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**| RESEARCH ARTICLE**

## **Personality, Distraction, and Revision Efficiency in Translation Training: A Big Five Hierarchical Regression Study**

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**| ABSTRACT**

This study examined how Big Five personality traits and self-reported digital distraction relate to revision efficiency among 114 male Arabic-to-English translation students at a Saudi university. Students completed a timed online error-detection task applied to a translated passage containing 17 embedded errors. Personality was assessed using a researcher-developed ten-item Big Five-aligned questionnaire, and distraction was measured through two self-report items on notification disruption and refocus time. Efficiency was defined as correct detections per minute. A three-step hierarchical multiple regression entered duration in Step 1, Big Five scores in Step 2, and distraction indicators in Step 3. Openness and Conscientiousness emerged as significant positive predictors of efficiency after controlling for duration. Distraction indicators showed small negative bivariate associations with efficiency but did not contribute significant incremental variance once duration and personality were controlled. The findings indicate that personality traits predict revision efficiency independently of time-on-task, and that structured revision instruction may be more effective than distraction management alone in translator education.

**| KEYWORDS**

Translation revision, error detection, Big Five personality, digital distraction, translator pedagogy

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### **Introduction**

Research in translator education has paid relatively little empirical attention to how individual differences and environmental conditions shape the way students carry out systematic error detection. Revision is a core competence in translator training, yet the factors that determine whether a student catches an error or misses it remain poorly understood. Two plausible influences have received almost no joint investigation in this context: stable personality differences among students and the notification-driven interruptions that increasingly characterize how they work.

The practical concern is straightforward. A student revising a translated text must scan sequentially, hold their place, and make repeated decisions about whether each segment contains an error. Smartphone notifications can fragment that process. At the same time, students differ in how persistently and systematically they approach the same task. If personality traits and distraction both relate to detection performance, an important question is whether they contribute independently or whether one accounts for the other. Without separating these influences, pedagogical recommendations risk targeting the wrong variable.

Prior work on personality and translation performance used categorical personality frameworks that, while showing interpretable differences in error profiles and response strategies, limited the analytical possibilities. Dichotomous groupings prevent correlational analysis and cannot capture within-group variation in trait strength. The present study therefore adopts the big five-factor model, which treats personality dimensions as continuous variables and allows regression-based examination of trait–performance associations while controlling for competing predictors.

A key methodological issue motivates the analytical design. Performance on error detection tasks is heavily shaped by time-on-task: students who work longer have more opportunities to find errors, so raw detection scores mix together persistence and procedural skill. This study addresses that problem by distinguishing between coverage (how many errors a student finds) and efficiency (how many errors per minute), and by using hierarchical regression to test whether digital distraction contributes to performance variation beyond what personality and duration already explain.

This study examines these relationships in the context of translator education. It uses a target-language error-identification task applied to an Arabic-to-English translated passage with a fixed answer key of 17 embedded errors, administered to translation students under remote web-based supervision. The controlled task format allows transparent scoring while targeting a specific, high-frequency error category in the Arabic-English translation context. The study is observational and correlational in design. It does not test an intervention and does not support causal claims. Instead, the current study examines how Big Five-aligned indicators and self-reported digital distraction indicators relate to (a) key-referenced correct detections, (b) missed errors, (c) task duration, and (d) efficiency, defined as correct detections per minute, while treating duration as a central process variable and using hierarchical regression to test the incremental predictive contribution of distraction beyond personality and time-on-task.

The study asks the following research questions:

1. How are brief Big Five-aligned indicator scores associated with keyed target-language error detection performance in the translated passage (correct detections, missed errors, and efficiency)?
2. How are digital distraction indicators (notification disruption and refocus time) associated with performance and duration?
3. To what extent do distraction indicators relate to performance once duration and personality are considered?

## **Literature Review**

### **Revision and Error Detection in Translator Education**

Translation revision has been viewed as structured, purposeful work rather than an intuitive final pass through a text. Mossop (2014) discussed revision as a process that can be broken down into identifiable checking procedures, including the examination of transfers, language accuracy, and presentation quality. This framing has shifted revision pedagogy away from general advice toward observable, teachable behaviors that students can develop step by step. In this respect, the instructional emphasis falls on procedure rather than on intuition.

An error-identification task applied to translated output captures one specific part of translation revision: the detection of target-language surface errors. It does not assess transfer-level adequacy or rhetorical appropriateness, which require bilingual comparison with the source text. What it does capture is a necessary component of revision competence, because a translated text that contains widespread grammatical errors fails to meet target-language standards regardless of how faithfully it renders source meaning. Ipsen and Dam (2016) showed that error detection correlates with revision procedure, treating detection outcomes as informative indicators of quality-related behavior. Their findings support the use of keyed detection tasks as performance indicators tied to the procedural side of revision, particularly when scoring references a fixed answer key and remains transparent to students and researchers alike.

