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Full Research Paper

Perceived Multitasking Promotes the Willingness to Participate in Prosocial Behaviors

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Abstract: Multitasking is becoming more and more common in people's daily life. This paper explores the influence of perceptual multitasking on consumers' subsequent engagement in prosocial behaviors. Based on a series of experimental studies, we found that consumers with perceptual multitasking were more willing to participate in prosocial behavior (Study 1). This is because consumers with perceptual multitasking will feel more perceptive, thus improving their self-efficacy, thus demonstrating their ability by participating in prosocial behaviors (Study 2). This effect only existed when consumers perceived the activity as non-hedonic and had no distraction during the activity. When consumers perceived the activity as hedonic (Study 3) and perceived distraction (Study 4), the main effect disappeared. Meanwhile, consumers with perceptual multitasking were more likely to participate in charitable donation than those with time-spending prosocial behavior, because consumers with perceptual multitasking had higher perceived time scarcity (Study 5). The research conclusions of this article greatly expand the research of perceptual multitasking, pro-social behavior and related fields, and has a certain enlightenment effect on optimizing the advertising push and accurate push time of charitable and public welfare organizations.

Keywords: Perceived multitasking; Perceived ability; Self-efficacy; Prosocial behavior

1. INTRODUCTION

With the development of information technology and social networks, people often switch between many things, websites, APP and files in their life and work. Multitasking is slowly becoming the norm in people's lives, and multiple tasks may be involved in an activity, such as managing email alone requires a lot of multitasking. People are accustomed to doing a lot of things at the same time over a period of time without even realizing they are multitasking. So what this paper investigates is the subsequent impact of perceiving the same activity as multitasking or single tasking. Multitasking is usually defined as the conscious shift of attention over a period of time to switch between multiple tasks, so different tasks in multitasking may interfere with each other. Some existing theories try to explain such interference effects, such as resource allocation theory, suggesting that one's psychological and cognitive resources are shared by different tasks, and limited resources lead to mutual interference with tasks, thus reducing multitasking performance; the bottleneck theory argues that it is a "bottleneck" that allows only one task to pass at a time due to certain mental operations that occur between tasks that cannot be segmented^[1].

In today's environment where "the pace of life is so fast and the work pressure is so high", people inevitably want to save and effectively use time by adopting multitasking methods^[2], improve efficiency. In practice, however, multitasking does not really improve efficiency. Apparently unaware of this, people are still required to perform various tasks under time pressure. So, if people actually do only one thing at a time in the process of multitasking, then multitasking is actually a perception problem, and the same activity can be perceived as multitasking or single tasking, And just this difference in perception can have unexpectedly positive effects. We believe that just a small perceived change in life, namely perceived multitasking, can lead to a large change in fundamental outcomes, such as affecting a variable that determines personal worth and social well-being: prosocial behavior .

Prosocial behavior is highly concerned in the current marketing field. Prosocial behavior aims to benefit others and can also bring social benefits to oneself, which is one of the important means to improve oneself and bring social happiness. Therefore, it is of great significance to study the antecedents of prosocial behavior. However, the existing research on the influencing factors of prosocial behavior mainly focuses on individual differences, self-construction, collective self-esteem^[3]; And situational factors^[4] include bystander effect, prosocial model, situational clarity, time pressure, etc. No research has linked the phenomenon of multitasking in everyday life and perceptions of it with prosocial behavior and explored the psychological mechanisms involved. Therefore, this paper predicts that in the context of multitasking prevalent in people's lives, multitasking perception may become a new contextual factor, which in turn affects consumers' subsequent prosocial consumption decisions.

Our research shows that perceiving the same activity as a multitasking consumer increases subsequent willingness to engage in prosocial behavior, mainly due to improved perceived ability and self-efficacy. There are three moderators that influence this mechanism of action, including perceived task type (hedonic vs. non-hedonic), perceived distraction, and type of prosocial behavior (charitable giving vs. providing time).

