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Alcohol Myopia Theory meets Lost-Letter Technique; A study on the influence of alcohol on altruistic behavior

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Introduction

Drinking alcohol is well accepted in society, although it causes many problems. Alcohol intoxication is linked to many negative behaviors such as violence and risky decision making. Therefore many studies have focused on the negative effects of alcohol (e.g., MacDonald et al., 1995: 1996). One of the main theories on the effects of alcohol on behavior is the Alcohol Myopia Theory (Josephs & Steele, 1990). This theory has been used for many studies on the negative effects alcohol (e.g., MacDonald et al., 2000). Alcohol causes a narrowing effect on the attentional span, which leads individuals to react directly to the cues. The main findings of these studies are that when alcohol intoxicated individuals are given impelling cues for negative behaviors (e.g. driving under influence); they show more positive intentions and less negative attitudes towards these behaviors. When given inhibiting cues, alcohol intoxicated individuals show less positive intentions towards these behaviors. This effect does not occur for sober individuals. This raises the question whether alcohol intoxicated individuals will also show more positive intentions and attitudes towards positive behaviors, when given impelling cues. So far this has not been tested.

ABSTRACT

The present study focused on the effects of alcohol on altruistic behavior. With a field experiment it was tested if the Alcohol Myopia Theory (AMT) can also account for altruistic behavior. So far this theory had only been applied to the inhibiting or impelling effects of alcohol on negative behaviors. The study contained a 2 x (Timing: office hours versus bar hours) x 2 (Conspicuousness of envelopes: high versus low) x 3 (Cue in address: Altruistic versus Neutral versus Averse) experimental design making use of the Lost Letter-Technique (LLT). It was hypothesized that there would be a higher response for the drops made during office hours, this was supported. No difference was found for the use of the two envelopes differing on conspicuousness, which gave no support for the second hypothesis. No effect was found for the use of the altruistic cue. A weak significant effect for the averse cue was found for drops made during bar hours; this effect was not found for drops made during office hours. This gives marginal proof for the hypothesis that persons under the influence of alcohol react to the most salient cue given at that time, as postulated by the AMT. The current study is an addition to previous literature on the LLT for its use of envelopes differing on conspicuousness and (most likely) alcohol intoxicated participants. Although no significant effects were found, the current study is a first step towards testing whether the AMT can also be applied to positive behaviors, in this case altruism.

> The present study focuses on the positive effects of alcohol, in this case on altruistic behavior of people under the influence of alcohol. The main theory for this study is the Alcohol Myopia Theory. Since social desirability is a common problem with studies on positive behaviors the Lost-Letter Technique was used. The main research topic is to test whether alcohol intoxicated individuals also show more altruistic behavior (measured by response of lost letters), when given impelling or inhibiting cues, as hypothesized by the AMT.

Theory

The Alcohol Myopia Theory by Josephs and Steele (1990) is one of the best accepted theories on the effect of alcohol on behavior (Giancola, 2010). The Alcohol Myopia Theory (AMT) postulates that consuming alcohol has a narrowing effect on a persons cognitive capacity. Alcohol consumption makes people come to a state of myopia that restricts the range of internal and external cues that can be perceived and processed. As a result, remaining cognitive capacity and thus the remaining attentional resources focus on only the most salient, easy-to-process and attention grabbing cues. The consequence of this myopia is that the full meaning of less salient cues might never be processed, or even perceived. The model maintains the hypothesis that the behavior of intoxicated persons will depend on the cues that are most salient at that moment. People will be more or less likely to exhibit risky behavior, depending on the cues provided.

This hypothesis was first tested in a series of studies by MacDonald and colleagues (1995) on attitudes towards driving under influence. Sober and intoxicated participants completed a questionnaire assessing their attitudes and intentions to drink and drive in a number of situations. Different versions of the questionnaire were used, differencing in the way questions were phrased. One version of the questionnaire had questions phrased in an impelling manner to drink and drive (e.g. getting quickly, not having to pay for a taxicab). The other version had questions phrased in an inhibiting manner

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to drink and drive (e.g. getting in an accident or getting arrested). Results show that when given impelling cues, intoxicated persons show significantly higher intentions and significantly less negative attitudes towards drinking and driving, than sober persons. When questions were phrased in a non-compelling manner, intoxicated subjects responses were generally in line with the responses by sober subjects.

After their first study on driving under influence MacDonald and colleagues (1996) carried out a study on the decision whether to have risky sex. Sober and intoxicated participants viewed a video vignette depicting a male and female undergraduate couple who are interested in having sexual intercourse, but had no condom available. Impelling cues were imbedded into the video (female character was very attractive; she discloses that she takes birth control pills). As expected males randomly assigned to the intoxicated condition reported more favorable intentions toward having unprotected sex than did their sober counterparts and the ones that were given a placebo.