It can be noted that the task used in this study concentrates on subject-verb agreement errors, which make up the dominant category among its 17 embedded targets. This concentration reflects the error profile of Arabic-to-English translation rather than an arbitrary restriction of scope. Subject-verb agreement represents a persistent difficulty in Arabic-to-English translation output, in part because Arabic allows verb-subject-object word order in which the verb precedes its subject and may not carry the same agreement morphology as in post-subject position. Because the task passage is itself a translation from Arabic, the embedded SVA errors are representative of the kinds of target-language problems students encounter when revising

translated texts in this language pair. The task thus targets a high-frequency, well-grounded error category for this population, and the findings should be interpreted within this scope rather than as evidence about revision competence in general.

### **Digital Distraction, Interruptions, and Performance**

Claims about the effects of interruption on task performance gain explanatory force when grounded in a specific mechanism. Interruption theories propose that task goals decay during breaks in activity and must be reactivated when work resumes, producing resumption lags and raising the probability of omissions. These consequences become particularly relevant in sequential scanning tasks such as proofreading, where losing track of one's position or forgetting which section has already been checked can reduce coverage. Altmann and Trafton (2002) offered an activation-based model providing a well-established theoretical account of why interruptions impair performance even when individuals return to the same task promptly.

Moreover, experimental work on smartphone notifications aligns with this mechanism. Stothart et al. (2015) found that cell phone notifications alone disrupted performance on attention-demanding tasks, even when participants did not interact with their devices. The implication is that attentional costs go beyond overt phone use to include the cognitive disruption caused by the alert itself. Ohly and Bastin (2023) strengthened the applied relevance of these laboratory findings through a field experiment showing that reducing notification-driven interruptions improved performance and reduced strain among workers outside controlled conditions.

However, synthesis work counsels restraint in interpreting these effects. Meta-analyses examining relationships between technology-related factors and academic performance tend to report small negative associations alongside substantial heterogeneity in effect sizes (Hsieh, 2025; Kuş, 2025). If digital distraction influences editing outcomes, it likely does so in a modest way, perhaps through shifts in time allocation or efficiency rather than through large differences in absolute scores. This broader pattern matters for how distraction effects are interpreted in the present study.

### **Big Five Dimensions and Performance-Related Outcomes**

The five-factor model provides a widely used structure for describing broad personality dimensions. Digman (1990) discussed the emergence of this framework, and McCrae and John (1992) established its conceptual stability through a comprehensive review of applications across diverse contexts.

Each of the five dimensions captures a distinct aspect of behavioral tendency, though their relevance to error-detection tasks is uneven. Openness to Experience, as characterized by John and Srivastava (1999), reflects intellectual curiosity and a tendency toward engaging with novelty and complexity. These qualities may bear on how readily a student notices irregularities during sustained reading. Conscientiousness involves goal-directed persistence, orderliness, and the capacity for self-regulation (Costa & McCrae, 1992), and its connection to task performance has received the most empirical attention of the five dimensions. Neuroticism, in contrast, concerns vulnerability to negative emotional states such as anxiety and self-doubt. This dimension may shape not detection skill itself but rather how students respond to environmental stressors during cognitively demanding work. The remaining two dimensions have weaker theoretical links to solitary scanning tasks. Extraversion broadly reflects sociability and positive affect, while Agreeableness reflects interpersonal cooperativeness. Neither is directly linked to individual error detection, though both are retained here to avoid confirmatory selection of predictors.

Trait-performance research has consistently identified Conscientiousness as a predictor of outcomes in work and educational settings. Barrick and Mount (1991) linked Big Five dimensions to job performance criteria in a foundational meta-analysis, and He et al. (2019) refined these estimates through second-order meta-analytic techniques. In educational contexts specifically, Mammadov (2022) reported that Conscientiousness emerges as a reliable correlate across student samples. The theoretical case for connecting personality traits to error-identification performance is thus plausible, though it requires careful framing. Conscientiousness may show itself through persistence and systematic scanning, while Openness may support cognitive flexibility and a readiness to detect linguistic anomalies.

That said, trait-performance associations are typically modest in size, and a key methodological issue complicates their interpretation. Performance on coverage-like tasks is heavily influenced by time-on-task. Studies that do not account for task duration risk mixing effort persistence with procedural skill. The current study addresses this concern by treating duration as a central variable and examining both raw detection scores and efficiency-based metrics that adjust for the time students spent on the task.

The two lines of inquiry reviewed above have largely been examined in separate research traditions. However, studying them jointly within a single design offers a specific analytical advantage. If personality traits relate to self-reported vulnerability to distraction, as the broader literature on Neuroticism and attentional control would suggest, then distraction effects on task performance may not operate uniformly across individuals. Students high in Neuroticism may report greater disruption from notifications precisely because trait anxiety heightens sensitivity to task-irrelevant stimuli. Examining personality and distraction together thus allows the present study to assess whether distraction indicators contribute to performance variation beyond what personality traits and time-on-task already explain.

## **Method**

### **Design and Context**

This study uses an observational correlational design to examine relationships between personality traits, digital distraction indicators, and performance on a timed target-language error-identification task applied to an Arabic-to-English translated passage. The study was conducted within a translation course at a Saudi university. Data were collected through a web-based survey instrument that included personality measures, distraction self-reports, and the timed revision task.

