AUTONOMY, MOTIVATION, AND MENTAL EFFORT

THERESA WACLAWEK

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Abstract

Engaging with tasks requiring mental effort is important for flourishing. However, engagement and persistence with such tasks depends on how mental effort is experienced, highlighting the need to understand its determinants. Theories of motivation suggest that actions undertaken under conditions of autonomy, such as those aligned with one's interests or freely chosen, may be associated with less aversive and more enjoyable experiences of mental effort through increases in autonomous motivation. To investigate this, we conducted a preregistered experiment with 503 adults in which interest and choice were manipulated, and autonomous motivation and mental effort outcomes were measured. Interest increased positive mental effort experiences and decreased negative mental effort experiences, whereas we did not find evidence for an effect of choice. The relationships between interest and some mental effort outcomes were mediated by autonomous motivation. These findings suggest that interest can positively shape mental effort experiences, partly through autonomous motivation.

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Autonomy, Motivation, and Mental Effort

Individuals flourish when they are personally fulfilled at work or school (VanderWeele, 2017). Personal fulfilment in these contexts involves engaging in valued activities that often require mental effort (Andersson & Bergman, 2011). However, how likely we are to engage in such tasks can vary, as mental effort can be experienced either positively or negatively (Inzlicht et al., 2018). Mental effort engagement could potentially be promoted through improving self-control, but long-term effort engagement may be more sustainable and successful with a focus on making mental effort itself feel more appealing and less aversive (Werner & Milyavskaya, 2019). More research is needed to understand how this can be done. A candidate determinant of positive mental effort experiences is autonomous motivation (Rom et al., 2020; Wahlers et al., 2024), which is the motivation that comes from the self, sometimes referred to as "want-to" motivation (Inzlicht et al., 2014; Werner & Milyavskaya, 2019). Autonomous motivation can be promoted through supporting autonomy via the provision of factors such as interest or choice (Deci & Ryan, 2008).

To promote sustainable mental effort engagement, a better understanding of how interest and choice shape autonomous motivation and impact experiences of mental effort is needed. This would help to determine which interventions would be most efficacious. For example, it may be that providing scaffolding for interest development in a task helps make the necessary mental effort feel rewarding rather than depleting. Alternatively, the provision of choice over aspects of a task, such as being able to choose between versions of similar tasks, may increase autonomous motivation such that one is more likely to experience the associated mental effort as enjoyable and remain engaged with the task. Research is needed to understand if and how these autonomy-supportive conditions promote autonomous motivation and positive mental effort experiences.

Mental Effort

Though the idea of mental effort invokes a sense of intuitive understanding, attempts to define and operationalize it vary significantly (Bermúdez & Massin, 2023; Halperin & Vigotsky, 2024; Shepherd, 2023; Székely & Michael, 2021). Influential proposals involve the idea that mental effort is an increase in mental activity that mediates between task demands and performance capacity on the one hand, and actual task performance on the other (Inzlicht et al., 2018; Shenhav et al., 2017). Definitions of mental effort often invoke a subjective experience (Inzlicht et al., 2018; Kurzban, 2016; Wolpe et al., 2024). That is, mental effort does not just mediate between task, capacity, and performance, but is something that is consciously experienced by the actor. Mental effort can therefore be examined at different levels, for example, at the level of cognitive or neuroscientific processes or at the level of subjective experience. The current study will utilize self-report of mental effort and investigate its subjective experience.

Understanding what determines the subjective experience of engaging with mental effort is important because the subjective experience of mental effort is thought to influence perceptions of task performance (David, Biwer, et al., 2024) and to regulate the initiation of and persistence with activities (Inzlicht et al., 2018). Components of subjective experience such as emotion and fluency have been argued to influence judgements and decision making (Alter & Oppenheimer, 2009; Lerner et al., 2015). Moreover, accounts of mental effort that explore the subjective experience suggest that its experiential properties may signal something to the actor; for example, experiencing negative affect while engaging with mental effort could signal to the actor that there is a cost to using that effort (Kurzban, 2016). Important experiential qualities of

mental effort that are relevant to engagement are the affective tone of the experience as well as the ease of mental effort engagement.

The Affective Nature of Mental Effort

Conceptualizations of mental effort have traditionally characterized its affective nature as negative (David, Vassena, et al., 2024). More recently, however, conceptualizations of mental effort have broadened to include the possibility of variability in affect, such that mental effort can also be, for example, enjoyable (Inzlicht et al., 2018; Székely & Michael, 2021; Wahlers et al., 2025). Conceptualizations of mental effort which invoke the affective nature of the experience often involve some kind of cost-benefit analysis (Kool & Botvinick, 2014; Kurzban, 2016; Kurzban et al., 2013; Shenhav et al., 2017; Székely & Michael, 2021). As stated above, work conceptualizing mental effort as inherently aversive suggests that this aversiveness is highlighting some kind of relevant cost and is signalling to the actor that they should (re)evaluate the current use of their resources. Theories regarding the nature of the cost to resources incurred include limited information processing capacity (Shenhav et al., 2017), opportunity costs (Kurzban et al., 2013), and metabolic costs (Gailliot et al., 2007). Theorizing that allows for variability in affect during an experience of mental effort proposes that the affective nature of any particular experience of mental effort may be determined by whether or not the cost-benefit analysis results in expected net costs or net rewards (Székely & Michael, 2021).

More recently, ideas such as learned industriousness, need for cognition, and flow have been employed to argue that mental effort can also be enjoyable (Inzlicht et al., 2018; Székely & Michael, 2021; Wahlers et al., 2025). Learned industriousness is the idea that effort becomes rewarding in itself through learned associations (Eisenberger, 1992); need for cognition is an individual difference concerning how much one enjoys cognitively effortful activity (Cacioppo

& Petty, 1982); and flow is a state in which challenging activities (including cognitively demanding activities) are experienced as rewarding and enjoyable in and of themselves (Nakamura & Csikszentmihalyi, 2014). Taken together, these notions highlight how the affective tone of an experience of mental effort may vary from aversive to enjoyable.

The Ease of Mental Effort Engagement

Another dimension along which experiences of mental effort are described is the ease of mental effort engagement, which indicates how easy or difficult it feels to stay engaged with a task which requires mental effort. This is different from task difficulty, as a distinction can be made between tasks that demand a high degree of cognitive resources and those that feel difficult to remain engaged with. For example, activities people partake in while experiencing flow include activities that are cognitively demanding, such as performing surgery; however, a defining feature of the flow experience is that it feels easy to remain engaged (Csikszentmihalyi & Nakamura, 2010). Conversely, engagement with simple tasks can be experienced as difficult, as they require control to stay on task because they are, for example, boring (Inzlicht et al., 2018). Experiences of mental effort, therefore, vary in terms of the ease with which they are engaged.

Mental Effort Measurement

Mental effort has often been measured with single-item measures, such as the effort item from the NASA-TLX (Hart & Staveland, 1988), the single-item Rating Scale of Mental Effort (Zijlstra & Van Doorn, 1985), or the single-item Mental Effort Rating Scale (Paas, 1992). Beyond issues with single-item measures such as reliability, single-item measures have limited validity when capturing multidimensional constructs (Diamantopoulos et al., 2012). This is

especially relevant for mental effort, which has elicited varied conceptualizations across the literature.

In recognition of the complex nature of mental effort, there have been recent attempts to develop more nuanced mental effort measurement tools. For example, Wagner & Eastwood (2025b) have recently distinguished between volitionally exerted and task-elicited mental effort, with volitionally exerted mental effort being conceptualized as the mental effort that the individual feels they must self-initiate and apply during a task, and task-elicited mental effort being conceptualized as the mental effort that is perceived to be activated by the task. Relatedly, Marty-Dugas & Smilek (2019) recently reconceptualized flow and created a measurement for deep, effortless concentration, which is the experience of complete engagement without a feeling of strain. Further, Wahlers et al. (2025) distinguished between invested, demanded, and experiential mental effort, with invested mental effort indicating how much work was put forth regardless of the task demands, demanded mental effort indicating how much work was needed to do well on the task, and experiential mental effort indicating how effortful the task felt.

These above-mentioned conceptualizations and measurements of mental effort do not necessarily describe mental effort at only the level of subjective experience, but may be thought of as asking the participant to introspect about underlying cognitive processes which are identified by distinct subjective experiences. Nonetheless, they do distinguish forms of mental effort that are associated with different experiential qualities, including differences in affective tone and ease of engagement. In terms of affect, Wahlers et al. (2025) hypothesized and found empirical support for the idea that invested mental effort is associated with positive affect, whereas demanded and experiential mental effort are associated with negative affect. Volitionally exerted mental effort has also been associated with negative affect (D. Wagner &

Eastwood, 2025a). Deep, effortless concentration has been positively associated with positive affect and negatively associated with negative affect (Marty-Dugas & Smilek, 2020). In terms of ease of engagement, the items measuring both volitionally exerted mental effort and deep, effortless concentration explicitly capture this idea. Therefore, these different forms of mental effort differentially map onto more or less appealing experiential qualities. Moreover, previous work on the different facets or types of mental effort experience has not only asserted the utility of conceptual distinctions, but has also shown through measurement models that participants can reliably self-report distinct mental effort experiences (e.g., D. Wagner & Eastwood, 2025b). In the present study, we will investigate factors that facilitate experiences of mental effort that we propose to be more appealing (deep, effortless concentration and invested mental effort) and reduce experiences of mental effort that we propose to be more aversive (volitionally exerted, experiential, and demanded mental effort).

Determinants of the Experience of Mental Effort

It is important to understand what may lead to an experience of mental effort being more positively (or less negatively) affectively valenced and engaged in with greater ease. Different lines of argument suggest that various factors determine the experience of mental effort, such as qualities of the task (e.g., how difficult the task is), qualities of the individual (e.g., how motivated one is to engage with the task), and qualities in the environment (e.g., how noisy it is) (Kahneman, 1973; Mulder, 1986; Shenhav et al., 2021; D. Wagner & Eastwood, 2025b). Holding aspects such as task difficulty constant, how can we influence person-environment interactions so as to improve mental effort experiences and promote sustainable mental effort engagement? One possible pathway is through increasing autonomous motivation (Werner & Milyavskaya, 2019). Autonomous motivation, according to self-determination theory, is

motivation that involves identification with the importance of the activity, integration of the value of the activity, and/or intrinsic interest in and enjoyment of the activity (Ryan & Deci, 2000), and has been associated with success, well-being, and persistence (Howard et al., 2021). Autonomous motivation can be facilitated through supporting autonomy (Deci & Ryan, 2008), which is essentially supporting people's ability to act volitionally in ways that they self-endorse (especially upon reflection) because they align with their interests and values (Deci & Ryan, 2008). Autonomy support is an important consideration because conditions which support autonomy (for example, providing choice so that one has the opportunity to act volitionally) represent modifiable targets through which motivation can be supported, and much previous research has therefore focused on this. Despite this focus, it is important to note that autonomous motivation is often the conceptual bridge between considerations such as autonomy support and outcomes such as mental effort (Deci & Ryan, 1987; Inzlicht et al., 2014; Rom et al., 2020; Ryan & Deci, 2000b; Wahlers et al., 2024; Werner & Milyavskaya, 2019).

Various authors argue that autonomy support promotes engagement with effort experiences by facilitating experiences that are both less depleting and more rewarding. Hockey (2011) suggests that personal control, in the form of self-initiated actions or actions in line with personal goals, reduces fatigue in the workplace, as less depleting self-control is necessary to stay on task. Supporting this, self-control has been found to be less depleting under autonomy-supportive compared to controlling conditions (Moller et al., 2006; Muraven et al., 2008). Relatedly, Inzlicht et al. (2014) suggest that "want-to" tasks, or those undertaken autonomously, are easier to engage with than "have-to" tasks, even though both can require effort, as "want-to" tasks are inherently rewarding and enjoyable. Werner & Milyavskaya (2019) argue similarly, further suggesting that these attractive experiential qualities make pursuit of such goals a more

adaptive approach for long-term success and flourishing. For example, Werner et al. (2016) found that ease of goal pursuit mediated goal motivation and goal progress, but "trying hard" did not, which suggests that experiences of effort that are experienced with ease are more likely to be successfully engaged with. These authors also note that increased enjoyability and ease do not mean that effort is not being employed, but rather point to differences in experiential qualities across effort experiences that vary depending on the autonomy of effort engagement. Therefore, mental effort experiences undertaken under conditions of autonomy may be associated with greater ease, as well as with more positive and less negative affect, and this has important implications for mental effort engagement, goal progress, and flourishing.

There is evidence supporting the idea that modifiable variables that theoretically increase the autonomy of an action, such as interest or choice (Ryan & Deci, 2000b), are associated with improved mental effort experiences, and understanding the impact of such variables offers actionable entryways to improving mental effort experiences. Many of the studies reviewed below which have contributed such evidence so far have employed unidimensional conceptualizations of mental effort and do not distinguish between, for example, mental effort experiences that are engaged in with ease and enjoyment and those in which the effort expenditure is noticeable and depleting. Regardless, they support the idea that there is a relationship between autonomy-related variables such as choice and interest and mental effort. Wahlers et al. (2024) had participants read both passages that they chose because they interested them (high autonomy), and passages that they did not choose and that did not interest them (low autonomy). Participants reported feeling that the task felt less effortful under the high autonomy condition. In a related study, Wahlers et al. (2025) further differentiated their conceptualization of mental effort into "invested" and "demanded," as described above. In this case, they

investigated the effects of choice and found that choice predicted lower demanded (or lower negatively valenced) mental effort, but did not impact invested mental effort. Milyavskaya et al. (2021) found that interest in math predicted choosing to work on harder math tasks, but also predicted lower mental fatigue. Schneider et al. (2018) found that a feigned choice paradigm (in which students could choose between two topics but would read the same text regardless) led to lower perceived topic complexity compared to students who did not receive a choice. Csikszentmihalyi and Nakamura (2010) reported a greater likelihood for an activity to feel effortful if it felt obligatory compared to if it felt freely chosen, in which case it was more likely to feel effortless. Schuessler et al. (2024) found that interesting, easy tasks were associated with less noticeable mental effort than uninteresting, easy tasks. In an experience sampling study, Rom et al. (2020) found that activities that were subjectively experienced as autonomously undertaken were also experienced as less noticeably effortful. Choice and interest, therefore, relate to mental effort, but research is needed to understand how they relate to nuanced mental effort experiences that vary in terms of their experiential qualities. For example, do these variables increase ratings of types of mental effort with positive experiential qualities, such as ease of engagement and positive affect, or do they more so decrease ratings of types of mental effort with negative experiential qualities?

When investigating choice and interest, it is also important to note that there have been heterogenous findings in previous research on their relative importance, which is relevant when determining which interventions would be most efficacious. Previous work has found choice to be motivating under certain conditions, for example, when the choice options were relevant to one's need for autonomy, competence, or relatedness (Katz & Assor, 2007) or when the choice involved choosing between activities or versions of a task, but not when the choice was related to

reward type (Patall et al., 2008). When investigating choice and interest together, Patall (2013) found that the impact of choice can depend on interest, such that choice was more impactful for boring tasks relative to tasks that were already interesting. Flowerday and Shell (2015) found that interest, but not choice, influenced engagement, but Beymer et al. (2020) found effects for choice on engagement after accounting for interest. A more specific understanding of the roles of choice and interest is important when determining support for interventions, such as those in educational settings (Katz & Assor, 2007). Beyond a need for greater clarity on the distinct roles of choice and interest more broadly, research is needed to understand the distinct effects of interest and choice on mental effort specifically. Wahlers et al. (2024) found that participants had lower mental effort and fatigue when reading passages that they chose compared to those that were not chosen, but the effect on mental effort was no longer significant after controlling for interest ratings. However, they did not experimentally manipulate interest. Experimentally manipulating both choice and interest would allow for an investigation of the distinct causal impact of each on mental effort. Further, it is important to investigate possible interactions between choice and interest, since choice may be relevant in certain cases and not others, and this would aid in understanding in what contexts choice may have beneficial effects on mental effort. Therefore, we will experimentally manipulate both choice and interest to better understand their causal impact on mental effort while holding task difficulty constant. Additionally, we will investigate possible interactions between interest and choice.

As noted above, autonomous motivation is often the theoretical bridge between autonomy support and improvement in outcomes of interest (Deci & Ryan, 1987; Inzlicht et al., 2014; Ryan & Deci, 2000b; Werner & Milyavskaya, 2019), including mental effort (Rom et al., 2020; Wahlers et al., 2024). However, research is needed to support the assumption that autonomy

support improves mental effort experiences through increases in autonomous motivation. This study will therefore measure autonomous motivation as a possible mediator underlying the relationship between autonomy-supportive variables such as interest and choice and mental effort outcomes.