2. THEORETICAL FRAMEWORK

2.1 Perceptual multitasking, perceived ability, and self-efficacy

Multitasking has different definitions in different fields. In cognitive psychology, multitasking is seen as a person's ability to engage in different activities over a period of time, or a state in which cognitive processes serve two or more tasks over a period of time; while in the consumer domain, multitasking is defined as quickly switching from one task to another or processing multiple tasks simultaneously. Early research on multitasking found that when dealing with multiple non-automatic tasks, individuals cannot actually perform tasks simultaneously, but alternate between different activities performing only one task at a time. If people do handle only one task at a time, this means that multitasking is often a subjective perceived problem. The cognitive "bottleneck" prevents humans to focus on multiple tasks in absorbing, processing, and information processing, and based on this view, multitasking actually performs multiple tasks separately in a rapid manner. Based on the research of cognitive psychology, whether an activity is considered to be multitasking is actually a perceptual problem. People can define an activity as a single task or as a multitask, mainly based on people's own perception, because the multitasking behavior itself needs to be perceived. Scholars have demonstrated that keeping activities constant, simply thinking of them as multitasking, actually improves performance^[5]. What this paper examines is the effect of multitasking on people's perception of the same activity.

In addition to the popularity of multitasking, multitasking ability is seen as a highly desirable trait. In general, the more challenging the task performed, the better the problem-solving ability it represents, and previous literature has shown that an activity is perceived as more challenging when people perceive it as multitasking^[5]. In a skill task, the higher the level of risk a person chooses, the higher his perception ability is. stronger. So people feel competent when they think they have completed a more challenging task, and this perception of the same activity as multitasking brings about a noticeable change in perception. Tubbs and Ekeberg (1991) defined perceived ability as a person's perception of the actual amount of control he or she can exert over the environment. The ability to give or manifest when people want to accomplish or control something through themselves. As Ajzen and Bandura thought^[6], perception ability is a by-product of past behavior. Only after completing the task can one perceive the strength or weakness of one's own ability. Perception ability is the judgment of the ability reflected in completing the task in the past.

Self-efficacy was put forward by the famous psychologist Bandura^[6], which reflects a person's confidence in his ability to accomplish some or some goals (excluding the ability to actually accomplish some or some goals).

When people complete an activity and perceive it as multitasking, they will evaluate their own abilities based on the perception of the challenge of the task, so as to affirm their ability to complete other tasks in the future, which is manifested as improved self-efficacy. The principle of co-development suggests that learning and becoming competent in one field can facilitate learning and development in other fields, even those seemingly unrelated fields such as snow boots and reflective writing. Similarly, becoming a competent person by completing multitask perception can promote development in other fields, such as the ability to perceive oneself and the ability to deal with future challenges, so they are more willing to participate in consumer prosocial behavior.

2.2 High self-efficacy and prosocial behavior

Prosocial behavior is defined as "voluntary action designed to benefit another person or group". Prosocial behaviors refer to voluntary behaviors that benefit others, such as sharing, donating, caring, comforting, and helping. Consumer prosocial behavior include (but not limited to) helping others, charitable and other donation behaviors (such as blood donation, organ donation, etc.), volunteering, altruistic consumer behavior, ethical buying, and participation in environmental actions^[7].

Scholars have done a lot of research on the definition, expansion and influencing factors of prosocial behavior. Previous studies have shown that antecedents that influence prosocial behavior include: social influence, habit formation, personal ego, affective and cognitive, and tangible (Self-efficacy is an important means of increasing tangibility^[3]; In addition, there are some situational factors^[8] that also affect prosocial behavior, such as being watched by others, the presence of bystanders, and time pressure. What we study is that a new situational factor can be transmitted through ability-related psychological mechanisms to influence prosocial behavior.

We believe that completing consumer-perceived multitasking situations will increase their willingness to participate in prosocial behaviors due to improved perceived abilities and self-efficacy. Studies suggest that prosociality represents the default state of humans, and psychologists agree that this desire to feel competent and ability is a basic human motivation. When individuals feel effective in an activity, they are more willing to invest time and effort because they believe that their efforts can lead to success^[6]. Therefore, perceived ability and self-efficacy are the most basic motivations of people, and when people have high self-efficacy, it will improve people's prosociality. If the thinking styles activated in the previous environment persist and influence the way people process information in the subsequent unrelated environment, then the previous multitasking situation makes consumers feel stronger ability and confidence in meeting future challenges, an effect that will continue to influence consumers' willingness to engage in subsequent unrelated areas of prosocial behavior. Thus,

H₁: Consumers who perceive the same activity as multitasking are more willing to engage in prosocial behavior than consumers who perceive it as single-tasking.

