

Number 132 / 2025

Working Paper Series

by the University of Applied Sciences BFI Vienna



Exploratory Structure Analysis and Item Reduction of the Digital Mindset Scale 2

August 2025

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Gefördert von



Wirtschaft, Arbeit
und Statistik

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Abstract

Die vorliegende Arbeit prüft die strukturelle Robustheit und externe Validität der im Rahmen von WP131 (Waldhauser 2025b) entwickelten Digital-Mindset-Skala. Aufbauend auf einer dreifaktoriellen Lösung mit sechzehn Items, die technologiebezogene Friktion und Belastung, breitere wahrgenommene Folgen technologischen Wandels sowie analoge Orientierung und Identitätspositionierung abbildet, werden drei Fragen adressiert: (1) Repliziert sich die Faktorstruktur in einer unabhängigen englischsprachigen Stichprobe? (2) Lässt sie sich in eine deutsche Übersetzung übertragen und zeigt Messinvarianz über Sprachen hinweg? (3) Wie positioniert sich die Skala im Netzwerk theoretisch angrenzender Konstrukte, konkret Digital Self-Efficacy (DSE) und Technostress?

In zwei Online-Stichproben ($N_{EN}=149$, $N_{DE}=153$) wurden konfirmatorische Faktorenanalysen, Messinvarianztests und Regressionsanalysen mit DSE und Technostress sowie demografischen und kontextuellen Kovariaten durchgeführt. Die dreifaktorielle Struktur replizierte sich in beiden Sprachversionen mit akzeptablen Anpassungsgüten; multi-group Analysen stützten konfigurale, metrische und schwellenbezogene Invarianz. Alle drei Dimensionen zeigten systematische Zusammenhänge mit DSE und Technostress, wobei der Faktor „Friktion/Belastung“ durchgängig die stärksten Assoziationen und die höchste prognostische Relevanz aufwies.

Die Befunde stützen die Interpretation des Digital Mindset als mehrdimensionale, beliefbasierte Struktur, die die kognitive Rahmung digitaler Anforderungen und die wahrgenommene Bewältigungsfähigkeit prägt. Zugleich wird deutlich, dass strain-fokussierte Überzeugungen inhaltlich eng an Technostress anschließen und ihre prominente Rolle teilweise der aktuellen Itemverteilung geschuldet ist. Insgesamt liefert die Studie eine stabilere empirische Grundlage für die Skala und markiert Ansatzpunkte für weitere Skalenverfeinerung, Längsschnitt- und Interventionsstudien.

This working paper examines the structural robustness and external validity of the Digital Mindset scale developed in WP131 (Waldhauser 2025b). Building on a three-factor solution with sixteen items that capture (1) technology-related friction and strain, (2) broader perceived consequences of technological change, and (3) analogue orientation and identity positioning, the study addresses three questions: (1) whether the factor structure replicates in an independent English-speaking sample, (2) whether it generalises to a German translation and shows measurement invariance across languages, and (3) how the scale is positioned within a network of theoretically adjacent constructs, namely Digital Self-Efficacy (DSE) and technostress.

Two online samples ($N_{EN}=149$, $N_{DE}=153$) completed the Digital Mindset scale, DSE, technostress and covariate measures. Confirmatory factor analyses, multi-group invariance tests and regression models were conducted. The three-factor structure replicated in both language versions with acceptable model fit, and multi-group analyses supported configural, metric and threshold invariance. All three Digital Mindset dimensions showed systematic associations with DSE and technostress, with the friction/strain factor consistently displaying the strongest correlations and predictive effects once demographic and exposure-related covariates were controlled.

These findings support the interpretation of the Digital Mindset as a multidimensional, belief-based framework that shapes how individuals appraise digital demands and their own capability to manage them, rather than as a simple skill or trait measure. At the same time, the very strong linkage between the friction/strain factor and technostress highlights conceptual proximity and points to the influence of the current item architecture on the prominence of this dimension. Overall, the study provides a more stable empirical basis for the three-factor structure and identifies clear directions for further scale refinement and longitudinal or intervention-focused research.

1 Introduction

The exploratory analyses conducted in WP131 (Waldhauser 2025b) yielded a coherent three-factor structure comprising sixteen items. The factors captured (1) technology-related friction and strain, (2) broader perceived consequences of technological change, and (3) analogue orientation and identity positioning. Although meta-beliefs had been expected to cluster separately based on the qualitative work, the empirical pattern indicated that they integrate into the technology-related dimensions rather than forming an independent factor. The model demonstrated acceptable fit and a meaningful proportion of explained variance, but its exploratory nature requires further examination. In particular, the stability of the structure, its applicability across languages, and its position relative to theoretically adjacent constructs remain open questions.