Aim of Study and Hypotheses

The aim of this study is threefold. First, we will experimentally manipulate both choice and interest, such that we can differentiate between the impact of these variables on mental effort. Second, we will measure mental effort in a nuanced fashion, such that we can assess the relationship between choice and interest and forms of mental effort with different experiential qualities (more positively or negatively experienced forms of mental effort). Third, we will investigate autonomous motivation as an underlying mediator between the autonomy-supportive conditions of choice and interest and the outcome of mental effort. This investigation will help to clarify past equivocal findings on the role of interest and choice in shaping important outcomes such as mental effort, contribute to our understanding of how such factors impact different forms of mental effort, and contribute empirically to our understanding of the role of autonomous motivation as underlying such relationships. Overall, this study will aid in understanding how we can most effectively nudge environment-person interactions to promote sustainable mental effort engagement.

We hypothesize that the autonomy-supportive conditions of choice and interest will lead to lower ratings of forms of mental effort that we believe to be associated with negative experiential qualities and higher ratings of forms of mental effort that we believe to be associated with positive experiential qualities. Specifically, we hypothesize that choice and interest will result in lower volitionally exerted, demanded, and experiential mental effort, and greater

invested mental effort as well as deep, effortless concentration. Since these mental effort measurements do not explicitly capture affect, we will also include affect measurement items and hypothesize that interest and choice will result in lower negative affect and greater positive affect. Since the impact of choice may be contextualized, we will also investigate an interaction of choice and interest, but without a specific directional hypothesis. Lastly, we hypothesize that increases in autonomous motivation will mediate the relationship between choice and interest and the various mental effort and affect outcomes.

Methods

Participants

We preregistered a sample size of 500 participants, not including participants who exited the study before providing data relevant to our hypothesis testing. This was based on estimates of a minimum meaningful effect size, previous related work, and what we could feasibly collect. In terms of a minimal meaningful effect size, Anvari and Lakens (2021) used anchor-based methods to determine a minimal meaningful effect size of 0.47 SDs for changes in negative affect, which is related to our conceptualization of mental effort (more specifically, this is the difference on the Positive and Negative Affect Scale (Watson et al., 1988) that was associated with experiencing a change in negative affect compared to feeling "the same"). Norman et al. (2003)conducted a systematic review and argued that 0.5 SDs represented a "universal" minimally important difference in health-related quality of life research. Using G*Power (Faul et al., 2009) to determine power for a linear regression with three tested predictors (interest, choice, and their interaction), alpha=.05, and power=95%, 317 participants were calculated to be sufficient to detect this minimum meaningful effect size of 0.47 SDs. As additional reference points, previous work in autonomy and mental effort by Wahlers et al. (2024) used a sample of

438 participants. For the confirmatory factor analysis (described further below), simulation analyses by Wolf et al. (2013) support a minimum sample size of approximately 185 as sufficient. A sample size of 500 therefore represents what we could feasibly collect (which is recommended as a guide in sample size calculations by Funder and Ozer (2019)), and is sufficient based on the above-described considerations.

We recruited a sample of participants from Canada and the United States via Prolific Academic (Prolific, 2026). We invited participants who were over the age of 18, fluent in English, and had at least a 90 percent approval rate. Participants were paid at a rate of $9 USD/hour. Our initial sample consisted of 540 participants. Thirty-seven participants were excluded based on preregistered exclusion criteria: 36 participants who only provided trait data (i.e., participants who exited the study before providing data relevant to our hypothesis testing), and 1 participant who indicated that they were not able to follow instructions. No other preregistered exclusion criteria were met. This left a final sample of 503 participants.

Participants were between the ages of 18 and 79, with an average age of 40.8 years (SD = 13.6). Sample sociodemographic characteristics can be found in Table 1.

Table 1

Sample Sociodemographic Characteristics

Variable	**N**	**%**
Country of residence		
Canada	114	22.67
United States	385	76.54
Prefer not to answer	4	0.8
Sex at birth		
Male	219	43.54
Female	279	55.47
Intersex	2	0.4
Prefer not to answer	3	0.6
Gender identity		

Man	211	41.95
Woman	274	54.47
Trans man	1	0.2
Trans woman	3	0.6
Non-binary	7	1.39
Gender fluid	3	0.6
Two-spirit	1	0.2
Prefer not to answer	3	0.6
Highest level of education		
Grade 9	1	0.2
Grade 10	2	0.4
Grade 11	2	0.4
Grade 12 or high school graduate	67	13.32
Partial college/university	75	14.91
Completed college/university degree or certificate	240	47.71
Complete graduate/professional degree or certificate	114	22.66
Prefer not to answer	2	0.4
Ethnic origin		
First Nations	0	0
Native American	8	1.59
Black	42	8.35
African American	25	4.97
Caucasian	310	61.63
East Asian	48	9.54
South Asian	7	1.39
Southeast Asian	12	2.39
West Asian	5	0.99
Hispanic or Latino	31	6.16
Other	10	1.99
Prefer not to say	5	0.99
Annual personal income		
Less than $10,000	50	9.94
$10,000-$15,999	30	5.96
$16,000-$19,999	12	2.39
$20,000-$29,999	39	7.75
$30,000-$39,999	44	8.75
$40,000-$49,999	39	7.75
$50,000-$59,999	51	10.14
$60,000-$69,999	51	10.14
$70,000-$79,999	39	7.75

$80,000-$89,999	15	2.98
$90,000-$99,999	23	4.57
$100,000-$149,999	66	13.12
More than $150,000	25	4.97
Prefer not to answer	19	3.78
Annual household income		
Less than $10,000	23	4.57
$10,000-$15,999	20	3.98
$16,000-$19,999	6	1.19
$20,000-$29,999	29	5.77
$30,000-$39,999	40	7.95
$40,000-$49,999	38	7.55
$50,000-$59,999	46	9.15
$60,000-$69,999	36	7.16
$70,000-$79,999	40	7.95
$80,000-$89,999	23	4.57
$90,000-$99,999	31	6.16
$100,000-$149,999	101	20.08
More than $150,000	46	9.15
Prefer not to answer	24	4.77
Currently employed		
Yes	379	75.35
No	119	23.66
Prefer not to answer	5	0.99

This study was approved by the Office of Research Ethics at York University (certificate # e2025-247). The study, including sampling strategy, study design, hypotheses, exclusion criteria, and analytic plan, was preregistered on the Open Science Framework on February 6th, 2026, prior to data collection (https://osf.io/6rnyu/overview?view_only=b0bf419af62142a1ad541b14b13b7c1d).

Procedure

This study was hosted on QuestionPro (*QuestionPro*, 2025). Data was collected between February 8th and February 11th, 2026. The study lasted approximately 20 minutes. Participants began by providing consent. Following this, they provided demographic information. They then

completed trait measurements, including subjective reading ability and objective reading ability. The presentation of trait measurements was randomized. Participants were then asked to rate five genres according to preference: romance, science fiction, historical fiction, detective fiction/mystery, and action/thriller. Participants were then randomly assigned to experimental condition via block randomization to ensure an approximately equal number of participants per condition. Participants were assigned to one of the following four blocks: high interest and choice, high interest and no choice, low interest and choice, or low interest and no choice.

Interest Manipulation

Participants were told that the story types would be assigned such that each genre is read by participants with a range of preferences, and that they may not receive their most preferred genre. They were then assigned to read either the genre that most interested them (high interest condition), or the genre that least interested them (low interest condition).

Choice Manipulation

Participants were told that, if the story type assigned to them had options, they should read the descriptions of the two options and choose which they would like to read, and if there was only one option, they would not be able to choose which story they would read. This was a feigned choice manipulation, in that the participants who were able to choose between two options would read the same story regardless of their choice. The options contained different descriptions of the same story, and place and character names were changed. All story options and text presented to the participants are available in Appendix A.

Following the experimental manipulation, participants began to read the story text. They were presented with the first third of the story. Following this, autonomous motivation was measured. Participants then read the rest of the story, after which mental effort was measured.

The presentation of the different mental effort scales was randomized. Finally, participants answered comprehension questions followed by an attention check question.

Materials

Texts

Texts were developed using ChatGPT (OpenAI, 2025). We created five texts, with each text intended to be an exemplar of a different genre. We selected genres aiming to offer participants both genres that they would be interested in and genres that they would not be interested in. The genres selected were romance, science fiction, historical fiction, action/thriller, and detective fiction/mystery. We aimed to create as similar of a text as possible across genres, while allowing each text to be a convincing exemplar of that genre. To do this, we first created a "base" text. This base text was then adapted into each genre. This method resulted in similar stories in terms of story arcs, characters, and settings. We also matched the texts in terms of word length (900 words) and reading level (10th grade). Reading level was assessed as an average of 9 common reading level formulas using the Automatic Readability Consensus Calc (Scott, n.d.). Texts are available in Appendix A.

Measurements

Subjective Reading Ability. We measured subjective reading ability with items selected from the Sources of Reading Self-Efficacy Scale (Pei & O'Brien, 2023). Six items were selected to reduce scale length and participant burden while focusing on the items capturing subjective reading ability. An example item is, "reading is a weakness for me." All selected items can be found in Appendix A. Participants responded on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Negatively worded items were reverse coded. The responses to these items

were averaged to create a composite measure of subjective reading ability. The internal consistency was good ($\alpha = .81$, and $\omega = .82$).

Objective Reading Ability. We measured objective reading ability using the short form (Schlegel et al., 2025) of the vocabulary test "StuVoc1" developed by Vermeiren et al. (2022), which correlates well with reading comprehension and author recognition. Vocabulary tests can be considered indicators of reading ability (Qian, 1999; R. K. Wagner, 2010). Participants were shown 21 vocabulary words and were provided an example of the word used in a sentence. They then had to select the meaning that best fits how the word was used in the sentence out of four options. An example is 'jovial', with the example sentence being "he was very [jovial]" and the answer options being: a) low on the social scale, b) likely to criticize others, c) friendly, and d) full of himself. Responses were coded as 1 (correct) or 0 (incorrect), and composite scores were created using the total number of correct responses. The internal consistency was good (KR-20 = .81).

Autonomous Motivation. We created items to measure autonomous motivation within the context of an experiment, based on the conceptualization of autonomous motivation within self-determination theory as described in the introduction, consisting of intrinsic, integrated, and identified motivation (Ryan & Deci, 2000a). Previous scales measuring autonomous motivation, such as the Intrinsic Motivation Inventory (McAuley et al., 1989) or the Situational Motivation Scale (Guay et al., 2000) were less well suited to this experiment. For example, they did not cover the range of the construct that we wished, or they asked participants why they were currently engaged in an activity, to which the primary answer in this study would likely be that they were being paid to participate. An example of an intrinsic item used in this study is "reading this story is enjoyable," an example of an integrated item is "reading this story is aligned with

my beliefs," and an example of an identified item is "reading this story is good for me." Participants responded on an 11-point scale from 0 (not at all true) to 10 (very true). All items can be found in Appendix A. We performed a confirmatory factor analysis on these items, which is described further below. The internal consistency was excellent ($\alpha = .96$, and $\omega = .96$).

Mental Effort. As discussed in the introduction, we measured various conceptualizations of mental effort. To measure volitionally exerted mental effort, we used a modified version of the volitionally exerted items from the State Brain Power Questionnaire (D. Wagner & Eastwood, 2025b). An example item is "I had to push myself to use my brain power to read this story" (the original item in Wagner & Eastwood (2025) was "I had to push myself to use my brain power"). Participants responded on an 11-point scale from 0 (only a little) to 10 (a great deal). The internal consistency was excellent ($\alpha = .98$, and $\omega = .98$). To measure deep effortless concentration, we used a modified version of the Deep Effortless Concentration Scale- External (Marty-Dugas & Smilek, 2019). An example item is "I was able to completely focus on reading this story without straining to pay attention" (the original item was "I am able to completely focus on my task without straining to pay attention"). Participants responded on a 7-point scale from 1 (not at all) to 7 (completely). The internal consistency was excellent ($\alpha = .98$, and $\omega = .98$). To measure experiential effort, we used the experiential effort single item from Wahlers et al. (2024) and Wahlers et al. (2025): "how effortful did the task just feel?" Whereas Wahlers et al. used a 5-point scale, we asked participants to respond on an 11-point scale from 0 (not at all) to 10 (extremely). To measure demanded mental effort, we used the Demanded Effort items from Wahlers et al. (2025). An example item is "how much mental effort was required on the task?" Whereas Wahlers used varied response scales (e.g., a 21-point scale), we asked participants to respond on an 11-point scale from 0 (only a little) to 10 (a great deal). The internal consistency

was excellent ($\alpha = .94$, and $\omega = .94$). To measure invested mental effort, we used the Invested Effort items from Wahlers et al. (2025). An example item is "I put a lot of effort into this." Whereas Wahlers et al. used a 7-point scale, we asked participants to respond on an 11-point scale from 0 (not at all true) to 10 (very true). The internal consistency was acceptable ($\alpha = .78$, and $\omega = .78$). These response scale changes were made to limit possible noise from scale variation.

Since our mental effort measurements did not explicitly capture affect, we also measured affect. To measure positive affect, we used the single item: "while reading this story, I felt positive." Negative affect was measured with five items asking participants the extent to which, while reading the story, they felt "negative," "burdened," "frustrated," "bored," and "stressed." These negative affect items were treated individually and not combined. For all affect items, participants responded on an 11-point scale from 0 (not at all) to 10 (extremely).

Comprehension and Attention Check Questions. We measured comprehension with 3 items asking about details from the story. These questions were designed to be very easy and were intended to be used as an exclusion criterion only. We planned to use them as an exclusion criterion only in the case that performance was not predicted by experimental manipulation. The questions were multiple choice with three answer options. An example question is "what is the primary setting where most of the story takes place," with the answer options: a) a train station, b) a bookstore, and c) a café. An attention check question was also included as an exclusion criterion, in which we asked participants explicitly if they were able to follow study instructions. All comprehension and attention check questions can be found in Appendix A.

Statistical Analyses

All analyses were completed using R (R Core Team, 2023), RStudio (Posit Team, 2025), and Visual Studio Code (Gamma, 2026). Codex (OpenAI, 2026) was used as an extension within Visual Studio Code to aid in code generation; all such code was reviewed and verified by the authors. Packages used include lavaan (Rosseel, 2012), dplyr (Wickham et al., 2023), and psych (Revelle, 2023).

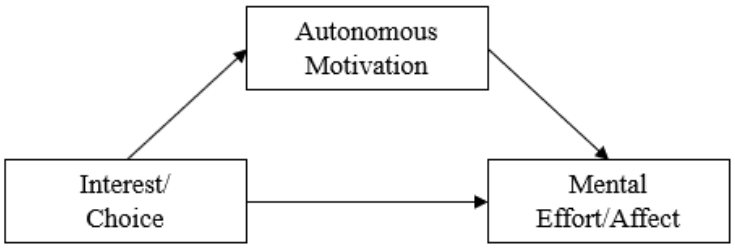
To test our first hypothesis, that the autonomy-supportive conditions of choice and interest would lead to lower ratings of forms of mental effort with proposed negative experiential qualities and higher ratings of forms of mental effort with proposed positive experiential qualities, we conducted preregistered linear regressions. Our predictor variables were interest, choice, and their interaction. We included subjective and objective reading ability as covariates, to control for possible effects of reading ability on mental effort. We also included story type as a covariate, to statistically control for any possible differences between the stories read by participants. Our outcome variables were volitionally exerted mental effort, invested mental effort, demanded mental effort, experiential mental effort, deep effortless concentration, positive affect, and negative affect (including feeling negative, burdened, frustrated, bored, and stressed).

We investigated our models for assumptions such as linearity, normality, and homoscedasticity. We found some non-normality of residuals and some heteroscedasticity, especially in terms of the affect items. While our sample size protects against biased significance testing due to non-normality (Knief & Forstmeier, 2021; Lumley et al., 2002; Pek et al., 2018), we also conducted the analyses using robust standard errors to account for the possible heteroscedasticity (White, 1980). The pattern of results did not change from those reported below (these results can be found in Table B2 in Appendix B).

To test our second hypothesis, that autonomous motivation would mediate the relationships tested in our first hypothesis, we conducted a preregistered mediation analysis with autonomous motivation as the mediator (see Figure 1). To determine which autonomous motivation subscales to use for this mediation, we conducted a preregistered confirmatory factor analysis in which we tested two possible factor structures. The first was a three-factor model, in which the "intrinsic", "integrated", and "identified" questions would each form a separate factor. The second was a two-factor model, in which the "intrinsic" questions would form one factor, and the "integrated" and "identified" questions would form the second factor. This was because we were uncertain whether participants would reliably differentiate the integrated and identified items. We then planned to compare the models to see which provided better fit, and to assess the better-fitting model for adequate fit. If this model did not provide adequate fit, we would continue the analysis in an exploratory manner. The final autonomous motivation structure resulting from the confirmatory factor analysis would be used in the mediation. For the mediation, we tested the mediation of the impact of choice and interest on the mental effort outcomes through the latent factor(s) of autonomous motivation using structural equation modelling with maximum likelihood estimation. Indirect effects were estimated with 5000 bootstrap samples. We conducted separate mediations for each outcome variable. When testing the mediation between interest and mental effort, choice was controlled for, and vice versa. We included the same covariates as in the linear regressions for hypothesis 1 (subjective reading ability, objective reading ability, and story type).