MacDonald and colleagues (2000) carried out another series of studies on risky sexual behavior. Their first three studies were similar to their previous studies, this time also using inhibiting cues. Their fourth study took place at a bar. People who entered a bar were giving a stamp to control reentry into the bar (no waiting in line when reentering). They used three different stamps on three different nights. One of them was a happy smiley, the second one said 'SAFE SEX' and the third one used the words 'AIDS KILLS'. Results showed that when strong inhibiting cues (the stamps) were presented, intoxicated people reported more prudent intentions that did sober people. The difference with most other studies is the use of the 'SAFE SEX' stamp, which is a cue to inhibit risky sexual decisions.

After the studies by MacDonald and colleagues several other studies on the AMT were conducted. Davis and colleagues (2007) focused on the notion of the cues. Compo and colleagues (2011) showed that respondents that were intoxicated only memorized peripheral information. Research by Giancola and colleagues (2011) showed that alcohol can both increase and decrease aggression depending on which cues ones attention is focused. The findings of all of these studies were consistent with the AMT. They show that when given inhibiting cues, alcohol intoxicated individuals show more positive intentions and attitudes towards negative behaviors. They also show that intoxicated individuals react to the most salient cues in the situation. Therefore it seems the AMT can be generalized for different negative behaviors.

This raises the question whether this effect will also occur for positive behaviors and cues given at that time. A review of the literature shows that there has not been a study on the positive effect of alcohol and the postulation made by the AMT on this behavior. Different cues have been used to inhibit or impel the negative effects of alcohol, but so far there have not been studies focusing on the effects of inhibiting or impelling positive behavior. Only MacDonald and colleagues (2000) used a cue to enforce behavior avoiding negative behavior. The present study focuses on positive behavior, in this case altruism. Altruism was chosen as a form of positive behavior, because of the availability of a validated research technique.

Altruism and the Lost-Letter Technique

Altruism can best be described as sacrificing something for someone (most likely they do not know), other than the self, with no expectation of any compensation or benefits (Fessler, 2009).

One of the problems measuring prosocial behavior is the chance of getting social desirability. If two random people were picked and they were given a chance to engage in repeated anonymous exchanges in a laboratory experiment, there is a high probability that reciprocally altruistic behavior will emerge spontaneously (Fehr & Fischbacher, 2003). Because research necessarily entails some type of explicit recruitment, followed by interaction with the respondent, subjects are well aware that they are participating in an experiment; this may lead to reputation-enhancing and pro social behaviors in at least some individuals. The Lost-Letter Technique (Milgram, 1965) is a proven research method to prevent social desirability (Fessler, 2009).

The Lost Letter-Technique (LLT) uses addressed and stamped letters to several fictitious persons or organizations, that are being 'dropped' in various public areas were they can be found by a passerby. The person that finds this letter can either ignore the letter, respond to it but not take it, or pick it up and take it with them (possibly) for return in the mail (Bridges et al., 2000b). With a variation in the address different cues are presented to the target group. The LLT was firstly invented by Milgram and colleagues to measure a communities orientation towards political groups. The posting of a lost letter is an intrinsically altruistic act (entailing time and effort to a stranger one is not likely to encounter), therefore it is an effective measure of altruism (Simon, 1971; Deaux, 1974; Bihm et al., 1979; Levine et al., 1994; Fessler, 2009).

The literature on the AMT suggests that alcohol intoxicated persons are more influenced by the cues that are presented, than sober persons. So far this has only been tested for the effect of inhibiting cues for negative behaviors. There is a lack of literature on the effects of alcohol on positive behavior and respons to cues. In the current study the LLT was used to see if the AMT can be generalized for altruistic behavior. The study contained a 2 x (Timing: office hours versus bar hours) x 2 (Conspicuousness of envelopes: high versus low) x 3 (Cue in address: Altruistic versus Neutral versus Averse) experimental design.

Hypothesis

The AMT postulates that alcohol intoxicated persons have a restricted attentional span. This postulation means the letters will be noticed more by sober than by intoxicated participants. This will logically lead to more response (altruistic behavior) for the sober condition. The letters were dropped at two different moments during the week, to target an alcohol intoxicated and a sober group of participants. This was during office hours and during bar hours. This led to the first hypothesis.

H1: There will be a higher response rate for the letters dropped during office hours, than the letters dropped during bar hours.