H₂: Perceived ability and self-efficacy sequence mediate perceptual multitasking to prosocial behavior mechanisms.

2.3 Moderating by Task type (hedonic vs. non-hedonic)

Multitasking has increased in many industries over the past few decades. Different types of multitasking have different effects, for example media multitasking can impair comprehension and memory performance by reducing cognitive performance, but perceiving a learning or work activity as multitasking increases performance^[5]. If differences in the types of tasks can affect individual ability and bring about different results, then this paper argues that people's different internal perceptions of the same activity will also produce different results by affecting perceived ability. As many of the same consumer activities can be defined as work or leisure activities. Based on previous research^[9], we define "work" as activities that feel productive and rewarding as the "non-hedonic" type in this paper, and "leisure" as feeling activities that are not productive and primarily provide hedonic or experiential benefits are the types of "hedonic" in this paper. Also in the field of multitasking, many of the same activities can be defined as "hedonic" or "non-hedonic", such as when people use electronic devices

(mobile phones or computers) for relaxation and entertainment, which reduces efficiency and performance; however, people use electronic devices for work and study, such as searching for information, replying to work messages, will improve the efficiency of work and study. Thus,

H₃: Task type (hedonic vs. Non-hedonic) moderates the main effect. When the perceived type is non-hedonic type, perceived multitasking consumers are more willing to participate in prosocial behavior; the effect disappears when the perceived type is hedonic type.

2.4 Moderating by perceived distraction (distracted vs. undistracted)

In the consumer domain, “consumer multitasking” and the distraction construct and cognitive load, because it involves distraction or a reduction in the amount of cognitive resources available for multiple tasks. Resource allocation theory^[10] argues that as a person's attention resources are allocated to different tasks during multitasking, the resources allocated to each individual task are reduced, thereby reducing performance. Additionally, Kraushaar and Novak (2010) define multitasking as productive or distracting in terms of task efficiency. Productive multitasking includes the result of being undistracted and productive while multitasking, while distracted multitasking includes being distracted by secondary tasks and consuming limited cognitive resources. This is a division between tasks, however we predict that distraction is also a matter of individual perception, and that people's perceived distraction from the same activity will also affect subsequent perceptions of competence. From various studies, multitasking and distraction are closely related, and the limited attention model^[10] shows that when people multitask, the attentional resources allocated between tasks are limited, thereby limiting people's ability to process information. What this paper studies is that consumers experience the same activity, the perception of the number of tasks and the degree of distraction during the processing of the task are different. This affects the choice and willingness of subsequent behaviors. Thus,

H₄: Perceived distraction (distracted vs. undistracted) moderates the main effect. When perceived undistracted, consumers are more perceived ability and more self-efficacy and are more willing to participate in prosocial behavior, while the effect disappears when perceived distracted.

2.5 Prosocial behavior types as boundaries

Prosocial behaviors include, but are not limited to, donating time or money to individuals or organizations, purchasing environmentally friendly and/or sustainably produced products. In general, consumers can help others by donating money, items (such as clothing), and time (such as volunteering). In our study, when consumers perceive an activity as multitasking, they feel that their time resources are scarce, so they are less willing to participate in volunteering behaviors that provide time. This is because: People multitask because they think it helps to use their time more efficiently. In the consumer domain, multitasking products are described as products that help users become productive by saving time, so saving time is a potential benefit of multitasking; The existence of time constraints is a defining characteristic of multitasking, where people have to complete two or more tasks in a period of time, so that people will multitask in parallel or switch back and forth between tasks in order to effectively utilize time to complete the task. Thus,

H₅: Consumers who perceive multitasking are more willing to participate in charitable donations than volunteering that takes time.

3.OVERVIEW OF STUDIES

This study designed 5 studies to verify the above hypothesis. In order to improve the real validity of the experiment, the independent variable manipulation scenarios used in each experiment were derived from daily life and changed. The type of prosocial behavior of the dependent variable in each experiment also different. Study 1 verifies the main effect of H1, confirming that when consumers perceive the same activity as multitasking, it will increase their willingness to purchase environmentally friendly products. Study 2 repeatedly verifies the

main effect and verifies the description of H2. The sequential mediating mechanisms of consumers' perceived ability and self-efficacy, and alternative explanations for emotion were excluded. The remaining three studies are used to verify the three moderators and boundaries of this paper, and to verify the main effect and mediation mechanism of this paper again.

