Dedication

This thesis is dedicated to all of the people who pushed me to do what wasn't easy and supported me when I thought it was too difficult to continue.

Dad, Mom, Sky, Savannah, Lexi, Grandma, and Papa, thank you for listening even when you didn't understand what I was saying. Gill, thank you for reminding me to do things other than write this paper. To my friends at the newspaper, thank you for giving me grace when I was too busy to edit.

To my wonderful committee – Professor Alexander de Voogt, Professor Steven Kass, and Professor Jonathan Reader: thank you for answering emails at all hours and giving such detailed and helpful feedback. Without your support, I would never have been able to achieve what I have. Additionally, I give extra thanks to Professor de Voogt for convincing me to change career paths and supporting me in every way as I entered the world of Industrial-Organizational Psychology.

Finally, thank you to my two biggest cheerleaders and an extra grumpy companion: Sebastian and Summit, who were by my side (and on my lap) anytime they could be, and Hoss, who will be deeply missed – I couldn't ask for better dogs.

The Easy Addendum Effect:

When Can Adding a Little Help a Lot

A Thesis in Marketing

by

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of the Requirements

for the Degree of

Bachelor in Arts

With Specialized Honors in Marketing

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Abstract

Previous, groundbreaking research by Lai et al. (2023) proposed the existence of the easy addendum effect. The effect states that adding a set of distinguishably easier tasks at the end of an activity can reduce overall difficulty perceptions for the whole activity. Research about this phenomenon built on existing literature about human motivation, averaging effects, and the peak-end rule to explore its boundary conditions and downstream consequences. Specifically, Lai et al. (2023) found that category distinction served as a boundary condition to the easy addendum effect and that the phenomenon affected both satisfaction and persistence. To examine the research by Lai et al. (2023) and assess the replicability of their studies, I carried out two replication studies, produced analyses of subsamples of the original data, and replicated their data analyses. Replication of the original analyses yielded identical results. Analyses of 30 subsamples, pulled from the original data of two of Lai et al's (2023) studies, demonstrate that finding statistically significant relationships between easy addendum conditions and difficulty perceptions is unlikely in small (22 case) samples. Falling in line with these analyses, replications of two studies using small samples, yielded no statistically significant results, likely due to the small sample size and the small effect sizes presented in the original research. This paper concludes that while the results put forth by Lai et al. (2023) cannot be replicated using a smaller sample, future research should evaluate the easy addendum effect using a broader set of tasks amongst different settings.

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Introduction

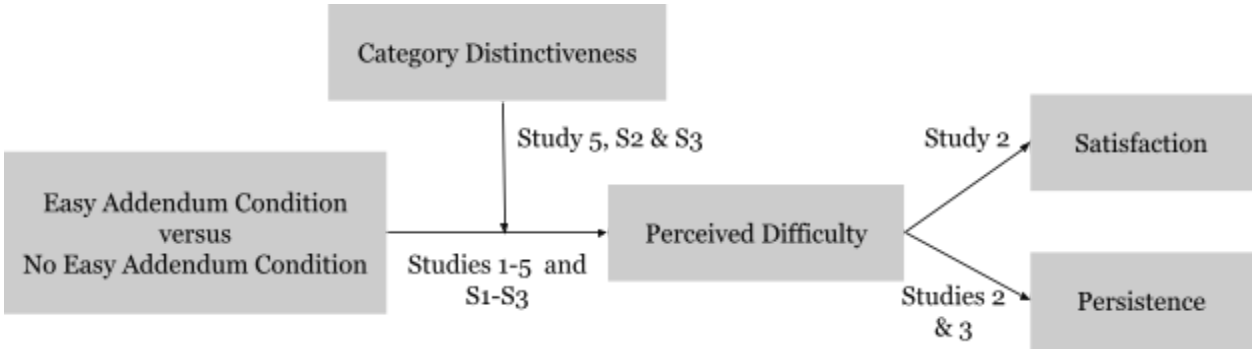
This research investigates the easy addendum effect, a phenomenon coined by Lai et al. (2023), which proposes that concluding a series of difficult tasks with easier ones reduces overall perceived effort. Lai et al. (2023) state that the easy addendum effect refers to when "all else equal, concluding a sequence of relatively difficult tasks with a few easy tasks will reduce effort perceptions of the overall activity." Through a series of studies on mental and physically difficult tasks, Lai et al. (2023) found that the easy addendum effect was present across types of tasks and decreased perceived difficulty, while increasing satisfaction and persistence. The phenomenon demonstrates that the order in which tasks are performed influences effort perceptions.

Through a series of studies Lai et al. (2023) determined that including an easy addendum condition affects perceived difficulty, as shown in Figure 1. Using this as the central relationship that they researched, they concluded that when an easy addendum condition is included in a set of tasks, individuals perceive the task(s) as less difficult, which is the core of the easy addendum effect. Furthermore, in three of their studies, Lai et al. (2023) revealed that category distinctiveness moderates this relationship (shown in Figure 1). This important addition provides boundary conditions–which are the constraints of a theory, wherein the boundary conditions must be fulfilled for the theory to have an effect– to the easy addendum effect. After exploring this boundary, Lai et al. (2023) state "that the easy addendum effect is attenuated when people do not perceive the easy addendum as a different category comprising of easier tasks." Finally, Lai et al. (2023) used two studies to explore the downstream consequences of the easy addendum effect. Specifically, they found that the easy addendum effect has distinct relationships with satisfaction and persistence, which are both mediated by perceived difficulty (shown in Figure

1). These relationships are important because they assert that the easy addendum effect impacts perceptions and behaviors beyond its immediate effect on perceived difficulty.

Figure 1

Conceptual Model of Lai et al.'s Research (2023)



Theoretical Framework

Judgement Processes and the Easy Addendum Effect

On first glance, this phenomenon appears to go against the findings of several previous studies about effort perceptions. Primarily the phenomenon appears to contradict the results from studies that provide support for the view that an increase in the duration of activities requires greater effort (Weingart, 1992). However, the easy addendum effect asserts that the order of activities also influences effort perceptions, to a degree that can compensate for the effort added due to an increase in duration. In this way, the easy addendum effect demonstrates that "judgments of the overall difficulty of an activity are consistent with an averaging (rather than an additive) process" (Lai et al., 2023).

Categorical Averaging

Research about categorical reasoning and averaging biases also provide support for the existence of the easy addendum effect. Brough and Chernev (2012) found that "in contrast to prior research suggesting that valuation is additive (i.e., perfectly additive or subadditive)," people can also produce subtractive reasoning because of categorical reasoning (Brough and Chernev, 2012). This gives support that the easy addendum effect relies on categorical reasoning and subtractive judgement processes to cause people to evaluate tasks as easier. In their research, Brough and Chernev (2012) use the term "categorical averaging" to "describe a process whereby polar opposites converge toward the center of a continuum, such that their combination becomes progressively less extreme." When applying this process to the context of the easy addendum

effect, it becomes clear that people can use categorical averaging to their advantage by using an easy extreme to counteract a hard extreme.

Additive Versus Averaging Effects

Previous research illustrates "that people often exhibit a bias wherein they erroneously average rather than add multiple inputs to form an overall judgment" (Lai et al., 2023). The easy addendum effect relies on this averaging process, which can override an additive process to form judgment about an activity, as demonstrated by multiple studies.

In a study focused on averaging biases, researchers used estimations of the calorie content of "vice/virtue" combinations– where there is one unhealthy food paired with a healthy food. In this research, consumers estimated that "the calorie content of a vice/virtue combination (e.g., hamburger and salad) to be lower than that of the unhealthy food alone (e.g., hamburger; Chernev & Gal, 2010)" (Lai et al., 2023). Chernev and Gal (2010) demonstrated that "the categorization theory of evaluating options combining a vice and virtue implies that people tend to form an overall impression of such options that balances out the vice/virtue aspects of its individual components." They demonstrate that people can evaluate experiences by averaging various inputs, rather than strictly using an additive judgment process to evaluate all of the input. While Chernev & Gal used vice/virtue combinations and had participants evaluate calorie count, this averaging judgment process can extend to people's evaluations of their first-hand experiences, an idea which lends support for the easy addendum effect.

In their pioneering work about the easy addendum effect, Lai et al. give support that this averaging process can be extended to perceptions of difficulty when people include the extent of

effort intensity in their judgment. In this way, “people may sometimes be inclined to average across their various tasks instead of relying on a strictly additive process,” which would take duration effects into account (Lai et al., 2023). This process supports the foundation of the easy addendum effect, wherein individuals are less likely to evaluate a task only by its duration, but rather the effort involved and the task’s difficulty.

The Easy Addendum Effect and Exploration of Motivation and Human Performance

Serial position effects

The easy addendum effect also provides valuable information about motivation and human performance, particularly in relation to everyday tasks. This phenomenon helps to explore the contributions of serial position effects on perception. However, unlike previous research on serial position effects, the easy addendum effect is related to a *set* of tasks, rather than a *sequence* of events or tasks.

Prior to the study by Lai et al., “serial position effects have been studied only in judgments of individual items in a sequence (e.g., the last contestant in a talent show; Farr, 1973; Page & Page, 2010; Steiner & Rain, 1989) not for judgments that relate to the entire set” (Lai et al., 2023). However, in their research, Lai et al. (2023) demonstrate that serial position effects are still influential in altering judgments of entire sets. This, powerfully, provides support for the basis of the easy addendum effect, where judgements of entire groups are made based on the adjustment of a few tasks. Furthermore, by establishing support for the existence of the easy addendum effect, future research on serial position effects can be expanded to include groups as well as individual items. Namely, the easy addendum effect is influenced by and provides

important implications for the recency effect, the primacy effect, and the peak-end rule (Lai et al., 2023).

The Interaction and Influences of the Primacy and Recency Effects

Previous studies on the primacy effect assert that "evaluations were biased to favor initial dispositions," and that individuals prefer to choose the first choice they are offered (Bond et al., 2007; Russo et al., 2006). However, when relating the primacy effect to judgement processes such as those considered in instances where the easy addendum effect is present, it functions differently than expected. While the primacy effect leads people to "often make tentative judgments about preference based on initial inputs (Anderson, 1965)," which are "often resistant to subsequent information," these judgements can be overridden by the proper use of the recency effect (Lai et al., 2023). Even when people are unaware of the distortion attributed to leader-driven primacy effects, they are less influential than expected because "predecisional distortion affects the attribute values themselves, not their importance weights," (Russo et al., 2006). In this way, the proper use of the recency effect can be just as, if not more, powerful than primacy effects when referencing the easy addendum effect due to a variety of factors discussed below.

In their study, Lai et al. (2023) show that the recency effect, which states that "final items or later events in a sequence are recalled better or weighted more in evaluations, largely owing to the limited capacity of short-term memory" appears to influence judgment and contribute to the easy addendum effect. The recency effect guides the easy addendum effect because it provides a basis as to why the last event in a sequence is often the most memorable. In

their research, Lai et al. (2023) use a study to establish the influence of the recency effect by changing the position of the appended tasks to the beginning and middle of the activity, both of which had negligible effects on judgements about difficulty, while placing easy addendum tasks at the end of the activity significantly affected judgements.

This specific influence of the recency effect is supported by previous research, specifically that by Unkelbach and Memmert (2014) on serial position effects, where they found that these effects must be "calibrated." In their study, Unkelbach and Memmert (2014) found that "people must calibrate a transformation function that translates observable stimulus input (e.g., performances) into available judgment categories (e.g., "pass" or "fail"). Until this function is calibrated, people are motivated to avoid extreme categories." They use these findings to conclude that the primacy effect, without calibration, influences individuals to categorize things as average rather than an extreme. Without a calibration, or a basis for what is truly good, bad, or average, individuals judge items and experiences significantly differently. Unkelbach and Memmert (2014) use these results to demonstrate that judgements without calibration negatively impact "good" things and positively affect "bad" things, because individuals are likely to judge them as closer to average than they truly are.

By this logic, placing additional tasks at the beginning of a set of activities would be less influential on judgement processes than placing them at the end. By relying on the primacy effect to color an activity as easier, individuals risk decreasing the influence of the easy addendum effect by limiting the power of judgements, because they are made without calibration. Conversely, adding easy addendums to the end of a set sources judgements that have been calibrated properly, means that individuals are more likely to inflate the ease of a whole activity.

Expanding the Application of the Peak-End Rule

Research on the existence of easy addendum effect also expands research on the peak-end rule, which previously focused on the construct's effect on visceral sensations (Ariely & Zauberman, 2000; Do et al., 2008; Fredrickson & Kahneman, 1993; Redelmeier & Kahneman, 1996; Thomas et al., 2018). The peak-end rule refers to how individuals retrospectively evaluate experiences by their feelings during the experience's most intense portion –the peak– and the end of the experience (Lai et al., 2023). This rule gives additional insight into why the recency effect may be more powerful than the primacy effect in experiences influenced by the easy addendum effect.