To test if there is any influence of this notion of the letter, two different versions of envelopes were used. One being low on conspicuousness, and the other being high on conspicuousness. If the alcohol has an effect on the attentional span, many intoxicated persons will not notice the letter. This led to the second hypothesis.

H2: There will be a higher response rate for the high conspicuous envelope, than the low conspicuous envelope.

The third (and fourth) hypothesis are about the cognitive restricted myopic state of an intoxicated individual that makes him or her to react directly to the cues presented. Individuals no longer have the requisite processing skills to attend to all the information in their environment and weigh the pros and cons of the altruistic act. The AMT predicts that the person will react to the most salient cues given at that time. When this is applied to altruism, intoxicated persons will show a higher level of altruism when an impelling cue is given.

H3: The positive effect of the altruistic cue will be larger for the letters dropped during office hours, than the letters dropped during bar hours.

The hypothesis stated above is about the reaction to an impelling cue. Previous research on the AMT also used cues to inhibit negative behavior. Inhibiting altruistic behavior is difficult in an experiment, since telling people not to post a letter would be suspicious. Therefore an averse cue was presented. This led to the last hypothesis.

H4: The negative effect of the averse cue will be larger for the letters dropped during bar hours, than the letters dropped during office hours.

Method

One of the disadvantages of using the LLT is not being able to control who participated in the study. Two groups were targeted for this research. One group more likely of being under the influence of alcohol, and the other more likely of being sober.

A place where both groups could be found was in the cities near bars and shops. This way people would be there during daytime shopping and during drinking hours. An estimation was done of the age of the people going into the city by night, ranging from 16 till 35, with an average of 25 years old. Since the people going into the city by daytime were from all ages the following precautions were made.

The aim was to keep both groups as homogenous on age as possible. Lowe and Ritchey (1973) found that older people show more altruistic behavior, targeting groups as homogenous as possible was to avoid such a difference. Therefore a pre-study was done. First of all, the letters were being dropped near parked bicycles. In many other studies using the LLT the letters were dropped near car parks, driveways, telephone booths and street corners. Areas where bicycles were parked were used because many people going into the city at night time go by bicycle, to avoid drinking and driving a car. In the Netherlands many people visit bars making use of a bike. since this is a common way of transportation there. The second reason for picking areas where bicycles were parked was that the pre-study showed that an assumption can be made about the age of the bike owner by looking at the bike. Therefore a list of criteria was. No electrical bikes, expensive new bikes, or bikes with saddle bags, bags, air pumps and bikes with children bikes parked next to it. Preferred were bikes with chain locks and broken or damaged parts on it, since young adults do not maintain their bikes very often.

The letters were dropped in two different cities in the eastern part of the Netherlands. Both cities were chosen because of the dropping points available during office hours and bar hours. The first city was Hengelo which has around 80.000 citizens (CBS Statline, 2013). The second city was Enschede which has around 160.000 citizens (CBS Statline, 2013). Both cities are medium sized for Dutch standards.

Timing

For the distribution a protocol was used. The places where the letters were dropped were marked on a map. For the first city this was 12 places, and another 12 for the second. All places had enough lighting at the nighttime, so the letters were clearly visible.

Letters for the sober target group were dropped during office hours (Tuesdays till Thursday from 12.00-15.00AM) to have the highest probability of people being sober. For many people drinking is associated with relaxation, going out at night and weekends (Möbius, 2009). The letters for the alcohol intoxicated target group were dropped on evenings, during bar hours, to have the highest probability of people being alcohol intoxicated. The drops would be made on Fridays and Saturdays between 22.00AM and 01.00PM.

A scheme and a walking route were made so different letters were dropped on the different location. For example the first drop was a letter with the altruistic cue and the second the neutral cue. The altruistic cue had the high conspicuous envelop and the neutral cue had a low conspicuous envelope. This way the probability of a person finding two of the same letters was minimized. A roster with a rotation scheme was made to schedule the days the letters would be dropped, so the same letter was found at the same place the next day. For example the first wave had the altruistic cue at the first dropping point, the next wave this letter would be dropped at the second place. Letters were only dropped if the weather (and forecast) were good (no raining or soaking wet streets), so the letters were not ruined and people left them thinking they were worthless in that condition.

There was a clear protocol for dropping the letters. The letters were carried (in correct order) in the inner pocket of a jacket. When reaching the place where the letter were dropped the researcher knelt down, acting like his shoe strings needed to be tightened. He looked around to make sure no one was watching him, grabbed the letter from his inner pocket and shoved it (address facing up) between the rear wheels of the parked bicycles. Then he stood up and walked away.