The present working paper addresses these issues through three analytical steps. First, the three-factor structure is subjected to confirmatory factor analysis (CFA) using an independent English-language sample to test whether the dimensional configuration identified in WP131 (Waldhauser 2025b) replicates. Second, a German translation of the scale is examined to assess whether the structure generalises across languages and whether at least configural invariance can be established. Third, the construct validity of the scale is evaluated through its associations with Digital Self-Efficacy (DSE) and Technostress Creators (TSI). These constructs were selected because they represent belief- and appraisal-based responses to digital environments that are theoretically proximate to, but conceptually distinct from, the belief structures captured by the Digital Mindset Scale.

Digital Self-Efficacy builds on the broader self-efficacy framework proposed by Bandura, who defined self-efficacy as individuals' beliefs in their capability to organise and execute actions required to manage prospective situations (Bandura 1997). Computer Self-Efficacy (CSE), as introduced by Compeau and Higgins (1995), applied this principle to technology-related tasks and demonstrated that perceived capability predicts technology use and coping with technological demands. Ulfert-Blank and Schmidt (2022) extend this tradition by conceptualising Digital Self-Efficacy as a broader belief in one's ability to navigate, adapt to and effectively participate in digitally mediated work processes. DSE is therefore belief-based, agentic, and directly situated in digital contexts, making it relevant for validating the Digital Mindset. The closest conceptual link is with the dimension capturing technology-related friction and strain. The remaining factors share less theoretical overlap, and any associations with DSE are expected to be weaker or more situational.

Technostress refers to stress responses that arise when digital technologies create demands or complexity that exceed individuals' perceived ability to cope. A commonly used operationalisation is the five stressor categories proposed by Tarafdar et al. (2007): techno-overload, techno-complexity, techno-invasion, techno-insecurity and techno-uncertainty. Later work expands this model to include pressures linked to continuous digital transformation and changing work practices (Tarafdar et al. 2019). Meta-analytic evidence shows that these stressors are consistently associated with psychological strain and performance outcomes (Nastjuk et al. 2024). Longitudinal findings also indicate that technology-related strain depends partly on coping patterns; older workers report lower strain because they rely less on maladaptive coping (Hauk et al. 2019). Recent work further suggests that broader cognitive orientations influence how employees appraise techno-stressors: Valta et al. (2024) report that employees with a stronger digital mindset react less adversely to such demands.

Their conceptualisation differs from the belief-based structure examined in this project (e.g. Waldhauser 2025b), but the findings support the assumption that interpretative orientations toward technology shape stress appraisals. Given this, moderate associations between technostress and the factor capturing technology-related friction and strain are plausible, with weaker links expected for the remaining factors.

As such, this working paper examines whether the factor structure derived in WP131 (Waldhauser 2025b) can be confirmed in a new sample, whether it can be retained in a German translation, and whether the scale demonstrates coherent patterns of association with DSE and technostress creators. These analyses are intended to provide a more rigorous assessment of the scale's dimensional stability and construct validity.

2 Method

The present study used a cross-sectional design with two independent samples to examine the structural and external validity of the Digital Mindset Scale. The English version served to evaluate the three-factor solution identified in WP131 (Waldhauser 2025b) via confirmatory factor analysis. A German version was then administered to test whether the structure can be reproduced in translation and to assess measurement invariance across languages. Both samples included measures of Digital Self-Efficacy and Technostress to enable convergent and discriminant validity analyses.

2.1 Participants

Data were collected via the online panel Prolific. Inclusion criteria required participants to be at least 18 years old and to use digital technologies on a regular basis. Quality control criteria excluded respondents with implausibly short completion times (<100 seconds), failure on either of two attention checks, patterned responding, and implausible reports of daily digital use (>24 hours). After exclusions, the English sample comprised 151 participants and the German sample 157. Across both samples, participants covered a broad adult age range. The mean age in the German sample was 36.8 years (SD = 11.9, range 18–74), while the English sample was older on average (M = 46.3, SD = 12.9, range 22–75). Gender distributions were comparable: in the German sample, 36.9% identified as female, 60.5% as male and 1.9% as non-binary; in the English sample, proportions were 44.4% female, 54.3% male and 0.7% non-binary. Educational backgrounds reflected a mix of secondary and tertiary education. In the German sample, 31.2% held a bachelor's degree and 29.3% a master's degree, while in the English sample 44.4% held a bachelor's degree and 12.6% a master's degree, with additional representation at lower and doctoral levels. Participants reported substantial exposure to digital technologies in their work or study contexts. In the German sample, 65% indicated that digital tools shaped their activities considerably, strongly or very strongly; in the English sample, this proportion was 56%. Daily digital use was high across both samples, averaging 8.6 hours in the German sample (SD = 3.5, median = 8) and 7.1 hours in the English sample (SD = 3.4, median = 7). Median completion times were 256 seconds (German) and 267 seconds (English), suggesting adequate engagement with the survey. Detailed sample characteristics are presented in Appendix Tables 8-12.

