



Getting Better Data in Online Surveys: Offering an Incentive for Responding Behavior Lowers Careless Responding.

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INTRODUCTION

It is common for participants to respond carelessly to items within a survey. Previous studies have reported that 50-70% of college students admit to answering carelessly on one or more items in the Minnesota Multiphasic Personality Inventory (Baer, Ballenger, Berry, & Wetter, 1997; Berry et al., 1992). In a more recent study, Maniaci and Rogge (2014) found that 84% of participants reported occasionally skipping instructions and 19% reported skipping instructions in surveys more than half the time.

Careless responding adds noise to the analysis, obscuring results, undermining validity, and casting doubt on reliability (Maniaci & Rogge, 2014; Meade & Craig, 2012). These concerns highlight a need to develop interventions that reduce careless responding. Interventions that use reinforcement or punishment rule-based antecedent manipulations may reduce careless responding

In Huang and colleagues' (2012) study on careless responding, they divided undergraduate participants into two groups. One group received a warning of punishment as part of the survey instructions, and the other did not. The warning indicated that statistical controls would be used to verify if the participant's responses were valid and that careless responding would result in a loss of the earned credits. Results showed a significantly lower amount of careless responding within the warning group (Huang et al., 2012).

Meade and Craig (2012) similarly compared participants who received survey instructions in three conditions: 1) total anonymity, 2) instructions to participants to supply their name on each page of the survey and 3) a warning that the participant's answers that were not honest responses were subject to the university's academic integrity policy. The researchers found a significant difference in carelessness between those who were anonymous and those who were identified, but they found that the warning condition had no significant benefit.

Both studies examined the effect that the threat of punishment could have on careless responding, but to our knowledge, no study to date has examined the role of using a reinforcement rule-based antecedent manipulation. Rewards can be effective in increasing effort on mentally fatiguing tasks (Herlambang, Taatgen, & Cnossen, 2019). Therefore, the aim of the current study was to examine if providing a reward or incentive would increase attention and decrease careless response.

METHOD

Participants

- 585 Undergraduates
- 291 in incentive condition, 294 in control
- 64.1% Female, 33.7% Male, .3% trans male/transman, .3% trans female/transwoman, 1.5% gender noncomplying.
- Mean age: 22.69 years old ($SD = 6.55$)
- Education Level: 45.5% Freshman, 35.7% Sophomore, 13% Junior, 5.8% Senior
- 49.4% White, 29.2% Latino/Hispanic, 7.5% Biracial, 6.3% African American, 4.3% Asian/Pacific Islanders, 1.9% Other, and 1.4% Native American /Aleut