A total of 768 letters were dropped. The researcher was attended to losing a letter three times by a passerby. Those people were thanked kindly, and the letters were dropped at a later time that day. Four letters were found (ripped apart or soaking wet) at a dropping point during the next day. These letters were treated as non-response.

Conspicuousness

The envelopes used in the study were size C5/6 (114 x 229 mm). They were stamped (category 1 costing 0,50 euro cents) and the address was printed on a white label and placed in the left downside corner (Arial font, point size 18). A printed address was used so it was easiest to read (keeping in mind that half of the participants was likely to be alcohol intoxicated). No return address was written on the back of the envelope. The low conspicuous envelope was a plain white envelope, since this is the color most used for envelopes. The high conspicuous envelope was bright yellow. Yellow was chosen because it is one of the conspicuous colors without any associations to it (red for instance could make people assume it is a love letter). Two envelopes of the same size were used, so there was no difference in the ease of taking the envelope and carrying it around the whole evening (if not posted right away).

The envelopes contained a single page printed neutral letter, as used in previous LLT studies. The main part of letter contained invitation to a general members meeting. This letter was pretested using a focus group (3 male and 3 females) on neutrality. The letter contained no information that was associated with something else than a regular meeting, and did not bring up any other associations. Letters were coded to know when and where the letters were dropped. This was done using answering boxes on the letter. The first box was for the name. The initials of the person were used to mark the type of envelop (A. de Wit for high conspicuous and N. de Wit for low conspicuous). The name 'de Wit' was used because this a very common Dutch name. The hometown of the person was used to mark the city they were dropped. The date was used to mark the day and date they were dropped. The last box was checked with 'not attending' in all condition.

A post-office (PO) box was used to prevent people from getting suspicious, just like Milgram, Mann and Harter (1965) used when they designed the research tool. The PO box was located in Amsterdam, the capital city of the Netherlands. This way it would not be near any of the cities, avoiding they would use the stamps and post it themselves.

Cues

As mentioned in the research design section above, there were three different cues in the addresses on the letters. All cues used were fictive foundations to prevent conflicts. Previous studies on the AMT used two different version of the instrument (video/questionnaire/ stamp), one with impelling cues and another version with inhibiting cues, the difficulty was to translate the cues into addresses.

Stichting de Waaier	Stichting Help uw Medemens	Stichting Anti Alcohol
PO Box 12345	PO Box 12345	PO Box 12345
1234 AB Amsterdam	1234 AB Amsterdam	1234 AB Amsterdam

The first foundation was a neutral foundation with a name that had no specific references to someone or something. This was tested on neutrality using a focus group (3 male and 3 females). The second foundation was called 'Foundation Help a fellow citizen', as translated from Dutch. In the earlier studies on the AMT the negative sides of a decision were mentioned explicit. MacDonald, Zanna and Martineau (2000) for instance explicitly mentioned having sex without a condom (in bold type) in their questionnaire. Mentioning helping a fellow citizen was a direct command to the person who found the letter. This was done so it would be impelling to pick up the letter and post it.

The third cue was a foundation against alcohol (averse cue). This

was the altruism inhibiting condition. Inhibiting altruistic behavior is difficult in an experiment, since telling people not to post a letter would be suspicious. People who go out at night have the mindset to go out and meet people, have fun and have some drinks. This cue tested if people still showed altruistic behavior (posting the letter), even if the letter was addressed to a foundation that is against drinking alcohol.

Results

A total of 768 letters were dropped over the course of two and a half month. Starting in October and ending half way December. Letters that came in later than two weeks after the end of the experiment were not taken into the data set. A total of 254 out of 768 letters were received. Numbers and percentages of letters returned as a function of dropping time, high or low conspicuousness and cues are listed in table 1 below.

It was hypothesized that there would be a bigger effect for the averse cue for drops made during bar hours, than for drops made during office hours. There was a marginally significant effect for the averse cue for drops made during bar hours. With a 14.1% response rate (versus 22.7% for Altruistic and 24.2% for Neutral) the letters with the averse cue were posted fewer times, than the others cues $[\chi^2(2, N=256) = 4.730, p = .094]$. The difference between the Neutral and the Averse cue was weak significant [$\chi^2(1, N = 256) = 3.634, p = .057$]. The difference between response for the Altruistic and the Averse cue was not significant [$\chi^2(1, N = 256) = 2.606, p = .106$]. This trend indicates there could be an effect for the averse cue, but gives no strong significant support for the fourth hypothesis. The difference between the Neutral and the Averse cue for drops made during office hours was significant $[\chi^2(1, N = 256) = 4.520, p = .034]$. This however appears to come from an effect for the neutral cue. For the drops made during office hours the response to the neutral cue (N = 71, 55.5%) was significantly higher than the response to the altruistic (N = 52, 41.1%) and the averse cue (N = 53, 40.6%). The difference between the Altruistic and the Neutral cue was significant $[\chi^2(1, N = 256)]$ 5.070, p = .024]. The difference between the Altruistic and the Averse cue was not significant $[\chi^2(1, N = 256) = .000, p = 1.000].$