While research prior to the exploration of the easy addendum effect focused on the applicability of the peak-end rule in reference to experiences dictated by pain and pleasure, it is still reasonable to recognize its influence on daily tasks. Previous research explained that perceptions of pain could be influenced by changing the last thing individuals experienced, because it and the peak pain sensation were what individuals drew on to make judgments about the experience (Redelmeier & Kahneman, 1996). This research "yields the counterintuitive result that conditions can readily be arranged in which people prefer and choose a condition with objectively more pain as long as the episode ends on a relatively less painful note," (Do et al., 2008). Furthermore, other peak-end research explored the application of the rule in reference to positive and less visceral experiences (Fredrickson & Kahneman, 1993). It is important to note that the bulk of research on the peak-end rule focused on largely emotional and sensation-based judgements, which could be less applicable to everyday tasks.

However, through their thorough exploration of the easy addendum effect, which is logically guided by the influence of the peak-end rule, Lai et al. (2023) demonstrate that this rule is applicable to everyday tasks, as long as boundary conditions are adhered to. Through their research, Lai et al. (2023) demonstrate that the easy addendum effect and the peak-end rule work in tandem, both relying on ending experience to influence judgements of a whole activity.

Category Distinction as a Boundary Condition

An important boundary condition of the easy addendum effect, which Lai et al. (2023) discuss and test, is category distinction of the additional tasks. As asserted by Brough and Chernev (2012) in their research on categorical reasoning, judgements about things of a similar category are added while those of different categories are sometimes averaged. Lai et al. (2023) proposed and found that this distinction guides the easy addendum effect as well. This is to say that when appended tasks are not distinctly different, individuals added the difficulty to their original judgement, rather than averaging the difficulty while being guided by recency effects or the peak-end rule. In their research, Lai et al. (2023) find that category distinction governs the easy addendum effect, a boundary condition without which the effect is not present.

Downstream Consequences of the Easy Addendum Effect

While much of their research focuses on providing support for the existence of the easy addendum effect, Lai et al. (2023) use some of their studies to examine the downstream consequences of the effect. They propose that through influence on difficulty judgements, the easy addendum effect has important implications on worker satisfaction and persistence.

Lai et al. (2023) found that work satisfaction is influenced by the easy addendum effect in a relationship mediated by difficulty perceptions. Research on job performance "suggests that differences in pressure for production and task difficulty may, at least to some extent, explain the variety of results that are obtained when researchers correlate job satisfaction with job performance," (Ewen, 1973). In their studies on the easy addendum effect, Lai et al. (2023) examined this correlation by using studies that explored the downstream consequences of the easy addendum effect.

The Easy Addendum Effect as a Research Focus

Lai et al. (2023) conducted five central studies, as well as three supplementary studies. In all of the studies, participants were given tasks to engage in without a time limit, then were randomly assigned an addendum condition at the end of the set of tasks. In studies 1-4, researchers assigned one of two addendum conditions: no addendum (where no extra tasks were added) or easy addendum (where a short set of easier tasks were added), in both scenarios, participants were not informed of their condition nor that they were completing a separate set of tasks. Furthermore, in all of the studies, upon completion of the task, researchers had all participants fill out surveys reporting their perceptions, experiences, and some demographic information. In all of the surveys, the researchers used a two-item scale to assess the participants' perceived difficulty of the tasks (indicating how much overall effort the activity required: 1 =a little, 7 = a lot and how difficult it was: 1 = very easy, 7 = very difficult), after which their responses were then averaged to create an activity difficulty perception score, which is hereafter what "difficulty" refers to.

The researchers used the first study to evaluate "if appending the same set of difficult tasks with a set of easier tasks lowers the perceived difficulty of an activity, in aggregate," (Lai et al., 2023). Researchers had participants perform repetitive tasks that required short bursts of physical effort in a 2x2 between participants model (addendum: no versus easy, gender: male versus female) to investigate the interaction of the independent variables and perceived difficulty of the tasks. In this study, Lai et al. (2023) determined that there was no significant interaction but the addendum condition was found to significantly correlate to difficulty.

In study 2, researchers investigated the easy addendum effect in a different context and evaluated its downstream effects on satisfaction and persistence. Lai et al. (2023) had participants engage in an online sorting activity meant to mimic common clerical activities. In addition to using this study to evaluate the applicability of the easy addendum effect on mental based activities as well as physical ones, researchers lengthened the surveys to introduce satisfaction and persistence measures. Using this study, researchers found that there are statistically significant positive correlations between easy addendum conditions and persistence, persistence and age, and persistence and satisfaction (Lai et al., 2023). Additionally, researchers reported statistically significant negative correlations between easy addendum conditions and difficulty, persistence and difficulty, and difficulty and satisfaction (Lai et al., 2023). Simply, researchers used this study to demonstrate that the easy addendum effect influenced difficulty perceptions as well as its downstream consequences on important factors in work, such as persistence and satisfaction (Lai et al., 2023).

Researchers used the third study to examine the existence of the effect and its impacts on persistence by simulating a realistic customer service interaction. In this study, researchers

instructed participants to respond to email queries from a fictitious retailer based on a quick reference guide and a standard template, then upon the completing the core tasks and the addendum –if they were randomly assigned the easy addendum condition– participants were asked if they would complete more email tasks for more compensation (Lai et al., 2023). Researchers found that there was a statistically significant negative correlation between the easy addendum condition and difficulty perceptions, as well as a statistically significant positive correlation between the easy addendum condition and persistence and persistence and difficulty (Lai et al., 2023).

Lai et al. (2023) used the fourth study to establish boundary conditions of the easy addendum effect, specifically whether the position of the easy tasks influences the viability of the effect. In this study, participants completed a spatial awareness task and were assigned one of four conditions: no addendum, easy addendum –where easy tasks were placed at the end, easy-start condition, or middle condition. The researchers reported that only the easy addendum condition significantly affected difficulty perceptions, while the no addendum, easy-start, and middle conditions had no significant correlations to difficulty perceptions (Lai et al., 2023). Their study establishes boundary conditions that the researchers use to define the easy addendum effect as only influencing perceptions if the addendum tasks are added to the end of the set of tasks.

Finally they used a fifth study to evaluate the moderating effect of category distinction on the easy addendum effect's relationship with perceived difficulty. This study used a similar design to the fourth study, but changed the possible conditions to no addendum, easy addendum, and easy addendum with low category distinction. In the easy addendum with low category

distinction condition, the additional tasks were purposefully harder to distinguish as a separate category from the original set of tasks. In this study, researchers found that the easy addendum condition statistically significantly negatively correlated with difficulty perceptions, while the easy addendum with low category distinction condition had no significant effect on difficulty perceptions (Lai et al., 2023).

In this research, I seek to build on this literature, specifically focusing on replicating studies 1 and 5 to establish the applicability of the easy addendum effect on physical and mental tasks, while also evaluating the importance of category distinction on the effect.

Statistical Analysis Replication

Prior to my replication of part of the studies published by Lai et al. (2023), I further examined and scrutinized their results. To do so, I downloaded the data from their studies and followed the analysis syntax they provided to see if their statistical analysis could be replicated with their data.

Methods

For all five of the main studies in their article, Lai et al. (2023) published the raw data (excluding personal identifying information) publicly as a file type readable by SPSS. Additionally, they published SPSS files that detailed the exact analysis syntax used in their research. By downloading both of these documents for each study, it was possible to exactly replicate the statistical analysis conducted in their research, using their data. The specific analyses conducted using each data set are explained below.

In all of the data sets, descriptive statistics –including mean, standard deviation, minimum values, and maximum values– about demographic-focused variables, such as age and gender, were generated first. Then, beginning all analysis of variable relationships, a two-tailed, bivariate correlation test using Pearson's correlation coefficient was conducted to assess the relationship between effort and difficulty measures.

Study 1

After the initial correlation test was conducted, effects of gender on difficulty were explored by a two-way 2×2 analysis of variance (ANOVA) test. Finally, a second two-tailed, bivariate correlation test using Pearson's correlation coefficient was conducted assessing the relationship between four variables: age, gender, easy addendum condition, and difficulty judgements.

Study 2

The second test run for this dataset was a one-way ANOVA on perceived work difficulty, well-being, and job persistence. Finally, another two-tailed, bivariate correlation test using Pearson's correlation coefficient was conducted assessing the relationship between five variables: age, gender, easy addendum condition, difficulty judgements, judgements on how well participants felt about the task, and persistence.

Study 3

The second test for this dataset was a one-way ANOVA on perceived difficulty. Then they conducted a logistic regression with actual completion, analyzing the ability of the condition to predict participation in additional tasks.

Study 4

After running descriptive statistics, a one-way ANOVA on the addendum conditions and perceived difficulty was performed. In this analysis, special attention was given to the significance of effects of the easy-start condition.

Study 5

The second and third tests for this dataset were both one-way ANOVAs: One on condition and ability to differentiate between the types of sliders, and another on condition and difficulty perceptions. Finally, a 2 (easy addendum vs. low category distinctiveness) × 2 (difficult vs. easy sliders) mixed ANOVA on the average number of attempts was conducted.

Results

Overall, the results of the reproduced statistical analyses were the same as those reported in Lai et al.'s (2023) article.

Study 1

As reported by Lai et al. (2023), Study 1 relied on data collected from 255 participants (30.6% female, $M_{age} = 20.43$). Replicating their analysis, which included descriptive statistics and correlations for the variables of note and an ANOVA test, yielded identical results. Notably, these analyses indicated that easy-addendum conditions (M = 0.55, SD =.49) are statistically significantly correlated with difficulty perceptions (M = 4.06, SD = 1.33), $r(253) = -0.15$, $p < .05$. Furthermore, the ANOVA test demonstrated that, on average, participants in the easy addendum

Table 1

Means, Standard Deviations, and Correlations Among Study 1 Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.43	0.83	—			
2. Gender	0.31	0.46	−.06	—		
3. Condition	0.55	0.50	.05	.05	—	
4.. Difficulty	4.06	1.33	−.07	.12	−.15*	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.
* p < .05.

condition judged the activity to be less difficult than those in the no addendum condition, regardless of gender, ($M_{easy-addendum} = 3.89$, *SD* = 1.30 versus $M_{no-addendum} = 4.27$, *SD* = 1.34, *d* = 0.29, *F*(1, 251) = 5.80, *p* = .017, $\eta_p^2 = .023$). Lai et al. (2023) used these results as evidence for the existence of the easy addendum effect.

Study 2

In their second study, which focused on downstream consequences of the east addendum effect, Lai et al. (2023) used data from 201 undergraduate students (56.7% female, $M_{age} = 20.43$). Replicating their analysis yielded identical results, which highlighted that, on average, participants in the easy addendum condition found the activities less difficult

($M_{easy-addendum} = 5.35$, SD = 2.29 versus $M_{no-addendum} = 6.13$, SD = 1.95, d = 0.36, F(1, 199) = 6.65, p = .011, $\eta_p^2 = .032$). Furthermore, replication confirmed that participants in the easy addendum condition were, on average, more persistent in the activities ($M_{easy-addendum} = 5.18$, SD = 3.15 versus $M_{no-addendum} = 4.09$, SD = 2.98, d = 0.35, F(1, 199) = 6.25, p = .013, $\eta_p^2 = .030$). Finally, replication also confirmed that there was not a statistically significant effect on satisfaction ($M_{easy-addendum} = 5.82$, SD = 2.67 versus 5.22, SD = 2.38, d = 0.24, F(1, 199) = 2.81, p = .095, $\eta_p^2 = .014$). Using these results, Lai et al. (2023) provided evidence that the easy addendum effect not only influenced difficulty perceptions, but also other downstream consequences, specifically persistence.

Study 3

In their third study, Lai et al. (2023) used data from 273 undergraduate students (34.8% female, $M_{age} = 20.43$) to explore the consequences of the easy addendum effect in a real-choice context. Replicating their analysis yielded identical results, which once again highlighted that, on average, participants in the easy addendum condition found the activities less difficult (3.09, SD = 1.25 versus $M_{no-addendum} = 3.90$, SD = 1.55, d = 0.58, F(1, 271) = 22.84, p < .001, $\eta_p^2 = .078$). These results demonstrate that the statistical significant effect of the easy addendum effect on perceived difficulty extends to real-choice contexts. Furthermore, Lai et al. (2023) used this analysis to demonstrate that this also affects consequences downstream, like persistence.