Figure 1

Mediation Model with Autonomous Motivation as the Mediator



Results

Descriptive Statistics

See Table 2 for descriptive statistics and exploratory correlations among study outcome variables. The proposed negative mental effort items (volitionally exerted, demanded, and experiential mental effort) showed significant positive bivariate correlations with the negative affect items and significant negative correlations with the positive affect item. Among the proposed positive mental effort items, deep, effortless concentration was significantly positively correlated with positive affect and significantly negatively correlated with the negative affect items, but invested effort was not significantly correlated with positive affect as theorized.

Table 2

Descriptive Statistics and Correlations for Study Outcome Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Autonomous motivation	4.60	2.67	—	-.27***	0.04	-.15***	-.12**	.70***	.71***	-.21***	-.34***	-.34***	-.59***	-.20***
2. Volitionally exerted effort	4.11	3.15		—	.12**	.73***	.61***	-.55***	-.38***	.39***	.56***	.49***	.52***	.47***
3. Invested effort	7.30	2.16			—	.26***	.20***	.05	.07	-.06	-.03	-.02	-.06	-.04
4. Demanded effort	4.52	2.95				—	.74***	-.37***	-.21***	.34***	.52***	.45***	.40***	.47***
5. Experiential effort	5.15	3.04					—	-.33***	-.15***	.27***	.43***	.37***	.33***	.39***
6. Deep effortless concentration	4.21	1.86						—	.73***	-.35***	-.53***	-.49***	-.69***	-.34***
7. Positive affect	5.94	3.00							—	-.44***	-.44***	-.49***	-.66***	-.30***
8. Negative affect	2.14	2.58								—	.64***	.73***	.49***	.56***
9. Burden	2.75	2.93									—	.75***	.67***	.66***
10. Frustration	2.38	2.82										—	.64***	.68***
11. Boredom	3.71	3.36											—	.45***
12. Stress	1.69	2.32												—

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Hypothesis 1: The Impact of Interest and Choice on Mental Effort

We found some support for the hypothesis that the autonomy-supportive conditions of choice and interest would lead to lower ratings of forms of mental effort with negative experiential qualities (volitionally exerted, demanded, and experiential mental effort) and higher ratings of forms of mental effort with positive experiential qualities (invested mental effort and deep, effortless concentration). We also found some support for the hypothesis that these conditions would lead to greater positive affect and lower negative affect. More specifically, we found evidence that interest impacts some forms of mental effort and affect, but we did not find evidence that choice impacts mental effort or affect, nor did we find evidence for an interaction effect of interest and choice on mental effort or affect.

The Impact of Interest and Choice on Mental Effort with Proposed Negative Experiential Qualities

We found support for the idea that greater interest predicts lower ratings of mental effort with proposed negative experiential qualities, as greater interest significantly predicted lower volitionally exerted mental effort (B = -0.77, SE = 0.38, t(493) = -2.03, p = .043, 95% CI [-1.51, -0.02], sr^2 = 0.007), demanded mental effort (B = -0.79, SE = 0.36, t(493) = -2.16, p = .032, 95% CI [-1.50, -0.07], sr^2 = 0.008), and experiential mental effort (B = -0.78, SE = 0.38, t(493) = -2.02, p = .043, 95% CI [-1.52, -0.02], sr^2 = 0.008). Greater interest also largely predicted the negative affect items, as greater interest significantly predicted feeling less burdened (B = -1.08, SE = 0.37, t(493) = -2.97, p = .003, 95% CI [-1.80, -0.37], sr^2 = 0.016), frustrated (B = -1.00, SE = 0.35, t(493) = -2.85, p = .005, 95% CI [-1.69, -0.31], sr^2 = 0.015), bored (B = -1.35, SE = 0.42, t(493) = -3.28, p = .002, 95% CI [-2.18, -0.51], sr^2 = 0.019), and stressed (B = -0.71, SE = 0.28, t(493) = -2.52, p = .012, 95% CI [-1.26, -0.16], sr^2 = 0.011). It did not significantly predict

feeling less negative (B = -0.56, SE = 0.32, t(493) = -1.75, p = .080, 95% CI [-1.20, 0.07], sr^2 = 0.006).

We did not find support for the idea that choice predicts lower ratings of mental effort with negative experiential qualities, as choice did not significantly predict lower volitionally exerted mental effort (B = 0.41, SE = 0.37, t(493) = 1.12, p = .262, 95% CI [-0.31, 1.14], sr^2 = 0.002), demanded mental effort (B = 0.16, SE = 0.36, t(493) = 0.44, p = .659, 95% CI [-0.54, 0.86], sr^2 = 0.0004), nor experiential mental effort (B = 0.06, SE = 0.37, t(493) = 0.16, p = .873, 95% CI [-0.67, 0.79], sr^2 = 0.00005). Choice also did not significantly predict feeling less negative affect, including feeling burdened (B = -0.29, SE = 0.36, t(493) = -0.80, p = .424, 95% CI [-0.99, 0.42], sr^2 = 0.001), frustrated (B = -0.34, SE = 0.34, t(493) = -0.99, p = .323, 95% CI [-1.02, 0.34], sr^2 = 0.002), bored (B = 0.05, SE = 0.41, t(493) = 0.12, p = .905, 95% CI [-0.76, 0.86], sr^2 = 0.00003), stressed (B = -0.34, SE = 0.27, t(493) = -1.25, p = .212, 95% CI [-0.88, 0.20], sr^2 = 0.003) or negative (B = -0.001, SE = 0.31, t(493) = -0.005, p = .996, 95% CI [-0.62, 0.62], sr^2 = 0.000).

We also did not find support for an interaction between interest and choice on ratings of mental effort with negative experiential qualities, as there was no significant interaction when predicting volitionally exerted mental effort (B = -0.32, SE = 0.52, t(493) = -0.62, p = .538, 95% CI [-1.35, 0.71], sr^2 = 0.001), demanded mental effort (B = 0.27, SE = 0.50, t(493) = 0.54, p = .591, 95% CI [-0.72, 1.26], sr^2 = 0.001), nor experiential mental effort (B = 0.55, SE = 0.53, t(493) = 1.05, p = .296, 95% CI [-0.49, 1.59], sr^2 = 0.002). There was also no significant interaction when predicting the negative affect items, including burden (B = 0.65, SE = 0.51, t(493) = 1.29, p = .198, 95% CI [-0.34, 1.65], sr^2 = 0.003) frustration (B = 0.71, SE = 0.49, t(493) = 1.46, p = .145, 95% CI [-0.25, 1.67], sr^2 = 0.004), boredom (B = 0.18, SE = 0.58, t(493) = 0.32,

p = .752, 95% CI [-0.96, 1.33], sr^2 = 0.0002), stress (B = 0.10, SE = 0.39, t(493) = 0.26, p = .794, 95% CI [-0.66, 0.86], sr^2 = 0.0001), or feeling negative (B = 0.38, SE = 0.44, t(493) = 0.85, p = .397, 95% CI [-0.50, 1.25], sr^2 = 0.001).

Full model results are presented in Table B1 in Appendix B.

The Impact of Interest and Choice on Mental Effort with Proposed Positive Experiential Qualities

We found mixed support for the idea that greater interest predicts higher ratings of mental effort with proposed positive experiential qualities. Greater interest significantly predicted higher deep, effortless concentration (B = 0.67, SE = 0.23, t(493) = 2.96, p = .003, 95% CI [0.22, 1.12]. sr^2 = 0.015). However, greater interest did not significantly predict invested mental effort (B = -0.37, SE = 0.28, t(493) = -1.33, p = .185, 95% CI [-0.92, 0.18], sr^2 = 0.004). We found support for the idea that greater interest predicts positive affect (B = 1.04, SE = 0.38, t(493) = 2.73, p = .006, 95% CI [0.29, 1.78], sr^2 = 0.014).

We did not find support for the idea that choice predicts higher ratings of mental effort with positive experiential qualities, as choice did not significantly predict deep, effortless concentration (B = -0.06, SE = 0.22, t(493) = -0.29, p = .770, 95% CI [-0.50, 0.37], sr^2 = 0.0002) nor invested mental effort (B = -0.50, SE = 0.27, t(493) = -1.84, p = .066, 95% CI [-1.04, 0.03], sr^2 = 0.007). We did not find support for the idea that choice predicts positive affect (B = 0.16, SE = 0.37, t(493) = 0.42, p = .672, 95% CI [-0.57, 0.88], sr^2 = 0.0003).

We also did not find support for an interaction between interest and choice on ratings of mental effort with positive experiential qualities, as there was no significant interaction when predicting deep, effortless concentration (B = -0.11, SE = 0.31, t(493) = -0.35, p = .730, 95% CI

[-0.72, 0.51], sr^2 = 0.0002), nor invested mental effort (B = 0.51, SE = 0.39, t(493) = 1.32, p = .189, 95% CI [-0.25, 1.27], sr^2 = 0.003). There was no significant interaction when predicting positive affect (B = -0.41, SE = 0.52, t(493) = -0.79, p = .431, 95% CI [-1.44, 0.62], sr^2 = 0.001).

Full model results are presented in Table B1 in Appendix B.

Hypothesis 2: The Role of Autonomous Motivation as a Mediator

We found some support for the hypothesis that autonomous motivation mediates the relationship between the autonomy-supportive conditions of interest and choice and the mental effort and affect outcomes. Namely, similar to our findings for hypothesis 1, we found some support for a mediation through autonomous motivation when investigating the impact of interest, but not when investigating the impact of choice.

Autonomous Motivation Structure

For the purposes of the mediation analysis, our autonomous motivation confirmatory factor analysis ultimately yielded a higher-order model with a higher-order factor of autonomous motivation, and three first-order factors of intrinsic, integrated, and identified motivation. As preregistered, we began by comparing a three-factor and a two-factor structure. The three-factor model produced better model fit. Model fit was evaluated using conventional guidelines (CFI and TLI values near or above .95, RMSEA near or below .06, and SRMR below .08 (Hu & Bentler, 1999)). See Table 3 for all model fit indices. Though the three-factor structure provided the best fit, it had an elevated RMSEA of .13. We preregistered that, if the best-fitting model out of the two- and three-factor structures did not provide adequate fit, we would continue with the confirmatory factor analysis in an exploratory manner.

As a first exploratory step, we tested a one-factor model, since there were high correlations between the factors in the three-factor model (identified and integrated, r = .88; identified and intrinsic, r = .83; integrated and intrinsic, r = .76). This one-factor model produced worse model fit (see Table 3). Since this is a new scale, we decided to proceed with investigating the three-factor model at the item level. We achieved good model fit when we dropped two items with problematic potential cross-loadings. Specifically, we began by dropping the integrated motivation item "reading this story is consistent with my priorities", as this item had notable potential cross-loadings with both identified (MI = 58.11, standardized EPC = .42) as well as intrinsic (MI = 44.57, standardized EPC = .24) motivation. This improved model fit, but fit was not yet adequate, as the RMSEA was still elevated at .10. We again assessed for cross-loadings and further dropped "if I were reading this story in my free time, I would continue reading it", as it had notable potential cross-loadings with identified motivation (MI = 45.10, standardized EPC = .30). This model provided good model fit. Beyond statistical justification, the high cross-loadings brought attention to the unspecific or ambiguous wording in the dropped items. For example, continuing with an activity in one's free time may be related to any of the subtypes of autonomous motivation (Markland, 1999); additionally, it may have been difficult for participants to discern the meaning of "priorities" in the context of this study. Dropping these items did not create an issue with construct coverage, as the remaining items in each subscale adequately covered what we intended for each construct. We then compared the three-, two-, and one-factor models with the reduced set of items. The three-factor model still produced the best fit (see Table 3).

The high correlations between the factors prompted consideration of a higher-order model (identified and integrated, r = .86; identified and intrinsic, r = .81; integrated and intrinsic,

r = .73). In terms of our mediation hypothesis, we were interested in autonomous motivation generally as an underlying mediator and did not have specific hypotheses about the subscales. In previous work, the subtypes of intrinsic, integrated, and identified motivation have often been combined into a composite of autonomous motivation (Ryan & Deci, 2000b). Beyond satisfying theoretical considerations, testing the mediation via the higher-order factor of autonomous motivation would provide a more parsimonious approach, and we therefore decided to proceed with this structure. We could not test the relative fit of the higher-order model compared to the three-factor model because the higher-order portion of the model is just identified and therefore does not have the degrees of freedom necessary for evaluating model fit comparatively. See Figure 2 for the path diagram of this model.

Table 3

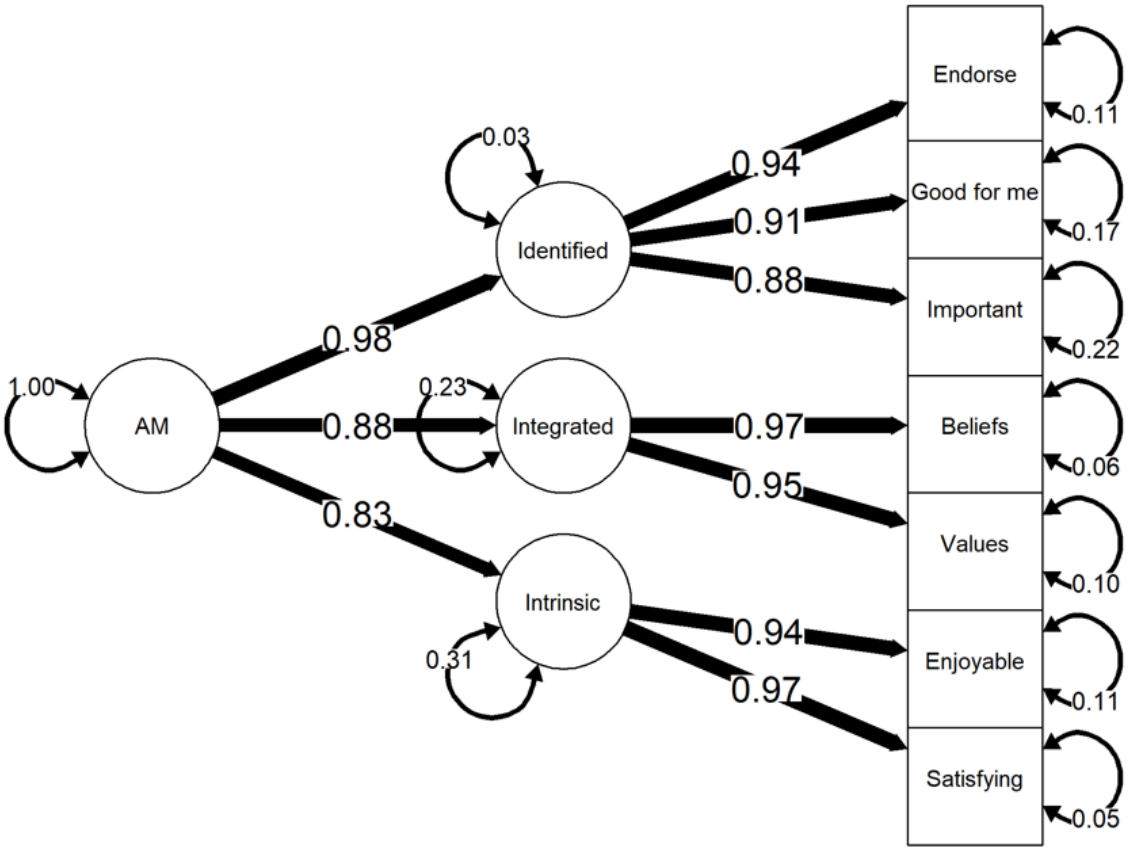
Confirmatory Factor Analysis Fit Indices

Model	**Dropped items**	**χ2**	**df**	**CFI**	**TLI**	**RMSEA**	**90% CI**	**SRMR**	**AIC**	**BIC**
Three-factor		229.70***	24	.97	.95	.13	[.12, .15]	.03	17245.62	17372.24
Two-factor		544.39***	26	.91	.88	.20	[.18, .21]	.04	17556.31	17674.49
One-factor		1180.13***	27	.81	.74	.29	[.28, .31]	.06	18190.05	18304.01
Three-factor	P	107.07***	17	.98	.97	.10	[.08, .12]	.02	15481.22	15595.18
Three-factor	P + C	23.21*	11	.997	.99	.05	[.02, .07]	.01	13548.35	13649.64
Two-factor	P + C	368.793***	13	.92	.86	.23	[.21, .25]	.03	13889.93	13982.79
One-factor	P + C	823.15***	14	.81	.71	.34	[.32, .36]	.05	14342.3	14430.93
Higher-order three-factor	P + C	23.21*	11	.997	.99	.05	[.02, .07]	.01	13548.35	13649.64

Note. Dropped item abbreviations: P = "Reading this story is consistent with my priorities"; C = "If I were reading this story in my free time, I would continue reading it." χ^2= chi-square test statistic; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; AIC = Akaike information criterion; BIC = Bayesian information criterion. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2

Higher-Order Factor Structure of Autonomous Motivation



Note. AM = autonomous motivation. See Appendix A for full item wording.