### **Participants**

The final sample comprised 114 male translation students, aged 20 to 22, enrolled in an upper-level undergraduate course. Participation was voluntary and required informed consent prior to data collection. All responses were anonymized before analysis, and no personally identifiable information was retained in the analytic dataset.

### **Task Administration**

The error-identification task was administered online under remote web-based supervision. Students received prior instructions specifying that mobile phones were not permitted during the task and that external aids, including dictionaries and AI tools, could not be used. A 30-minute time limit was enforced. Students worked independently, typing identified errors and their proposed corrections into designated survey fields.

### **Task Material and Scoring Framework**

The task passage was an English translation of an Arabic source text, rendered in American English conventions, and contained 17 target errors with a fixed ground truth: 14 grammatical errors and 3 spelling errors (see Appendix A for the full passage and answer key). All error classifications follow American English conventions. The grammatical errors were predominantly subject-verb agreement violations, reflecting the specific transfer vulnerability that arises when Arabic-speaking students produce English text: Arabic allows verb-initial word order in which agreement morphology differs from post-subject position, and this structural asymmetry generates persistent SVA errors in Arabic-to-English translation output. This structure allowed for transparent key-referenced scoring. Because the error set was bounded, the researcher applied key-capped scoring to prevent credited detections from exceeding the maximum possible correct identifications. Grammar detections were capped at 14 ( $G\_cap = \min[G, 14]$ ), spelling detections at 3 ( $S\_cap = \min[S, 3]$ ), and total correct detections at 17 ( $Correct\_cap = G\_cap + S\_cap$ ).

Prior to analysis, all responses were screened for adherence to task instructions. Nine submissions were excluded because respondents did not follow the specified task procedures, yielding 114 participants. Remaining responses were scored through automated exact matching against the fixed answer key. A detection was credited as correct only when the student identified the specific error and provided the corresponding correction as defined in the key. This automated procedure ensured consistent scoring across all participants and eliminated rater subjectivity.

Performance was measured through four primary metrics. Correct detections ( $Correct\_cap$ ) ranged from 0 to 17 and served as the main accuracy measure. Missed errors were computed as 17 minus  $Correct\_cap$ , providing an inverse coverage

indicator. Duration was recorded in seconds and converted to minutes ( $T/60$ ) for reporting purposes. Efficiency was calculated as correct detections per minute ( $\text{Correct\_cap} / [T/60]$ ), offering a rate-based performance indicator that adjusts for time-on-task.

A methodological limitation should be noted at this stage. The dataset captured aggregate counts rather than item-level matched selections, making it impossible to compute strict false positives. As a conservative proxy for incorrect markings, over-identification beyond the answer key was calculated:  $\text{OverID} = \max(G - 14, 0) + \max(S - 3, 0)$ . This represents instances where students marked more items than the known error set contained and is reported descriptively.

## Measures

**Big Five-Aligned Personality Indicators.** Big Five-aligned personality indicators were assessed using a researcher-developed 10-item questionnaire with two items per dimension (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism). Each item was rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Dimension scores were computed as the mean of the two constituent items and then rescaled to a 0 to 100 range for interpretive clarity. The items were designed to capture the core affective and behavioral content of each Big Five dimension, following the conceptual framework described by Gosling et al. (2003) for brief personality assessment. Because the instrument is researcher-developed and brief (two items per dimension), the resulting scores are treated as indicators aligned with Big Five constructs rather than as validated trait measures; replication with established inventories such as the BFI or NEO-FFI is recommended.

To assess the credibility of the obtained trait distributions, the sample means were compared descriptively with published norms. Gosling et al. (2003) reported means on a 7-point scale that, when rescaled to the 0 to 100 range used in this study, yield approximate reference values of 72 for Openness, 64 for Conscientiousness, 58 for Extraversion, 68 for Agreeableness, and 52 for Neuroticism. The present sample shows broadly comparable patterns, with Agreeableness highest and Extraversion lower. Conscientiousness ( $M = 64.51$ ) falls close to the rescaled norm, and Neuroticism ( $M = 62.96$ ) is within one standard deviation of the reference estimate. The elevated Agreeableness mean ( $M = 75.14$ ) may reflect cultural response tendencies in the Saudi context, where collectivist norms favor interpersonal harmony. These comparisons indicate that the researcher-developed measure captures plausible trait distributions, though direct psychometric equivalence with validated instruments cannot be assumed.

**Digital Distraction Indicators.** Digital distraction indicators included two smartphone-related items assessing self-reported distraction experiences during translation tasks (see Appendix B for exact item wording and response options). The first item asked about perceived disruption from notifications during translation tasks (notification effect), and the second asked about typical time required to refocus attention after checking a notification (refocus time). Both items used ordinal response scales scored from 1 to 5 and were treated as ordinal predictors in correlation analyses. Spearman's rank correlation coefficient ( $\rho$ ) was used for all analyses involving these indicators.