Study 4

As reported by Lai et al. (2023), Study 4 relied on data collected from 489 participants (57.9% female, $M_{age} = 40.28$) recruited through Amazon Mechanical Turk. Their analysis included descriptive statistics and correlations for the variables of note and an ANOVA test. Replications yielded identical results. These analyses indicated that easy-addendum conditions (M=4.15, SD=.1.70) are statistically significantly less difficult relative to the no addendum condition (M=4.64, SD=1.79), $d = 0.28$, $F(1, 485) = 5.19$, $p = .023$, $\eta_p^2 = .011$). Furthermore, the analysis demonstrated that, on average, participants in the easy addendum condition judged the activity to be less difficult than those in the easy start condition ($M_{easy-start} = 4.56$, $SD = 1.51$, $d = 0.26$, $F(1, 485) = 3.75$, $p = .052$, $\eta_p^2 = .008$) and easy in the middle condition ($M_{easy-in-the-middle} = 4.62$, $SD = 1.69$, $d = 0.28$, $F(1, 485) = 4.93$, $p = .027$, $\eta_p^2 = .010$). Lai et al. (2023) used these results as evidence that the existence of the easy addendum effect is dependent on the placement of the easy tasks at the end of a set.

Study 5

The fifth study completed by Lai et al. (2023) explored the importance of category distinctiveness in emphasizing the easy addendum effect. In this study, they used 291 undergraduate students (41.6% female, $M_{age} = 20.54$). Their analysis explored the impact of category distinction on difficulty perceptions, where analyses supported their claim that low

category distinctiveness reduced the easy addendum effect. These analyses demonstrated that participants were able to see the difference between category distinction conditions. Replications yielded identical results. Overall, participants in the easy addendum with high distinctiveness were more likely to agree that there were multiple types of sliders ($M_{easy-addendum-with-high-category-distinctiveness} = 5.49$, SD =1.77) relative to the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.66$, SD = 2.00, d = 0.97, $F(1, 288) = 47.78$, $p < .001$, $\eta_p^2 = .14$) and the no addendum condition ($M_{no-addendum} = 3.64$, SD = 1.76, d = 1.76, $F(1, 288) = 48.86$, $p < .001$, $\eta_p^2 = .15$). Furthermore, emphasizing the importance of category distinctiveness, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition, d = 0.01, $F(1, 288) = .01$, $p = .94$, $\eta_p^2 < .001$. However, the main effect of the condition was significant, $F(2, 288) = 32.22$, $p < .001$, $\eta_p^2 = .18$.

A one-way ANOVA demonstrated a significant result about perceived difficulty, $F(2, 288) = 4.11$, $p = .017$, $\eta_p^2 = .028$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.81$, SD = 1.61) perceived the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.33$, SD = 1.53, d = 0.33, $F(1, 288) = 5.38$, p = .021, $\eta_p^2 = .018$) and the no addendum condition ($M_{no-addendum} = 4.40$, SD = 1.55, d = 0.37, $F(1, 288) = 6.86$, $p = .009$, $\eta_p^2 = .023$). Once again, there was no statistically significant

difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 0.04$, $F(1, 288) = .09$, $p = .77$, $\eta_p^2 < .001$.

Discussion

By replicating these statistical analyses, it was possible to evaluate and scrutinize the results presented by Lai et al. (2023) in depth. Overall, these results and analyses were correct and accurately supported the results that Lai et al. (2023) presented in their article.

These analyses also demonstrated the important boundary conditions and downstream consequences of the easy addendum effect. With the results of studies 2 and 3, it is clear that the easy addendum effect impacts participants' perseverance in similar tasks, but does not clearly impact satisfaction. Furthermore, studies 4 and 5 set boundaries on the effect, with results that assert that the temporal placement of amended tasks and participants' ability to distinguish the amended tasks as different both impact the easy addendum effect.

Statistical Analysis of Subsamples

In addition to examining and scrutinizing the results published by Lai et al. (2023), it was necessary to create subsamples that are comparable to the samples collected in my replication experiment. To do so, I used the data downloaded from their studies, broke their larger samples into subsamples, and conducted the same analysis as in their original studies and my replications. This is necessary to evaluate whether changes in effect sizes and significance are due to, for instance, smaller samples or a different population.

Methods

Data from the two studies being replicated in my research (Study 1 and Study 5) were pulled and split into random subsamples containing 22 cases each. This was conducted by generating random samples in each dataset through SPSS. Subsequently, analyses of each subsample were conducted to analyze trends within significantly smaller samples. In all of the subsamples, descriptive statistics– including mean, standard deviation, minimum values, and maximum values– about demographic-focused variables, such as age and gender, were generated first. Then, beginning all analysis of variable relationships, a two-tailed, bivariate correlation test using Pearson's correlation coefficient was conducted to assess the relationship between effort and difficulty measures. Finally, any specific tests for the respective studies– which are outlined below– were run. For each study this process was conducted 15 times.

Study 1

No additional tests were performed, since the relationship between gender and difficulty perceptions was deemed nonsignificant in Lai et al.'s (2023) original research.

Study 5

The first additional test for these subsets was a one-way ANOVA on condition and ability to differentiate between the types of sliders. Next, an additional 2 (easy addendum vs. low category distinctiveness) × 2 (difficult vs. easy sliders) mixed ANOVA on the average number of attempts was carried out.

Results and Discussion

Analyses of subsets from both studies resulted in only few demonstrations of statistically significant relationships between easy addendum conditions and difficulty perceptions. This shows that it is unlikely that any statistically significant results will be found in a sample of 22 cases and that finding no statistically significant results is the expected outcome of the following replication studies.

Study 1

Analyses of individual subsets of Study 1 can be found in Appendix A. Of the 15 subsets generated from Lai et al.'s (2023) original data, none demonstrated a statistically significant relationship between condition and difficulty perceptions and only three (20%) had any statistically significant correlation between the two variables. This demonstrates that it is

unlikely that any sample of 22 cases will demonstrate a statistically significant relationship and only a handful of samples this size will show any statistically significant correlations between the variables.

Study 5

Analysis of individual subsets of Study 5 can be found in Appendix B. Of the 15 subsets generated from Lai et al.'s (2023) original data, seven (46.7%), found a statistically significant relationship between condition and agreement that there are multiple types of sliders, noting that manipulation was successful within these subsets. Of all of the subsets, including the seven where manipulation was successful, no statistically significant relationship between condition and difficulty was found. This once again reiterates the notion that it is unlikely any sample of 22 cases will demonstrate a statistically significant relationship between the variables. However, while it is likely that the manipulation will be unsuccessful, in almost half of the subsets, a statistically significant manipulation occurred in a small sample.

Study 1: Physical Study

In this study, I replicated the first study carried out by Lai et al. (2023) to expand on their results, which investigated the existence of the easy addendum effect. In their first study, they had 255 undergraduate students complete physical tasks following the same methodology as my study.

Methods

This experiment was conducted in person, with written and verbal instructions. It consisted of participants using a hand grip dynamometer and trying to hold it at the required strength level for 10 seconds for multiple rounds. Male and female participants were asked to apply different pressure levels based on a pretest from the original study and participants were asked to apply different pressures based on a random assignment of two conditions (no addendum or easy addendum). Regardless of the assigned condition, participants were expected to take between 10 and 20 minutes to complete the study, however they were informed that they could take as little or as much time as they wanted to complete the study. A full copy of the study, researcher instructions, and blank consent forms are provided in Appendix A.

In no-addendum conditions, the participants completed nine exercises in total, where they were randomly assigned to apply three different pressures (120, 125, and 130 pounds for men and 75, 80, and 85 pounds for women) three times each. In the easy addendum conditions, three of the exercises were added to the experiment (85, 90, and 95 pounds for men; 45, 50, and 55

pounds for women; randomly ordered), so these participants completed 12 exercises in total. This research used the same pressures as the initial study, where researchers used a pretest to establish reasonable pressures (Lai et al., 2023).

After the physical exercises were completed, the participants filled out a questionnaire. The primary focus of the questionnaire – for researchers– are two questions about effort and difficulty of the tasks used to establish the difficulty judgement measure. However, exactly as in the other study, the rest of the questionnaire involved two demographic questions about age and gender expression. The final component of the study consisted of a short written explanation of the study and its true purpose, accompanied by a final question asking if participants would still allow their results to be included in the study. No participants indicated that they did not want their results to be included in the study.

Risks

Because this research is focused on perceived effort and difficulty, all experiments inherently involved tasks that intended to take mental and physical effort. As such, the studies had the minimal risk that participants will experience fatigue and exhaustion (both physically and mentally). The studies also posed minimal emotional risks because they intended to create and simulate low levels of stress with only a potential cause of confusion.

In the physical exercise, the participants faced a low risk of mental fatigue that is inherent in participating in any task, but also faced risks of physical fatigue. The exercise intended to take a manageable amount of effort, while also engaging the participants in tasks that involve considerable physical effort. As such, it was expected that the participants will grow more

fatigued as the study progressed, which interacted with other risks, which includes frustration and stress.

Results

This study utilized results collected from 22 participants (59.1% female, 10% nonbinary/ third gender). Analysis of these results yielded no statistically significant findings, unlike the results published by Lai et al. (2023), but consistent with predictions explained in the subsampling section.

Analyses indicated that easy-addendum conditions (M = 0.55, SD =.51) were not statistically significantly correlated with difficulty perceptions (M = 5.69, SD =1.29), $r(22)$ = -.035, p = .88. Full correlations are listed in Table 2. Furthermore, an univariate ANOVA test demonstrated that, on average, participants in the easy addendum condition did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender ($M_{easy-addendum} = 5.65$, SD = .93 versus $M_{no-addendum} = 5.74$, SD = 1.57, d = 0.29, $F(1, 21)$ = .024, p = .88, $\eta_p^2 = .001$).

Table 2

Means, Standard Deviations, and Correlations among Study 1 Variables

Variable	*M*	*SD*	1	2	3	4
1. Age	1.14	0.64	—			
2. Gender	1.50	0.67	.46	—		
3. Condition	0.55	0.51	.37	.21	—	
4.. Difficulty	5.69	1.29	.31	.06	.87	—

Note: N=22. Values on the diagonal represent scale reliability. Age is coded as: 1 = 18-24 years old, 2 = 25-34 years old, 3 = 35-44 years old, 4 = 45-54 years old, 5 = 55-64 years old 65+ years old. Gender is coded as: 1= female, 2 = male. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Discussion

Results from this study do not confirm the findings from Lai et al.'s (2023) original article, but follow predictions in the subsampling section. Furthermore, while these results do not support the existence of the easy addendum effect, it is likely because of the small sample size, which is unlikely to yield statistically significant results. Since there were no statistically significant correlations between any of the variables and univariate testing revealed that there was no statistically significant effect of condition on difficulty perceptions; in short, there is no statistical support for the influence of the easy addendum effect in this study. These results demonstrate that the results published by Lai et al. (2023) cannot be replicated with a smaller population.

Furthermore, the non-significant results found in this study in combination with the small effect sizes presented by Lai et al. (2023) ($\eta_p^2 = .023$), demonstrate that perhaps the influence of

the easy addendum effect is minimal, even in controlled environments. It is noted that the inverse or a negative effect of the easy addendum is also not found.

Study 2: Mental Study

In this study, I sought to replicate a study that established the easy addendum effect's boundary condition of category distinction. In their fifth study, Lai et al. (2023) examined whether category distinction was a requirement for the easy addendum effect and found that without it, the effect did not yield statistically significantly different results than when there was no effect. This study intended to replicate their study to solidify the existence of this boundary condition.

Methods

This study was completed online, so that certain thresholds could be implemented impartially. Participants completed short tasks based on spatial awareness, before randomly being assigned one of three extra conditions (easy addendum, easy addendum with low distinction, or no addendum). Then, participants filled out a short questionnaire about how they perceived the difficulty of the tasks and their demographic information. Regardless of the assigned condition, participants were expected to take between 10 and 20 minutes to complete the study, however they were informed that they can take as little or as much time as they want to complete the study. A full copy of the study and blank consent forms are provided in Appendix B.

The spatial awareness tasks consisted of being asked to note the position of a number on an unmarked number line between 0 and 100. For each task, the participant was not able to move on until their answer was within ±2 of 50, however, the participants were not informed of this

and instead believed they must select the exact location of the number. The study began with one practice task where participants indicated where 50 was located, then moved onto 10 tasks (finding the numbers 5, 15, 25, 30, 40, 55, 60, 75, 85, 90 in a randomly assigned order).