3.1 Study 1

Procedure. 280 participants (186 female (66.43%), with an average age of 29.34 years) were randomly assigned to a between-design scenario of 2 (perceptual multi-task vs. perceptual single-task) \times 2 (normal product vs. eco-friendly product). Participants in four groups were asked to imagine: "Purchasing materials for the event in the supermarket on Friday afternoon, in the process of selecting items, sending the alternative items to the event organization group, etc."; Participants' perceptions of multitasking were manipulated by asking "Which terms/which term did the participant accomplish in this scenario?". After imagining, we used two items of Likert seven points to measure "In the previous situation, I felt that I was multitasking at the same time", "I felt that I was switching between multiple tasks" as a manipulation check for multitasking ($\alpha = 0.760$).

Then participants were asked to imagine passing by a counter selling hand sanitizer after checking out. Participants in the normal product group saw: "It's made from surface cleaning actives"; participants in the eco-friendly product group saw: "It's made from plant-based degradable ingredients." Participants were then asked to express their willingness to purchase the hand sanitizer. Finally, the participants took an attention test and filled in their personal information such as gender and age.

Results. Manipulation check. We conducted a two-way ANOVA analysis on the manipulation test question, and the results showed that only whether perceived multitasking had a significant main effect: participants in the perceptual multitasking group ($M_{\text{multitasking}} = 5.939$, $SD_{\text{multitasking}} = 0.8102$) were more likely than the perceptual single tasking group ($M_{\text{single task}} = 5.325$, $SD_{\text{single task}} = 0.9348$) to think they were multitasking and switching between tasks at the same time ($F(1,276) = 34.427$, $P < 0.001$, $\eta_p^2 = 0.11$). Other effects were not significant ($ps > 0.1$). The manipulation was successful.

Willingness to engage in prosocial behavior: buying eco-friendly products. We conducted a main effects analysis and the results showed that, for normal products, there was no difference in purchase intention between perceptual single-tasking and perceptual multitasking participants ($M_{\text{multitasking}} = 5.671$ vs. $M_{\text{single task}} = 5.743$, $p = 0.595$). For eco-friendly product, participants who perceived multitasking have higher purchasing intentions than those who perceive single tasking ($M_{\text{multitasking}} = 6.314$ vs. $M_{\text{single task}} = 5.743$, $F(1,138) = 24.468$, $P < 0.001$), and the results are shown in Figure 1. This result is in line with our hypothesis that participants who perceive multitasking will be more willing to buy eco-friendly products, that is, more willing to engage in prosocial behaviors.

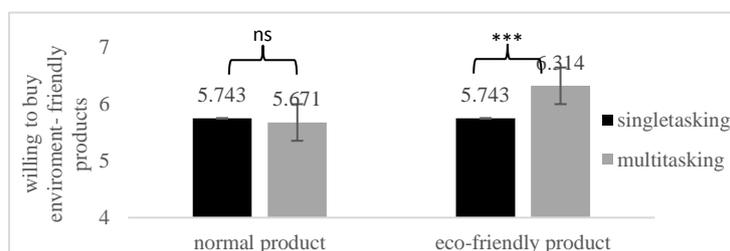


Figure 1. Study 1 Results of perceptual multitasking on environmental product selection

3.2 Study 2

Procedure. 140 participants (83 female (59.3%), with an average age of 29.79) were randomly assigned to 2 (perceptual multitasking vs. perceptual single tasking) design. Participants in both groups were asked to imagine that one morning your supervisor asked you to participate in an instant-start meeting in which you listened and

took notes during the meeting. The manipulation measurement question is the same as that of Study 1 ($\alpha = 0.848$). Then, four measures were used to measure the perceived ability ("I think I can well complete the task described in the situation", etc.) ($\alpha = 0.937$). Then we used four items of the Schwarzer's (1995) measuring the participants' self-efficacy such as "I will be able to successfully overcome many challenges", etc. ($\alpha = 0.950$). Then we told the participants that we would like to know their views on the online public welfare activities for rural children, including happy lunch, children's book donation and charity donation step. Participants were asked to express their intention to participate in these three public welfare activities (1-7). Finally, the participants took an attention test and filled in their personal information such as gender and age.