TABLE 1 Number and percent of letters returned as a function of dropping time, high or low conspicuousness and cues

		Altruistic cue		Neutral cue		Averse cue		Total			
Timing	Enveloppe	n	%	n	%	n	%	n	%		
	High conspicuous	40	15,8	50	19,5	32	12,5	122	31,8		
	Low conspicuous	41	16	52	20,3	39	15,2	132	34,4		
	Total	81	31,8	102	39,8	71	27,7	254	33,3		
Bar hours	High conspicuous	13	10.2	17	13,3	10	7,8	40	20,8		
	Low conspicuous	16	12,5	14	10,9	8	6,3	38	19,8		
	Total	29	22,7	31 24,2 18 14,1**		14,1**	78	20,3			
Office hours	High conspicuous	27	21,1	33	25,8	22	17,2	82	21,4		
	Low conspicuous	25	19,5	38	29,7	31	24,2	94	24,5		
	Total	52	40,6	71	55,5*	53	41,4	176	45,8*		

*χ**²** , p < .05

 $**\chi^2, p < .10$

The overall response rate was 33.1%. The overall response for the sober target group was 45.8% and the overall response for the alcohol intoxicated target group was 20.3%. This composition does significantly differ from chance $[\chi^2(1, N = 768) = 55.349, p = .000]$, and therefore supports the first hypothesis. The overall response rate for the high conspicuous envelope was 31.8% (N = 122) and the response for the low conspicuousness envelope was 34.4% (N = 132). This difference does not differ from chance $[\chi^2(1, N = 768) = .588, p = .490]$. Therefore no support was found for the second hypothesis. No significant difference was found for the response to the different envelopes in the sober condition $[\chi^2(1, N = 384) = .269, p = .260]$, and in the alcohol condition $[\chi^2(1, N = 384) = .016, p = .889]$.

No significant effect was found for the overall response to the different cues [$\chi^2(2, N = 768) = 8.836, p = .012$)]. There was a marginally significant effect for the averse cue for drops made during bar hours [$\chi^2(2, N = 384) = 4.951, p = .084$)]. There was a significant effect [$\chi^2(2, N = 384) = 7.196, p = .027$] for the neutral cue for the drops made during office hours.

It was hypothesized that there would be a bigger effect for the altruistic cue for drops made during bar hours, than for drops made during office hours. The difference between the Altruistic and the Neutral cue for drops made during bar hours does not differ from chance $[\chi^2(1, N = 256) = .022, p = .883]$. Since there was no higher response rate for the altruistic cue, and thus no bigger effect, no support for the third hypothesis was found. This effect was also not found for the drops made during office hours.

General findings

There was a significant difference $[\chi^2(1, N = 768) = 4.612, p = .032]$ between the response for the two different cities. The response for city 1 was 141 and the response for city 2 was 113. Most of the letters were posted the same day, or the day after. There was an average posting time (time between the dropping date and the date stamp on the letter) of 1.2 days. The average posting time for the intoxicated condition was 2.18 ranging from 1 till 15 days. For Fridays this was 2.52 days, and for Saturdays this was 1.91. The average posting time for the sober condition was 0.83, ranging from 0 till 20 days. A total of 23 letters was opened before they were posted. This did not differ in chance over the different cues $[\chi^2(2, N = 768) = 2.779, p = .249]$, or the two different conditions $[\chi^2(2, N = 768) = 56.496, p = 1.000]$. 9 out of 23 letters were closed with tape after they were opened. Since a walking route was used a chi-square test was done to see if there was any difference in response over the different dropping points. No difference in response over the different dropping point was found $\chi^{2}(5, N = 384) = 4.673, p = .457$ and City 2 [$\chi^{2}(5, N = 384) = 3.674, p =$ 0.597].

Conclusion

It was hypothesized that there would be a lower response for drops made during bar hours; support for this hypothesis was found. The response for drops made during bar hours was significantly lower than the response for drops made during office hours. This supports the postulation made by the AMT that alcohol intoxicated individuals have restricted attentional span. Therefore probably fewer respondents noticed the letter, which led to a lower response rate.