After the participant completed the tasks, they were randomly assigned one of the conditions, without knowing that they were no longer completing the original set of tasks. If they received no addendum, they did not complete any additional tasks and moved onto the questionnaire. If they received the easy addendum with low distinction condition, they completed three additional tasks where they placed numbers (20, 80, and 45 in a randomly assigned order) on unmarked number lines that are indistinguishable from the original tasks. However, in this condition, the acceptance threshold increased from ±2 to ±5. If they received the easy addendum condition, they also completed three additional tasks where they placed numbers (20, 80, and 45 in a randomly assigned order) on number lines, however these number lines included eight numerical anchors (11, 22, 33, 44, 56, 67, 78, and 89). This research design was identical to Study 5 in Lai et al.'s (2023) research, as described in their article and supporting documentation.

The questionnaire the participants completed involved three questions scored on Likert scales about the perceived difficulty of the tasks. The questions were about effort, difficulty, and distinguishing a difference between sliders. The rest of the questionnaire involved two demographic questions about age and gender expression. The final component of the study consisted of a short written explanation of the study and its true purpose, accompanied by a final question asking if they would still like their results included in the study.

Risks

In this mental exercise, the participants faced emotional and mental risks mentioned in the first study. Furthermore, they faced significant levels of mental fatigue while completing the tasks and being asked to repeat them until they met a standardized acceptance threshold.

Results

This study used the results of 22 voluntary participants (63.6% female). No participants refused to allow their data to be included after completion or did not complete the full study, causing their results to be excluded. As predicted in the subsampling section, analyses revealed that there were no statistically significant correlations between variables in this study. This is likely due to the sample size. Analyses indicated that condition (M=1.00, SD=0.82) is not statistically significantly correlated with difficulty perceptions (M=3.16, SD=1.35), r (22)=.20, $p < .05$. Furthermore, ANOVA testing yielded no significant results regarding relationships between condition and slider types, as well as between condition and difficulty perceptions.

Most importantly, a one-way ANOVA revealed that manipulation was not successful. In this ANOVA, participants in the typical easy addendum (high category distinctiveness) condition were no more likely to agree that there were two types of sliders ($M_{easy-addendum-with-high-category-distinctiveness} = 4.25$, SD = 1.67) relative to the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.57$, SD = 1.99, d = 0.37, $F(1, 19) = .56$, p = .47, $\eta_p^2 = .028$) and the no addendum condition ($M_{no-addendum} = 3.29$, SD = 1.60, d = 0.59, $F(1, 19) = 1.13$, p = .30, $\eta_p^2 = .056$). Additionally, there was no statistically

significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition, $d = 0.16$, $F(1, 19) = 0.09$, $p = .76$, $\eta_p^2 = .005$ and the main effect of condition was also not significant, $F(2, 19) = .60$, $p = .56$, $\eta_p^2 = .060$. This shows that manipulation was unsuccessful, as there was no significant difference in perception of sliders based on condition.

While unsuccessful manipulations on category distinctiveness indicate that any results on perceived difficulty between easy addendum conditions would be insignificant or due to uncontrollable variables, it is still valuable to run statistical analyses to compare results to the original study. A one-way ANOVA demonstrated no significant results about perceived difficulty, $F(1, 19) = 1.17$, $p = .33$, $\eta_p^2 = .109$. On average, participants in the easy addendum with the high distinctiveness condition ($M_{easy-addendum-with-low-category-distinctiveness} = 2.63$, $SD = 1.48$) did not perceive the tasks to be any less or more difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.21$, $SD = 1.63$, $d = 0.27$, $F(1, 19) = .63$, $p = .56$, $\eta_p^2 = .018$) and the no addendum condition ($M_{no-addendum} = 2.57$, $SD = 0.67$, $d = -0.90$, $F(1, 19) = 2.32$, $p = .15$, $\eta_p^2 = .109$). Once again, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = -0.52$, $F(1, 19) = .81$, $p = .38$, $\eta_p^2 = .041$.

Table 3

Means, Standard Deviations, and Correlations among Study 2 Variables

Variable	*M*	*SD*	1	2	3	4	5
1. Age	2.82	2.06	—				
2. Gender	1.36	0.49	.26	—			
3. Condition	1.00	0.82	.00	.19	—		
4. Two types	3.73	1.72	.07	-.16	.07	—	
5. Difficulty	3.16	1.35	-.22	-.27	.20	-.11	—

Note: N=22. Values on the diagonal represent scale reliability. Age is coded as: 1 = 18-24 years old, 2 = 25-34 years old, 3 = 35-44 years old, 4 = 45-54 years old, 5 = 55-64 years old 65+ years old. Gender is coded as: 1= female, 2 = male. Condition is coded as: 0 = no addendum, 1 = easy addendum, 2 = low category distinctiveness.

Discussion

This study demonstrates that the original study, Study 5 in the article by Lai et al. (2023), cannot be replicated with similar statistically significant results when using a smaller sample. Importantly, results of analyses on manipulation efforts revealed that these efforts were not successful. This means that participants did not perceive differences between slider types, indicating that they could not tell that they were completing a slightly different task in either easy addendum condition. This is important because this study aims to evaluate the importance of category distinctiveness in relation to the easy addendum effect and unsuccessful manipulation means that this variable was not evaluated effectively. In short, that the manipulations carried out in the study by Lai et al. (2023) could not be replicated.

Furthermore, statistical analyses on difficulty perceptions revealed that similar statistically significant results could not be obtained within a smaller sample. In this study, there

were no significant relationships between condition and difficulty perceptions, an expected result, given the small sample size.

However, while this study's nonsignificant results have important implications on the ability to reproduce the results of Lai et al. (2023) using another population, it does in fact provide key information about their hypothesis "that the easy addendum effect is attenuated when people do not perceive the easy addendum as a different category comprising of easier tasks." In this study, participants did not perceive either easy addendum as a different category and as such, there was no difference in difficulty perceptions. While there was intended to be one easy addendum condition that was imperceptibly different and one that was obviously different, thus producing various difficulty perceptions based on the easy addendum effect, this did not happen as intended and both easy addendum conditions functioned as low-distinction conditions. In both conditions, participants failed to distinguish between slider types, which could provide a reason as to why difficulty perceptions were left unaffected by the manipulation. This falls in line with the hypothesis stated by Lai et al. (2023), but is unverifiable due to the unsuccessful manipulation of variables.

General Discussion

Theoretical Contributions

The results presented in this paper provide important information about the existence and influence of the easy addendum effect. Despite the pioneering work from Lai et al. (2023) providing proof for the significant influence of the easy addendum effect, specifically on difficulty perceptions and downstream consequences such as perseverance, these replication studies did not provide similar proof.

As stated previously, this lack of support for the existence of the easy addendum effect is likely due to small sample sizes.

Additionally, because the manipulations were unsuccessful the interpretation of the results of Study 2 could not be verified. It may be possible that there are other and more distinctive boundary conditions to the easy addendum effect than previously anticipated. Based on the behaviors of in-person participants during the studies, it seems likely to me that the easy addendum conditions were still too demanding to make the intended impact. This means that the easy addendum effect may rely on more obviously easy tasks than initially thought.

Implications

While the original studies provided important implications “for human resource managers who are responsible for task design, well-being, and performance management,” these studies imply that the impacts could be much less, since they are not present in small sample sizes (Lai et al., 2023). Furthermore, this research demonstrates that behavior and perceptions can

potentially be influenced by the easy addendum effect, but that the effect is more fragile and constrained than initially posited.

Limitations and Further Research

This research was limited by small sample sizes, which, as demonstrated in the subsampling section, impeded the ability to generate statistically significant results, due to the already small effect size presented by Lai et al. (2023). This limitation could not be addressed within the scope of this study. Since the number of participants would have to have increased tenfold to approximately 240 or higher, it is unlikely that a sample large enough to generate statistically significant results could have been easily recruited at a relatively small university, like Drew University. Furthermore, relatively time-consuming experimental conditions mean that even if it were possible to recruit enough participants, it is unlikely that the studies could have been feasibly conducted in the time available for thesis research. However, this research demonstrates that there is a need for future research that replicates these studies with a robust sample size.

This research also provides evidence that future replicative studies of a different nature could and should be carried out. Based on my observations, I noticed a need for studies examining the boundary conditions of the easy addendum effect. Particularly, future research could examine how easy the easy addendum tasks need to be in order to have an impact on behaviors and perceptions.

The results of this research, in conjunction with the results of the original research, provide a basis for further experiments about the easy addendum effect in relation to different

tasks and task duration. Both this research and the original research focus on two main types of tasks: those that are straightforward, mental based, clerical activities and those that are simple, physically demanding activities. While the types of tasks chosen for this research are important when establishing parameters for the effect, this research is limited by not seeking to try distinctly different types of tasks that also contrast the original research. Instead, this research scrutinizes the results of and assesses the replicability of the original research, both of which are still needed when assessing the broader applicability of a newly proposed phenomenon.

Apart from more distinctive tasks, future research on the subject could analyze the impact of the effect on long-term tasks. Since the original research was limited by COVID restrictions and this research focused on the question of replicability, there is no literature on the effectiveness of this phenomenon in long-term tasks. Lai et al.'s (2023) research establishes the existence of the easy addendum effect, but it also implies the need to find if time is a boundary condition of the effect, such as tasks that are completed over the course of entire days, weeks, or more.

While long-term studies are important in progressing research on this subject and a lack of long-term studies can be seen as a limitation, this research did not incorporate these types of studies for a few important reasons. Primarily, recruiting for long-term studies would confound the problems of recruiting large sample sizes. One may argue that other boundary conditions should have priority in order to find manipulations where the effect is more readily found without large samples before any long-term studies are being sought.

Finally, more research that focuses on the relationship between the easy addendum effect and the recency effect could be conducted. Such research could examine if the easy addendum

effect is present and impactful on perception when manipulating the distance of time between the experiment and the reflections. This would provide information about the long term usefulness of the easy addendum effect and open doors to do more research on the effect's impact on important constructs like job satisfaction and stress.

Conclusion

This research expands the current understanding of motivation and human behaviors. Two replicatory studies show that reproducing the original results found by Lai et al. (2023) for the easy addendum effect is not successful using a smaller sample. The first study shows that the manipulations used by Lai et al. (2023) are not significant using a smaller set of participants. Lai et al. (2023) also identified conditions for the effect, but these were also not significant when replicated with a smaller sample. Future research can add the collected data to that of Lai et al. (2023) to evaluate the easy addendum effect using a broader set of tasks as well as evaluating the influence of the effect in other settings.

Works Cited

Ariely, D., & Zauberman, G. (2000). On the making of an experience: The effects of breaking and combining experiences on their overall evaluation. *Journal of Behavioral Decision Making*, *13*(2), 219–232. https://doi.org/10.1002/(SICI)1099-0771(200004/06)13:2

Bond, S. D., Carlson, K. A., Meloy, M. G., Russo, J. E., & Tanner, R. J. (2007). Information distortion in the evaluation of a single option. *Organizational Behavior and Human Decision Processes*, *102*(2), 240–254. https://doi.org/10.1016/j.obhdp.2006.04.009

Brough, A. R., & Chernev, A. (2012). When Opposites Detract: Categorical Reasoning and Subtractive Valuations of Product Combinations. *Journal of Consumer Research*, *39*(2), 399–414. https://doi.org/10.1086/663773

Do, A. M., Rupert, A. V., & Wolford, G. (2008). Evaluations of pleasurable experiences: The peak-end rule. *Psychonomic Bulletin & Review*, *15*(1), 96–98. https://doi.org/10.3758/PBR.15.1.96

Ewen, R. B. (1973). Pressure for production, task difficulty, and the correlation between job satisfaction and job performance. *Journal of Applied Psychology*, *58*(3), 378–380. https://doi.org/10.1037/h0036298

Fredrickson, B. L., & Kahneman, D. (1993). Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology*, *65*(1), 45–55. https://doi.org/10.1037/0022-3514.65.1.45

Lai, E. Y., Sevilla, J., Isaac, M. S., & Bagchi, R. (2023). The easy addendum effect: When doing more seems less effortful. *Journal of Applied Psychology*, *108*(12), 2040–2052. https://doi.org/10.1037/apl0001130

Redelmeier, D. A., & Kahneman, D. (1996). Patients' memories of painful medical treatments:

Real-time and retrospective evaluations of two minimally invasive procedures. *PAIN*, *66*(1), 3. https://doi.org/10.1016/0304-3959(96)02994-6

Russo, J. E., Carlson, K. A., & Meloy, M. G. (2006). Choosing an Inferior Alternative. *Psychological Science*, *17*(10), 899–904. https://doi.org/10.1111/j.1467-9280.2006.01800.x

Thomas, D., Olsen, D., & Murray, K. (2018). Evaluations of a sequence of affective events presented simultaneously. *European Journal of Marketing*, *52*(3/4), 866–881. https://doi.org/10.1108/EJM-09-2016-0526

Weingart, L. R. (1992). Impact of group goals, task component complexity, effort, and planning on group performance. *Journal of Applied Psychology*, *77*(5), 682–693. https://doi.org/10.1037/0021-9010.77.5.682

Appendix A: Study 1 Subset Sampling Analysis

Subset A

This subset contained 22 cases (13.6% female, $M_{age} = 20.55$). Descriptive statistics of relevant variables and correlations are shown in Table 4. While there was a correlation between difficulty perceptions and condition, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.68$, $SD = 0.40$ versus $M_{no-addendum} = 4.25$, $SD = 0.55$, $d = 1.09$, $F(1, 18) = .713$, $p = .410$, $\eta_p^2 = .038$).

