitive load was manipulated by instructing participants to memorize either a longer (8 digit) or shorter (3 digit) number for high and low cognitive load, respectively. This manipulation was checked in the main experiment. This way of manipulating cognitive load has been found to be effective in previous studies (Gilbert & Hixon, 1991; Tormala & Petty, 2004b).

3.5.2. Source Trustworthiness

A pretest was conducted to determine the trustworthiness of possible sources to use in the experiment, and from this, we determined that the Food and Drug Administration (FDA) was perceived as a source high in trustworthiness ($M=5.93$), while the manufacturer of the product was considered to be a source low in trustworthiness ($M=3.45$). This manipulation was also checked in the main experiment.

In the main experiment, source trustworthiness was measured with a set of six items. Five of these items were borrowed from Ohanian’s (1990) scale of trustworthiness of celebrity endorsers, and one item was adapted from Tormala and Petty’s (2004b) measure of source expertise to measure source trustworthiness. The Cronbach’s Alpha was .96 for these six items, which demonstrates that they had high internal consistency.

3.5.3. Control Condition

14 participants were randomly assigned to the control condition, which was identical to the experimental conditions except that the control condition participants did not view an ad and were not subjected to the cognitive load manipulation. The control condition served as a way to investigate the impact of viewing an ad, and therefore whether individuals were persuaded by the ad or resisted persuasion by the ad.

3.6. Dependent Variables

3.6.1. Attitudes

Attitude toward the product was measured using five 9-point scales, as was utilized in Tormala and Petty (2004b). These scales included the endpoints of *dislike very much-like very much*, *very bad-very good*, *very unfavorable-very favorable*, *very negative-very positive*, and *very harmful-very beneficial*. The internal consistency was high ($\alpha=.92$).

3.6.2. Attitude Certainty

Attitude certainty was measured with a single question borrowed from Tormala and Petty (2004b). The question was: "How certain are you of your attitude toward AspirinForte?" Respondents answered on a 9-point scale bounded by *not at all certain-extremely certain*.

3.6.3. Counterarguments

As was the case in Tormala and Petty (2004b), both the quality and quantity of counterarguments were analyzed for the present study. Two judges reviewed the counterarguments and rated each one on a scale of 1 (not at all convincing) to 9 (extremely convincing). The intercoder reliability of the judges was high, $r=.92$, $p<.01$.

3.6.4. Manipulation Checks

To ensure that the source trustworthiness manipulation had been successful, participants answered the question "How much trustworthiness do you think the source of the information in the advertisement had?" on a 9 point scale bounded by none at all to very much. The cognitive load manipulation was tested with a set of three questions as used in Tormala and Petty (2004b), which included, "To what degree did you pay attention to the information in the advertisement?", "To what extent did you think about the product and information in the advertisement?", and "To what extent did rehearsing the number take your attention away from reading the information in the ad?" (reverse coded). Each question was answered on a scale of 1 (Not at all) to 9 (Very much). The internal consistency of these three items was $\alpha=.69$. Although this is somewhat on the lower end of acceptability for internal consistency, the fact that the measures included a reverse coded item made this level more expected; participants typically find reverse-coded items more confusing than other items.

3.6.5. Perceived Difficulty of Resistance

In order to determine the participants' perceived difficulty of resistance to the message in the advertisement, one question was placed at the end of the questionnaire which asked, "Overall, how difficult was it for you to come up with arguments against AspirinForte?" Participants responded using a scale of 1 (Not at all) to 9 (Very much). This scale was adapted from Tormala and Petty (2002, 2004b).

4. RESULTS

4.1. Manipulation Checks

We first examined the data and excluded from further analysis any participants ($n=15$) who did not correctly recall the number which had been serving as the high or low cognitive load manipulation. Since these participants had been unable to accurately recall the number they had been provided, we could not be certain of whether they had been adequately grouped into high and low cognitive load conditions. Next, we performed an analysis of variance on the data to determine if our manipulations for source trustworthiness and for cognitive load had worked. We determined that both manipulations worked as predicted. Participants in the low source trustworthiness condition reported that the source of their message was less trustworthy ($M= 4.04$, $SD= 1.24$) than did participants in the high source trustworthiness condition ($M= 5.82$, $SD= 1.72$), and it was a statistically significant, $F(1, 129) = 39.34$, $p< .001$. The cognitive load manipulation was also successful. Participants in the high cognitive load condition reported lower levels of elaboration ($M= 6.02$, $SD= 1.53$) than did participants in the low cognitive load condition ($M= 6.57$, $SD= 1.30$), $F(1, 109) = 4.25$, $p< .05$.