It was hypothesized that there would be a difference between the response for the high and low conspicuous envelopes. No difference in response for the different envelopes was found, this leaves no support for the second hypothesis. It can be concluded that differing in colors of envelopes did not have any influence on response, not for drops made at moments people are more likely to be alcohol intoxicated and not for drops made at moment people are more likely to be sober.

No significant effect for the altruistic cue was found. Not for drops made during bar hours and not for drops made during office hours. Therefore there is no proof for the third hypothesis. It can be concluded that there is no influence of an altruistic cue in the address for the current study.

A marginally significant effect for the averse cue was found for drops made during bar hours. This effect was weak significant when compared to the neutral cue, and to the averse cue. It was hypothesized that there would be a bigger effect for the averse cue for drops made during bar hours, than drops made during office hours. This was the case, but gave no strong significant proof. For drops made during office hours there was a significant difference between respons for the neutral and the averse cue. This however comes from a significant higher response for the neutral cue. The effect of the averse cue found for drops during bar hours, could mean the postulation made by the AMT that alcohol intoxicated persons react to the most salient cues can be generalized for inhibiting positive behavior.

Discussion

Although there was a difference in response rates, the overall response rate (33%) was average for LLT studies. The response for the sober target group (46%) was high in comparison with the overall rates from Bridges and colleagues (2000b and 2002), which were 39% and 37%. Higher response rates were found by Milgram and colleagues (1965) with his original experiment for assessing community orientations towards political groups (48%) and Fessler (2009) with 64%. In the last case letters were dropped at a university campus, wherefore caution is in order in generalizing these findings, since this is single sociocultural context. Caution is also in order for generalizing the findings of the current study, since drops were made only at parked bicycles. Other studies used for instance parking lots and telephone booths.

The response for the alcohol target group (20%) was expected to be low (the first hypothesis), but is overall in comparison to other studies. Bridges and colleagues (2002) found the same overall response rates for their study on differences in community sizes (respectively 20% for cities and 18% for small towns). These response rates could mean that the LLT is a tool fit for studies on the influence of alcohol on behavior, in comparison to other LLT study response rates.

Conspicuousness

The current study is an addition to previous studies on the Lost-Letter Technique. The study shows that using different envelopes leads to no differences in response ratings, which has never been tested before. An explanation could be that conspicuousness might not depend on the color of the envelope, but on other factors. Examples of other factors are the amount of people someone is with or the amount of distracting visual elements that are present.

Another explanation for the lack of reaction to the difference in conspicuousness is that the colors used for differences on conspicuousness were not suitable for LLT. The contrast between white and yellow might be too small to see a difference in response. It is questionable if other more contrasting colors attract more attention. It could also be argued that the lighting in the alcohol condition was not sufficient to show a difference between the colors, but this appears to be invalid since there was no difference found in the sober condition.

Cues

One interpretation of current results (no significant effect for cues) is that the AMT does not have power to predict positive behavior. As mentioned in the literature section most of the studies using the AMT were on negative behavior. Most of the cues presented were to inhibit negative behavior, and not to promoting positive behavior. The only study in which positive enforcements were used was the study which used the stamp 'SAFE SEX' on the hand of young adults at bars by MacDonald and colleagues (2000). This led to higher levels of intentions for prudent behavior in the alcohol intoxicated condition, than in the sober condition. The present results show no such effect. A trend was found for the averse cue. For drops made during bar hours a weak significant effect for the averse cue was found. An explanation for these results can be in the nature of the behavior. Suppressing (inhibiting) negative behavior might be another psychological process opposed to encouraging positive behavior. This could be explained by self control. Alcohol dulls the mechanism which normally warns a person about making a mistake, and thus showing self control (University of Missouri-Columbia, 2011). This explains why impelling cues on negative behaviors work under the influence of alcohol. When a person is about to make a mistake (negative behavior) the cue triggers the mechanism to warn them. This could explain why the effect of alcohol is different for negative than positive behaviors. Posting a letter (or taking it with them to post later) might ask for extra motivation, since this asks for extra effort, and thus for self control in showing this behavior. Alcohol dulls this amount of self control. When given an averse cue and less self control is present, persons might be more likely to show no more effort on showing altruistic behavior.

Another explanation for the lack of response to the altruistic cue is that a person intrinsically motivated to do an altruistic act, might not be motivated to do so after reading the command to help a fellow citizen. Lepper and colleagues (1996) found that intrinsically motivated persons are less motivated when given extrinsic motivation. The lower response in the altruistic cue could be explained by such a conflict between intrinsic motivation and the command to post the letter.