Table 4

Means, Standard Deviations, and Correlations Among Study 1 Subset A Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.54	0.74	—			
2. Gender	0.14	0.35	.07	—		
3. Condition	0.55	0.51	.44*	.10	—	
4. Difficulty	4.00	1.33	−.53*	.00	−.60*	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset B

This subset contained 22 cases (13.6% female, $M_{age} = 20.64$). Descriptive statistics of relevant variables and correlations are shown in Table 5. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.15$, $SD = 0.49$ versus $M_{no-addendum} = 5.25$, $SD = 0.66$, $d = 1.23$, $F(1, 18) = 1.79$, $p = .198$, $\eta_p^2 = .090$).

Table 5

Means, Standard Deviations, and Correlations Among Study 1 Subset B Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.63	0.79	—			
2. Gender	0.14	0.35	–.16	—		
3. Condition	0.50	0.51	–.24	.13	—	
4. Difficulty	4.36	1.23	.24	.16	−.226	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset C

This subset contained 22 cases (22.7% female, $M_{age} = 20.63$). Descriptive statistics of relevant variables and correlations are shown in Table 6. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.170$, *SD* = 0.49 versus $M_{no-addendum} = 4.63$, *SD* = 0.45, *d* = 1.47, *F*(1, 18) = .464, *p* = .505, $\eta_p^2 = .025$).

Table 6

Means, Standard Deviations, and Correlations Among Study 1 Subset C Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.63	0.85	—			
2. Gender	0.23	0.43	.11	—		
3. Condition	0.59	0.50	−.14	.21	—	
4. Difficulty	3.95	1.45	−.03	.55*	−.16	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded 0 = male, 1 = female. Condition is coded 0 = no addendum, 1 = easy addendum.

Subset D

This subset contained 22 cases (27.2% female, $M_{age} = 20.32$). Descriptive statistics of relevant variables and correlations are shown in Table 7. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.98$, SD = 0.40 versus $M_{no-addendum} = 4.91$, SD = 0.53, d = 1.09, $F(1, 18)$ = 1.974, p = .177, $\eta_p^2 = .099$).

Table 7

Means, Standard Deviations, and Correlations Among Study 1 Subset D Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.32	0.78	—			
2. Gender	0.27	0.46	.01	—		
3. Condition	0.59	0.50	–.02	.09	—	
4. Difficulty	4.14	1.42	−.28	.31	−.35	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset E

This subset contained 22 cases (40.9% female, $M_{age} = 20.14$). Descriptive statistics of relevant variables and correlations are shown in Table 8. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.28$, *SD* = 0.47 versus $M_{no-addendum} = 4.72$, *SD* = 0.35, *d* = 1.13, *F*(1, 18) = .568, *p* = .461, $\eta_p^2 = .031$).

Table 8

Means, Standard Deviations, and Correlations Among Study 1 Subset E Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.13	0.77	—			
2. Gender	0.41	0.50	–.03	—		
3. Condition	0.45	0.51	.20	–.39	—	
4. Difficulty	4.59	1.12	.15	–.07	−.12	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset F

This subset contained 22 cases (22.7% female, $M_{age} = 20.18$). Descriptive statistics of relevant variables and correlations are shown in Table 9. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.42$, SD = 0.60 versus $M_{no-addendum} = 4.16$, SD = 0.35, d = 1.12, $F(1, 18)$ = .139, p = .741, $\eta_p^2 = .008$).

Table 9

Means, Standard Deviations, and Correlations Among Study 1 Subset F Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.18	0.73	—			
2. Gender	0.23	0.43	–.03	—		
3. Condition	0.45	0.51	.28	–.28	—	
4. Difficulty	4.07	1.09	.34	.12	−.10	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset G

This subset contained 22 cases (31.8% female, $M_{age} = 20.32$). Descriptive statistics of relevant variables and correlations are shown in Table 10. While there was a correlation between difficulty perceptions and condition, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.85$, $SD = 0.50$ versus $M_{no-addendum} = 4.75$, $SD = 0.47$, $d = 1.30$, $F(1, 18) = 1.712$, $p = .207$ $\eta_p^2 = .087$).

Table 10

Means, Standard Deviations, and Correlations Among Study 1 Subset G Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.31	0.72	—			
2. Gender	0.32	0.48	–.31	—		
3. Condition	0.64	0.49	.07	–.50*	—	
4. Difficulty	3.91	1.44	−.39	.50*	−.48*	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset H

This subset contained 22 cases (31.8% female, $M_{age} = 20.23$). Descriptive statistics of relevant variables and correlations are shown in Table 11. While there was a correlation between difficulty perceptions and condition, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.70$, $SD = 0.33$ versus $M_{no-addendum} = 3.50$, $SD = 0.48$, $d = 1.12$, $F(1, 18) = 4.293$, $p = .053$ $\eta_p^2 = .193$).

This subset was interesting because it is the only subset that disagreed with the full dataset in showing a positive correlation between condition and difficulty perceptions.

Table 11

Means, Standard Deviations, and Correlations Among Study 1 Subset H Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.23	0.75	—			
2. Gender	0.32	0.48	.05	—		
3. Condition	0.64	0.49	–.02	.11	—	
4. Difficulty	4.23	1.23	.02	.16	.46*	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset I

This subset contained 22 cases (31.8% female, $M_{age} = 20.82$). Descriptive statistics of relevant variables and correlations are shown in Table 12. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.86$, $SD = 0.35$ versus $M_{no-addendum} = 4.00$, $SD = 0.35$, $d = 1.07$, $F(1, 18) = .077$, $p = .784$, $\eta_p^2 = .004$).

Table 12

Means, Standard Deviations, and Correlations Among Study 1 Subset I Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.81	0.66	—			
2. Gender	0.32	0.48	.04	—		
3. Condition	0.41	0.50	–.34	.31	—	
4. Difficulty	4.11	1.06	–.07	–.36	−.18	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset J

This subset contained 22 cases (27.3% female, $M_{age} = 20.36$). Descriptive statistics of relevant variables and correlations are shown in Table 13. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.71$, *SD* = 0.47 versus $M_{no-addendum} = 3.88$, *SD* = 0.56, *d* = 1.45, *F*(1, 18) = .051, *p* = .823, $\eta_p^2 = .003$).

Table 13

Means, Standard Deviations, and Correlations Among Study 1 Subset J Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.36	0.90	—			
2. Gender	0.27	0.46	–.02	—		
3. Condition	0.45	0.51	.25	.26	—	
4. Difficulty	3.61	1.41	–.20	.28	−.01	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset K

This subset contained 22 cases (45.5% female, $M_{age} = 20.50$). Descriptive statistics of relevant variables and correlations are shown in Table 14. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.24$, $SD = 0.29$ versus $M_{no-addendum} = 4.79$, $SD = 0.41$, $d = 1.03$, $F(1, 18) = .757$, $p = .396$, $\eta_p^2 = .040$).

Table 14

Means, Standard Deviations, and Correlations Among Study 1 Subset K Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.50	0.74	—			
2. Gender	0.45	0.51	.26	—		
3. Condition	0.59	0.50	–.19	.39	—	
4. Difficulty	4.64	1.04	.49	.01	−.25	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset L

This subset contained 22 cases (31.8% female, $M_{age} = 20.18$). Descriptive statistics of relevant variables and correlations are shown in Table 15. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.22$, *SD* = 0.36 versus $M_{no-addendum} = 4.49$, *SD* = 0.33, *d* = 1.02, *F*(1, 18) = .310, *p* = .585, $\eta_p^2 = .017$).

Table 15

Means, Standard Deviations, and Correlations Among Study 1 Subset L Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.18	0.80	—			
2. Gender	0.32	0.48	.88	—		
3. Condition	0.50	0.51	.000	.67	—	
4. Difficulty	4.39	1.00	–.12	–.02	−.07	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset M

This subset contained 22 cases (36.4% female, $M_{age} = 20.64$). Descriptive statistics of relevant variables and correlations are shown in Table 16. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.17$, $SD = 0.35$ versus $M_{no-addendum} = 3.66$, $SD = 0.39$, $d = 1.21$, $F(1, 18) = .938$, $p = .346$, $\eta_p^2 = .050$).

Table 16

Means, Standard Deviations, and Correlations Among Study 1 Subset M Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.64	0.79	—			
2. Gender	0.36	0.40	.23	—		
3. Condition	0.59	0.50	.09	–.14	—	
4. Difficulty	4.00	1.12	–.06	–.07	.24	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset N

This subset contained 22 cases (22.7% female, $M_{age} = 20.50$). Descriptive statistics of relevant variables and correlations are shown in Table 17. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 3.85$, *SD* = 0.46 versus $M_{no-addendum} = 4.57$, *SD* = 0.56, *d* = 1.36, *F*(1, 18) = .982, *p* = .335, $\eta_p^2 = .052$).

Table 17

Means, Standard Deviations, and Correlations Among Study 1 Subset N Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.50	1.01	—			
2. Gender	0.23	0.43	.17	—		
3. Condition	0.59	0.50	−.23	.01	—	
4. Difficulty	4.00	1.35	.02	.16	−.21	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Subset O

This subset contained 22 cases (27.3% female, $M_{age} = 20.14$). Descriptive statistics of relevant variables and correlations are shown in Table 18. There was no correlation between difficulty perceptions and condition. Additionally, ANOVA testing revealed that on average, participants in the easy addendum condition in this subset did not judge the activity to be any less or more difficult than those in the no addendum condition, regardless of gender expression ($M_{easy-addendum} = 4.30$, $SD = 0.33$ versus $M_{no-addendum} = 4.23$, $SD = 0.58$, $d = 1.21$, $F(1, 18) = .013$, $p = .912$, $\eta_p^2 = .001$).

Table 18

Means, Standard Deviations, and Correlations Among Study 1 Subset O Variables from Lai et al. (2023)

Variable	*M*	*SD*	1	2	3	4
1. Age	20.14	0.83	—			
2. Gender	0.27	0.47	.02	—		
3. Condition	0.50	0.51	.17	.41	—	
4. Difficulty	4.11	1.18	–.04	.47*	.10	—

Note: N = 255. Values on the diagonal represent scale reliability. Gender is coded as: 0 = male, 1 = female. Condition is coded as: 0 = no addendum, 1 = easy addendum.

Appendix B: Study 5 Subset Sampling Analysis

Subset A

This subset contained 22 cases (31.8% female, $M_{age} = 20.73$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 3.71$, $p = .05$, $\eta_p^2 = .281$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .259$, $p = .775$, $\eta_p^2 = .027$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.72$, $SD = 2.36$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.36$, $SD = 1.25$, $d = 1.96$, $F(1, 19) = .442$, $p = .514$, $\eta_p^2 = .023$) and the no addendum condition ($M_{no-addendum} = 3.75$, $SD = 1.70$, $d = 2.13$, $F(1, 19) = .001$, $p = .978$, $\eta_p^2 = .000$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.47$, $F(1, 19) = .331$, $p = .572$, $\eta_p^2 = .017$.

Subset B

This subset contained 22 cases (31.8% female, $M_{age} = 20.68$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect

of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = 2.253$, $p = .132$, This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .408$, $p = .671$, $\eta_p^2 = .041$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.83$, $SD = 0.76$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.70$, $SD = 1.15$, $d = 1.04$, $F(1, 19) = .024$, $p = .878$, $\eta_p^2 = .001$) and the no addendum condition ($M_{no-addendum} = 4.21$, $SD = 1.24$, $d = 1.18$, $F(1, 19) = .259$, $p = .617$, $\eta_p^2 = .013$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.22$, $F(1, 19) = .703$, $p = .412$, $\eta_p^2 = .036$.