## Analytic Approach

The analysis proceeded in two phases. The first phase examined bivariate associations between Big Five-aligned indicators, task performance metrics (correct detections, missed errors, efficiency), task duration, and distraction indicators. Pearson correlations were used for continuous measures, while Spearman correlations were used when one or both variables were ordinal. Given the exploratory nature of the study, no formal correction for multiple comparisons was applied. However, the interpretive discussion gives priority to effect sizes and consistency of patterns over isolated significance tests, and marginal associations ( $p < .10$ ) are reported transparently as such rather than treated as confirmatory evidence.

The second phase addressed Research Question 3 through hierarchical multiple regression with efficiency as the dependent variable. Duration was entered in Step 1 to control for time-on-task effects, Big Five-aligned indicator scores in Step 2, and the two distraction indicators in Step 3. This sequential entry strategy tests whether distraction indicators add incremental predictive value beyond what duration and personality already explain.

**Results**

**Sample Characteristics**

The analytic sample consisted of 114 male translation students. Academic distribution reflected a concentration in middle undergraduate years: 21.1% were in their second year, 50.9% in their third year, and 26.3% in their fourth year, with two respondents selecting other. Self-rated English proficiency was concentrated in the upper-intermediate category (51.8%), with 22.8% reporting advanced proficiency, 16.7% intermediate, 5.3% basic, and 3.5% near-native.

Descriptive statistics for Big Five-aligned personality indicators and task performance variables are presented in Table 1. The sample showed moderate to moderately high scores across personality dimensions, with Agreeableness showing the highest mean ( $M = 75.14$ ). Task performance indicated that students detected fewer than half of the embedded errors on average (coverage = 0.456), with considerable variability in both duration and efficiency.

**Table 1**

*Descriptive Statistics for Personality Traits and Task Performance (N = 114)*

<b>Variable</b>	<b>M</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	<b>Range</b>
<b>Big Five-Aligned Indicators (0–100)</b>					
Openness	66.72	18.40	25.00	100.00	25–100
Conscientiousness	64.51	19.85	25.00	100.00	25–100
Extraversion	53.53	22.01	0.00	100.00	0–100
Agreeableness	75.14	19.73	0.00	100.00	0–100
Neuroticism	62.96	23.57	0.00	100.00	0–100
<b>Task Performance</b>					
Correct detections	7.75	3.78	2.00	16.00	2–16
Missed errors	9.25	3.78	1.00	15.00	1–15
Coverage (proportion)	0.456	0.222	0.118	0.941	.118–.941
Duration (min)	15.24	6.05	3.82	29.20	3.82–29.20
Efficiency (det/min)	0.56	0.29	0.09	1.83	0.09–1.83

*Note.* Correct detections and missed errors are complementary (sum to 17). Coverage represents the proportion of total errors detected.

**Task Performance Patterns**

Students identified an average of 5.98 grammatical errors ( $SD = 3.59$ ) and 1.82 spelling errors ( $SD = 0.98$ ) in their uncapped counts. After applying key-capped scoring to prevent detections from exceeding the maximum possible (14 grammar, 3 spelling), the mean number of correct detections was 7.75 out of 17, as shown in Table 1. Task duration averaged 15.24 minutes,

showing considerable variability despite the 30-minute time limit. Over-identification beyond the answer key was rare: only 3 students (2.6% of the sample) marked more items than the known error set contained, which indicates that most participants approached the task conservatively.

### Correlational Findings

Table 2 presents correlations among Big Five-aligned indicators, task performance metrics, and digital distraction indicators. The correlational pattern showed several associations of interest alongside a considerable number of null results.

**Table 2**

*Correlations Among Big Five-Aligned Indicators, Task Performance, and Distraction Indicators (N = 114)*

Variable	1	2	3	4	5	6	7	8	9	10
1. Openness	—									
2. Conscientiousness	.15	—								
3. Extraversion	.09	.26**	—							
4. Agreeableness	.26**	.30***	.37***	—						
5. Neuroticism	.11	-.06	-.16+	.08	—					
6. Correct detections	.09	.16+	.01	-.10	-.06	—				
7. Efficiency	.21*	.13	.00	-.07	.03	.55***	—			
8. Duration	-.11	.10	.03	-.02	-.15	.42***	-.41***	—		
9. Notification effect <sup>a</sup>	-.05	-.11	-.03	.20*	.31***	-.13	-.17+	-.01	—	
10. Refocus time <sup>a</sup>	-.15	-.11	-.15	.05	.19*	-.10	-.18+	.11	.27**	—

*Note.* Pearson correlations ( $r$ ) are reported for associations among continuous variables (rows 1–8). Spearman rank correlations ( $\rho$ ) are reported for all associations involving ordinal distraction indicators (rows 9–10). \*Higher scores indicate greater perceived disruption (notification effect) or longer refocus time. + $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### Personality Traits and Task Performance

Among the Big Five-aligned indicators, Openness showed a significant positive correlation with efficiency ( $r = .21$ ,  $p = .026$ ) but was unrelated to correct detections ( $r = .09$ ,  $p = .329$ ) or duration ( $r = -.11$ ,  $p = .245$ ). This pattern indicates that students higher in Openness detected more errors per unit time rather than simply working longer or achieving greater total coverage.