An alternative interpretation of the lack of reaction to the cues is that the Lost-Letter Technique is not fit for studies about the influence of alcohol. Since a significant difference was only found for drops made during office hours, and not for drops made during bar hours. In earlier studies on the AMT cues were processed into the questionnaire (MacDonald et al., 1995; MacDonald et al., 1996; MacDonald et al., 2000), so it was made sure respondents read the cues. Scenarios were read and it was written in bold typewriting that the intentions were about for example having sex without a condom. By using the LLT it is very hard to make sure the right cues are used. An explanation for the lack of difference in the response over de different cues is that the cues were not fit to trigger the targeted behavior.

General findings

An explanation for the difference in response rate between the two cities could be the difference in size of the two cities. Milgram (1970) hypothesized that people living in cities are exposed to more external factors, which become a sort of overload. To avoid this overload people filter out factors that are not necessary for personal satisfaction, this makes them less helpful to others. People are less likely to post a lost letter, because many others have the opportunity to do pick it up and post it, which makes them feel less personally responsible. In the current study City 1 has the highest response rate, but half the number of citizens (80.000 versus 160.000 citizens).

This gives support for Milgrams hypothesis. This hypothesis was also supported by research from Forbes and Gromoll (1971), Hansson and Slade (1977) and Bridges, Thompson and Willers (2000). This hypothesis was not supported by Bridges, Anzalone and Ryan (2002) who found a (non significant) higher response rate for cities than small cities and smaller rural communities. This was also found in earlier research from Bridges, Ryan and Scheibe (2000a). The current findings add proof to the discussion whether Milgrams hypothesis can be generalized.

Also a difference in the postage time was found. Postage time for the sober condition was shorter than the alcohol condition (2.18 versus 0.83 days). This can be explained by the times and moment the postboxes are emptied, respectively from Sunday till Monday. This means letters that are posted on Friday and Saturday, directly after they were dropped and found, get a stamp from Sunday or Monday (mean for Fridays 2.52 days, mean for Saturdays 1.91 days). Another explanation could be that people take the letters with them to post at a later time, but forgot to do so because they are intoxicated.

Limitations

One of the main limitations for the current study (and all other studies using the LLT) is the lack of information on the participant of the experiment. There is no information on the group of participants. In the current study a sober and an alcohol intoxicated group of persons was targeted, making drops during bar hours. This was done to have the highest probability of people being under the influence of alcohol. There still is a chance that the current response came from people going into the city at these hours, but were the ones who stayed sober. Therefore conclusions on the influence of alcohol will remain based on assumptions.

A specific type of bicycle was used to target participants from a specific group of age. It is still possible these bikes were owned by older people than expected. It is still possible older individuals saw the letters on the ground, and took them from between these bicycles, leading to an older group of participants for the drops during office hours. As mentioned in the discussion section earlier studies on the LLT found higher responses for older participants. The conclusions on the higher response for office hours, can also be based on a difference in the group of participant, and not the timing of the dropping to target an alcohol intoxicated audience.

The translation of the cues to address for the LLT was difficult, and it remains uncertain whether the cues were effective. It was predicted that when a person read the name 'Foundation help a fellow citizen', he or she would be impelled to post the letter. Since no effect was found it remains unclear wether this particular cue was not effective, or there is no effect for in this case impelling cues on positive behavior. With the use of the LLT there is no possibility of testing the cues that are presented, like this can be done using a questionnaire for instance. This leaves uncertainty about the conclusions that are drawn.

Implications for future research

Using the Lost-Letter Technique as a way to measure the influence of alcohol on altruistic behavior was experimental. Before this study it was not clear if this technique was fit to measure behavior under influence. It still remains unclear whether the LLT is suitable for studies on the influence of alcohol, or if for instance the cues were not suitable to test current hypothesis. Future studies could use different impelling cues, to find more proof on this topic. The letters could for instance have a post-it on them with the text 'post right away' as if it the person who lost wrote a reminder to himself.

An implication for future research on the use of the LLT in situations where alcohol is involved is to do a similar lost letter study, but without different envelopes, and without cues on behavior. One could for instance measure sentiment toward political groups or political attitudes, as this technique was invented for by Milgram (1970). If results show the same effects for the sober condition, as for the alcohol intoxicated condition, this would show proof LLT is suitable for measuring behavior under the influence of alcohol.

As mentioned in the limitations section above the current study has no proof participants were indeed under the influence of alcohol. Future studies could be done for instance inside a bar, so an observer can make sure people are drinking alcohol. The letter could be left at the bar, as if the person forgot it.