Mediation

We found mixed support for our hypothesis that autonomous motivation mediates the relationship between interest and choice and mental effort and affect outcomes. Namely, as with hypothesis 1, we found support for an impact of interest, but not for an impact of choice. When examining the impact of interest, we found evidence for an indirect effect through autonomous motivation for volitionally exerted mental effort (*ab* = -0.30, 95% CI [-0.52, -0.14]) and deep effortless concentration (*ab* = 0.57, 95% CI [0.33, 0.83]), but not for invested (*ab* = 0.04, 95% CI [-0.06, 0.15]), demanded (*ab* = -0.12, 95% CI [-0.28, 0.01]), or experiential mental effort (*ab* = -0.12, 95% CI [-0.29, 0.02]). In terms of affect, we found evidence for an indirect effect through autonomous motivation for all affect items: positive affect (*ab* = 0.98, 95% CI [0.57, 1.42]), negative affect (*ab* = -0.20, 95% CI [-0.37, -0.07]), burden (*ab* = -0.38, 95% CI [-0.61, -0.19]), frustration (*ab* = -0.38, 95% CI [-0.63, -0.20]), boredom (*ab* = -0.86, 95% CI [-1.26, -0.47]), and stress (*ab* = -0.15, 95% CI [-0.29, -0.05]). These models all showed acceptable to good fit, and the fit indices are available in Table B3 in Appendix B. See Table 4 for mediation results. Total effects and confidence intervals for all mediation path estimates are available in Table B4 in Appendix B.

Table 4

Autonomous Motivation Mediation Results

Predictor	**Outcome**	***a* path**	***b* path**	**Direct effect**	**Indirect effect**	**95% CI for indirect effect**
Interest	Volitionally exerted	0.46***	-0.65***	-0.63*	-0.30	[-0.52, -0.14]
Interest	Invested	0.46***	0.09	-0.16	0.04	[-0.06, 0.15]
Interest	Demanded	0.46***	-0.26	-0.54*	-0.12	[-0.28, 0.01]
Interest	Experiential	0.46***	-0.27	-0.38	-0.12	[-0.29, 0.02]

Interest	Deep, effortless concentration	0.46***	1.22***	0.05	0.57	[0.33, 0.83]
Interest	Positive affect	0.46***	2.10***	-0.15	0.98	[0.57, 1.42]
Interest	Negative affect	0.46***	-0.43***	-0.18	-0.20	[-0.37, -0.07]
Interest	Burden	0.46***	-0.82***	-0.39	-0.38	[-0.61, -0.19]
Interest	Frustration	0.46***	-0.84***	-0.27	-0.38	[-0.63, -0.2]
Interest	Boredom	0.46***	-1.85***	-0.40	-0.86	[-1.26, -0.47]
Interest	Stress	0.46***	-0.32***	-0.51*	-0.15	[-0.29, -0.05]
Choice	Volitionally exerted	0.07	-0.65***	0.30	-0.05	[-0.18, 0.07]
Choice	Invested	0.07	0.09	-0.26	0.01	[-0.02, 0.04]
Choice	Demanded	0.07	-0.26	0.31	-0.02	[-0.09, 0.03]
Choice	Experiential	0.07	-0.27	0.36	-0.02	[-0.09, 0.04]
Choice	Deep, effortless concentration	0.07	1.22***	-0.20	0.08	[-0.15, 0.31]
Choice	Positive affect	0.07	2.10***	-0.19	0.14	[-0.26, 0.56]
Choice	Negative affect	0.07	-0.43***	0.22	-0.03	[-0.12, 0.05]
Choice	Burden	0.07	-0.82***	0.10	-0.06	[-0.22, 0.09]
Choice	Frustration	0.07	-0.84***	0.08	-0.06	[-0.22, 0.1]
Choice	Boredom	0.07	-1.85***	0.27	-0.13	[-0.48, 0.21]
Choice	Stress	0.07	-0.32***	-0.27	-0.02	[-0.09, 0.04]

Note. 95% CIs = bootstrapped confidence intervals. * $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Engaging with mental effort is often necessary when pursuing valued activities and is therefore important to flourishing. To better understand how to promote mental effort engagement, we investigated the impact of autonomy-supportive conditions (i.e., interest and

choice) on mental effort through autonomous motivation. We further differentiated the impact of interest and choice, and examined mental effort with varied experiential qualities. We found support for the impact of interest on increasing mental effort with proposed positive experiential qualities and decreasing mental effort with proposed negative experiential qualities. We also found support for the role of autonomous motivation as a mediating factor. We did not find support for an impact of choice on mental effort, which informs our understanding of which interventions may best support mental effort engagement through autonomous motivation.

Interest and Mental Effort

We found support for an impact of interest on mental effort. More specifically, we found support for the impact of interest on increasing ratings of mental effort with proposed positive experiential qualities (deep, effortless concentration), and decreasing ratings of mental effort with proposed negative experiential qualities (volitionally exerted, demanded, and experiential mental effort). An exception to this pattern is that we did not find evidence to support the idea that interest increases invested mental effort. This is discussed further below.

The finding that interest increases deep, effortless concentration and decreases volitionally exerted mental effort suggests that interest improves ease of engagement during activities requiring mental effort. When one is more interested in an activity, engaging in mental effort feels easier, even though the task itself has not changed. Similarly, the finding that interest increases deep, effortless concentration and decreases volitionally exerted, demanded, and experiential mental effort suggests that interest improves the affective experience of engaging with mental effort. These forms of mental effort have previously been conceptualized as having, and have been associated with, certain affective characteristics. In the current study, these mental effort conceptualizations also correlated with the affect measures in the expected directions. Our

additional findings in terms of our affect measurements as outcomes further support this conclusion, as interest led to greater positive affect ratings and lower negative affect item ratings.

It is important to note that the effect sizes of these results are considered small according to guidelines by Funder and Ozer (2019). In the context of the significant results, the unique effect of interest explained between 0.7-1.9% of the variance. In terms of raw units, moving from low to high interest produced around a 0.7-1 unit change on the outcome scales (which themselves ranged from 7 to 11 units). Although these effects are small, Funder and Ozer (2019) argue for the cumulative power of small effects over repeated occasions. For example, it is possible that small differences in perceptions of positive or negative experiential qualities cumulate over time in terms of people's tendency to engage in, or persist with, mentally effortful tasks such as reading. We encounter such tasks often, and willingness to engage is important to success in school, work, and daily life (Reder, 2023). Therefore, small effects in how people experience tasks like reading may have larger impacts on important outcomes such as academic and career success through how they impact willingness to engage with such tasks. Ultimately, research is needed to understand what effect sizes in terms of changes in mental effort experiences are meaningful. There is no current standard for evaluating meaningful effect sizes when measuring mental effort, and different metrics could be appropriate depending on the outcome of interest. For example, a minimum meaningful effect could be the size of change in different mental effort ratings that lead to significantly improved engagement in the classroom.

Overall, how mental effort is experienced can vary depending on whether or not people are afforded tasks that can be connected to their interests, and this has important implications for task persistence and engagement. This may help to explain previous work finding interest to predict engagement in mentally effortful tasks (Milyavskaya et al., 2021; Rieger et al., 2022). By

measuring the impact of interest on mental effort conceptualizations that vary in regards to their experiential qualities, this work importantly contributes experimental evidence as to why interest may predict engagement: interest improves the ease and affect of engaging with mental effort.

Autonomous Motivation Mediation

This work further contributes to our understanding of the relationship between autonomy and mental effort by finding evidence of a mediation through autonomous motivation. Previous work has proposed this pathway theoretically (Rom et al., 2020; Wahlers et al., 2024), and we presently offer empirical evidence to support this theory. We found support for this mediation with interest as a predictor, but not choice. These findings highlight the importance of interest in promoting autonomous motivation and offer support for a pathway through autonomous motivation to improved mental effort and affect experiences. The mental effort outcomes for which we found these indirect effects are those which capture the idea of ease of engagement and that were also correlated with affect (volitionally exerted mental effort and deep, effortless concentration). Future research can consider additional mechanisms through which interest may impact outcomes such as demanded or experiential mental effort. For example, interest may impact demanded mental effort through shaping perceptions of task demands.

Further, these findings importantly contribute to previous discussion debating how autonomous motivation supports sustainable effort engagement. For example, whether autonomous motivation leads to increases in the use of self-regulation strategies versus a reduction in the need for self-regulation strategies due to a more enjoyable effort experience (Werner & Milyavskaya, 2019). If autonomy-supportive conditions such as enhancing interest in a task increase autonomous motivation, and autonomous motivation improves the ease and affective experience of engaging with mental effort, it is possible tasks undertaken under such

conditions will be more sustainably and successfully engaged with and achieved, as there is less need for self-regulation.

Invested Effort Null Findings

We did not find support for the impact of interest and choice on invested effort. A lack of relationship with interest, specifically, is surprising, given the impact of interest on the other mental effort outcomes. A consideration that may account for a lack of evidence relates to some possible ambiguity in wording at the item level, which may have elicited similar responses across motivation types as well as possible response bias. Participants rated how hard they tried, without reference to task demands, but also without reference to why they may have tried hard (e.g., "I tried very hard on this activity"). This then may not discriminate, for example, between someone trying hard because they feel they have to, and someone trying hard because they want to. Since autonomy conditions theoretically increase the feeling of doing something that you want to, and a lack of autonomy is theoretically associated with a feeling of doing something because you have to (Werner & Milyavskaya, 2019), it is possible that both high and low autonomy conditions can lead to an increase in trying hard, either because you feel you want to or have to, respectively.

Relatedly, we did not find evidence for invested effort as a conceptualization of mental effort associated with a particular kind of affective experience, as invested effort was not correlated with the affect items. Previous work on invested effort conceptualized it as effort invested in a task, without reference to task demands (i.e., effort invested in a reading task, without reference to the demands of the reading task), and found a positive association with positive affect and a negative association with frustration and boredom (Wahlers et al., 2025). Of note, in this previous work, these correlations with affect were not replicated across the two

studies included. That is, an association with positive affect was found in one of the studies but not in the other, and the inverse was true for frustration (boredom was only included in one of the studies) (Wahlers et al., 2025). Therefore, the affective nature of an experience of invested mental effort is unclear. This lack of stable results in terms of the relationship between invested effort and affect may further support a possible issue of ambiguity in the item wording.

A related consideration involves differences in the population from which participants were sampled. Wahlers et al. (2025) sampled from a student population receiving partial course credit, while the current study sampled from Prolific participants with at least 90% approval who were receiving payment for their participation. It is possible that the invested effort questions elicited some response bias in the Prolific participants, some of whom may have not wanted to indicate that they did not try in the task.

Choice and Mental Effort

We did not find evidence to support our hypothesis that choice would impact mental effort (including a lack of evidence for interactional effects with interest). Though choice is theoretically associated with autonomy and its beneficial outcomes (Patall et al., 2008), previous research on the impact of choice has produced equivocal findings, pointing to the importance of investigating choice and mental effort specifically, distinguishing its effects from factors such as interest, and investigating the context or meaningfulness of a choice in determining its impact.

The present study design allows us to contribute to our understanding of the causal impact of choice on mental effort when disentangled from interest. Wahlers et al. (2024) found that choice in a reading task reduced both experiential and demanded (but not invested) (Wahlers et al., 2025) mental effort, while Flowerday and Shell (2015) did not find support for an impact of choice on engagement when writing an essay in response to a text. However, in both cases,

choice was not experimentally disentangled from interest, as participants were free to choose the texts that were more interesting to them. Work by Beymer et al. (2020) found independent effects of choice and interest on engagement, but employed ecological momentary assessment without experimental manipulation. Together, such designs do not discern the causal impact of choice per se. Schneider et al. (2018) had less of a confound of interest when they used a feigned choice paradigm (in which students could choose between two topics but would read the same text regardless) and found that choice led to lower intrinsic cognitive load (measured as perceived topic complexity). In this case, however, participants still chose between two broad topics that would be more or less interesting to them (social science and natural science), even if this choice did not impact the actual text. Patall (2013) did experimentally manipulate choice and interest by assigning participants to read an interesting or boring text (based on assumptions about what participants would find interesting, rather than on participants' preferences), and then using a feigned choice manipulation in which participants chose between two titles but read the same text. They found an interaction effect in which choice increased outcomes such as liking for those in the boring task, but decreased outcomes such as liking for those in the interesting task. They did not find evidence for an impact of choice on effort measured via the effort subscale of the Intrinsic Motivation Inventory (McAuley et al., 1989) (from which the items for invested mental effort were taken). So, in this case, the interaction effect was present in terms of liking, which we did not measure in the current study, but was not present for the effort subscale of the Intrinsic Motivation Inventory, similar to the measure of invested effort for which we also found no effects. However, they did not examine other conceptualizations of effort. In the current study, we disentangled choice from interest by using a feigned choice manipulation while still manipulating interest based on the participant's stated preference, therefore contributing to

our understanding of the respective causal impacts of choice and interest. It is possible that there was still meaningful variation in interest between the feigned choice options within the genre assigned to participants, though a lack of impact on mental effort makes this unlikely, as discussed further below. Overall, disentangling choice from interest and not finding support for an impact of choice on mental effort suggests interest may play a more important role than choice in improving mental effort experiences.

Choice may be impactful on some outcomes and not others, and the current study helps to clarify the possible role of choice in determining experiences of different forms of mental effort. As described above, previous work has found mixed effects of choice depending on outcome. For example, Schneider et al. (2018) found an impact of choice on intrinsic cognitive load (i.e., perceived task complexity), but not extraneous cognitive load (i.e., ease of working within the learning environment). Patall (2013) found an impact on liking but not the effort subscale of the Intrinsic Motivation Inventory, and Wahlers et al. (2025) found an impact of choice on demanded but not invested mental effort. This highlights the importance of investigating the impact of choice on specific variables of interest. Overall, work looking at the impact of choice on mental effort is limited, and we contribute to the understanding of the impact of choice on mental effort by measuring the impact of choice on the experience of mental effort through different mental effort conceptualizations, though we did not find support for a role of choice in shaping the experience of mental effort.

Choice may not have been impactful in this context due to the meaningfulness of the choice, which was limited by our aim of experimentally disentangling it from interest. Katz and Assor (2007) argue that choice is more motivating when it allows, for example, the expression of one's preferences or desires. We expected that our choice manipulation would still be impactful,

as meta-analytic research has found an effect of choice when the choice offered was between task versions (Patall et al., 2008). However, choosing between two stories within a genre that was either of most or least interest to the participant may not have been meaningful enough to impact experiences of mental effort. Overall, it may not be possible to isolate choice experimentally from the factors that make choice meaningful, such as interest, while at the same time providing a meaningful choice. If it is the case that some additional element, such as interest, is necessary such that choice impacts experiences of mental effort, then it may be that the provision of choice itself is not sufficient to improve mental effort experiences. This is an important consideration when determining interventions.

Finally, whether or not choice impacts outcomes such as autonomous motivation and mental effort may depend on individual differences. For example, it may be that choice itself is particularly important for those with higher trait psychological reactance, that is, for those with a propensity to experience limitations on freedom-related variables such as choice as aversive and to resist such limitations (Brehm, 1966; Shen & Dillard, 2005). For those high in reactance, a lack of choice may have a more negative effect on outcomes such as mental effort experiences. As another example, the impact of choice may differ depending on individual differences in self-efficacy, or the belief that one can perform the actions that will result in desired outcomes (Bandura, 1977). It is possible that choice may be beneficial to those with higher self-efficacy, as choice may be perceived as more useful and autonomy supportive, compared to others with low self-efficacy, who may perceive having to choose as less useful and more burdensome.

Limitations

An important limitation of this study is that it was conducted online. This allowed us to collect a diverse sample, strengthening the generalizability of our findings. However, less control

is possible in online studies compared to those conducted in person (Rodd, 2024). We attempted to mitigate the impact of this through using exclusion criteria intended to identify individuals who were not responding conscientiously and limiting our sample to those with high approval ratings on Prolific. However, results should be replicated in an in-person context. Another limitation is that, while the experimental nature of the task allowed us to determine causal impact, there is a trade-off with ecological validity. Though our task involved an important, everyday instantiation of mental effort (reading), this may not capture how people experience mental effort in their everyday lives as well as, for example, an experience sampling study. A further possible limitation is that the stories in the different genres were not exactly the same. Though the stories were generated from a base text and matched in terms of characters, plot structure, word count, and reading level, they still had some differences that were necessary in order to allow each story type to be a convincing exemplar of a different genre. We included story type as a covariate in our modelling to further account for any possible differences. Ultimately, however, using stimuli that involves some variation may impact experiences of mental effort. An additional limitation is that we did not investigate the impact of interest and choice across individual differences. As discussed above, future work taking into account such differences may further clarify our understanding of the potential usefulness of interest and choice interventions, including clarifying for whom such interventions may be most efficacious. Further, individual differences may play an important role in determining how mental effort is experienced generally, for example, attention deficit hyperactivity disorder may be associated with more aversive mental effort experiences (D. Wagner et al., 2024). It will be important to take into account individual differences to better understand who could most benefit from interventions targeting mental effort.