Subset C

This subset contained 22 cases (54.5% female, $M_{age} = 20.55$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = .526$, $p = .600$, $\eta_p^2 = .052$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .430$, $p = .656$, $\eta_p^2 = .043$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 4.36$, $SD = 2.01$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.72$, $SD = 1.09$, $d = 1.56$, $F(1, 19) = .659$, $p = .427$, $\eta_p^2 = .034$) and the no addendum condition ($M_{no-addendum} = 4.33$, $SD = 1.54$, $d = 1.81$, $F(1, 19) = .001$, $p = .978$, $\eta_p^2 = .000$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.28$, $F(1, 19) = .558$, $p = .464$, $\eta_p^2 = .029$.

Subset D

This subset contained 22 cases (45.5% female, $M_{age} = 20.45$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 5.779$, $p = .011$, $\eta_p^2 = .378$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .553$, $p = .584$, $\eta_p^2 = .055$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 4.64$, $SD = 0.85$)

did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.83$, $SD = 1.08$, $d = 0.96$, $F(1, 19) = .811$, $p = .379$, $\eta_p^2 = .041$) and the no addendum condition ($M_{no-addendum} = 3.89$, $SD = 2.22$, $d = 1.77$, $F(1, 19) = .858$, $p = .366$, $\eta_p^2 = .043$) . Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.87$, $F(1, 19) = .004$, $p = .949$, $\eta_p^2 = .000$.

Subset E

This subset contained 22 cases (45.5% female, $M_{age} = 20.59$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = 2.234$, $p = .135$, $\eta_p^2 = .190$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .573$, $p = .573$, $\eta_p^2 = .057$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.93$, $SD = 1.67$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.42$, $SD = 2.13$, $d = 1.89$, $F(1, 19) = .283$, $p = .601$, $\eta_p^2 = .015$) and the no addendum condition ($M_{no-addendum} = 4.39$, $SD = 1.47$, $d = 1.56$,

$F(1, 19) = .279$, $p = .603$, $\eta_p^2 = .014$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.76$, $F(1, 19) = 1.138$, $p = .299$, $\eta_p^2 = .057$.

Subset F

This subset contained 22 cases (50.0% female, $M_{age} = 20.23$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 7.16$, $p = .005$, $\eta_p^2 = .430$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .416$, $p = .666$, $\eta_p^2 = .042$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.95$, $SD = 2.06$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.60$, $SD = 0.42$, $d = 1.73$, $F(1, 19) = .413$, $p = .528$, $\eta_p^2 = .021$) and the no addendum condition ($M_{no-addendum} = 4.71$, $SD = 2.08$, $d = 2.07$, $F(1, 19) = .705$, $p = .412$, $\eta_p^2 = .036$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.63$, $F(1, 19) = .011$, $p = .917$, $\eta_p^2 = .001$.

Subset G

This subset contained 22 cases (36.4% female, $M_{age} = 20.86$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 4.24$, $p = .030$, $\eta_p^2 = .308$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .277$, $p = .761$, $\eta_p^2 = .028$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 4.25$, $SD = 2.31$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.06$, $SD = 1.55$, $d = 1.94$, $F(1, 19) = .049$, $p = .827$, $\eta_p^2 = .003$) and the no addendum condition ($M_{no-addendum} = 4.80$, $SD = 1.15$, $d = 1.97$, $F(1, 19) = .285$, $p = .600$, $\eta_p^2 = .015$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.43$, $F(1, 19) = .546$, $p = .469$, $\eta_p^2 = .028$.

Subset H

This subset contained 22 cases (54.5% female, $M_{age} = 20.50$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect

of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = .759$, $p = .482$, $\eta_p^2 = .074$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .992$, $p = .389$, $\eta_p^2 = .095$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.88$, $SD = 1.84$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.80$, $SD = 1.20$, $d = 1.69$, $F(1, 19) = 1.027$, $p = .324$, $\eta_p^2 = .051$) and the no addendum condition ($M_{no-addendum} = 5.00$, $SD = 1.80$, $d = 1.83$, $F(1, 19) = 1.519$, $p = .233$, $\eta_p^2 = .074$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.53$, $F(1, 19) = .034$, $p = .856$, $\eta_p^2 = .002$.

Subset I

This subset contained 22 cases (27.3% female, $M_{age} = 20.41$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = 2.21$, $p = .137$, $\eta_p^2 = .189$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 1.586$, $p = .231$, $\eta_p^2 = .143$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 4.25$, $SD = 2.24$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.50$, $SD = 1.25$, $d = 1.81$ $F(1, 19) = .680$, $p = .420$, $\eta_p^2 = .035$) and the no addendum condition ($M_{no-addendum} = 5.25$, $SD = 1.84$, $d = 2.08$, $F(1, 19) = 1.036$, $p = .322$, $\eta_p^2 = .052$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.52$, $F(1, 19) = 3.173$, $p = .091$, $\eta_p^2 = .143$.

Subset J

This subset contained 22 cases (36.4% female, $M_{age} = 20.27$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = 3.036$, $p = .072$, $\eta_p^2 = .242$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 1.934$, $p = .172$, $\eta_p^2 = .169$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.88$, $SD = 1.46$)

did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.55$, $SD = 1.30$, $d = 1.37$, $F(1, 19) = 1.270$, $p = .274$, $\eta_p^2 = .063$) and the no addendum condition ($M_{no-addendum} = 3.13$, $SD = 0.25$, $d = 1.23$, $F(1, 19) = .941$, $p = .244$, $\eta_p^2 = .047$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.13$, $F(1, 19) = .3.640$, $p = .072$, $\eta_p^2 = .161$.

Subset K

This subset contained 22 cases (54.5% female, $M_{age} = 20.27$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 25.847$, $p < .001$, $\eta_p^2 = .731$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 2.275$, $p = .130$, $\eta_p^2 = .193$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.81$, $SD = 1.89$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.83$, $SD = 1.33$, $d = 1.68$, $F(1, 19) = .001$, $p = .981$, $\eta_p^2 = .000$) and the no addendum condition ($M_{no-addendum} = 5.31$, $SD = 1.39$, $d = 1.66$,

$F(1, 19) = 3.617$, $p = .072$, $\eta_p^2 = .160$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.36$, $F(1, 19) = 3.015$, $p = .099$, $\eta_p^2 = .137$.

Subset L

This subset contained 22 cases (59.1% female, $M_{age} = 20.36$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 7.031$, $p = .005$, $\eta_p^2 = .425$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 1.141$, $p = .341$, $\eta_p^2 = .107$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.58$, $SD = 1.28$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.75$, $SD = 0.87$, $d = 1.14$, $F(1, 19) = 1.625$, $p = .079$, $\eta_p^2 = .023$) and the no addendum condition ($M_{no-addendum} = 4.54$, $SD = 1.59$, $d = 1.50$, $F(1, 19) = 1.828$, $p = .192$, $\eta_p^2 = .088$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.46$, $F(1, 19) = .065$, $p = .802$, $\eta_p^2 = .003$.

Subset M

This subset contained 22 cases (36.4% female, $M_{age} = 20.64$). A one-way ANOVA revealed that manipulation within the subset was successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was significant, $F(2, 19) = 4.963$, $p = .018$, $\eta_p^2 = .343$. This shows that manipulation was successful, as there was a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 1.457$, $p = .258$, $\eta_p^2 = .133$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.29$, $SD = 1.45$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 3.50$, $SD = 2.18$, $d = 1.57$, $F(1, 19) = .039$, $p = .846$, $\eta_p^2 = .002$) and the no addendum condition ($M_{no-addendum} = 4.80$, $SD = 2.17$, $d = 1.65$, $F(1, 19) = 2.884$, $p = .106$, $\eta_p^2 = .132$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 2.17$, $F(1, 19) = 1.082$, $p = .311$, $\eta_p^2 = .054$.

Subset N

This subset contained 22 cases (45.5% female, $M_{age} = 20.45$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect

of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = 3.138$, $p = .066$, $\eta_p^2 = .248$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = 1.250$, $p = .309$, $\eta_p^2 = .116$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 3.50$, $SD = 1.06$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.24$, $SD = 1.59$, $d = 1.47$, $F(1, 19) = .882$, $p = .359$, $\eta_p^2 = .044$) and the no addendum condition ($M_{no-addendum} = 5.00$, $SD = 1.62$ $d = 1.37$, $F(1, 19) = 2.500$, $p = .130$, $\eta_p^2 = .116$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.60$, $F(1, 19) = .882$, $p = .359$, $\eta_p^2 = .044$.

Subset O

This subset contained 22 cases (59.1% female, $M_{age} = 20.59$). A one-way ANOVA revealed that manipulation within the subset was not successful. In this ANOVA, the main effect of condition on agreement that there were multiple types of sliders was not significant, $F(2, 19) = .957$, $p = .402$, $\eta_p^2 = .091$. This shows that manipulation was not successful in this subset, as there was not a significant difference in perception of sliders based on condition.

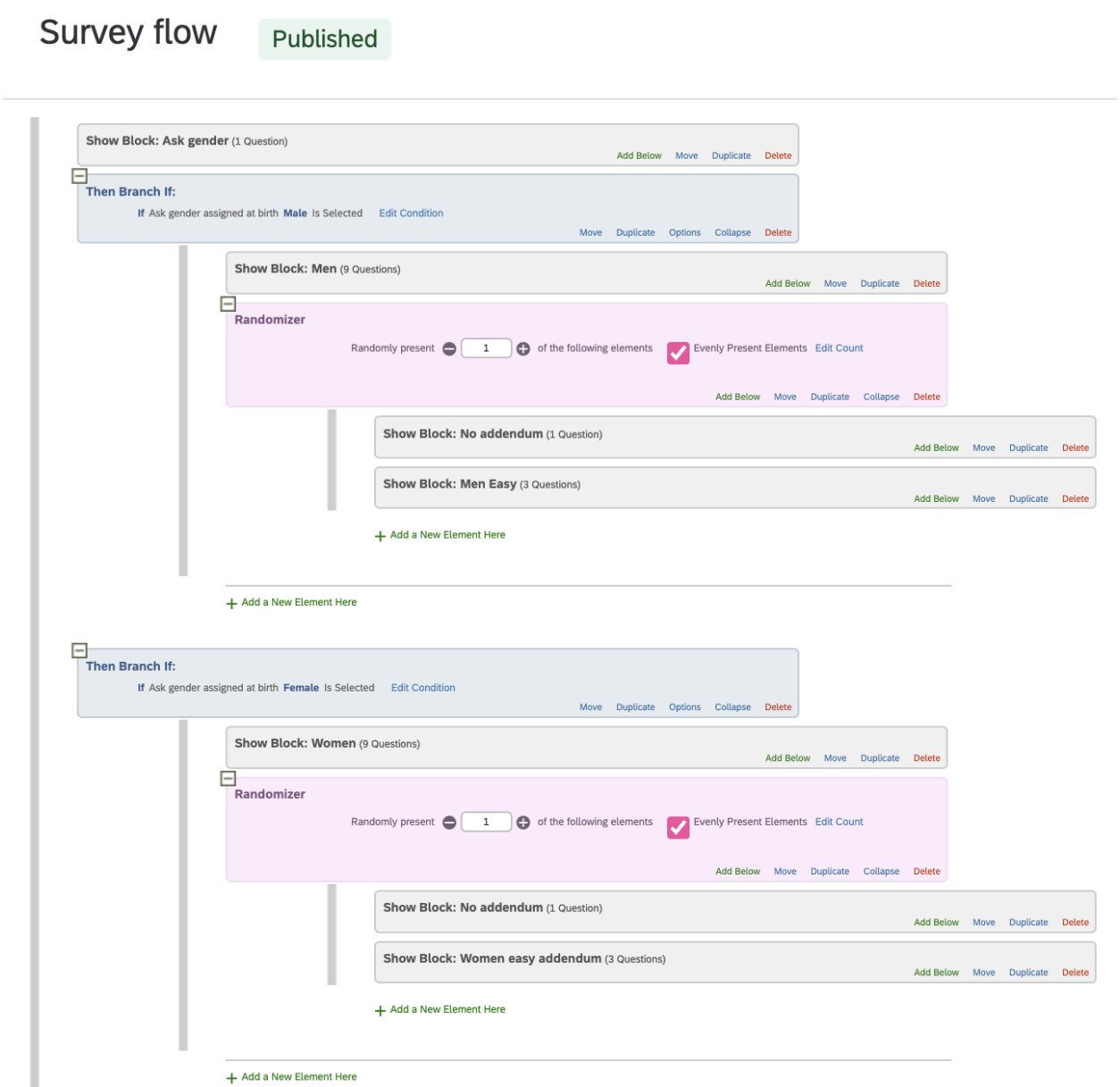
A one-way ANOVA did not demonstrate a significant result about perceived difficulty, $F(2, 19) = .447$, $p = .646$, $\eta_p^2 = .045$. On average, participants in the easy addendum with high distinctiveness condition ($M_{easy-addendum-with-high-category-distinctiveness} = 4.31$, $SD = 1.71$) did not perceive the tasks to be less difficult than those in the other easy addendum condition ($M_{easy-addendum-with-low-category-distinctiveness} = 4.83$, $SD = 1.17$, $d = 1.51$, $F(1, 19) = .302$, $p = .589$, $\eta_p^2 = .016$) and the no addendum condition ($M_{no-addendum} = 3.94$, $SD = 2.11$, $d = 1.92$, $F(1, 19) = .183$, $p = .674$, $\eta_p^2 = .010$). Additionally, there was no statistically significant difference between the easy addendum with low category distinctiveness condition and the no addendum condition on difficulty perceptions, $d = 1.78$, $F(1, 19) = .893$, $p = .356$, $\eta_p^2 = .045$.