More studies should be done on the positive effects of alcohol. For instance on the effect of alcohol on free will giving. A future study could for instance take place at a laboratory. Participant can be asked to do a small reaction test under the influence of alcohol, though this would not be the main experiment. The experiment would have three groups of participant. An alcohol intoxicated group, a sober group, and a placebo group. Blood alcohol levels can be tested with a breathalyzer. Afterwards participants would receive a small fee for taking part in the experiment. Participants would be asked to sign out at a desk afterwards, and receive money for their participation, where a box would be placed to make donations for free will. By measuring the amount of donations made by each group, the effect of alcohol on free will giving can be measured.

The current study is an addition to previous literature on the LLT for its use of envelopes differing on conspicuousness and (most likely) alcohol intoxicated participants. Although no significant effects were found, the current study is a first step towards testing whether the AMT can also be applied to positive behaviors, in this case altruism.

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Appendix A: distribution scheme

A= Averse cue H= Altruistic cue N= Neutral cue O=high conspicuous envelop N=low conspicuous envelop dp=dropping point

N=office hours B=bar hours

Wave	Time	dp1	dp2	dp3	dp4	dp5	dp6	dp7	dp8	dp9	dp10	dp11	dp12
	х	х	х	х	х	х	Х	Х	Х	х	х	х	х
Wave 1	12:00	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN
Wave 2	14:00	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON
Wave 3	00:00	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB
Wave 4	22:30	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	нов	NNB	AOB	HNB	NOB
	x	x	x	x	х	х	x	x	x	х	x	x	х
Wave 5	12:00	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN
Wave 6	15:00	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON
Wave 7	22:30	AOB	HNB	NOB	ANB	HOB	NNB	AOB	HNB	NOB	ANB	НОВ	NNB
Wave 8	22:00	NNB	AON	HNN	NON	ANN	HON	NNN	AOB	HNB	NOB	ANB	HOB
	x	x	x	x	х	Х	x	x	x	х	x	x	х
Wave 9	15:00	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN
Wave 10	14:00	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON
Wave 11	23:30	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB
Wave 12	23:30	HNB	NOB	ANB	HOB	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB
	x	x	x	x	х	Х	x	x	x	х	x	x	х
Wave 13	15:00	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN
Wave 14	15:00	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON
Wave 15	22:00	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB
Wave 16	22:00	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB
	x	x	x	x	х	Х	x	x	x	х	x	x	х
Wave 17	13:30	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN
Wave 18	15:00	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON
Wave 19	01:00	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB
Wave 20	22:00	NNB	AON	HNN	NON	ANN	HON	NNN	AOB	HNB	NOB	ANB	НОВ
	x	х	х	х	х	х	х	х	х	х	х	х	х
Wave 21	12:30	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN
Wave 22	12:30	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON
Wave 23	22:00	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	HOB	NNB	AOB	HNB
Wave 24	0:30	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB
	х	x	x	x	х	х	x	x	x	х	x	х	х
Wave 25	13:30	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN
Wave 26	15:00	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON
Wave 27	23:30	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB
Wave 28	0:00	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB
	x	x	Х	х	х	Х	Х	Х	Х	х	х	х	х
Wave 29	13:30	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON	HNN
Wave 30	12:00	HNN	NON	ANN	HON	NNN	AON	HNN	NON	ANN	HON	NNN	AON
Wave 31	22:00	AOB	HNB	NOB	ANB	НОВ	NNB	AOB	HNB	NOB	ANB	НОВ	NNB
Wave 32	22:00	NNB	AOB	HNB	NOB	ANB	HOB	NNB	AOB	HNB	NOB	ANB	HOB

Appendix B: route and dropping points for Hengelo



Appendix C:route and dropping points for Enschede





Appendix E: Sample of a white envelope after drop (datestamp was on the back)



Appendix F: letter (in Dutch)

Stichting Help uw Medemens CUE Postbus 11372 1001 GJ Amsterdam

Amsterdam, september 2012

Onderwerp: Algemene Ledenvergadering

Geacht lid,

Bij deze nodigen wij u graag uit voor de algemene ledenvergadering van stichting Help uw medemens. Deze al plaatsvinden op dinsdag 18 december 2012 om 20.00 in de vergaderzaal van ons kantoor te Amsterdam.

Om een schatting te kunnen maken van de opkomst willen wij u vragen de antwoordstrook hieronder in te vullen en terugsturen in de bijgevoegde antwoordenvelop.

Met vriendelijke groet,

M. de Jong Voorzitter Stichting Help uw medemens

Naam: O. de Wit / N. de Wit = **CONSPICUOUSNESS**

Datum: DATE + TIMING

Woonplaats: Enschede/ Hengelo CITY [] Aanwezig [] Niet aanwezig