Results. Manipulation check. Through one-way ANOVA on the manipulation check items, there was a significant difference between two groups ($F(1,138) = 23.328, P < 0.001$), and participants in the perceptual multitasking group ($M_{\text{multitasking}} = 5.479, SD_{\text{multitasking}} = 1.0883$) were more likely than the perceptual single tasking group ($M_{\text{single task}} = 4.436, SD_{\text{single task}} = 1.4419$) to think they were multitasking and switching between tasks at the same time, indicating the manipulation of study 2 was successful.

Participate in online public welfare activities. We named the mean value of participants' willingness to participate in these three kinds of public welfare activities as "willingness to participate in online public welfare activities" as the dependent variable value. Through one-way ANOVA analysis of the dependent variable, the perceived multitasking group and the perceived single-tasking group had significant differences in willingness to participate in online public welfare activities ($F(1,138) = 22.239, P < 0.001$), and The perceived multitask group was more willing to participate in online public welfare activities than the perceived single-task group ($M_{\text{multitasking}} = 6.438, SD_{\text{multitasking}} = 0.4379; M_{\text{single task}} = 6.009, SD_{\text{single task}} = 0.6216$). Consumers who perceive multitasking are more likely to engage in prosocial behaviors than perceived single-tasking. The main effect of this research was verified again in study 2.

Mediation Analysis. The perceived ability ($F(1,138) = 12.883, p < 0.001$) and self-efficacy ($F(1,138) = 15.094, p < 0.001$) were significantly different between groups. In this paper, Bootstrap analysis (Hayes, 2013) (Model6, sample size 5000) was performed to verify the mediation effect. The results show that, under the 95% confidence interval, "perceived multitasking \rightarrow perceived ability \rightarrow self-efficacy \rightarrow prosocial behavior" is significant, and the order mediation is established (Effect=0.1033, 95%CI=[0.0083, 0.1037]). Study 2 excluded the mediation alternative explanation of emotion, the indirect effect of emotion as a mediator was not significant (Effect=0.0330, 95%CI=[-0.0041, 0.0923]).

3.3 Study 3

Procedure. 280 participants (170 female participants (60.7%), with an average age of 28.3 years) were randomly assigned to a between-design situation of 2 (perceptual multitasking vs. perceptual single tasking) \times 2 (perceived hedonic vs. perceived non-hedonic). Participants first imagined that after taking three social psychology classes on Friday morning, the hedonic group and non-hedonic group saw different statements. Afterwards, the participants continued to imagine that they opened the B station (B 站) and started to scan the video, and recorded the name and location of the shop while watching the video. The manipulation item was the same as in study 1 ($\alpha = 0.797$); it measured what the participants felt more (hedonic or non-hedonic) in the scene just now as a manipulation check for whether the task type is hedonic. Subsequently, the perceived ability ($\alpha = 0.654$) and self-efficacy ($\alpha = 0.783$) were measured using the same items as in study 2. Participants then saw an "environmental protection activity" and reported their willingness to participate in the activity and take the initiative to promote environmental knowledge (the mean of the two items as the dependent variable; $\alpha = 0.681$).

Results. Manipulation check. We conducted a 2 \times 2 two-way ANOVA, and we found a significant effect of perceived multitasking on the manipulation test (multitasking or not) ($M_{\text{multitasking}} = 5.357$ vs. $M_{\text{single task}} = 4.793, F(1,276) = 16.593, P < 0.001$), other effects were not significant ($p > 0.1$), the manipulation of perceived

multitasking was successful; we found a significant effect of whether hedonic on the manipulation test (whether hedonic or not) ($M_{\text{hedonic}}=3.157$ vs. $M_{\text{non-hedonic}}=4.257$, $F(1,276)=22.961$, $P<0.001$), other effects were not significant ($ps > 0.1$), thus indicating that the manipulation of perceived hedonic was successful.

Environmental protection activities. Using two-way ANOVA results showed that the interaction between perceived multitasking and perceived hedonic activity on environmental protection activities was significant ($F(1,276)=6.528$, $P=0.011$). When participants perceive non-hedonic conditions, participants who perceive multitasking ($M_{\text{multitasking}} = 6.129$, $SD_{\text{multitasking}} = 0.6793$) were more Willingness to participate in environmental protection activities ($F(1,138) = 8.278$, $p = 0.005$); in the case of perceived hedonic, there was no significant difference in environmental protection activities between the two groups ($M_{\text{multitasking}} = 5.686$ vs. $M_{\text{single-task}} = 5.814$, $F(1,138) = 0.628$, $p = 0.430$), the results are shown in Figure 2.