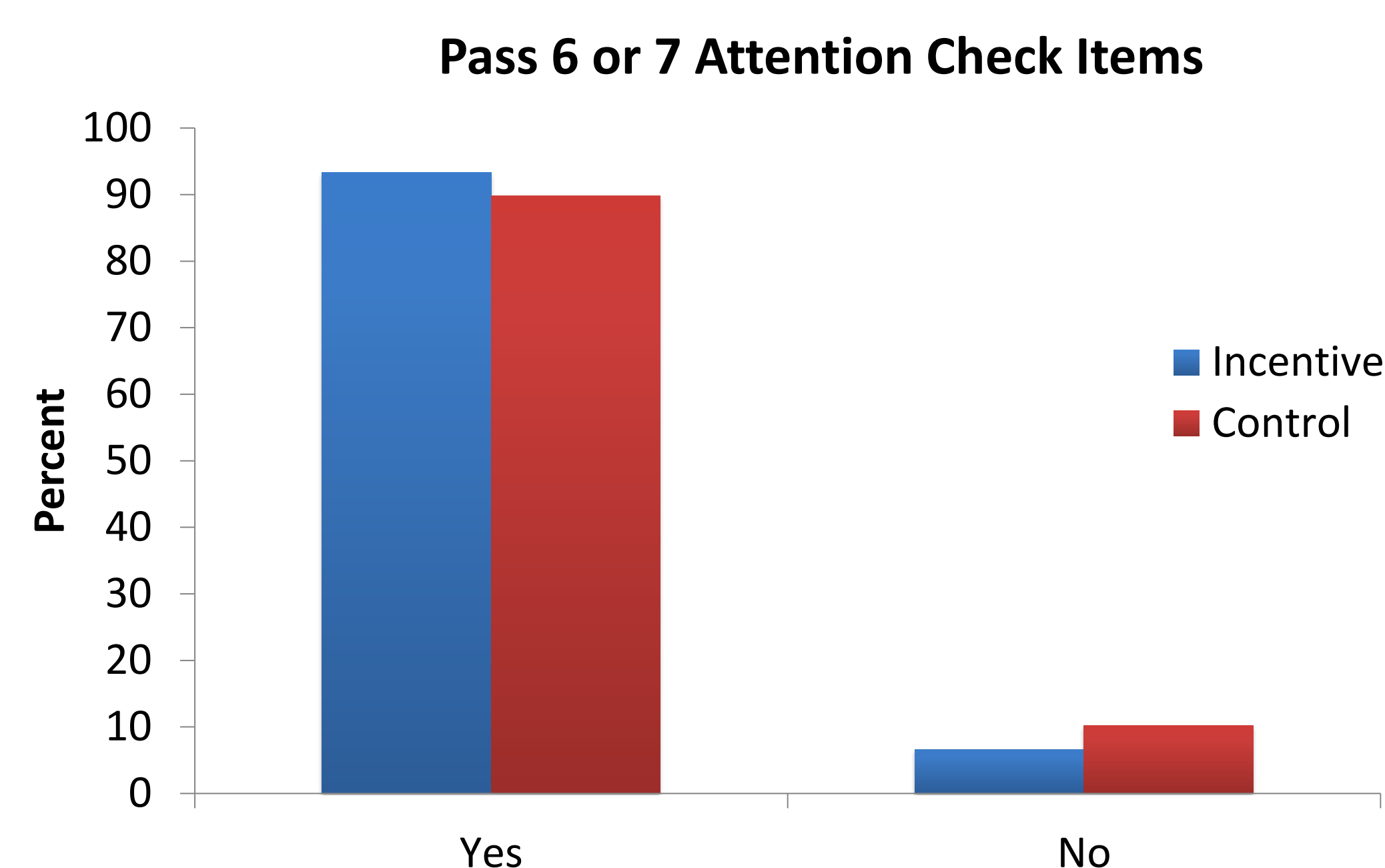
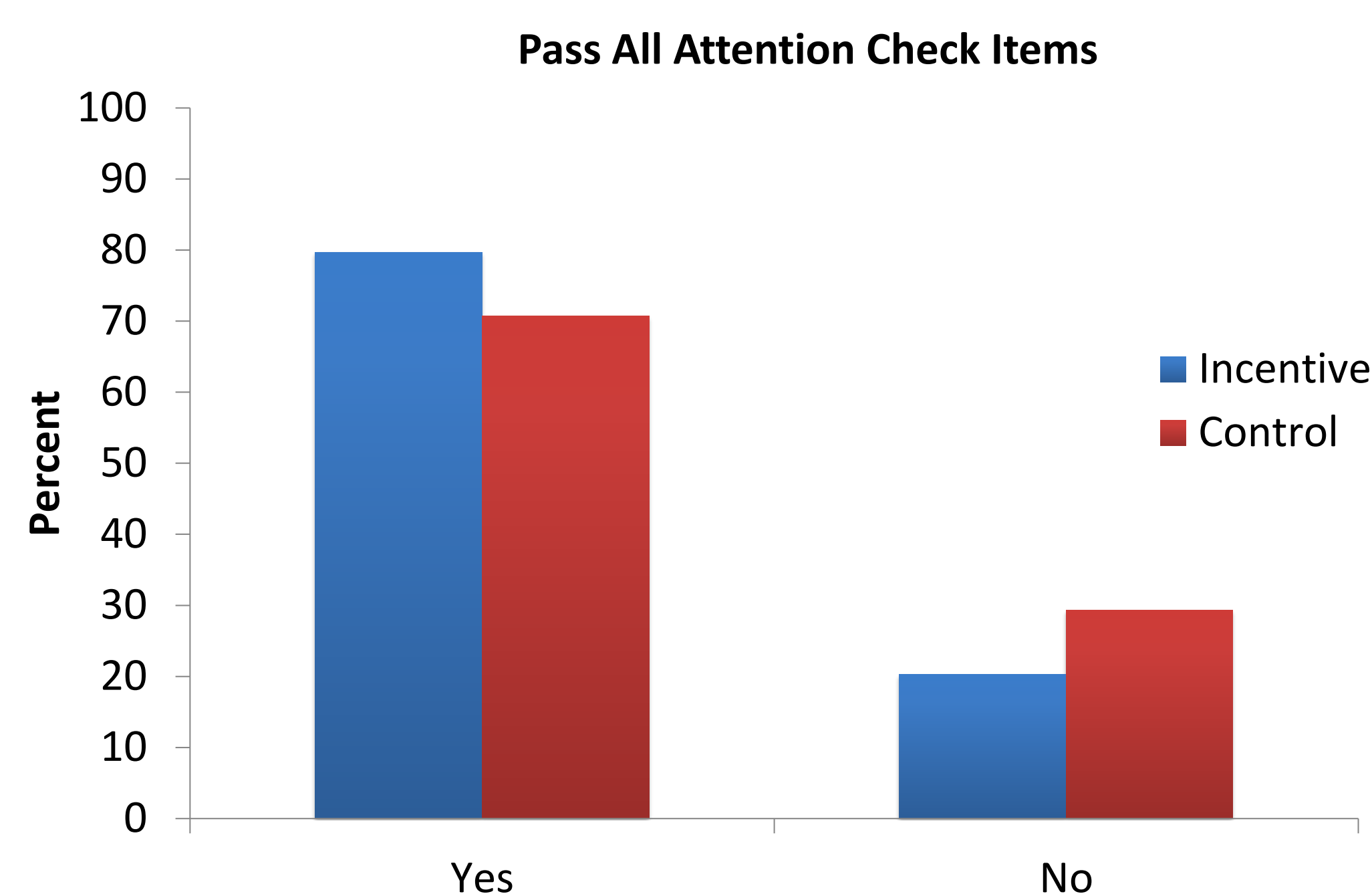
Procedure