Conclusions

It is vital to well-being and flourishing that we understand how to promote sustainable engagement with effortful experiences. One way this may be done is by understanding how we can improve the experience of engaging with mental effort. With our current study, we help to clarify how autonomy-supportive variables such as interest and choice impact the experiential qualities of engaging with mental effort. More specifically, we find support for the role of interest, but not choice, in improving mental effort experiences. This supports the integration of research on interest development (e.g., Hidi and Renninger (2006)) into contexts where mental effort engagement is important, such as in school and in many workplaces. It may be beneficial to mental effort experiences to scaffold interest development in an important task, for example, by explicitly connecting some aspect of the task to something personally relevant or to some prior interest (Harackiewicz et al., 2016; Hidi & Renninger, 2006). These results further develop our understanding of the role of choice, as providing non-meaningful choice may not be effective in enhancing mental effort experiences. Further, we provide empirical evidence for the role of autonomous motivation as underlying the relationship between interest and improved mental effort experiences. Autonomous motivation is argued to be more sustainable than "have to" motivation in goal pursuit (Werner & Milyavskaya, 2019). However, to promote autonomous motivation, we need to be able to define evidence-based approaches (Stone et al., 2009), and understanding the roles of interest and choice on autonomous motivation and mental effort contributes to our understanding of which approaches are likely to be efficacious.

Developing our understanding of how to effectively support autonomous motivation to improve mental effort experiences has important societal implications. Willingness to engage with mental effort is important to well-being (Andersson & Bergman, 2011). As noted, certain

groups who experience lower well-being, such as those with attention deficit hyperactivity disorder (Hargitai et al., 2025), find mental effort to be more aversive (D. Wagner et al., 2024). Understanding how to modulate the experience of mental effort such that it is less aversive and more enjoyable can therefore potentially reduce societal well-being discrepancies. Overall, these findings highlight the importance of interest in fostering more positive mental effort experiences through autonomous motivation.

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Appendix A

Study Materials

Measurements

Subjective Reading Ability

The following items were selected from the Sources of Reading Self-Efficacy Scale (Pei & O'Brien, 2023):

- Reading is a weakness for me.
- Reading is harder for me than it is for my peers.
- I think reading can be relaxing.
- Reading makes me feel good.
- My peers understand what they read in greater depth than me.
- It is easier for me to focus on what I am reading than my peers.

Autonomous Motivation

- Intrinsic:
    - Reading this story is enjoyable.
    - Reading this story is satisfying.
    - If I were reading this story in my free time, I would continue reading it.
- Integrated:
    - Reading this story is consistent with my priorities.
    - Reading this story is aligned with my beliefs.
    - Reading this story is reflective of my values.

- Identified:
    - Reading this story is important to me.
    - Reading this story is good for me.
    - Reading this story is something I personally endorse doing.

Comprehension Questions

- What is the primary setting where most of the story takes place?
    a) A bookstore
    b) A train station
    c) A café
- Which of the following best describes the main character's initial role in the story?
    a) A long-time resident returning home
    b) A new employee starting work in a local business
    c) A traveller passing through town
- How does the main character's relationship with others in the town change over time?
    a) He remains distant from the community
    b) He becomes increasingly involved and connected
    c) He leaves without forming any strong ties

Attention Check Question

- We are asking that you please check the box below if you found that you could not follow our study's instructions (e.g., you randomly answered questions about your personality, experiences, etc.; or you did not understand the instructions and/or questions). Please note that you will receive compensation for this study even if you

check the box indicating that you were not able to follow instructions today, so please answer honestly.

- I was able to follow instructions today.
- I was not able to follow instructions today.

Choice Manipulation Story Options and Texts

Notes on choice options: Each genre has a story choice A and B. These stories are identical except for their descriptions in the choice options and the names for the main characters and settings.

Choice A:

- Main character names: Alex and Jamie
- Town name: Fairhaven
- Café: Brew Haven

Choice B:

- Main character names: John and Sarah
- Town name: Springbrook
- Café: Bean Hollow

Romance:

Romance Choice A

Title: *A Town That Remembers*

Summary:

Alex doesn't arrive in Fairhaven expecting much—just a quieter life and steadier days. But what he finds is something gentler: people who notice when he shows up, routines that feel grounding,

and Jamie, whose calm presence becomes part of his daily rhythm. Over time, their connection grows without effort—built not on grand gestures, but on small patterns and quiet trust.

Romance Choice B

Title: *When She Looked Away*

Summary:

John prefers structure and distance—it keeps things clear. But working with Sarah complicates that. She's focused, self-contained, and hard to read. Over time, their interactions start to blur the edges: a glance, a pause, a brush of hands. It's not steady. It's not clear. And still, he keeps looking for the moment when she'll stop turning away.

Romance Story A:

Alex Carter stepped off the bus in Fairhaven on a crisp September morning, his suitcase in hand and a tentative breath coiled in his chest. He had encountered the town's name before—in weathered postcards and outdated travel guides—but never imagined it would anchor itself in the architecture of his future. Now it materialized in cobblestone streets and ivy-clad fences, its stillness less an absence than an invitation.

The position at Brew Haven had been secured weeks prior, arranged through a latticework of referrals and phone calls. The departure from the frenetic pulse of urban life had not been solely pragmatic. There was a quiet yearning in him, a hunger for connection so long deferred it had become part of his posture. Brew Haven promised routine, yes, but also the kind of human familiarity he had begun to realize he needed.

Fairhaven disclosed itself in subtle textures: the scent of fresh bread wafting through narrow alleys, the understated nods of locals who seemed to value recognition over novelty. It was a town that remembered faces. And gradually, Alex began to wonder if it might remember his.

The café occupied a sun-drenched corner. Inside, morning light spilled over the grain of scarred wood, and mugs hung like ornaments above the counter. A chalkboard proclaimed in gentle scrawl, "Nothing needs to happen right away." Jamie Ellis, the manager, greeted him with a composed handshake and a voice that lent quiet poetry to procedural instruction. She moved with precision, not out of rigidity, but out of care—a sense that the smallest actions mattered.

His first morning was a ballet of stumbles: uneven tamping, milk spilled in haste, orders misremembered. But Jamie was never hurried. Taylor Morgan, the other barista, carried himself like a monk in a temple, each motion exact, each word sparse but cuttingly insightful. Casey Liu worked in the kitchen with exuberant defiance, her culinary risks often met with skepticism, which she met with unapologetic laughter. Her joy was generous, filling the corners of the café.

The regulars carved the rhythm of the day. Eleanor Kim arrived like clockwork, tote bag bursting with annotated articles and a calm voice that only sharpened when she spoke of Fairhaven’s historical architecture. Marcus Reed, a mid-day fixture, gestured emphatically into his headset and punctuated conversations with tapped fingers on worn notebooks. His debates with Eleanor about the town's trajectory were spirited, like a dialogue between past and future, and Alex listened, not to weigh in, but to learn what belonging sounded like.

Fairhaven wove itself into him. His gait softened, his greetings came sooner. With every shared laugh, with every moment Jamie's eyes lingered on his a breath longer than necessary, the boundaries between work and intimacy began to dissolve. Nothing was said, but sometimes

Jamie would look away mid-sentence, as if reconsidering the space between them. Other times, her hand would brush his when passing a cup, and neither would acknowledge it.

Jamie, though composed as always, began to let her edges show: a memory of her grandmother's garden, her fondness for the sound of rain against windows, her aversion to rushed goodbyes. Alex responded in kind, offering pieces of his own history—a summer above a crumbling bookstore, the ache of long-quiet evenings that never quite let go. Their confessions were incremental, careful, but undeniable in their trajectory.

Winter arrived not with severity but with a gentle urgency. Frost crept across the café's windows in crystalline script, and the team grew closer, as though resisting the season's encroachment by drawing tighter together. On one such evening, after closing, they remained around a central table, their laughter layered over the clatter of dishes. Jamie sat beside Alex, their shoulders barely touching, yet an undeniable warmth began to spread between them.

In January, Jamie proposed a fundraiser, equal parts homage and hope. Eleanor curated relics of the town's past; Marcus galvanized the community. Alex, charged with logistics, immersed himself in the details. That night, under strands of warm light and the soft cadence of acoustic music, the café pulsed with vitality. Jamie moved through the crowd, her glances toward Alex increasingly deliberate, her fingers brushing his in moments charged with quiet electricity.

When the crowd dissipated and the chairs were returned to their corners, Jamie and Alex lingered by the back window, illuminated by the afterglow of the evening.

"You've rooted yourself here," she observed, her voice low.

He met her gaze. "I think I stopped feeling like I was waiting for something."

Jamie’s smile unfurled slowly, not with surprise but with inevitability. The space between them ceased to be a pause; it became a pivot. There were no declarations. Just a shared certainty, as firm as the floor beneath them.

Spring crept forward with quiet insistence. The doors opened early, letting in the smell of damp soil. They walked the same paths home, often without speaking, but with glances that built toward something unspoken. Jamie reached for his hand more often now. He welcomed it each time.

Looking back, Alex couldn’t identify the precise threshold they crossed. But something elemental had shifted. In the softness of her smile, in the sureness of his touch, in the ease with which their lives began to entwine. Fairhaven had not only embraced him as its own—it had offered him a love shaped not by grand gestures, but by constancy, presence, and quiet certainty.

Romance Story B:

John Carter stepped off the bus in Springbrook on a crisp September morning, his suitcase in hand and a tentative breath coiled in his chest. He had encountered the town's name before—in weathered postcards and outdated travel guides—but never imagined it would anchor itself in the architecture of his future. Now it materialized in cobblestone streets and ivy-clad fences, its stillness less an absence than an invitation.

The position at Bean Hollow had been secured weeks prior, arranged through a latticework of referrals and phone calls. The departure from the frenetic pulse of urban life had not been solely pragmatic. There was a quiet yearning in him, a hunger for connection so long deferred it had become part of his posture. Bean Hollow promised routine, yes, but also the kind of human familiarity he had begun to realize he needed.

Springbrook disclosed itself in subtle textures: the scent of fresh bread wafting through narrow alleys, the understated nods of locals who seemed to value recognition over novelty. It was a town that remembered faces. And gradually, John began to wonder if it might remember his.

The café occupied a sun-drenched corner. Inside, morning light spilled over the grain of scarred wood, and mugs hung like ornaments above the counter. A chalkboard proclaimed in gentle scrawl, "Nothing needs to happen right away." Sarah Ellis, the manager, greeted him with a composed handshake and a voice that lent quiet poetry to procedural instruction. She moved with precision, not out of rigidity, but out of care—a sense that the smallest actions mattered.

His first morning was a ballet of stumbles: uneven tamping, milk spilled in haste, orders misremembered. But Sarah was never hurried. Taylor Morgan, the other barista, carried himself like a monk in a temple, each motion exact, each word sparse but cuttingly insightful. Casey Liu worked in the kitchen with exuberant defiance, her culinary risks often met with skepticism, which she met with unapologetic laughter. Her joy was generous, filling the corners of the café.

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Sarah would look away mid-sentence, as if reconsidering the space between them. Other times, her hand would brush his when passing a cup, and neither would acknowledge it.

Sarah, though composed as always, began to let her edges show: a memory of her grandmother's garden, her fondness for the sound of rain against windows, her aversion to rushed goodbyes. John responded in kind, offering pieces of his own history—a summer above a crumbling bookstore, the ache of long-quiet evenings that never quite let go. Their confessions were incremental, careful, but undeniable in their trajectory.

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Science Fiction:

Science Fiction Choice A

Title: *Routine Cycle*

Summary:

Alex arrives on Fairhaven-6 ready for a quieter pace. The colony is structured, breathable, and calm—if occasionally imperfect. At Brew Haven, he falls into the rhythm of daily life: preparing drinks, greeting regulars, learning the systems. Some devices stutter. Voices loop now and then. It's nothing urgent—just the kind of thing that makes you wonder if the system is following old patterns, or something else entirely.

Science Fiction Choice B

Title: *The Orbit Effect*

Summary:

John arrives on Meridian-12. At first, everything runs as expected. Then: repeated dreams. Machines syncing without cause. Names in the system no one remembers entering. Overhead, a satellite with no registration. Sarah thinks it's just interference. But the patterns are spreading. Whatever it is, it's watching. And it doesn't seem to need permission.

Science Fiction Story A:

Alex Carter stepped off the transit platform in Fairhaven-6 on a clear rotational cycle, his satchel in hand and his stride slightly uneven, as though adjusting to a gentle shift in gravity. Fairhaven-6 had mostly been just a name on a map—a blinking dot in the colony network. Now it was real: breathable, livable, and just unfamiliar enough to make every step feel intentional.

Unknown to most, Alex's arrival happened at the exact moment an unregistered satellite entered orbit above Fairhaven-6. The sky shimmered briefly through the dome's refractive panels. Corridor lights dimmed and flickered before correcting themselves. Over the next few cycles, strange behavior emerged—devices acted just slightly out of sync, synthetic voices repeated outdated instructions, and people began reporting dreams with eerily similar imagery.

His position had been arranged ahead of time. Brew Haven—a biofiltration hub designed to look like an old-style café—offered routine, the kind of place where names stuck and patterns mattered. After years surrounded by the chaos of orbital cities, Alex wanted something slower and steadier.

Fairhaven-6 revealed itself gradually. Its details showed in the worn metal walkways, clouded biodomes, and blinking signs promoting nutrient drinks. People exchanged quick nods or scan

gestures—familiar but not intrusive. Odd glitches kept occurring: vending machines looped too fast, and streetlights blinked without reason. One food dispenser in the eastern dome was reportedly offering items that hadn't existed on the menu for decades.

Brew Haven sat at a central junction in the colony's pedestrian network. Its retro design stood out from the sleek surrounding structures. Inside, filtered sunlight streamed through polarized panels, casting soft shapes on recycled tables and chairs. Ceramic mugs dangled from hooks, and a floating holo-display read: "Nothing needs to happen right away."

Jamie Ellis, the café's systems manager, greeted Alex with a handshake that also scanned his ID. Her voice was calm and confident, shaped by experience with both machines and people. She wasn't cheerful, but she resisted letting routine dull her presence.

Alex started the next cycle. There was a rhythm to learn: the hiss of the drink mixer, the chime of the door scanner, the specific way Jamie welcomed each guest. Taylor Morgan, a fellow barista, moved with quiet precision. He updated supply logs through a neural link and added sharp, dry comments to the prep sheets. He wasn't distant—just focused.

Casey Liu, who worked in the back, enjoyed pushing boundaries with her baking. Her rosemary-lavender loaves weren't popular, but she served them with a grin. Her laughter filled the room and softened the mechanical hum of the café.

The regulars followed familiar routines. Eleanor Kim, a historian of terraforming history arrived each morning at 0900, already deep into editing digital archives before her tea was poured. Marcus Reed showed up closer to noon, usually mid-call, notebook in hand. He jumped into debates about city planning and often clashed—politely—with Eleanor. Their conversations brought energy to the café's quiet flow.

In time, Alex adjusted. Mornings felt smoother, and the work became second nature. Evenings were spent walking the biodome paths, watching light patterns shift and listening to the low hum of air filters.

Jamie stayed sharp. She solved problems before they grew and offered support without making a show of it. During slower moments, they shared bits of their past—stories about her grandmother's garden dome or Alex's time living above a forgotten archive near a docking station.

Seasonal changes came through projection updates—frost visuals on the windows as the weather outside cooled. Casey started baking heavier loaves, and the solstice rush kept them all on their feet. Still, teamwork made it easier—knowing looks exchanged during rushes, laughter in the back between tasks.

By Cycle 43, the system glitches had become impossible to ignore. Jamie proposed an event at Brew Haven to gather observations and explore possible causes. Alex handled logistics; Eleanor built a timeline of the malfunctions and cross-referenced them with network logs and solar patterns; Marcus invited visiting researchers and tech auditors. The event drew a larger crowd than expected. People shared matching stories—equipment displaying unfamiliar symbols, door scanners momentarily opening for people who weren't there, even two guests who described identical dreams involving a rotating ring of light above the dome.

That night, after the crowd cleared and systems wound down, Jamie and Alex stood near the back seal, watching the last signs of the gathering—half-folded napkins, chairs askew, a fading warmth in the air.

"You've settled in," Jamie said—not surprised, just sure.

Alex nodded. "Feels like I was meant to."

She looked at him for a moment, then smiled. Not because something had changed, but because something had taken root.

Above them, the satellite kept circling, in perfect sync with the colony. It sent small signals through the network—quiet enough to go unnoticed by standard diagnostics. But the next morning, the espresso machine dispensed drinks in an order matching the Fibonacci sequence, and Taylor claimed the prep sheet had quoted a philosopher no one could find in any database.