Conscientiousness showed a marginally significant positive correlation with correct detections ( $r = .16$ ,  $p = .094$ ) but was not significantly related to efficiency ( $r = .13$ ,  $p = .175$ ) or duration ( $r = .10$ ,  $p = .281$ ).

Extraversion, Agreeableness, and Neuroticism showed negligible associations with task performance indicators. All three failed to correlate significantly with correct detections, efficiency, or duration (all correlations fell below .07 in magnitude for Extraversion and Neuroticism with performance variables; all fell below .10 for Agreeableness).

### Digital Distraction and Performance

Self-reported notification disruption and refocus time showed small negative associations with efficiency, as indicated in Table 2. Higher perceived notification disruption was marginally associated with lower efficiency ( $\rho = -.17$ ,  $p = .076$ ) but was unrelated to

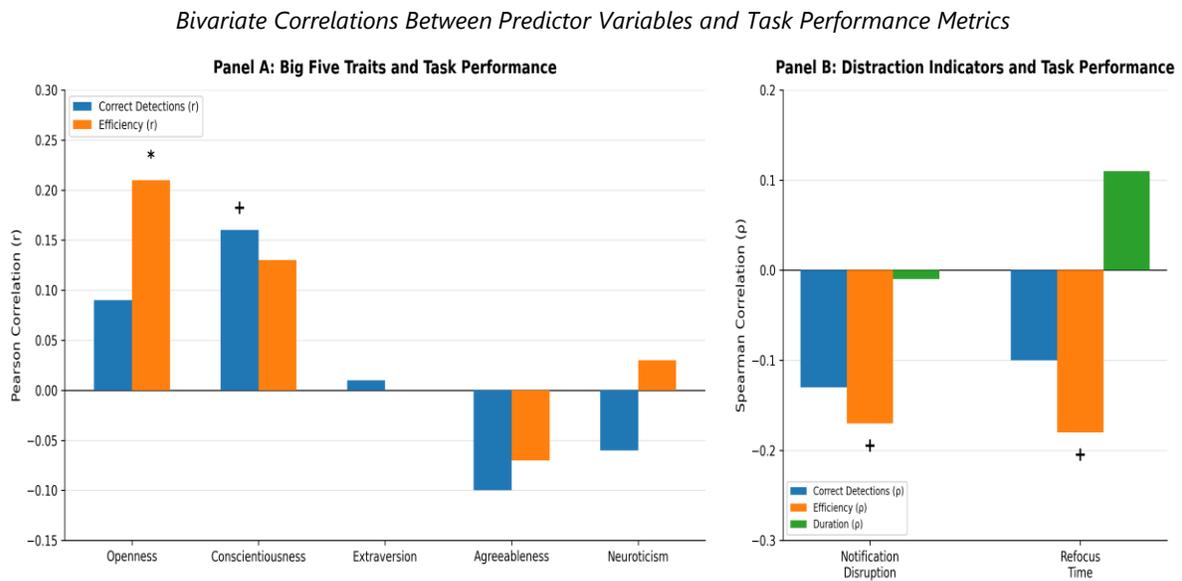
correct detections ( $\rho = -.13, p = .184$ ) or duration ( $\rho = -.01, p = .951$ ). Longer self-reported refocus time showed a similar marginally significant negative correlation with efficiency ( $\rho = -.18, p = .053$ ) but was unrelated to correct detections ( $\rho = -.10, p = .310$ ) or duration ( $\rho = .11, p = .244$ ).

These results indicate that distraction effects, if present, operate primarily through reduced rate of detection rather than through differences in total time spent or overall coverage achieved. The two distraction indicators were moderately intercorrelated ( $\rho = .27, p = .003$ ), indicating some shared variance. Neuroticism showed significant positive correlations with both notification disruption ( $\rho = .31, p < .001$ ) and refocus time ( $\rho = .19, p = .042$ ), which may indicate that trait anxiety relates to self-reported vulnerability to digital interruption.

**Duration as a Process Variable**

Task duration was positively correlated with correct detections ( $r = .42, p < .001$ ), highlighting the importance of time-on-task as a determinant of coverage. Students who worked longer identified more errors, consistent with the sequential scanning nature of the task. Duration also showed a significant negative correlation with efficiency ( $r = -.41, p < .001$ ), reflecting the mathematical relationship inherent in rate measures. The finding that Openness related to efficiency but not to raw detections or duration points to a qualitative difference in how students approached the task rather than a simple difference in how long they persevered. Figure 1 presents a visual summary of the key bivariate correlations.

**Figure 1**



*Note.* Panel A displays Pearson correlations between Big Five-aligned indicators and two performance measures (correct detections and efficiency). Panel B displays Spearman correlations between distraction indicators and three performance measures (correct detections, efficiency, and duration). + $p < .10$ . \* $p < .05$ .

**Hierarchical Regression: Incremental Contribution of Distraction Indicators**

To address Research Question 3 directly, a three-step hierarchical multiple regression was conducted with efficiency as the dependent variable. Duration was entered in Step 1 to control for time-on-task effects. The five Big Five-aligned indicator scores were added in Step 2. The two distraction indicators were entered in Step 3. Table 3 presents the results of this analysis.