4.2. Perceived Difficulty of Resistance

The difficulty of resistance data was analyzed in order to determine if there was an effect of level of cognitive load on the perceived difficulty participants had with resisting the ad. No significant differences among participants with low ($M= 4.63$, $SD= 2.18$) and high cognitive load ($M= 4.84$, $SD= 2.15$) were found, $F(1, 107)= .27$, $p= .61$.

4.3. Attitude

In order to test Hypothesis 1, which stated that source trustworthiness would be positively associated with attitude toward the product, we measured attitudes toward the product and analyzed them using a two-way analysis of variance. As Table 1 shows, the results indicated a main effect of trustworthiness, such that participants exposed to the low trustworthiness manipulation showed less positive attitudes ($M= 4.26$) than did participants exposed to the high trustworthiness ad ($M= 4.82$) condition, and this was statistically significant $F(1,107)= 6.61$, $p < .01$. This means that participants who saw the information “gathered by” the FDA had more positive attitudes toward the AspirinForte product than did participants who saw the information “gathered by” the company manufacturing AspirinForte. Therefore, Hypothesis 1 was supported. The analysis also indicated an effect of viewing the ad on attitude scores in most cases. Specifically, attitude scores were higher in three of the four experimental conditions $F(4, 120)= 5.46$, $p < .001$, as opposed to the control condition, in which participants did not view any ad. However, there was no statistically significant difference between the high cognitive load/low trustworthiness condition and the control group, $p= .23$.

4.4. Attitude Certainty

Hypothesis 2 proposed that attitude certainty scores would depend on both source trustworthiness and cognitive load. More specifically, that source trustworthiness would moderate the effect of resistance on attitude certainty only in the low cognitive load condition. In order to test this, we subjected the attitude certainty scores to an analysis of variance. Table 2 shows that there was a significant interaction between cognitive load and source trustworthiness on attitude certainty, $F(1, 107)= 7.76$, $p < .01$. Source trustworthiness influenced attitude certainty in the low cognitive load condition but not in the high cognitive load condition. Thus, Hypothesis 2 was supported. Attitude certainty depends on both cognitive load and source trustworthiness (see Figure 1).

Table 3 shows the number of participants, the mean, and standard deviation of attitude certainty for each cell. Simple effects analyses revealed that, for participants under low cognitive load, those who had experienced the low trustworthiness source had higher attitude certainty than did participants who experienced the high trustworthiness source, $t(107)= 2.19$, $p < .05$. Simple effects tests for the high cognitive load condition were not significant, $p > .05$, indicating that for participants who were under high cognitive load, exposure to a source either high or low in credibility resulted in similar attitude certainty scores.

4.5. Counterarguments

The dependent variable of counterarguments was analyzed in terms of both quantity and quality of counterarguments provided. There were no statistically significant differences among experimental conditions, $F_s < 2.60$ for the number of counterarguments and $F_s < 3.10$ for the quality of counterarguments. However, as shown in Table 1, there was a tendency for low cognitive load participants to have higher quality counterarguments ($M= 5.21$ vs. $M= 5.09$, respectively) but fewer of them than high cognitive load condition participants ($M= 3.90$ vs. $M= 3.97$, respectively). Using Scott's Pi, the intercoder reliability of the judges was high, $r=.92$, $p < .01$ (Riffe, Lacy & Fico, 2005).

4.6. Intercorrelations

We conducted Pearson correlational analyses on the dependent variables. It was determined that a weak negative correlation exists between attitude certainty and attitude, $r= -.25$, $p < .01$. That is, as a participant's attitude became more positive, they tended to be less certain of that attitude. No statistically significant correlation was found between attitude certainty and quality of arguments, $r= -.17$, $p= .07$, nor between attitude certainty and quantity of counterarguments, $r= .11$, $p= .27$. There was also no correlation between attitude and number ($r= -.10$, $p= .28$) or quality ($r= .08$, $p= .41$) of counterarguments. The quantity and quality of arguments were also not correlated with each other in a statistically significant manner, $r= -.17$, $p= .08$.

5. DISCUSSION

The aim of this paper was to investigate the effects of source trustworthiness (a component of source credibility) and cognitive resource availability on attitudes and attitude certainty. Previous research (Tormala & Petty, 2004b) had shown an interaction of cognitive load and level of source expertise on attitude certainty such that cognitive load impacted attitude certainty when participants counterargued a high expert source but not a low expert source. However, our results using source trustworthiness rather than expertise provided a different set of results. Specifically, our research uncovered an interaction between source trustworthiness and cognitive load on attitude certainty, but in the opposite direction demonstrated by Tormala & Petty (2004b). In other words, participants in the current study became more certain of their attitudes after listing counterarguments against an ad with a source low in trustworthiness, but only in the low cognitive load condition. Previous research has often failed to differentiate between source expertise and source trustworthiness when measuring the concept of source credibility, but our results, paired with those of Tormala & Petty (2004b) suggest that these sub-concepts under the main heading of source credibility actually work in different ways toward the attitudes and attitude certainty levels brought about by resisting an ad. Tormala and Petty (2004b), the researchers whose study we were replicating with the one substitution of trustworthiness for expertise, found no main effect of expertise on attitude, however our study revealed that higher trustworthiness levels led to more positive attitudes.