Spring arrived. The work felt effortless. Alex knew Eleanor's habits, Marcus's timing, Casey's cheerful humming, and Taylor's quotes. Fairhaven-6, with its quiet routines and unexplained oddities, had made room for him. And in that space, something strange kept pulsing—gently but steadily—as if the daily rhythm itself carried a message, waiting for someone to hear it.

Science Fiction Story B:

John Carter stepped off the transit platform in Meridian-12 on a clear rotational cycle, his satchel in hand and his stride slightly uneven, as though adjusting to a gentle shift in gravity. Meridian-12 had mostly been just a name on a map—a blinking dot in the colony network. Now it was real: breathable, livable, and just unfamiliar enough to make every step feel intentional.

Unknown to most, John's arrival happened at the exact moment an unregistered satellite entered orbit above Meridian-12. The sky shimmered briefly through the dome's refractive panels. Corridor lights dimmed and flickered before correcting themselves. Over the next few cycles, strange behavior emerged—devices acted just slightly out of sync, synthetic voices repeated outdated instructions, and people began reporting dreams with eerily similar imagery.

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John nodded. "Feels like I was meant to."

She looked at him for a moment, then smiled. Not because something had changed, but because something had taken root.

Above them, the satellite kept circling, in perfect sync with the colony. It sent small signals through the network—quiet enough to go unnoticed by standard diagnostics. But the next morning, the espresso machine dispensed drinks in an order matching the Fibonacci sequence, and Taylor claimed the prep sheet had quoted a philosopher no one could find in any database.

Spring arrived. The work felt effortless. John knew Eleanor's habits, Marcus's timing, Casey's cheerful humming, and Taylor's quotes. Meridian-12, with its quiet routines and unexplained oddities, had made room for him. And in that space, something strange kept pulsing—gently but steadily—as if the daily rhythm itself carried a message, waiting for someone to hear it.

Action:

Action Choice A:

Title: *Hidden Front*

Summary:

Alex is working undercover in Fairhaven, assigned to quietly dismantle a smuggling operation hidden beneath the town's calm surface. As he gathers intel and identifies suspects, he realizes the peaceful façade masks high-stakes danger—and he must act quickly before his cover is blown.

Action Choice B:

Title: *She Runs the Floor*

Summary:

John begins undercover work in Springbrook under the supervision of Sarah, his meticulous and unreadable manager. As he executes his mission, he starts noticing inconsistencies in her behavior. The deeper he goes, the less certain he is whether Sarah is genuinely assisting him—or quietly working against him.

Action Story A:

Alex Carter descended from the bus into Fairhaven, the sort of town that rarely merited attention—until now. He carried a single suitcase, but tucked inside his coat was a sidearm and a burner phone that had gone silent two hours earlier. His posture was upright but deliberate, shoulders squared and senses sharpened. The stillness of the town didn’t reassure him—it heightened everything. Something was already amiss.

His cover story had been prepared in advance: a recently acquired position at Brew Haven, a modest café tucked at the edge of town and recommended by a now-missing contact. Officially, he was a barista. Unofficially, he was a covert operative assigned to dismantle a regional

smuggling syndicate believed to be using the sleepy town as a hub for rerouting restricted materials. It was an ideal location—low traffic, low scrutiny, just enough movement to hide something if no one asked too many questions.

Fairhaven projected an image of curated calm: sun-bleached signage, hand-lettered shopfronts, sidewalks softened at the edges by time. Locals moved with the ease of people used to being recognized, their nods brief, their eyes cautious. But Alex had long learned that tranquility was often manufactured. Quiet was the perfect place to bury secrets.

Brew Haven stood at a strategically advantageous intersection: ample foot traffic, multiple exit routes, zero surveillance. Inside, late-morning light cascaded across weathered wooden floors. A chalkboard above the counter read, "Nothing needs to happen right away." Clear misdirection.

Jamie Ellis, the café's manager, greeted him with practiced poise. Her handshake was steady, her gaze appraising. She led him through the storeroom, kitchen, and employee quarters. No weapons in view, but Alex noted the reinforced steel panel behind a pantry shelf. Not a standard feature.

By the next morning, Alex had embedded himself in daily operations. He absorbed the rituals: tamping espresso grounds, frothing milk, memorizing faces and behaviors. Covertly, he initiated trace diagnostics, mapped potential supply lines, and cataloged behavioral patterns. Among his coworkers were Taylor Morgan—a fellow barista whose meticulousness bordered on obsession—and Casey Liu, Brew Haven's head baker, whose spontaneity veiled her deep entrenchment in local distribution networks. Taylor moved with such controlled intent that it bordered on reverence. He annotated supply logs with literary quotes—sometimes Orwell, sometimes someone you had to look up. Casey, by contrast, was all energy and gut instinct—her hands always dusted with flour, her playlists alternating between punk rock and 1950s crooners.

Then there were the regulars. Eleanor Kim, a local historian, frequented the café with archival blueprints and a penchant for recounting Fairhaven's infrastructural evolution. Marcus Reed, a charismatic figure with connections to regional development agencies, demonstrated a knack for redirection whenever conversation edged toward specifics.

Alex witnessed the first suspicious exchange a week in—Casey slipped an unmarked envelope to a courier masquerading as a patron. The transaction was flawless. Too flawless.

That evening, Alex tailed the courier through the town's back roads, jacket zipped to conceal a transmitter. The van led to an unmarked warehouse, its interior filled with crates labeled as agricultural equipment. Upon inspection, one crate revealed lithium cells—military grade. The café was a front.

Brew Haven shifted. Conversations paused when Alex entered. Jamie's attention lingered longer. He discovered a sensor mounted discreetly beneath the counter. The surveillance dynamic had become reciprocal.

Then came the breach. A data burst from Jamie's terminal triggered a known channel linked to the syndicate's eastern operations. Alex immediately flagged the transmission to his handlers. It was the confirmation they needed. The team fast-tracked plans for a coordinated raid, choosing the upcoming community fundraiser as the operational window—it would provide dense civilian cover, masking the approach of federal agents.

January arrived, and with it, the day of the fundraiser. Brew Haven teemed with locals, the air thick with cinnamon and low acoustic melodies. Eleanor curated a front-of-house historical exhibit. Marcus shook hands and courted benefactors. Amid the conviviality, Alex moved with

intention, planting listening devices and scanning for anomalies. At the height of the event, Jamie slipped quietly into the restricted back corridor. Alex followed, silent and certain.

She turned when he entered. "You don't blend in as well as you think, Carter."

He stepped forward, blocking her exit. "And you waited longer than expected."

Behind her, a concealed panel retracted to reveal descending stairs. Movement echoed.

Jamie surged forward, seizing a metal tray and swinging hard. Alex ducked and tackled her. As they struggled, the hidden doorway burst open—two masked men emerged, one clutching a metallic case.

"Federal agent!" Alex shouted, voice firm. He lunged toward the first man, intercepting him mid-step. The case hit the floor with a thud amid the chaos. The second bolted. Jamie landed a sharp blow to Alex's ribs before trying to flee.

Outside, sirens split the air. Tactical units converged. Within moments, Brew Haven was encircled.

Jamie, restrained and silent, offered Alex a final glance—less furious than resigned.

In the aftermath, Fairhaven shifted. The café reopened with new oversight. Casey and Taylor resumed operations. Eleanor maintained her historical advocacy. And Alex—no longer undercover—remained embedded as part of the ongoing task force.

Spring arrived with lighter air. The town retained its outward serenity. But now, Alex patrolled it with the discernment of someone who understood its undercurrents.

Fairhaven had secrets. And secrets, he knew, had a tendency to return to the surface.

Action Story B:

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Historical Fiction:

Historical Fiction Choice A

Title: *A Town That Remembers*

Summary:

When Alex Carter first set foot in Fairhaven, he carried little more than a travel-stiff valise and a letter penned in neat, looping script. At Brew Haven, Miss Jamie set him to task with quiet authority. She instructed not with flourish but with purpose, her words measured, her gaze keen. The days unfolded with the familiar rituals of steam and scalded pots, folded linens and counted coin. Under her watch, Alex found the shape of things—how a place might hold you, if you let it.

Historical Fiction Choice B

Title: *The Shuttered Season*

Summary:

By the time the shutters grew stiff and the firewood needed splitting twice as often, John was no longer new to Springbrook. He knew the timbre of the morning bell, the weight of the ledger, the names behind each order. Life at Bean Hollow had become known—until the evenings turned quieter than usual, and the newspaper boy’s calls lost their cheer. The world beyond had begun

to press in at the edges, and the question now was not whether the town would change—but how it would endure.

Historical Fiction Story A

Alex Carter alighted from the train in Fairhaven on a crisp September morning, his well-worn valise in hand and his posture bowed with fatigue, arriving in a town that had, until now, existed only as a whispered name in boarding-house parlors—suddenly made tangible, solid underfoot, the unfamiliarity lending each step a deliberate quality.

Arranged by post, the position at Brew Haven—a café founded a few decades prior in the 1890s—offered a sense of continuity, the kind of establishment where routine held meaning and one's name was not easily forgotten. After years immersed in the clamorous stir of the city, a quieter rhythm seemed not only welcome but necessary.

Fairhaven revealed itself gradually, its charm embedded in the uneven brickwork of its pavements, the weatherworn shutters, and the hand-lettered signs advertising currant scones and barley bread. A phonograph played behind one of the shop windows, its sound muffled by glass but unmistakably spinning something warm and warbled. Near the square, a boy sold folded copies of the *Herald Courier* for two cents, shouting headlines. Passersby tipped hats and exchanged pleasantries with the fluency born of familiarity.

Brew Haven stood at a central crossing, its tall paned windows letting in a soft, golden light that seemed to slow time. Morning sun reached across scarred floorboards and mismatched chairs softened by decades of use. Alex took note of the worn edge of the long counter, the mugs suspended overhead, and the chalkboard scrawled with a quote—today it read, "Not all things need hurry."

Jamie Ellis, the proprietress, greeted him with a firm handshake and observant eyes, her voice imbuing even the smallest instructions with a quiet gravity. There was a kind of practiced watchfulness to her manner, a resistance to the dullness of routine.

Alex began the next morning. There was a rhythm to be learned: the firm tamping of grounds, the hiss of steam from the great brass machine, the tinkle of the doorbell, and the gentle rise in Jamie's voice as she welcomed each regular. Taylor Morgan, another attendant, worked with the quiet intensity of a librarian, rarely speaking but when he did, with precision, his silence marked not by aloofness but by an unshakable disposition toward efficiency as he sorted napkins and revised records with methodical care.

In the kitchen, Casey Liu delighted in experimentation. She once produced a tray of thyme-lavender biscuits that no one favored, but she served them anyway, laughing freely at the puzzled expressions. Her mirth, once loosed, filled the space like a wood stove's warmth.

The café's patrons arrived on reliable arcs. Eleanor Kim appeared promptly at nine each morning, her hair gathered neatly and her satchel filled with notes. A historian by vocation, Eleanor's attention to detail was evident in everything from her sharp press of tea to her discourse on regional railways. Her voice remained gentle—except when speaking of Fairhaven's past, when it gained unmistakable resolve.

Marcus Reed, an advocate for civic development, arrived near midday with maps in hand and a habit of leaning on counters as he spoke. He and Eleanor exchanged civil views—restoration versus progress.

Weeks passed. Alex found the morning dread thinning. Names, orders, and habits began to fix themselves in memory.

Jamie remained constant, but always alert. She intervened before small problems grew, offering encouragement that never rang hollow. In quieter moments—wiping counters, sorting receipts—personal histories emerged: her grandmother's orchard; Alex's season above a shuttered printer's, where the walls leaked and evenings stretched.

In October, Brew Haven hosted a town gathering—Jamie's idea. Alex managed the planning; Eleanor unearthed photographs tracing Fairhaven's growth from a mill village to a bustling township; Marcus coordinated notices. The evening was modest: strings of lights, soft guitar, crockery borrowed from neighbors. The tables were rearranged, and conversation rippled easily.

But just as the evening lightened hearts, the first whispers of crisis arrived. Newspapers in the following days bore headlines of failing banks and plunging stocks. It was 1929, and the Great Depression had begun to cast its long shadow.

Winter arrived tentatively. Frost feathered the café's windows, and Casey baked clove-spiced loaves. Customers became fewer. Even regulars like Eleanor and Marcus arrived with a more distant look, their conversations laced with uncertainty. Jamie met each day with quiet determination, adapting menus to cheaper ingredients, hosting discussion circles in the evenings to offer company and warmth.

Later one cold evening, after chairs were stacked and the hearth stoked low, Jamie and Alex stood near the back window, watching the flicker of lanterns and the few customers lingering as long as they dared.

"You've found your place," Jamie said—not with surprise, but with quiet conviction.

Alex nodded. "Feels like I always might have."

She smiled—not because anything had changed, but because something had inconspicuously taken root and refused to be dislodged.

Spring edged in. The air softened. Alex rose earlier, took longer routes home, lingered in places he once passed by. On some mornings, they propped the café doors open and let the scent of tilled soil drift in on the steam of morning brews. By then, the tasks were muscle memory. He knew the town's rhythms—even as the world frayed.

Looking back, he couldn't say when he had ceased being new. It had happened quietly—like a pot settling on a stove, everything fitting just right—even in the hardest of times.

Historical Fiction Story B

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Detective Fiction/Mystery

Detective Fiction/Mystery Choice A

Title: *A Town That Speaks Softly*

Summary:

Alex Carter arrives in Fairhaven with little more than a suitcase and a name someone had written down for him. The café welcomes him without ceremony. Days pass: names are learned, shelves

restocked, the quiet rhythms of town life repeat. But under its routines, Fairhaven remembers more than it says. With each conversation and careful glance, Alex finds himself drawn not toward answers, but toward belonging. What brought him here still matters—but not in the way he first thought.

Detective Fiction/Mystery Choice B

Title: *What Isn't Written*

Summary:

Springbrook doesn't advertise what's missing. The story is simple on paper: a valuable object, gone without notice. But once John arrives, the gaps multiply. Records are redacted. Timelines don't line up. A town gathering draws polite smiles—and whispers that don't match them. The people around him are helpful, but too helpful. Friendly, but cautious. As the days go on, the question shifts: is this a mystery waiting to be solved—or one the town intends to survive by forgetting?

Detective Fiction/Mystery Story A

Alex Carter stepped off the bus in Fairhaven on a crisp September morning, suitcase in hand, posture careful, as though preparing for scrutiny. Fairhaven had always seemed more rumor than reality—a town spoken of in footnotes and archived photos. Now, it stood before him: unassuming, yet somehow quietly expectant.

Officially, Alex had accepted a barista job at Brew Haven, a recommendation traced through a vague chain of acquaintances. Unofficially, he had come for a different reason. Something had gone missing: the Fairhaven Citrine—a rare and exquisitely cut yellow gemstone, once displayed behind reinforced glass at the town's civic archive. Donated by a reclusive gem collector decades

ago, the Citrine was rumored to be cursed, blessed, or simply extremely valuable—depending on who told the story. Its disappearance had prompted murmurs, then quiet cover-ups. A discreet inquiry was requested, and Alex was dispatched.

The town greeted him in textures—crumbling brick, chalky signage, the scent of damp leaves and morning bread. Locals offered nods, not curiosity, and that was precisely what he needed. Brew Haven stood at the corner of Main and Elm, a fixture with large windows and a curated sense of wear. Inside, the light slanted warmly across wooden floors and the mismatched chairs bore the weight of long-standing habits.

Jamie Ellis, the manager, welcomed him with composed efficiency. Her voice suggested capability, her eyes, quiet vigilance. She offered a tour and a few rules, then handed him an apron. "You'll find your rhythm," she said. "Everyone does."

Alex began observing more than steaming milk or the tap of tampers. Taylor Morgan, meticulous to the point of ritual, kept inventory in a code only he seemed to understand. Casey Liu, loud and lyrical, filled the kitchen with a rhythm of her own—offbeat experiments and humming tunes. She once produced a batch of rosemary-lavender scones that no one seemed to particularly enjoy, but she offered them anyway, laughing at the skepticism.

Then there were the regulars. Eleanor Kim, punctual, precise, and always with a leather-bound notebook. A historian by training, she spoke of Fairhaven's history as if it were living tissue. Marcus Reed, always late, always mid-call, always with a theory. He spoke of development like a gospel, and possessed an inclination to lean on surfaces as he spoke, as though rooting himself mid-thought. He and Eleanor often debated the future of Fairhaven—heritage versus progress, tradition versus innovation. Alex listened closely.

Hints surfaced slowly. Eleanor once paused mid-sentence during a conversation about archival displays. "The Citrine was the showpiece," she said, frowning. "Gone. No deaccession, no transfer slip. Just vanished." She didn't push further, but Alex marked her as a likely ally.

Other clues trickled in. A new lock on the archive's rear door, poorly installed. A missing entry in the donation ledger, identified only by a faint indentation where pencil marks once were. A conversation overheard between Marcus and a councilmember: "We can't let one gemstone hold us back. Fairhaven needs eyes forward."