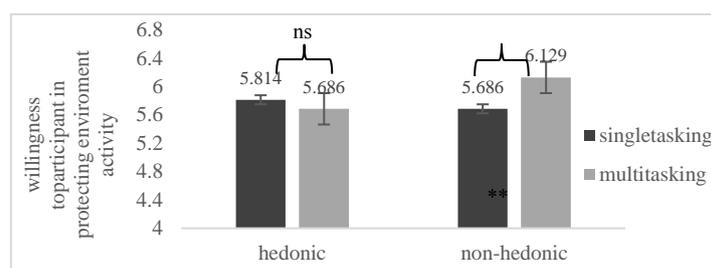


Figure 2. Interaction between perceived multitasking and perceived (whether hedonic or not)

3.4 Study 4

Procedure. 280 participants (151 female participants (53.93%), with an average age of 27.43) were randomly assigned to a between-design situation of 2 (perceptual multitasking vs. Perceptual single tasking) \times 2 (perceptual distracted vs. perceptual undistracted). Participants were first asked to imagine that they had received an invitation to "visit the museum" on Saturday morning, and during the visit, they would take photos and share them with friends and inform them of key information. The participants in the manipulative perception distraction group and perception undistracted group then read two different statements. After imagining the situation, use the same manipulation items as in study 1 ($\alpha=0.833$); then use the same items in study 2 to measure perceived ability ($\alpha=0.867$) and self-efficacy ($\alpha=0.919$); Use four items: "I was focused while visiting", etc. as manipulations for perceived distraction test ($\alpha=0.953$). Then, we wanted to know what participants thought about a "Cloud Planting Tree" activity that helps remote areas. People can donate money on the platform to help tree planting in remote areas. The cost of planting each tree is 3 yuan, each person can donate up to 10 trees. Participants reported the number of trees (0-10) they were willing to donate.

Results. Manipulation check. We conducted a 2×2 two-way ANOVA, and we found a significant effect of perceived multitasking ($M_{\text{multitasking}} = 5.514$ vs. $M_{\text{single task}} = 5.196$, $F(1,276)$ among the effects on the manipulation test (whether multitasking). $=6.512$, $P=0.011$), other effects were not significant ($ps > 0.1$), the manipulation of perceptual multitasking was successful; in the influence of manipulation test (whether perceived distracted), perceived distracted had a significant influence ($M_{\text{undistracted}}=4.9750$ vs. $M_{\text{distracted}}=3.0857$, $F(1,276) = 142.535$, $P<0.001$), other effects were not significant ($ps > 0.1$), thus the manipulation of perceived distraction was successful.

Perceived ability and self-efficacy. In the case of perceptual undistracted, participants with perceptual multitasking ($M_{\text{multitasking}} = 5.7905$, $SD_{\text{multitasking}} = 0.7001$) had better perceived ability than those with perceptual single task ($M_{\text{single task}} = 5.3571$, $SD_{\text{single task}} = 0.8816$) ($F(1,138) = 10.372$, $P = 0.002$); participants with perceived multitask ($M_{\text{multitask}} = 5.9786$, $SD_{\text{multitask}} = 0.5722$) had higher self-efficacy ($F(1,138) = 12.842$, $P < 0.001$). In the case of perceptual distraction, there was no significant difference in perceived ability between the two groups (M

multitask = 4.3809 vs. $M_{\text{single task}} = 4.0761$, $F(1,138) = 2.061$, $P = 0.153$); Similarly, there was a small difference in self-efficacy between the two groups ($M_{\text{multitask}} = 4.6286$ vs. $M_{\text{single task}} = 5.0750$, $F(1,138) = 5.079$, $P = 0.026$).