Appendix C: Study 1 Materials

Orders of weights and conditions were randomized and produced through a Qualtrics survey that only the researcher viewed. The survey followed the flow in Figure 2. The following pages contain empty consent and disclosure forms, then study instructions given to the participant, the survey, and researcher scripts.

Figure 2

Study 1 (In-Person Strength Study) Weight and Condition Randomizer Survey Flow



Welcome to the research study!

We are interested in understanding how people can keep different hand grip levels to certain time points. You will be presented with tasks that ask you to complete strength exercises, followed by a short survey. Please be assured that your responses will be kept completely confidential.

The study should take you around 20 to 30 minutes to complete, however participants should keep in mind that there is no time limit for this study. ***As such, participants are encouraged to work at their own pace and know that taking more or less than the expected time will not impact their eligibility to participate in this study.***

Eligible participants can receive class credit for certain courses at Drew University for participating in this study. Note that even if you choose to withdraw your results from the study, you will receive credit for the class.

This study may involve minimal risks to the participants in the form of mental and physical fatigue and emotional experiences. Participants are at risk of experiencing feelings of frustration, stress, and confusion during the experiment. You are also at risk of experiencing physical fatigue or distress as a result of exerting a constant force using your hands for a short period of time. ***If at any point you experience any distress, as a result of participating in the study, you are encouraged to take a break from participating and withdraw from the study if necessary.***

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. *If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Sierra Walker at swalker1@drew.edu*

By checking the box below and signing and dating this form, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ☐ I consent, begin the study
- ☐ I do not consent, I do not wish to proceed in the study

Signature:_____

Date:_____.

Thank you for your participation in this research study.

For this study, it was important that some information was withheld from you and we provided you with incorrect information about the true nature of the research. Now that your participation is completed, we will describe the incorrect and withheld information to you, why it was important, answer any of your questions, and provide you with the opportunity to make a decision on whether you would like to have your data included in this study.

What you should know about this study:

While we told you that this study is interested in how people can keep different hand grip levels to certain time points, the true purpose is to gauge the perceived difficulty of and satisfaction from exercises.

We are studying the *Easy Addendum Effect*, a phenomenon that describes that adding extra, easier tasks to a constant sequence of similar tasks can cause the sequence to be perceived as less effortful and more satisfying.

During the study, all participants completed a set of core tasks (the first 9 handgrip strength tasks, then were randomly assigned one of two potential conditions. Regardless of the condition you were assigned, you were not informed that you were no longer completing the original set of tasks.

The two possible conditions are explained below:

No addendum
Participants did not complete any additional tasks and instead moved directly onto the questionnaire.

Easy addendum
Participants completed three additional tasks where they exerted less pressure for 10 seconds each.

It was necessary that the true nature of the study was not disclosed and you were misled, so that participants did not know that their perception of the tasks was being studied. If this had been disclosed prior to the study, it may have interfered with how participants interacted with and responded to the study.

If you have questions The main researcher conducting this study is Sierra Walker and is reachable by email at swalker1@drew,edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) irb@drew.edu.

Please do not disclose research procedures and/or purpose to anyone who might participate in this study in the future as this could affect the results of the study.

It is encouraged that you keep a copy of this page for your own files.

You may choose to withdraw the data you provided prior to debriefing, without penalty or loss of benefits to which you are otherwise entitled. Please indicate below if you do, or do not, give permission to have your data included in the study.

- ☐ I consent, please include my data
- ☐ I do not consent, please disregard my data

Signature:_____

Date:_____

Hand Grip Strength

In this study, we are interested in how people can keep different hand grip levels to certain time points.

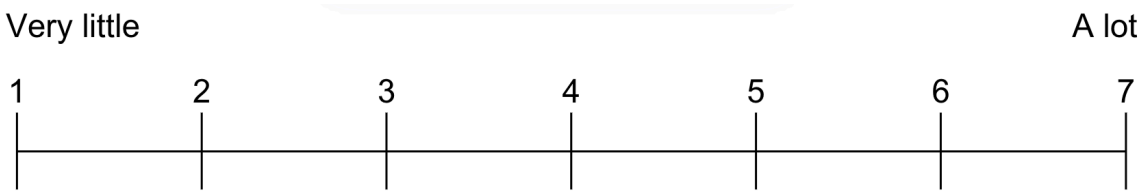
In the following moments, you will be asked to use the hand grip dynamometer and try your best to hold at the required strength level for 10 seconds at each round. You will be asked to answer several questions after finishing the grip task.

If at any point during the study you are uncomfortable or experiencing distress, please inform the researcher and the study will be paused. Note that you can withdraw from the study at any time, for any reason, with or without explanation.

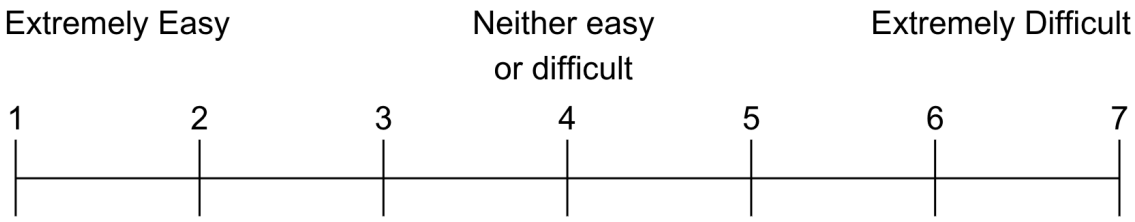
When you are ready, please inform the researcher and the experiment will begin.

For the first two questions, please indicate your answer on the scale and write the number on the line provided.

1. How much effort did this task require in total? _____



2. How difficult do you think the task you just completed was?_____



3. How old are you (please circle your answer)
    - 18-24 years old
    - 25-34 years old
    - 35-44 years old
    - 45-54 years old
    - 55-64 years old
    - 65+ years old
4. How would you describe yourself (please circle your answer)
    - Male
    - Female
    - Nonbinary/ third gender
    - Prefer to self-describe _____
    - Prefer not to say

Instructions for Researcher
Read aloud the portions in bold text

Give the participant the consent form to sign

Give the participant the “Hand Grip Strength” paper and move on when the participant says they’re ready.

Say **“We are going to begin the study, remember that If at any point during the study you are uncomfortable or experiencing distress, please inform me and the study will be paused. Note that you can withdraw from the study at any time, for any reason, with or without explanation. Also remember that you can take as long as you need between tasks, this is not a timed exercise and taking less or more time than expected will not impact your participation in the study.”**

While the qualtrics study is open, say: **“This strength test asks for different pressures to be exerted based on the participants assigned sex at birth, this information will not be collected or shared in any way. For these purposes, do you identify as being assigned male or female at birth?”**

Select the appropriate sex on the survey to randomly generate the order of pounds to exert and assign an addendum condition.

Say **“The following study involves exerting constant amounts of pressure on a hand grip dynamometer for ten second intervals. Please use both hands to exert pressure on the hand grip dynamometer and hold it so you can see the screen that displays the amount of pressure you are exerting.**

You are not expected to be able to exert the requested pressure steadily for all of the tasks. However, you should do your best to keep holding the hand grip dynamometer at or over the requested weight for the full ten seconds.

Before you start any task, please ensure that the screen on the hand grip dynamometer is on, if it has turned off, please give it to me so I can turn it on again.

If at any point you would like these instructions repeated, please ask me and I will do so."

Prepare the hand grip dynamometer in quick start mode, then hand it to the participant.

Using the number of pounds listed in order from top to bottom exactly as generated from the qualtrics survey, repeat the verbal instructions for each round and make sure the participant attempts to exert pressure for the full 10 seconds.

While going through the rounds, ensure the timer is in clear view of the participant and cues are correctly taken. This includes starting the timer at the appropriate time, reiterating the directions when asked, and reminding the participant that they can take as long as they need between tasks.

Verbal Instructions
"You may begin the next/ first task whenever you are ready. Remember, you can take as long as you would like between tasks.

Please hold over [NUMBER OF POUNDS] for 10 seconds.

When you are ready, tell the researcher to start the timer."

When the initial set of tasks is completed move on to the next page of the survey, at this point note at the top of the participants questionnaire whether they were assigned the easy addendum condition (1) or no addendum condition (0).

If they received the easy addendum condition, continue repeating the verbal instructions with the new set of numbers, without informing the participant the original set of tasks is over.

If the participant received the no addendum condition, move on.

Say **"The task based portion of the study is now complete, please fill out this questionnaire."** and give the participant the questionnaire

When the participant has completed the questionnaire, inform them the study has concluded and give them two disclosure forms, keep one and allow the participant to keep the other.

When the participant has left, clean the hand grip dynamometer with a disinfectant wipe.

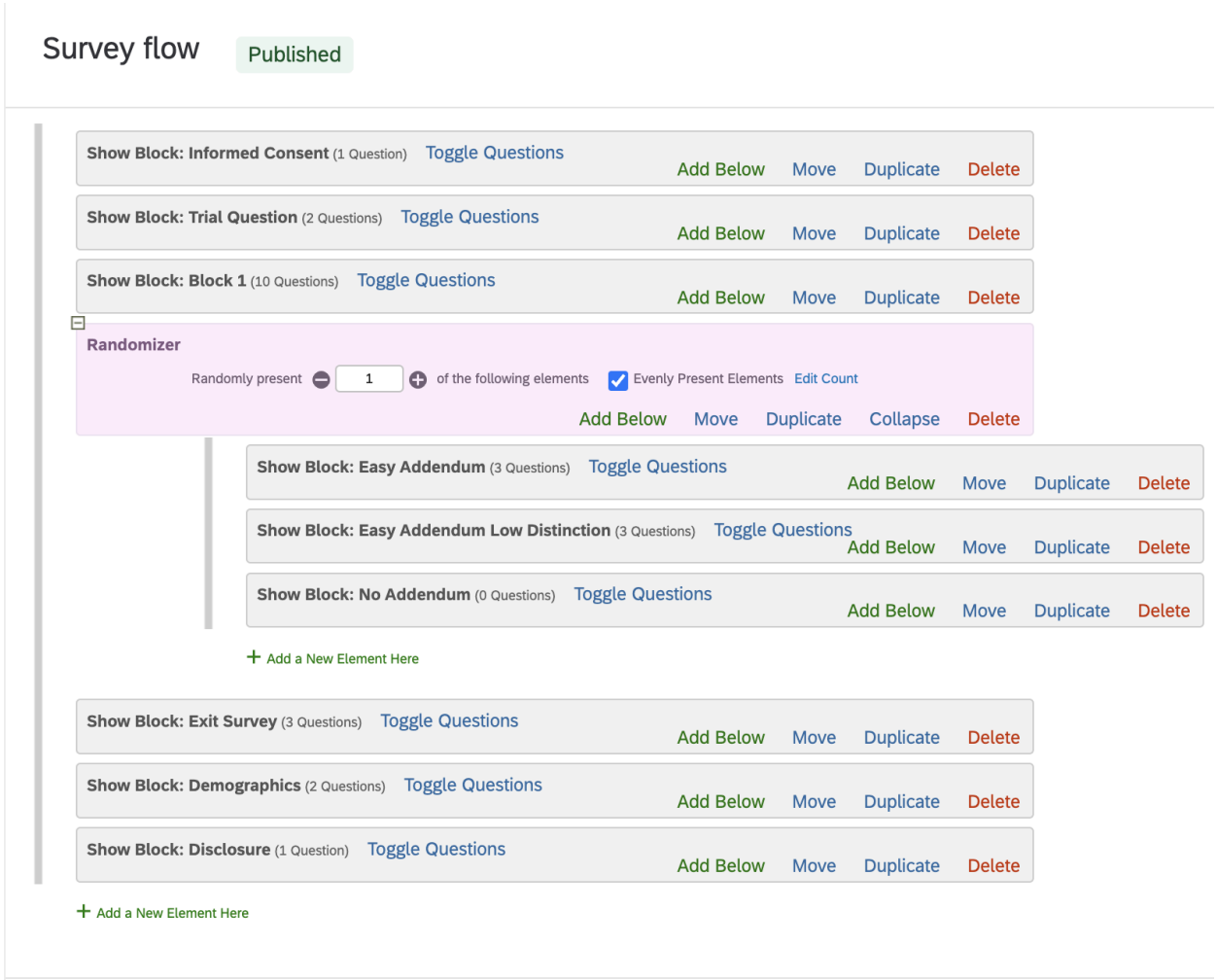
Appendix D: Study 2 Materials

This study was carried out through a Qualtrics survey that the participant viewed . The survey followed the flow in Figure 3 and contained questions. Notably, the survey flow was altered slightly for participants who completed the survey in person. For these participants, the Informed Consent block was removed from the online survey and, instead, researchers gave participants a paper copy of the consent to sign.