Duration alone accounted for 16.8% of the variance in efficiency,  $F(1, 112) = 22.63$ ,  $p < .001$ . The addition of Big Five-aligned indicators in Step 2 produced a marginally significant increment of .078 in explained variance,  $F \text{ change}(5, 107) = 2.21$ ,  $p = .058$ , raising the total to 24.5%. Within this step, Openness ( $\beta = .19$ ,  $p = .038$ ) and Conscientiousness ( $\beta = .20$ ,  $p = .032$ ) emerged as significant predictors after controlling for duration. Agreeableness showed a marginally significant negative association with efficiency ( $\beta = -.19$ ,  $p = .057$ ).

The entry of distraction indicators in Step 3 did not produce a significant increment in explained variance (incremental  $R^2 = .021$ ),  $F \text{ change}(2, 105) = 1.53$ ,  $p = .220$ . Neither notification disruption ( $\beta = -.14$ ,  $p = .148$ ) nor refocus time ( $\beta = -.06$ ,  $p = .539$ ) predicted efficiency once duration and personality traits were controlled. The final model explained 26.7% of the variance in efficiency (adjusted  $R^2 = .211$ ).

This finding directly addresses Research Question 3. The marginal bivariate associations between distraction indicators and efficiency reported above did not hold as independent predictors once duration and personality were included. In other words, whatever variance in efficiency is shared with self-reported distraction largely overlaps with variance already captured by time-on-task and personality differences.

**Table 3**

*Hierarchical Regression Predicting Efficiency (Detections per Minute; N = 114)*

Predictor	$\beta$	SE	t	p	$R^2$	Incr. $R^2$	F change
<b>Step 1</b>					<b>.168</b>	<b>.168</b>	<b>22.63***</b>
Duration	-.41	.09	-4.76	<.001			
<b>Step 2</b>					<b>.245</b>	<b>.078</b>	<b>2.21+</b>
Duration	-.42	.09	-4.86	<.001			
Openness	.19	.09	2.10	.038			
Conscientiousness	.20	.09	2.17	.032			
Extraversion	.01	.09	0.13	.899			
Agreeableness	-.19	.10	-1.93	.057			
Neuroticism	-.02	.09	-0.24	.809			
<b>Step 3</b>					<b>.267</b>	<b>.021</b>	<b>1.53</b>
Duration	-.40	.09	-4.67	<.001			
Openness	.15	.09	1.70	.093			
Conscientiousness	.17	.09	1.89	.061			
Extraversion	.01	.09	0.13	.899			
Agreeableness	-.16	.10	-1.69	.095			
Neuroticism	.03	.09	0.36	.719			
Notification effect	-.14	.09	-1.46	.148			
Refocus time	-.06	.09	-0.62	.539			

Note. Standardized regression coefficients ( $\beta$ ) are reported. SE = standard error of the standardized regression coefficient ( $\beta$ ).  $F$  change =  $F$ -change statistic for the incremental variance explained by each step. Adjusted  $R^2$  for the final model = .211. All analyses were conducted using JASP (Version 0.95.4). + $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## **Discussion**

This observational study examined relationships between brief Big Five-aligned personality indicators, self-reported digital distraction, and performance on a keyed target-language error-identification task in which translation students revised an Arabic-to-English translated passage. Before addressing the three research questions directly, the discussion considers the role of task duration, which emerged as a central process variable that shapes the interpretation of all subsequent findings.

### **Duration and the Coverage–Efficiency Distinction**

The positive association between task duration and correct detections ( $r = .42$ ) confirms that time-on-task is a major determinant of coverage in sequential scanning tasks. Students who spend more time naturally have more opportunities to detect errors, which means that similar detection totals can mask quite different underlying processes. One student may identify eight errors in ten minutes while another identifies the same number in twenty, yet both receive identical scores if only detections are counted. The efficiency metric addresses this limitation by adjusting for time, and the different associations observed for Openness (related to efficiency but not to duration or raw detections) show why this distinction matters empirically.

The goal-decay mechanism described by Altmann and Trafton (2002) predicts that interruptions should impair performance most visibly in rate of progress rather than in task abandonment. The present findings are consistent with this prediction: distraction indicators were associated with lower efficiency but not with shorter duration or reduced total coverage, suggesting that students who experienced greater disruption continued working but progressed through the text more slowly.

### **Personality Traits and Error Detection (Research Question 1)**

Research Question 1 asked how Big Five-aligned indicator scores relate to error detection performance. Openness correlated significantly with efficiency both at the bivariate level ( $r = .21$ ) and in the regression model after controlling for duration ( $\beta = .19$ ). Students higher in Openness appear to have worked neither longer nor with greater total coverage, yet they detected more errors per minute. One possible explanation is that Openness supports cognitive flexibility or a greater readiness to notice linguistic anomalies, qualities attributed to this trait in the personality literature. The gap between efficiency and raw coverage highlights the importance of separating working faster from working longer when interpreting performance data in bounded revision tasks.