Willingness to participate in cloud tree planting activities. Using a two-way ANOVA results showed that the main effect of perceived multitasking and perceived distract on cloud tree planting activity was all significant ($F(1,276) = 5.494$, $P = 0.002$; $F(1,276) = 21.774$, $P < 0.001$), and the interaction between perceived multitasking and perceived distraction on cloud tree planting activity was also significant ($F(1,276) = 6.996$, $P = 0.009$). In the case of perceptual undistracted, participants who perceived multitasking ($M_{\text{multitasking}} = 7.757$, $SD_{\text{multitasking}} = 2.6618$) were more likely to perceive a single task ($M_{\text{single task}} = 6.100$, $SD_{\text{single task}} = 2.9000$) More willing to participate in cloud tree planting activities ($F(1,138) = 12.406$, $p = 0.001$); In the case of perceptual distraction, there was no significant difference in participation in cloud tree planting activities between the two groups ($M_{\text{multitask}} = 5.329$ vs. $M_{\text{single task}} = 5.429$, $F(1,138) = 0.045$, $p = 0.831$), and the results are shown in Figure 3.

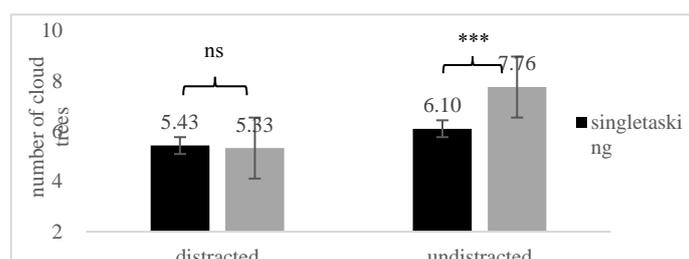


Figure 2. The interaction between perceived multitasking and perceived distraction

Mediation analysis. In order to examine whether perceived ability ($\alpha = 0.867$) and self-efficacy ($\alpha = 0.919$) mediate the effect of perceived multitasking on the willingness to participate in prosocial behaviors, this paper conducted a Bootstrap analysis in the context of perceived distraction and perceived non-distraction, respectively. (Model 6, sample size 5000). The data results show that under the 95% confidence interval, when consumers perceive undistracted, the indirect effect of “perceived multitasking → perceived ability → self-efficacy → prosocial behavior” is significant (Effect = 0.2608, 95%CI = [0.0600, 0.6388]); When consumers perceive distract, the indirect effect is not significant (Effect = 0.1331, 95%CI = [-0.0518, 0.4062]). The results show that the main effect and mediation effect were significant.

3.5 Study 5

Procedure. 280 online experiment participants (183 female participants (65.36%), with an average age of 28.77 years) were randomly assigned to a between-design situation of 2 (perceptual multitasking vs. perceptual single tasking) × 2 (time-providing vs. charitable giving). Participants first imagined that they saw an interesting academic lecture in the circle of friends at 9:00 am on Sunday. During the lecture, they took screenshots and sent them to We Chat groups who might be interested. After reading the scene Then, using the same manipulation items ($\alpha = 0.867$) as in study 1. Then, participants were asked to imagine that they saw a "Care for Children with Autism" activity going on on a public welfare platform, and participants could sign up for the activity. In the time-provided scenario, the participants were told that the activity was to spend two hours drawing and playing games with children with autism; while in the charitable donation scenario, the participants were told that the activity was to purchase self-made products on the platform. Paintings of children with autism to raise funds for them (5 yuan per painting). Participants then reported a willingness to participate in the "Caring for Children with Autism" activity. The experiment uses this willingness as the outcome of the dependent variable.

Results. Manipulation check. We conducted a 2 × 2 two-way ANOVA analysis, and we found a significant effect of perceived multitasking on the manipulation items (whether multitasking or not) ($M_{\text{multitasking}} = 5.514$ vs. $M_{\text{single task}} = 4.704$, $F(1,276) = 31.861$, $P < 0.001$), other effects were not significant ($ps > 0.1$), indicating that the experiment successfully manipulated perceptual multitasking.

Caring for autistic children. The results showed that when participants perceived multitasking, participants were more willing to engage in charitable giving-type prosocial behaviors than providing time-based prosocial behaviors ($M_{\text{charitable giving}}=6.257$ vs. $M_{\text{time-providing}}=5.486$, $F(1,138)=19.572$, $p < 0.001$); when participants perceive single-task processing, they are more willing to participate in charitable donation-type prosocial behaviors than to provide temporal prosocial behaviors ($M_{\text{charitable donation}} = 6.014$ vs. $M_{\text{providing time}} = 5.543$, $F(1,138) = 7.872$, $p = 0.006$). This result is in line with our hypothesis that participants were less willing to engage in time-consuming prosocial behaviors when they perceived multitasking, and were more willing to engage in charitable giving-type behaviors.