The following pages contain the complete survey, then study instructions and consent form given to participants who completed the study in person.

Figure 3

Study 2 (Online Mental Study) Study Survey Flow



Start of Block: Informed Consent

Q1

Welcome to the research study!

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

We are interested in understanding people's spatial awareness. You will be presented with tasks that ask you to judge spatial differences, followed by a short survey. Please be assured that your responses will be kept completely confidential. The study should take you around 10 to 20 minutes to complete, however participants should keep in mind that there is no time limit for this study. ***As such, participants are encouraged to work at their own pace and know that taking more or less than the expected time will not impact their eligibility to participate in this study.***

Eligible participants can receive class credit for certain courses at Drew University for participating in this study. Note that even if you choose to withdraw your results from the study, you will receive credit for the class.

This study may involve minimal risks to the participants in the form of mental fatigue and emotional experiences. Participants are at risk of experiencing feelings of frustration, stress, and confusion during the experiment. ***If at any point you experience any distress, as a result of participating in the study, you are encouraged to take a break from participating and withdraw from the study if necessary.***

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. *If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Sierra Walker at swalker1@drew.edu* By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ○ I consent, begin the study (1)
- ○ I do not consent, I do not wish to participate (2)

Skip To: End of Survey If Welcome to the research study! Please note that this survey will be best displayed on a laptop... = I do not consent, I do not wish to participate

End of Block: Informed Consent

Start of Block: Trial Question

Q21 In this study, we are interested in the accuracy of how people judge arbitrary distances. In the following screens, you will see a line from 0 to 100. Your job is to move the slider to find the position of a number between 0 and 100. The following is an example. You should identify where 50 is located along the line. You may need to try several times before you accurately identify where the number is located. Remember, you are encouraged to work at your own pace and know that taking more or less than the expected time will not impact your eligibility to participate in this study. Please click the next arrow to start your task when you are ready.

Trial

	0	100
Please find where 50 lies between 0 and 100 ()		

End of Block: Trial Question

Start of Block: Block 1

Q1 Please find where 5 lies between 0 and 100

	0	100
Please move the slider to identify 5 ()		

Page Break

Q2 Please find where 15 lies between 0 and 100

	0	100

Please move the slider to identify 15 ()	

Page Break

Q3 Please find where 25 lies between 0 and 100

0 100

Please move the slider to identify 25 ()	

Page Break

Q4 Please find where 30 lies between 0 and 100

0 100

Please move the slider to identify 30 ()	

Page Break

Q5 Please find where 40 lies between 0 and 100

0 100

Please move the slider to identify 40 ()	

Page Break

Q6 Please find where 55 lies between 0 and 100

0 100

Please move the slider to identify 55 ()	

Page Break

Q7 Please find where 60 lies between 0 and 100

	0 100
Please move the slider to identify 60 ()	

Page Break

Q8 Please find where 75 lies between 0 and 100

	0 100
Please move the slider to identify 75 ()	

Page Break

Q9 Please find where 85 lies between 0 and 100

	0 100
Please move the slider to identify 85 ()	

Page Break

Q10 Please find where 90 lies between 0 and 100

	0 100
Please move the slider to identify 90 ()	

End of Block: Block 1

Start of Block: Easy Addendum

Q28 Please find where 20 lies between 0 and 100

	0 11 22 33 44 56 67 78 89 100
Please move the slider to identify 20 ()	

Page Break

Q30 Please find where 80 lies between 0 and 100

	0 11 22 33 44 56 67 78 89 100
Please move the slider to identify 80 ()	

Page Break

Q29 Please find where 45 lies between 0 and 100

	0 11 22 33 44 56 67 78 89 100
Please move the slider to identify 45 ()	

End of Block: Easy Addendum

Start of Block: Easy Addendum Low Distinction

Q31 Please find where 20 lies between 0 and 100

Please move the slider to identify 20 ()	

Page Break

Q32 Please find where 80 lies between 0 and 100

Please move the slider to identify 80 ()	

Page Break

Q33 Please find where 45 lies between 0 and 100

Please move the slider to identify 45 ()	

End of Block: Easy Addendum Low Distinction

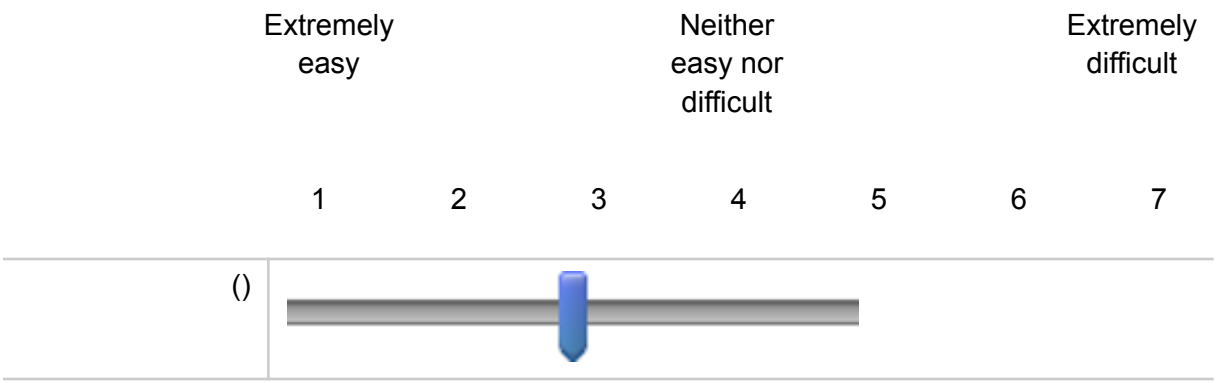
Start of Block: No Addendum

Start of Block: Exit Survey

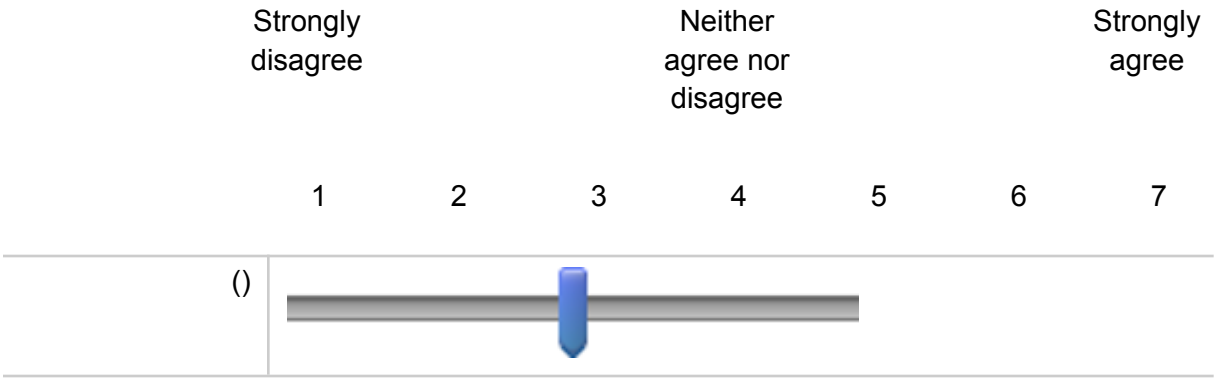
Q18 How much effort did this task require in total?

	Very little						A lot
	1	2	3	4	5	6	7
()							

Q19 How difficult do you think the task you just completed was?



Q20 How much do you agree or disagree with the following statement: Overall, there were two different types of sliders.



End of Block: Exit Survey

Start of Block: Demographics

Q27 How old are you?

- 18-24 years old (2)
- 25-34 years old (3)

- ○ 35-44 years old (4)
- ○ 45-54 years old (5)
- ○ 55-64 years old (6)
- ○ 65+ years old (7)

Q41 How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4)

_____

- ○ Prefer not to say (5)

End of Block: Demographics

Start of Block: Disclosure

Q1 ***Thank you for your participation in this research study.*** For this study, it was important that some information was withheld from you and we provided you with incorrect information about the true nature of the research. Now that your participation is completed, we will describe the incorrect and withheld information to you, why it was important, answer any of your questions, and provide you with the opportunity to make a decision on whether you would like to have your data included in this study.

What you should know about this study: While we told you that this study is interested in the accuracy of how people judge arbitrary distances, the true purpose is to gauge the perceived difficulty of and satisfaction from exercises. We are studying the *Easy Addendum Effect*, a phenomenon that describes that adding extra, easier tasks to a constant sequence of similar tasks can cause the sequence to be perceived as less effortful and more satisfying. During the study, all participants completed a set of core tasks (the first 10 spatial awareness tasks, in addition to the practice task), then were randomly assigned one of three potential conditions. In the original set of tasks, participants were cleared to continue to the next task if their answer is within ±2 of the requested number. Then, regardless of the condition you were assigned, you were not informed that you were no longer completing the original set of tasks and instead completing additional tasks.

The three possible conditions are explained below:

No addendum

Participants did not complete any additional tasks and instead moved directly onto the questionnaire.

Easy addendum with low distinction

Participants completed three additional tasks where they will place numbers (20, 80, and 45 in a randomly assigned order) on unmarked number lines that are indistinguishable from the original tasks. However, in this condition, the acceptance threshold increases from ±2 to ±5.

Easy addendum

Participants completed three additional tasks where they place numbers (20, 80, and 45 in a randomly assigned order) on number lines, however these number lines include eight numerical anchors (11, 22, 33, 44, 56, 67, 78, and 89).

It was necessary that the true nature of the study was not disclosed and you were misled, so that participants did not know that their perception of the tasks was being studied. If this had been disclosed prior to the study, it may have interfered with how participants interacted with and responded to the study.

If you have questions, the main researcher conducting this study is Sierra Walker and is reachable by email at swalker1@drew,edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) irb@drew.edu.

Please do not disclose research procedures and/or purpose to anyone who might participate in this study in the future as this could affect the results of the study. It is encouraged that you keep a copy of this page for your own files. You may choose to withdraw the data you provided prior to debriefing, without penalty or loss of benefits to which you are otherwise entitled. Please indicate below if you do, or do not, give permission to have your data included in the study.

○ I consent, please include my data (1)

○ I do not consent, please disregard my data (2)

End of Block: Disclosure

Instructions for Researcher During In-Person Studies

Read aloud the portions in bold text

Provide the participant with a copy of the consent form to read and sign

Say **“We are going to begin the study, remember that If at any point during the study you are uncomfortable or experiencing distress, please inform me and the study will be paused. Note that you can withdraw from the study at any time, for any reason, with or without explanation. Also remember that you can take as long as you need between tasks, this is not a timed exercise and taking less or more time than expected will not impact your participation in the study.”**

Email a link to the study

Say**, “I have just emailed you a link to the study, when you are ready, open the link and begin the study”**

Welcome to the research study!

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

We are interested in understanding people's spatial awareness. You will be presented with tasks that ask you to judge spatial differences, followed by a short survey. Please be assured that your responses will be kept completely confidential.

The study should take you around 10 to 20 minutes to complete, however participants should keep in mind that there is no time limit for this study. ***As such, participants are encouraged to work at their own pace and know that taking more or less than the expected time will not impact their eligibility to participate in this study.***

Eligible participants can receive class credit for certain courses at Drew University for participating in this study. Note that even if you choose to withdraw your results from the study, you will receive credit for the class.

This study may involve minimal risks to the participants in the form of mental fatigue and emotional experiences. Participants are at risk of experiencing feelings of frustration, stress, and confusion during the experiment. ***If at any point you experience any distress, as a result of participating in the study, you are encouraged to take a break from participating and withdraw from the study if necessary.***

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. *If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Sierra Walker at swalker1@drew.edu*

By checking the box below and signing and dating this form, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

- ☐ I consent, begin the study
- ☐ I do not consent, I do not wish to proceed in the study

Signature:_____

Date:_____