Conscientiousness emerged as a significant predictor of efficiency ( $\beta = .20$ ) after controlling for duration, despite showing a non-significant bivariate correlation with efficiency ( $r = .13$ ). This suppression pattern indicates that Conscientiousness relates positively to both persistence (longer duration) and efficiency (faster detection rate), but these two pathways work in opposite directions at the bivariate level. Controlling for duration isolates the efficiency pathway, showing a clearer trait effect. Agreeableness showed an unexpected marginally significant negative association with efficiency ( $\beta = -.19$ ) that was absent at the bivariate level. This finding should be treated cautiously given its emergence only in the multivariate context and the absence of a clear theoretical rationale.

Extraversion and Neuroticism showed negligible direct associations with the performance metrics. These null findings are informative: not all traits contribute equally to all task types, and effect sizes in trait-performance research are typically modest even where statistically significant.

### **Digital Distraction and Performance (Research Question 2)**

Research Question 2 asked how digital distraction indicators relate to performance and duration. Both indicators showed modest negative bivariate associations with efficiency, though neither reached conventional significance thresholds. This pattern aligns

with findings reported by Stothart et al. (2015), who showed that mobile phone notifications disrupt performance on attention-demanding tasks even when individuals do not interact with their devices. Ohly and Bastin (2023) found that reducing notification-caused interruptions improved performance and reduced strain in naturalistic work settings, adding field-based evidence to the laboratory findings.

The current study cannot support causal claims, but the direction of association aligns with the broader literature. Distraction effects appeared specific to efficiency rather than to duration or absolute coverage, which indicates that students experiencing greater disruption may not abandon the task earlier but instead make slower progress through the text. Furthermore, the finding that Neuroticism correlated positively with both distraction indicators adds a trait-based dimension to this pattern. Students higher in trait anxiety may be particularly vulnerable to self-reported attentional fragmentation from digital interruptions, a possibility that warrants further investigation with experimental designs.

### **Incremental Contribution of Distraction Beyond Duration and Personality (Research Question 3)**

Research Question 3 asked whether distraction indicators predict efficiency once duration and personality are controlled. The hierarchical regression results provide a direct answer: distraction indicators did not add significant incremental variance to the prediction of efficiency. This null finding is informative on its own. It indicates that the modest bivariate associations between distraction and efficiency reflect shared variance with personality and time-on-task rather than a unique distraction effect. The pattern is consistent with the broader meta-analytic evidence reported by Hsieh (2025) and Kuş (2025), which documented small average associations between technology-related factors and performance alongside considerable heterogeneity.

### **Integration with Prior Categorical Research**

These efficiency-based diagnostic distinctions complement findings from prior categorical personality research conducted with the same student population using the MBTI framework. In earlier work examining terminology recall, Sensing and Intuitive students achieved comparable total scores yet differed in how they responded under retrieval difficulty: Sensing students tended to skip items entirely, while Intuitive students attempted partial answers (Al-Ismael, 2026). The present study extends this observation by showing that Openness, the trait most closely aligned with the Intuition pole, predicts faster error detection rather than greater total coverage. This indicates that the advantage previously attributed to Intuitive types may operate through processing efficiency rather than persistence alone. Similarly, the Conscientiousness–efficiency link identified here parallels the structured accuracy advantage observed among Judging types in a direct ISTJ–ISTP comparison (Al-Ismael & Almohaimeed, 2025), but the regression framework shows that this advantage involves both longer engagement and faster scanning at the same time. This dual pathway is one that categorical MBTI comparisons cannot separate out. Taken together, the two lines of research indicate that personality-informed pedagogy benefits from combining categorical diagnostic tools, which identify qualitatively distinct response strategies, with dimensional measures, which quantify gradient associations and isolate the mechanisms through which traits influence task performance.

### **Pedagogical Implications**

The findings point to several data-informed applications for translator pedagogy. The strong duration–coverage association combined with the Openness–efficiency link indicates that students differ not only in how long they work but in how productively they scan for errors. Instructors can use efficiency metrics alongside raw detection scores to identify students who achieve coverage primarily through persistence versus those who show faster, more systematic scanning. This diagnostic distinction is directly actionable: students with low efficiency but adequate coverage may benefit from structured scanning procedures, while students with high efficiency but low total detections may need time management support to sustain their effort longer.

The hierarchical regression showed that Conscientiousness predicted efficiency independently of duration. This indicates that traits associated with organization and systematic behavior translate into measurably faster error detection even after controlling for time spent. This finding supports the use of staged revision passes in translator education, where one pass targets grammar and another addresses spelling or formatting. Such structured approaches may be particularly beneficial for students lower in Conscientiousness, who may lack internalized checking routines.

The finding that distraction indicators did not add significant variance beyond personality and duration indicates that supervised notification-free revision blocks, while potentially beneficial, should not be expected to produce large independent

effects on detection performance. Attention management strategies may complement rather than substitute for the development of procedural revision skills. However, given the association between Neuroticism and self-reported distraction vulnerability, students higher in trait anxiety may still benefit from reduced-notification environments during demanding tasks.