- Participants were randomly assigned to either an incentive or control condition. In the incentive condition, participants were informed that they would be entered into a drawing to win 1 of 10, \$50 Amazon gift cards if statistical analyses showed they answered honestly and accurately. Participants in the control condition were not informed of the drawing or any statistical analysis of responses. All participants received course credit for their participation regardless of careless responding and all were entered into the drawing for the gift cards.

Measures

- Demographic questionnaire.** The demographic questionnaire assessed variables such as age, gender identity, race/ethnicity, and year in school.
- Attention check items.** Seven attention check items were placed throughout the assessment battery (e.g., "For this item, please click the 'frequently true' circle" and "Circle C for this item").
- Assessment battery.** The assessment battery contained the following surveys: Compassionate Love Scale (Sprecher, 2005), Acceptance and Action Questionnaire for Stigma (Levin, Luoma, Lillis, Hayes, & Vilardaga, 2014), Interpersonal Reactivity Index (Davis, 1983), Acceptance and Action Questionnaire – II (Bond et al., 2011), Social Dominance Scale (Pratto, Sidanius, Stallworth, & Malle, 1994), Homophobia Scale (Wright, Adams, & Bernat, 1999), Self Report of Behavior Scale (Roderick, McCammon, Long, & Allred, 1998), Attitudes Towards Lesbian and Gay Men (Herek, 1988), Right Wing Authoritarianism (Rattazzi, Bobbio, & Canova, 2007), Religious Orientation Scale (Gorsuch & McPherson, 1989), and the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960).
- Effort Item.** We used the following item from Meade and Craig (2012): "Lastly, it is vital to our study that we only include responses from people that devoted their full attention to this study. Otherwise years of effort the researchers and the time of the other participants could be wasted. You will receive credit for this study no matter what, however, please tell us how much effort you put forth towards this study. I put forth ___ effort towards this study."
- Attention Item.** We used the following item from Meade and Craig (2012): "Also, often there are several distractions present during studies (other people, TV, music, etc.). Please indicate how much attention you paid to this study. Again, you will receive credit no matter what. We appreciate your honesty! I gave this study ___ attention."

RESULTS



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Regarding attention check items, 79.7% of participants passed all attention check items in the incentives condition compared with 70.7% in the control condition. A Chi-square of independence was calculated comparing the frequency of passing all attention check items in the incentives and control conditions. Results were significant, with participants in the incentives condition being more likely to pass all attention check items, $\chi^2(1, N = 585) = 6.32, p = .01$.

Additionally, approximately, 93.35% of participants passed six or seven attention check items in the incentives condition versus 89.8% in the control. A Chi-square of independence was calculated comparing the frequency of passing six or seven attention check items in the incentives and control conditions. The interaction was not significant, $\chi^2(1, N = 585) = 2.57, p = .11$.

A MANOVA was used to examine whether there were mean differences in self-reported attention and effort items between conditions. There was not a statistically significant difference in attention and effort scores between the incentive condition ($M = 4.42, SD = .72; M = 4.54, SD = .66$) and the control condition ($M = 4.33, SD = .70; M = 4.40, SD = .67$), $F(2, 584), p = .05$, Wilks' Lambda = 2.97; partial $\eta^2 = 01$.

DISCUSSION

The results of the current study showed that 9% more of the participants in the incentive condition passed all of the attention check items compared to the control condition. This was the first study to our knowledge that examined the effectiveness of an incentive-based intervention on careless responding behavior. One previously published study found that a warning/punishment condition significantly reduced careless responding compared to a control condition (Huang et al., 2019) but another study did not find a difference between those two conditions on careless responding (Meade & Craig, 2012).

Approximately 25% of the full sample failed at least one attention check item. This finding is consistent with previous research (Baer, Ballenger, Berry, & Wetter, 1997; Berry et al., 1992; Maniaci & Rogge, 2014) and highlights a need to use attention check items in long surveys to flag careless responders.

Future research could compare incentive and stern warning/punishment conditions on careless responding in the same study to see if one intervention is more effective than the other. The incentive for careful responding (i.e., drawing entry) reduced careless responding in the current student sample but future researchers could examine the effects of varied monetary amounts among a variety of populations. Additionally, not all researchers have money to offer as an incentive to reduce careless responding. Therefore, future research could examine other incentives that do not cost money (e.g., earning more course credit for careful responding behavior).

It is also important to note the limitations of this study. The sample consisted of individuals from one university and was limited to only college students.