The January fundraiser offered a clearer view. Eleanor arranged a modest display. There was a placard noting the Citrine's absence: "Temporarily removed for gemological assessment,"—but Eleanor hadn't written it.

Alex moved quietly through the evening, collecting fragments. Casey, tipsy on spiced cider, mentioned that Jamie had once overseen a "quiet transition" of valuables to private storage. Taylor, usually unshakable, flinched when someone asked about a locked drawer in the supply closet. Jamie kept her smile, but her eyes scanned the room like someone keeping track of exits.

Later, with chairs stacked and string lights dimmed, Alex lingered by the back window with Jamie. "Did you ever see it? The Citrine?" he asked, feigning casualness.

She studied him for a long moment. "My grandfather used to call it the town's sunstone. Said it had a way of showing people what they didn't want to see—said it made the truth harder to ignore." She looked out at the quiet street. "I never knew if he meant that metaphorically or not. But I do remember how carefully people walked around it, like it carried weight beyond its sparkle." She hesitated. "Things don't just vanish. People let them slip away when they don't want to face what they represent."

Spring arrived slowly, but the undercurrent in Fairhaven had shifted. Though the Citrine's location remained elusive, the silence that once muffled inquiry had begun to unravel. Taylor, previously secretive, now documented inventory openly—perhaps as a quiet signal or a subtle confession. Eleanor, undeterred, escalated her concerns to the town council with a well-researched report tracing inconsistencies in the archive's access logs and municipal asset records. Meanwhile, Marcus unveiled an ambitious proposal for a museum annex, conspicuously omitting any mention of the missing gem. Whispers followed the proposal, threading through council halls and café corners alike, as suspicion deepened and the story took firmer root.

Alex stayed. What had begun as a cover had become a kind of cadence. He swept the floors, filled cups, memorized names. He still watched, still listened. But he also belonged. Not because the mystery had been solved—it hadn't—but because, somewhere in the daily repetition, he'd stopped being a stranger. The Citrine remained missing, and Fairhaven still held its secrets, but now, it held him too. The town, once content with silence, had started to speak. In Fairhaven, where routine held meaning, the search had only just begun.

Detective Fiction/Mystery Story B

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John moved quietly through the evening, collecting fragments. Casey, tipsy on spiced cider, mentioned that Sarah had once overseen a "quiet transition" of valuables to private storage. Taylor, usually unshakable, flinched when someone asked about a locked drawer in the supply closet. Sarah kept her smile, but her eyes scanned the room like someone keeping track of exits.

Later, with chairs stacked and string lights dimmed, John lingered by the back window with Sarah. "Did you ever see it? The Citrine?" he asked, feigning casualness.

She studied him for a long moment. "My grandfather used to call it the town's sunstone. Said it had a way of showing people what they didn't want to see—said it made the truth harder to ignore." She looked out at the quiet street. "I never knew if he meant that metaphorically or not. But I do remember how carefully people walked around it, like it carried weight beyond its

sparkle." She hesitated. "Things don’t just vanish. People let them slip away when they don’t want to face what they represent."

Spring arrived slowly, but the undercurrent in Springbrook had shifted. Though the Citrine’s location remained elusive, the silence that once muffled inquiry had begun to unravel. Taylor, previously secretive, now documented inventory openly—perhaps as a quiet signal or a subtle confession. Eleanor, undeterred, escalated her concerns to the town council with a well-researched report tracing inconsistencies in the archive’s access logs and municipal asset records. Meanwhile, Marcus unveiled an ambitious proposal for a museum annex, conspicuously omitting any mention of the missing gem. Whispers followed the proposal, threading through council halls and café corners alike, as suspicion deepened and the story took firmer root.

John stayed. What had begun as a cover had become a kind of cadence. He swept the floors, filled cups, memorized names. He still watched, still listened. But he also belonged. Not because the mystery had been solved—it hadn’t—but because, somewhere in the daily repetition, he’d stopped being a stranger. The Citrine remained missing, and Springbrook still held its secrets, but now, it held him too. The town, once content with silence, had started to speak. In Springbrook, where routine held meaning, the search had only just begun.

Appendix B

Results

Table B1

Full Linear Regression Model Results for Hypothesis 1

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*	sr^2
Volitionally exerted	Interest (high)	-0.77	0.38	493	-1.51	-0.02	-2.03	0.043	0.007
Volitionally exerted	Choice	0.41	0.37	493	-0.31	1.14	1.12	0.262	0.002
Volitionally exerted	Subjective reading ability	-0.78	0.13	493	-1.03	-0.54	-6.20	<0.001	0.066
Volitionally exerted	Objective reading ability	-0.12	0.03	493	-0.18	-0.05	-3.43	0.001	0.020
Volitionally exerted	Story type (detective fiction/mystery)	-0.34	0.47	493	-1.27	0.60	-0.71	0.479	0.001
Volitionally exerted	Story type (historical fiction)	-0.23	0.45	493	-1.12	0.67	-0.50	0.618	<0.001
Volitionally exerted	Story type (romance)	-0.66	0.42	493	-1.48	0.17	-1.57	0.118	0.004
Volitionally exerted	Story type (science fiction)	0.34	0.45	493	-0.53	1.22	0.77	0.443	0.001
Volitionally exerted	Interest x choice	-0.32	0.52	493	-1.35	0.71	-0.62	0.538	0.001
Invested effort	Interest (high)	-0.37	0.28	493	-0.92	0.18	-1.33	0.185	0.004
Invested effort	Choice	-0.50	0.27	493	-1.04	0.03	-1.84	0.066	0.007
Invested effort	Subjective reading ability	-0.06	0.09	493	-0.24	0.13	-0.62	0.538	0.001
Invested effort	Objective reading ability	-0.01	0.03	493	-0.06	0.04	-0.31	0.755	<0.001
Invested effort	Story type (detective fiction/mystery)	0.03	0.35	493	-0.66	0.72	0.09	0.926	<0.001
Invested effort	Story type (historical fiction)	-0.29	0.34	493	-0.95	0.37	-0.87	0.383	0.002
Invested effort	Story type (romance)	-0.61	0.31	493	-1.22	0.00	-1.96	0.051	0.008
Invested effort	Story type (science fiction)	-0.37	0.33	493	-1.01	0.28	-1.11	0.266	0.002
Invested effort	Interest x choice	0.51	0.39	493	-0.25	1.27	1.32	0.189	0.003
Demanded effort	Interest (high)	-0.79	0.36	493	-1.50	-0.07	-2.16	0.032	0.008
Demanded effort	Choice	0.16	0.36	493	-0.54	0.86	0.44	0.659	<0.001
Demanded effort	Subjective reading ability	-0.64	0.12	493	-0.88	-0.40	-5.26	<0.001	0.050
Demanded	Objective reading ability	-0.06	0.03	493	-0.13	0.00	-1.86	0.064	0.006

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*	sr^2
effort									
Demanded effort	Story type (detective fiction/mystery)	-0.62	0.46	493	-1.52	0.28	-1.36	0.174	0.003
Demanded effort	Story type (historical fiction)	-0.51	0.44	493	-1.36	0.35	-1.16	0.248	0.002
Demanded effort	Story type (romance)	-1.00	0.40	493	-1.80	-0.21	-2.48	0.014	0.011
Demanded effort	Story type (science fiction)	0.06	0.43	493	-0.79	0.90	0.13	0.895	<0.001
Demanded effort	Interest x choice	0.27	0.50	493	-0.72	1.26	0.54	0.591	0.001
Experiential effort	Interest (high)	-0.77	0.38	493	-1.52	-0.02	-2.02	0.044	0.008
Experiential effort	Choice	0.06	0.37	493	-0.67	0.79	0.16	0.873	<0.001
Experiential effort	Subjective reading ability	-0.31	0.13	493	-0.57	-0.06	-2.46	0.014	0.011
Experiential effort	Objective reading ability	-0.13	0.03	493	-0.20	-0.06	-3.70	<0.001	0.026
Experiential effort	Story type (detective fiction/mystery)	-0.69	0.48	493	-1.63	0.25	-1.44	0.152	0.004
Experiential effort	Story type (historical fiction)	-0.34	0.46	493	-1.24	0.56	-0.74	0.462	0.001
Experiential effort	Story type (romance)	-0.84	0.42	493	-1.68	-0.01	-1.99	0.047	0.007
Experiential effort	Story type (science fiction)	-0.36	0.45	493	-1.25	0.52	-0.80	0.422	0.001
Experiential effort	Interest x choice	0.55	0.53	493	-0.49	1.59	1.05	0.296	0.002
Deep, effortless concentration	Interest (high)	0.67	0.23	493	0.22	1.12	2.96	0.003	0.015
Deep, effortless concentration	Choice	-0.06	0.22	493	-0.50	0.37	-0.29	0.770	<0.001
Deep, effortless concentration	Subjective reading ability	0.56	0.08	493	0.41	0.71	7.36	<0.001	0.096
Deep, effortless concentration	Objective reading ability	-0.03	0.02	493	-0.07	0.01	-1.28	0.203	0.003
Deep, effortless concentration	Story type (detective fiction/mystery)	-0.25	0.28	493	-0.81	0.31	-0.88	0.377	0.001
Deep, effortless concentration	Story type (historical fiction)	-0.33	0.27	493	-0.87	0.20	-1.22	0.223	0.003
Deep, effortless concentration	Story type (romance)	-0.16	0.25	493	-0.65	0.33	-0.63	0.527	0.001
Deep, effortless concentration	Story type (science fiction)	-0.36	0.27	493	-0.89	0.16	-1.36	0.173	0.003
Deep, effortless concentration	Interest x choice	-0.11	0.31	493	-0.72	0.51	-0.35	0.730	<0.001

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*	sr^2
Positive affect	Interest (high)	1.04	0.38	493	0.29	1.78	2.73	0.007	0.014
Positive affect	Choice	0.16	0.37	493	-0.57	0.88	0.42	0.672	<0.001
Positive affect	Subjective reading ability	0.57	0.13	493	0.32	0.82	4.47	<0.001	0.038
Positive affect	Objective reading ability	-0.07	0.03	493	-0.14	-0.01	-2.12	0.034	0.009
Positive affect	Story type (detective fiction/mystery)	0.20	0.47	493	-0.73	1.13	0.42	0.676	<0.001
Positive affect	Story type (historical fiction)	0.43	0.45	493	-0.46	1.32	0.94	0.346	0.002
Positive affect	Story type (romance)	0.47	0.42	493	-0.36	1.29	1.11	0.267	0.002
Positive affect	Story type (science fiction)	-0.39	0.45	493	-1.27	0.49	-0.87	0.384	0.001
Positive affect	Interest x choice	-0.41	0.52	493	-1.44	0.62	-0.79	0.431	0.001
Negative affect	Interest (high)	-0.56	0.32	493	-1.20	0.07	-1.75	0.080	0.006
Negative affect	Choice	0.00	0.31	493	-0.62	0.62	0.00	0.996	<0.001
Negative affect	Subjective reading ability	-0.54	0.11	493	-0.75	-0.33	-5.04	<0.001	0.047
Negative affect	Objective reading ability	-0.02	0.03	493	-0.07	0.04	-0.61	0.542	0.001
Negative affect	Story type (detective fiction/mystery)	-0.81	0.40	493	-1.60	-0.02	-2.01	0.045	0.007
Negative affect	Story type (historical fiction)	-0.52	0.39	493	-1.28	0.23	-1.36	0.174	0.003
Negative affect	Story type (romance)	-1.01	0.36	493	-1.71	-0.31	-2.83	0.005	0.015
Negative affect	Story type (science fiction)	-0.05	0.38	493	-0.80	0.69	-0.15	0.885	<0.001
Negative affect	Interest x choice	0.38	0.44	493	-0.50	1.25	0.85	0.397	0.001
Burden	Interest (high)	-1.08	0.37	493	-1.80	-0.37	-2.97	0.003	0.016
Burden	Choice	-0.29	0.36	493	-0.99	0.42	-0.80	0.424	0.001
Burden	Subjective reading ability	-0.64	0.12	493	-0.88	-0.40	-5.20	<0.001	0.050
Burden	Objective reading ability	-0.03	0.03	493	-0.10	0.03	-1.03	0.301	0.002
Burden	Story type (detective fiction/mystery)	-0.33	0.46	493	-1.23	0.57	-0.72	0.475	0.001
Burden	Story type (historical fiction)	-0.30	0.44	493	-1.16	0.56	-0.69	0.490	0.001
Burden	Story type (romance)	-0.33	0.41	493	-1.13	0.46	-0.82	0.412	0.001
Burden	Story type (science fiction)	0.15	0.43	493	-0.70	0.99	0.34	0.736	<0.001
Burden	Interest x choice	0.65	0.51	493	-0.34	1.65	1.29	0.198	0.003
Frustration	Interest (high)	-1.00	0.35	493	-1.69	-0.31	-2.85	0.005	0.015
Frustration	Choice	-0.34	0.34	493	-1.02	0.34	-0.99	0.323	0.002
Frustration	Subjective reading ability	-0.62	0.12	493	-0.85	-0.39	-5.26	<0.001	0.051
Frustration	Objective reading ability	-0.03	0.03	493	-0.09	0.03	-0.99	0.323	0.002
Frustration	Story type (detective fiction/mystery)	-0.12	0.44	493	-0.99	0.75	-0.28	0.783	<0.001
Frustration	Story type (historical fiction)	-0.42	0.42	493	-1.25	0.41	-0.98	0.325	0.002
Frustration	Story type (romance)	-0.65	0.39	493	-1.42	0.12	-1.67	0.096	0.005

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*	sr^2
Frustration	Story type (science fiction)	0.30	0.41	493	-0.52	1.11	0.72	0.473	0.001
Frustration	Interest x choice	0.71	0.49	493	-0.25	1.67	1.46	0.145	0.004
Boredom	Interest (high)	-1.35	0.42	493	-2.18	-0.51	-3.18	0.002	0.019
Boredom	Choice	0.05	0.41	493	-0.76	0.86	0.12	0.905	<0.001
Boredom	Subjective reading ability	-0.65	0.14	493	-0.93	-0.37	-4.61	<0.001	0.040
Boredom	Objective reading ability	0.02	0.04	493	-0.06	0.09	0.46	0.643	<0.001
Boredom	Story type (detective fiction/mystery)	0.33	0.53	493	-0.71	1.37	0.62	0.534	0.001
Boredom	Story type (historical fiction)	0.18	0.51	493	-0.82	1.18	0.36	0.722	<0.001
Boredom	Story type (romance)	0.16	0.47	493	-0.76	1.08	0.35	0.728	<0.001
Boredom	Story type (science fiction)	0.32	0.50	493	-0.65	1.30	0.65	0.515	0.001
Boredom	Interest x choice	0.18	0.58	493	-0.96	1.33	0.32	0.752	<0.001
Stress	Interest (high)	-0.71	0.28	493	-1.26	-0.16	-2.52	0.012	0.011
Stress	Choice	-0.34	0.27	493	-0.88	0.20	-1.25	0.212	0.003
Stress	Subjective reading ability	-0.54	0.09	493	-0.72	-0.35	-5.74	<0.001	0.057
Stress	Objective reading ability	-0.08	0.03	493	-0.13	-0.03	-3.16	0.002	0.017
Stress	Story type (detective fiction/mystery)	-0.31	0.35	493	-1.00	0.38	-0.89	0.376	0.001
Stress	Story type (historical fiction)	-0.41	0.34	493	-1.07	0.25	-1.22	0.221	0.003
Stress	Story type (romance)	-0.84	0.31	493	-1.45	-0.23	-2.70	0.007	0.013
Stress	Story type (science fiction)	0.01	0.33	493	-0.64	0.66	0.03	0.977	<0.001
Stress	Interest x choice	0.10	0.39	493	-0.66	0.86	0.26	0.794	<0.001

Note. The reference group is low interest and no choice.