### **Limitations**

Several limitations should be noted. The study is correlational and context-specific: the sample consisted of male undergraduate translation students aged 20 to 22, working on a single Arabic-to-English translated passage at a single time point, so causal interpretations are not supported and generalization to other populations, languages, or task formats is not warranted. The dataset captured aggregate counts rather than item-level selections, which prevents strict false positive rates or error-type-specific analyses. In addition, the error passage concentrates heavily on subject-verb agreement violations (13 of 14 grammatical errors), which limits generalizability to revision tasks involving diverse error types.

The two distraction items capture self-reported perceptions of notification disruption and refocus difficulty rather than objective measures of phone use or interruption frequency, and are therefore subject to recall bias. The hierarchical regression included Spearman correlations for these ordinal distraction indicators alongside Pearson correlations for continuous variables, an approach that does not fully meet the distributional assumptions of ordinary least squares regression. Further studies with larger samples should consider polychoric correlations or latent variable approaches for ordinal predictors.

### **Future Directions**

Future research should incorporate item-level tracking of which specific errors students select and which they miss. This would allow calculation of precision, recall, and error-type-specific detection rates. Experimental manipulation of notification availability would allow direct causal tests of the distraction–performance relationship. Extending the keyed detection framework to Arabic texts and to passages containing diverse error types beyond subject-verb agreement would allow both language-specific and error-type-specific comparisons directly relevant to translation programs.

Longitudinal designs tracking the same students across multiple tasks and time points would clarify whether trait-performance associations remain stable or shift as students gain experience. Intervention studies testing whether explicit attention-management training or structured revision procedures improve efficiency would move the work from description to application, thereby directly informing translator pedagogy.

### **Conclusion**

This study examined how personality traits and digital distraction relate to performance on a keyed target-language error-identification task applied to an Arabic-to-English translated passage among translation students. The central methodological contribution lies in distinguishing between coverage and efficiency, and in using hierarchical regression to test the incremental predictive value of distraction indicators beyond time-on-task and personality. Duration correlated strongly with correct detections, confirming that time-on-task is a major determinant of coverage in sequential scanning tasks.

Among personality traits, Openness emerged as a significant predictor of efficiency both at the bivariate level and after controlling for duration, which may indicate that this trait supports qualitative differences in how students approach systematic checking. Conscientiousness, which showed only a marginal bivariate association with detection totals, became a significant predictor of efficiency in the regression model, showing a suppression effect whereby controlling for duration clarified the trait's positive contribution to detection rate. Self-reported digital distraction indicators showed small negative bivariate associations with efficiency, aligning with experimental and field evidence that notifications impose attentional costs. However, these distraction effects did not add significant incremental variance once duration and personality were controlled.

The findings support explicit instruction in staged revision procedures and attention management strategies in translator education, while maintaining realistic expectations about effect sizes. Keyed detection tasks offer a workable format for diagnosing how students allocate time and attention during systematic text checking. Further studies with experimental

designs, item-level error tracking, and other personality instruments are needed to strengthen causal inference and extend these findings to broader revision contexts.

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## **Appendix A**

### **Task Passage**

Expo 2034 in Saudi Arabia aim to position the Kingdom as a major global hub for innovation and cultural exchnage. The event promise to attract millions of visitors who is interested in future technologies and international cooperationn. Saudi Arabia have invested significant resources to develop infrastructure that support large-scale global events. Many experts believes that the Expo will bring economic opportunities, but others question if the preparations are sufficient. Visitors was expected to experience advanced transportation systems and digital services that was designed for efficiency. The organizers also plan cultural programs that reflects national identity. However the scale of the project raise concerns, and managing such event require careful coordiantion between institutions, stakeholders, and international partners to ensure the objectives are fully achieve.

### **Answer Key (17 Target Errors)**

#### **Grammatical Errors (14)**

1. aim → aims (subject-verb agreement)
2. promise → promises (subject-verb agreement)
3. who is interested → who are interested (subject-verb agreement)
4. have invested → has invested (subject-verb agreement)
5. that support → that supports (subject-verb agreement)
6. experts believes → experts believe (subject-verb agreement)
7. was expected → were expected (subject-verb agreement)
8. that was designed → that were designed (subject-verb agreement)
9. that reflects → that reflect (subject-verb agreement)
10. the scale ... raise → the scale ... raises (subject-verb agreement)
11. such event → such an event (article omission)
12. require → requires (subject-verb agreement)
13. fully achieve → fully achieved (passive voice / missing past participle)
14. plan cultural → plans cultural (subject-verb agreement)

#### **Spelling Errors (3)**

1. exchnage → exchange
2. cooperationn → cooperation
3. coordiantion → coordination

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## Appendix B

### Digital Distraction Indicator Items

#### SC1 (Notification Effect)

"During translation tasks, notifications usually:"

Response options (ordinal scale):

- A. Do not affect me
- B. Slightly reduce concentration
- C. Interrupt focus temporarily
- D. Strongly disrupt workflow
- E. Increase stress

#### SC3 (Refocus Time)

"After checking a notification, you usually need:"

Response options (ordinal scale):

- A. Less than 10 seconds to refocus
- B. 10–30 seconds
- C. 30–60 seconds
- D. More than one minute
- E. I often lose track

### Data Availability Statement

The datasets used in this study are available from the corresponding author upon reasonable request.