This suggests that having a trustworthy source may actually be more beneficial than having a source with a high expertise level, since across levels of cognitive load, the trustworthy source brought about more positive attitudes. This agrees with research by McGinnies and Ward (1980) who found that although a trustworthy *and* expert source brought about the highest amount of attitude change, a person who was trustworthy was able to change opinions regardless of whether or not they were perceived as an expert. Perhaps trustworthiness is more of an affective component of source credibility whereas expertise is a cognitively related variable, although an exhaustive search of the literature produced no research linking those concepts. Regardless of the type of ad, our results found that viewing any of the four ads in the experimental conditions led to an increase in favorable attitudes toward the product. This was also in disagreement with Tormala and Petty (2004b). The only exception to this was with the high cognitive load/low trustworthiness condition. It seems that something in the combination of having a lot on one's mind and experiencing a source that cannot be trusted makes individuals less likely to like the product. Perhaps memorizing the long number put participants in a negative mood and when they were then exposed to a source they felt may have ulterior motives, they had a more negative reaction to the product depicted in the ad. This result has important implications in today's society where we have a rather cluttered advertising environment. Our results suggest that under these conditions a trustworthy source is important, especially if the ad will be viewed by people who are dealing with other cognitive tasks while they see the ad.

5.1. Limitations

The limitations of our study include several of the same troubles that plague many studies; our sample consisted of college students only and can therefore not be generalized beyond the campus and perhaps the classrooms in which the studies were conducted. Although the student participants were compensated for their participation with extra credit points, the motivation to fully engage in the research was most likely not high. Another limitation was our use of a fictitious ad. Since we were using a product that is not available in the United States, we could not obtain any real advertisements for the product and therefore had to have them constructed for us. This may have limited the realism of the materials.

5.2. Directions for Future Research

Future research is needed in many avenues relating to the current research. Firstly, as discussed in the limitations section, it would be helpful to look at both aspects of source credibility and their combined effects on attitude certainty in the face of resistance to persuasion. Also, it would be intriguing to see whether manipulating the trustworthiness of the same company rather than two different organizations would produce similar or different results. In the current study, we asked participants to form counterarguments against the ad as a form of resistance to persuasion, but as discussed earlier, there are several other techniques individuals use to resist messages. It would be helpful to utilize some of the most popular methods of persuasion resistance in order to see whether the results of Tormala and Petty (2004b) or our results hold true in those circumstances. Lastly, the idea that the two components of source credibility, expertise and trustworthiness could be tied to cognitive and affective processes respectively is deserving of further investigation and thought.

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Table 1.

Cognitive Load	Source Trustworthiness	
	Low	High
	Attitude	
Low Load	4.40 ^{a,b,c}	4.70 ^{a,b}
High Load	4.12 ^{b,c,d}	4.93 ^a
Control	3.34 ^e	
	Attitude Certainty	
Low Load	5.62 ^a	4.59 ^b
High Load	4.50 ^b	5.37 ^{a,b}
Control	4.35 ^b	
	Counterarguments	
Quality		
Low Load	5.09 ^a	5.34 ^a
High Load	5.08 ^a	4.84 ^a
Number		
Low Load	4.34 ^a	3.44 ^a
High Load	4.15 ^a	3.96 ^a

Note. Means with unlike superscripts within measure differ at $p < .05$.

Table 2.

Variable and Source	df	MS	F
Attitude Certainty			
Cognitive Load	1	.78	.24
Source Trustworthiness	1	.19	.06
Cognitive*Trustworthiness	1	25.12	7.76*
Error	107	3.24	

Note. * $p < .05$; $\eta^2 = .89$

Table 3.

Cognitive Load	Low Trustworthiness			High Trustworthiness			Total	
	N	M	SD	n	M	SD	M	SD
Low Cognitive	29	5.62	1.59	29	4.59	2.03	5.10	1.88
High Cognitive	26	4.50	1.96	27	5.37	1.57	4.94	1.81
Total	55	5.06	1.78	56	4.98	1.8	5.02	1.85

Figure 1.