Table B2

Full Linear Regression Model Results for Hypothesis 1 with Robust Standard Errors

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*
Volitionally exerted	Interest (high)	-0.77	0.37	493	-1.49	-0.04	-2.07	0.039
Volitionally exerted	Choice	0.41	0.41	493	-0.38	1.21	1.02	0.307

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*
Volitionally exerted	Subjective reading ability	-0.78	0.13	493	-1.05	-0.52	-5.83	<0.001
Volitionally exerted	Objective reading ability	-0.12	0.03	493	-0.18	-0.05	-3.53	<0.001
Volitionally exerted	Story type (detective fiction/mystery)	-0.34	0.44	493	-1.21	0.54	-0.76	0.450
Volitionally exerted	Story type (historical fiction)	-0.23	0.46	493	-1.13	0.68	-0.49	0.623
Volitionally exerted	Story type (romance)	-0.66	0.41	493	-1.47	0.15	-1.60	0.111
Volitionally exerted	Story type (science fiction)	0.34	0.44	493	-0.53	1.21	0.77	0.439
Volitionally exerted	Interest x choice	-0.32	0.53	493	-1.37	0.72	-0.61	0.544
Invested effort	Interest (high)	-0.37	0.27	493	-0.89	0.15	-1.39	0.164
Invested effort	Choice	-0.50	0.28	493	-1.05	0.04	-1.81	0.071
Invested effort	Subjective reading ability	-0.06	0.10	493	-0.25	0.13	-0.60	0.551
Invested effort	Objective reading ability	-0.01	0.03	493	-0.06	0.04	-0.31	0.759
Invested effort	Story type (detective fiction/mystery)	0.03	0.33	493	-0.62	0.68	0.10	0.922
Invested effort	Story type (historical fiction)	-0.29	0.35	493	-0.97	0.39	-0.85	0.397
Invested effort	Story type (romance)	-0.61	0.31	493	-1.22	0.01	-1.94	0.053
Invested effort	Story type (science fiction)	-0.37	0.34	493	-1.03	0.29	-1.10	0.274
Invested effort	Interest x choice	0.51	0.39	493	-0.26	1.28	1.30	0.194
Demanded effort	Interest (high)	-0.79	0.36	493	-1.49	-0.09	-2.21	0.028
Demanded effort	Choice	0.16	0.38	493	-0.60	0.91	0.41	0.682
Demanded effort	Subjective reading ability	-0.64	0.13	493	-0.90	-0.38	-4.86	<0.001
Demanded effort	Objective reading ability	-0.06	0.03	493	-0.12	0.00	-1.97	0.049
Demanded effort	Story type (detective fiction/mystery)	-0.62	0.46	493	-1.52	0.28	-1.35	0.176
Demanded effort	Story type (historical fiction)	-0.51	0.45	493	-1.39	0.38	-1.13	0.260
Demanded effort	Story type (romance)	-1.00	0.40	493	-1.80	-0.21	-2.48	0.013
Demanded effort	Story type (science fiction)	0.06	0.43	493	-0.79	0.90	0.13	0.895
Demanded effort	Interest x choice	0.27	0.51	493	-0.73	1.28	0.53	0.596
Experiential effort	Interest (high)	-0.77	0.37	493	-1.50	-0.05	-2.09	0.037

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*
Experiential effort	Choice	0.06	0.38	493	-0.68	0.80	0.16	0.875
Experiential effort	Subjective reading ability	-0.31	0.14	493	-0.59	-0.04	-2.28	0.023
Experiential effort	Objective reading ability	-0.13	0.03	493	-0.19	-0.06	-3.94	<0.001
Experiential effort	Story type (detective fiction/mystery)	-0.69	0.48	493	-1.62	0.25	-1.44	0.150
Experiential effort	Story type (historical fiction)	-0.34	0.44	493	-1.20	0.52	-0.77	0.442
Experiential effort	Story type (romance)	-0.84	0.42	493	-1.67	-0.02	-2.01	0.045
Experiential effort	Story type (science fiction)	-0.36	0.45	493	-1.24	0.51	-0.81	0.417
Experiential effort	Interest x choice	0.55	0.54	493	-0.50	1.61	1.03	0.303
Deep, effortless concentration	Interest (high)	0.67	0.21	493	0.25	1.09	3.12	0.002
Deep, effortless concentration	Choice	-0.06	0.23	493	-0.51	0.38	-0.29	0.776
Deep, effortless concentration	Subjective reading ability	0.56	0.07	493	0.42	0.70	7.94	<0.001
Deep, effortless concentration	Objective reading ability	-0.03	0.02	493	-0.06	0.01	-1.41	0.158
Deep, effortless concentration	Story type (detective fiction/mystery)	-0.25	0.27	493	-0.78	0.28	-0.94	0.350
Deep, effortless concentration	Story type (historical fiction)	-0.33	0.26	493	-0.84	0.18	-1.28	0.201
Deep, effortless concentration	Story type (romance)	-0.16	0.23	493	-0.62	0.30	-0.68	0.498
Deep, effortless concentration	Story type (science fiction)	-0.36	0.25	493	-0.86	0.13	-1.44	0.151
Deep, effortless concentration	Interest x choice	-0.11	0.31	493	-0.73	0.51	-0.34	0.731
Positive affect	Interest (high)	1.04	0.35	493	0.34	1.73	2.93	0.004
Positive affect	Choice	0.16	0.39	493	-0.60	0.92	0.40	0.686
Positive affect	Subjective reading ability	0.57	0.13	493	0.32	0.82	4.45	<0.001
Positive affect	Objective reading ability	-0.07	0.03	493	-0.14	-0.01	-2.17	0.031
Positive affect	Story type (detective fiction/mystery)	0.20	0.45	493	-0.69	1.08	0.44	0.661
Positive affect	Story type (historical fiction)	0.43	0.45	493	-0.46	1.31	0.95	0.343
Positive affect	Story type (romance)	0.47	0.41	493	-0.34	1.27	1.14	0.255

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*
Positive affect	Story type (science fiction)	-0.39	0.45	493	-1.28	0.50	-0.86	0.392
Positive affect	Interest x choice	-0.41	0.53	493	-1.45	0.62	-0.79	0.432
Negative affect	Interest (high)	-0.56	0.31	493	-1.17	0.04	-1.84	0.066
Negative affect	Choice	0.00	0.34	493	-0.67	0.67	0.00	0.997
Negative affect	Subjective reading ability	-0.54	0.12	493	-0.78	-0.31	-4.53	<0.001
Negative affect	Objective reading ability	-0.02	0.03	493	-0.08	0.04	-0.57	0.567
Negative affect	Story type (detective fiction/mystery)	-0.81	0.38	493	-1.56	-0.07	-2.14	0.033
Negative affect	Story type (historical fiction)	-0.52	0.40	493	-1.31	0.26	-1.31	0.189
Negative affect	Story type (romance)	-1.01	0.35	493	-1.71	-0.32	-2.86	0.004
Negative affect	Story type (science fiction)	-0.05	0.39	493	-0.82	0.71	-0.14	0.888
Negative affect	Interest x choice	0.38	0.45	493	-0.50	1.26	0.84	0.400
Burden	Interest (high)	-1.08	0.36	493	-1.78	-0.38	-3.04	0.002
Burden	Choice	-0.29	0.40	493	-1.08	0.51	-0.71	0.481
Burden	Subjective reading ability	-0.64	0.13	493	-0.90	-0.37	-4.77	<0.001
Burden	Objective reading ability	-0.03	0.03	493	-0.10	0.03	-1.01	0.312
Burden	Story type (detective fiction/mystery)	-0.33	0.41	493	-1.13	0.48	-0.80	0.424
Burden	Story type (historical fiction)	-0.30	0.42	493	-1.13	0.52	-0.72	0.472
Burden	Story type (romance)	-0.33	0.39	493	-1.09	0.42	-0.86	0.388
Burden	Story type (science fiction)	0.15	0.42	493	-0.67	0.96	0.35	0.727
Burden	Interest x choice	0.65	0.51	493	-0.34	1.65	1.29	0.198
Frustration	Interest (high)	-1.00	0.35	493	-1.69	-0.31	-2.85	0.005
Frustration	Choice	-0.34	0.38	493	-1.09	0.41	-0.89	0.375
Frustration	Subjective reading ability	-0.62	0.13	493	-0.88	-0.36	-4.63	<0.001
Frustration	Objective reading ability	-0.03	0.03	493	-0.10	0.03	-0.96	0.335
Frustration	Story type (detective fiction/mystery)	-0.12	0.42	493	-0.94	0.70	-0.29	0.772
Frustration	Story type (historical fiction)	-0.42	0.40	493	-1.21	0.38	-1.03	0.303

Outcome	Predictor	B	SE	df	95% CI lower	95% CI upper	*t*	*p*
Frustration	Story type (romance)	-0.65	0.37	493	-1.39	0.08	-1.74	0.082
Frustration	Story type (science fiction)	0.30	0.42	493	-0.52	1.12	0.72	0.474
Frustration	Interest x choice	0.71	0.49	493	-0.25	1.67	1.46	0.145
Boredom	Interest (high)	-1.35	0.40	493	-2.13	-0.56	-3.37	0.001
Boredom	Choice	0.05	0.44	493	-0.82	0.92	0.11	0.912
Boredom	Subjective reading ability	-0.65	0.15	493	-0.94	-0.36	-4.44	<0.001
Boredom	Objective reading ability	0.02	0.04	493	-0.06	0.09	0.47	0.636
Boredom	Story type (detective fiction/mystery)	0.33	0.49	493	-0.63	1.29	0.68	0.498
Boredom	Story type (historical fiction)	0.18	0.48	493	-0.76	1.12	0.38	0.707
Boredom	Story type (romance)	0.16	0.44	493	-0.69	1.02	0.37	0.709
Boredom	Story type (science fiction)	0.32	0.47	493	-0.60	1.25	0.69	0.492
Boredom	Interest x choice	0.18	0.59	493	-0.97	1.34	0.31	0.753
Stress	Interest (high)	-0.71	0.30	493	-1.31	-0.11	-2.33	0.020
Stress	Choice	-0.34	0.32	493	-0.96	0.28	-1.09	0.278
Stress	Subjective reading ability	-0.54	0.11	493	-0.75	-0.33	-5.02	<0.001
Stress	Objective reading ability	-0.08	0.03	493	-0.13	-0.03	-2.91	0.004
Stress	Story type (detective fiction/mystery)	-0.31	0.36	493	-1.02	0.39	-0.87	0.386
Stress	Story type (historical fiction)	-0.41	0.37	493	-1.14	0.32	-1.11	0.267
Stress	Story type (romance)	-0.84	0.35	493	-1.53	-0.16	-2.41	0.016
Stress	Story type (science fiction)	0.01	0.37	493	-0.72	0.74	0.03	0.980
Stress	Interest x choice	0.10	0.39	493	-0.66	0.87	0.26	0.794

Note. The reference group is low interest and no choice.

Table B3

Model Fit Indices for Mediation Models

Outcome	χ2	df	CFI	TLI	RMSEA	SRMR	AIC	BIC
Volitionally exerted	141.49***	65	0.98	0.98	0.05	0.02	16007.22	16188.71
Invested effort	104.43***	65	0.99	0.99	0.03	0.02	15727.54	15909.03
Demanded effort	137.52***	65	0.98	0.98	0.05	0.02	15989.61	16171.10
Experiential effort	127.52***	65	0.99	0.98	0.04	0.02	16037.77	16219.26
Deep, effortless concentration	181.40***	65	0.98	0.97	0.06	0.02	15221.07	15402.56
Positive affect	160.69***	65	0.98	0.97	0.05	0.02	15712.46	15893.94
Negative affect	131.50***	65	0.98	0.98	0.05	0.02	15853.20	16034.69
Burden	153.14***	65	0.98	0.97	0.05	0.03	15956.64	16138.13
Frustration	144.73***	65	0.98	0.97	0.05	0.02	15913.86	16095.35
Boredom	195.77***	65	0.97	0.96	0.06	0.03	15967.34	16148.83
Stress	121.74***	65	0.99	0.98	0.04	0.02	15719.57	15901.06

Note. χ^2= chi-square test statistic; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; AIC = Akaike information criterion; BIC = Bayesian information criterion. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table B4

Mediation Model Results

Predictor	Outcome	Effect	Estimate	SE	95% CI lower	95% CI upper
Interest	Volitionally exerted	*a* path	0.46	0.10	0.27	0.67
		b path	-0.65	0.15	-0.94	-0.36
		Indirect	-0.30	0.10	-0.52	-0.14
		Direct	-0.63	0.28	-1.17	-0.08
		Total	-0.93	0.27	-1.46	-0.39
	Invested effort	*b* path	0.09	0.11	-0.12	0.30
		Indirect	0.04	0.05	-0.06	0.15
		Direct	-0.16	0.20	-0.55	0.24
		Total	-0.12	0.20	-0.50	0.27
	Demanded effort	*b* path	-0.26	0.15	-0.55	0.03
		Indirect	-0.12	0.08	-0.28	0.01
		Direct	-0.54	0.26	-1.05	-0.03
		Total	-0.65	0.25	-1.15	-0.16

Predictor	Outcome	Effect	Estimate	SE	95% CI lower	95% CI upper
	Experiential effort	*b* path	-0.27	0.16	-0.58	0.04
		Indirect	-0.12	0.08	-0.29	0.02
		Direct	-0.38	0.28	-0.90	0.17
		Total	-0.50	0.28	-1.04	0.04
	Deep, effortless concentration	*b* path	1.22	0.07	1.08	1.35
		Indirect	0.57	0.13	0.33	0.83
		Direct	0.05	0.13	-0.20	0.30
		Total	0.62	0.16	0.30	0.93
	Positive affect	*b* path	2.10	0.12	1.86	2.32
		Indirect	0.98	0.22	0.57	1.42
		Direct	-0.15	0.20	-0.55	0.26
		Total	0.83	0.27	0.32	1.36
	Negative affect	*b* path	-0.43	0.13	-0.68	-0.18
		Indirect	-0.20	0.08	-0.37	-0.07
		Direct	-0.18	0.23	-0.63	0.26
		Total	-0.38	0.23	-0.84	0.06
	Burden	*b* path	-0.82	0.14	-1.09	-0.55
		Indirect	-0.38	0.11	-0.61	-0.19
		Direct	-0.39	0.25	-0.86	0.12
		Total	-0.77	0.26	-1.26	-0.25
	Frustration	*b* path	-0.84	0.13	-1.10	-0.58
		Indirect	-0.38	0.11	-0.63	-0.20
		Direct	-0.27	0.25	-0.76	0.23
		Total	-0.65	0.26	-1.16	-0.15
	Boredom	*b* path	-1.85	0.15	-2.12	-1.55
		Indirect	-0.86	0.20	-1.26	-0.47
		Direct	-0.40	0.27	-0.92	0.15
		Total	-1.26	0.30	-1.82	-0.66
	Stress	*b* path	-0.32	0.09	-0.51	-0.15
		Indirect	-0.15	0.06	-0.29	-0.05
		Direct	-0.51	0.21	-0.93	-0.09
		Total	-0.66	0.22	-1.09	-0.23
Choice	Volitionally exerted	*a* path	0.07	0.09	-0.11	0.26
		b path	-0.65	0.15	-0.94	-0.35
		Indirect	-0.05	0.06	-0.18	0.07
		Direct	0.30	0.25	-0.21	0.79
		Total	0.25	0.26	-0.26	0.76
	Invested effort	*b* path	0.09	0.11	-0.12	0.30
		Indirect	0.01	0.01	-0.02	0.04
		Direct	-0.26	0.19	-0.64	0.12
		Total	-0.25	0.19	-0.63	0.13
	Demanded effort	*b* path	-0.26	0.15	-0.56	0.03
		Indirect	-0.02	0.03	-0.09	0.03

Predictor	Outcome	Effect	Estimate	SE	95% CI lower	95% CI upper
		Direct	0.31	0.25	-0.18	0.82
		Total	0.29	0.25	-0.20	0.81
	Experiential effort	*b* path	-0.27	0.16	-0.59	0.03
		Indirect	-0.02	0.03	-0.09	0.04
		Direct	0.36	0.27	-0.17	0.89
		Total	0.34	0.27	-0.19	0.88
	Deep, effortless concentration	*b* path	1.22	0.07	1.08	1.34
		Indirect	0.08	0.12	-0.15	0.31
		Direct	-0.20	0.11	-0.43	0.03
		Total	-0.12	0.15	-0.42	0.19
	Positive affect	*b* path	2.10	0.12	1.85	2.31
		Indirect	0.14	0.20	-0.26	0.56
		Direct	-0.19	0.19	-0.57	0.19
		Total	-0.05	0.26	-0.57	0.47
	Negative affect	*b* path	-0.43	0.12	-0.68	-0.19
		Indirect	-0.03	0.04	-0.12	0.05
		Direct	0.22	0.22	-0.21	0.64
		Total	0.19	0.22	-0.25	0.61
	Burden	*b* path	-0.82	0.14	-1.08	-0.55
		Indirect	-0.06	0.08	-0.22	0.09
		Direct	0.10	0.25	-0.39	0.58
		Total	0.04	0.26	-0.46	0.54
	Frustration	*b* path	-0.84	0.13	-1.10	-0.57
		Indirect	-0.06	0.08	-0.22	0.10
		Direct	0.08	0.23	-0.37	0.54
		Total	0.02	0.24	-0.45	0.51
	Boredom	*b* path	-1.85	0.15	-2.12	-1.56
		Indirect	-0.13	0.17	-0.48	0.21
		Direct	0.27	0.24	-0.21	0.75
		Total	0.14	0.29	-0.43	0.69
	Stress	*b* path	-0.32	0.10	-0.51	-0.14
		Indirect	-0.02	0.03	-0.09	0.04
		Direct	-0.27	0.19	-0.64	0.12
		Total	-0.29	0.19	-0.66	0.10

Note. *a* paths reported once between both interest and choice and autonomous motivation to avoid repetition.