4. GENERAL DISCUSSION

4.1 Conclusion

In this paper, five series of studies were carried out to verify the hypothesis. Five studies used five different scenarios and different types of prosocial behavior. The results demonstrate that when an activity is perceived as multitasking (vs. single-tasking), people are more likely to engage in subsequent prosocial behaviors. In study 1 and study 2, the situation was selected as a frequent occurrence at work. The results proved the main effect and verified whether perceptual multitasking improved the perceived ability, and then affected the self-efficacy, thus promoting the sequential mediation mechanism of prosocial behavior. In study 3, when people were watching short videos, we verified whether perception hedonic played a moderating role. In study 4, consumers visited a museum offline. we verified whether perceived distraction played a moderating role, mainly because it did not increase their perceived ability. Study 5 used the scenario of participating in online academic lectures, Verify the validity of prosocial behavior type boundaries, the results show that when the participants perceive multitasking, will think that their time is scarce, thus more willing to participate in the charity prosocial behavior, rather than take the time to prosocial behavior.

4.2 Theoretical Implications of the Research

Firstly, this study is the first to explore the mechanism through which perceptual multitasking spills over to prosocial behavior, effectively expanding the scope of research related to the concept of multitasking and prosocial behavior. Secondly, this study explores the influence of changes in decision makers' behavior patterns as a dynamic situational factor on prosocial behaviors, thereby digging out a very important influencing factor of prosocial behaviors in the mobile Internet era. Existing research on the follow-up effects of multitasking psychological mechanisms is still limited to its impact on multitasking performance itself, and the conclusions are controversial. Related research on prosocial behavior has only explored the influence of individual stable personality traits and static situational factors on prosocial behavior, such as self-construction in individual differences etc. can affect prosocial behavior. What this paper studies is the potential positive downstream effects of just perceiving the same activity as multitasking (vs. single task).A scholar^[5] who studies multitasking perception problems, found that multitasking perception alone can improve performance, mainly due to increased task engagement. However, no scholar has linked perceptual multitasking with subsequent behaviors in unrelated fields. This paper is the first to link the perceptual problem of multitasking with prosocial behaviors. Consumers who perceive multitasking increase their perceived ability, which in turn increases their self-efficacy, and are willing to engage in prosocial behaviors. Finally, this paper proposes three effective boundary conditions for this logic. Studies have found that multitasking is associated with distraction, and there are different types of multitasking (e.g media multitasking, IS multitasking) will have different effects. However, no research has found its own properties and used it as the boundary condition of the study.

4.3 Practical Implications and Directions for Future Research

Firstly, multitasking is unavoidable in daily life, and it is the normal state of people's work and life, such as

switching between multiple shopping social networking sites. Although this phenomenon is very common, most people do not realize that they are multitasking. In this case, there is no change in ability or behavior. Therefore, non-profit organizations and platforms can help people to perceive multitasking, and make people have the ability to perceive through visual stimulation, thereby promoting the development of charity. Second, nonprofit platforms and organizations can improve on the type of prosocial behavior. Time and energy are a precious resource. In today's fast-paced life, people often don't have much time to do what they want to do, so non-profit organizations can publish more instant, efficient, easy-to-participate, and non-personal public welfare activities. Finally, there is great practical value in increasing willingness to engage in prosocial behaviors, which can increase social well-being and well-being. In daily life, some people do not realize that they are multitasking. After guiding people to perceive the activities of multitasking, charities and public welfare organizations can display public welfare activities to consumers at this time to promote people's perception of multitasking, and then launch public welfare activities. On the one hand, it improves people's perceived ability and self-efficacy. On the other hand, it also promotes the participation of philanthropy, and finally builds a society with the joint efforts of consumers and non-profit organizations.

This paper has some limitations. Firstly, study 1 of this article tests the choice of environmentally friendly products, but other studies mainly test the subjects' willingness to participate in prosocial behavior. In the future, we can still consider doing field experiments to test the actual prosocial behavior, which is used to strengthen the logic of this paper. Finally, in the future, we can further explore the mediating role of other variables and their behaviors, such as cognitive flexibility, time scarcity, etc. subsequent studies on perceptual multitasking are worth further exploration in the future.

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