2.2 Ethics

The study adhered to the ethical standards of the British Psychological Society (BPS) and the guidelines for good scientific practice issued by the Austrian Agency for Research Integrity (Österreichische Agentur für wissenschaftliche Integrität, OeAWI). All participants provided informed consent prior to participation. No identifiable personal data were collected, and participants could withdraw at any point before submitting their responses. The study formed part of a broader research programme on the digital mindset that had received institutional ethics approval. Data collection and storage complied with GDPR requirements.

2.3 Measures

The Digital Mindset Scale consisted of 16 items representing the three-factor structure identified in WP131 (Waldhauser 2025b). Items were rated on a seven-point agreement scale and administered in identical form across both languages. The German version was produced through a structured translation process (initial DeepL translation, semantic side-by-side review, independent reverse translation). Full item wordings are provided in Appendix Table 14.

Digital Self-Efficacy was measured with an adapted version of the Compeau and Higgins (1995) Computer Self-Efficacy scale. The eight items were reformulated to refer to digital tools and digital work environments rather than computer-specific tasks. The same version was administered in the English and German samples. Item wordings are listed in Appendix Table 15.

Technostress was assessed using a reduced version of the Tarafdar et al. (2007), with two items representing each of the five technostress categories (overload, invasion, complexity, insecurity and uncertainty). A single composite score was used for validity analyses. Item wordings are presented in Table 16.

Participants reported age, gender, daily digital-tool use (hours), and the extent to which their work or study activities were shaped by digital technologies. Distributions for the digital relevance variable are shown in Tables 8-13.

2.4 Procedure

Participants were recruited through Prolific and redirected to a survey hosted on a LimeSurvey installation running on a secure institutional server of the University of Applied Sciences BFI Vienna. After providing informed consent, participants completed the Digital Mindset items, the Digital Self-Efficacy scale, the abbreviated Technostress scale and the covariate questions. The order of the scale blocks was fixed, while the items within each block were presented in randomised order. The survey was administered in the respective recruitment language (English or German). No identifying information was collected, and participants could discontinue participation at any time prior to submission. Participants received GBP 1 as compensation.

The study adhered to the ethical principles of the British Psychological Society and the guidelines for good scientific practice issued by the Austrian Agency for Research Integrity. It formed part of the broader Digital Mindset research programme, for which institutional ethics approval had been obtained. Data were stored exclusively on institutional servers and processed in accordance with GDPR requirements.

2.5 Analytical Strategy

The analyses followed a sequential approach. The three-factor structure identified in WP131 (Waldhauser 2025b) served as the primary measurement model. This model was fitted separately in the English and German samples. Two residual covariances (DM01–DM02 and DM14–DM15) were included because they consistently showed substantial modification indices and were judged to reflect item similarity rather than structural misspecification.

The English version of the scale was examined first to evaluate whether the three-factor structure from WP131 (Waldhauser 2025b) could be replicated. Models were estimated using WLSMV with all items treated as ordered categorical. Model fit was assessed using χ^2 , *CFI*, *TLI*, *RMSEA* and *SRMR*. For comparison, alternative models were estimated, including a one-factor solution, a two-factor solution and a second-order hierarchical model. Model selection was based on global fit indices and conceptual interpretability.

The same three-factor model was estimated in the German sample to test whether the structure generalises across languages. Due to an empty response category in one item, models were estimated using MLR. Fit indices matched those used in the English analysis. No alternative models were estimated for the German sample, as the aim of this step was to evaluate replication of the established structure rather than explore structural variants.

Measurement invariance across the English and German versions was assessed in a stepwise procedure. Configural invariance was tested first by fitting the unconstrained multi-group model. Metric invariance was then evaluated by constraining factor loadings across groups. Changes in *CFI* and *RMSEA* were used to judge invariance, with $\Delta CFI \leq .01$ and $\Delta RMSEA \leq .015$ as acceptable thresholds. Scalar invariance was explored but was not central to the aims of this working paper due to the ordinal nature of the items and the empty category noted above.

Convergent and discriminant validity were examined through correlations between Digital Mindset scores, Digital Self-Efficacy, Technostress and the covariates. Regression analyses were then conducted with Technostress and Digital Self-Efficacy as dependent variables. Predictors included the Digital Mindset total score (and the three factors in exploratory models), with age, gender, digital relevance and daily digital use entered as covariates. Cases with implausible daily-use values (>24 hours) were excluded from these regression models. All analyses were conducted in R (version 4.5.1) using the packages *lavaan* (Rosseel 2012) and *psych* (Revelle 2025).

3 Results

3.1 Data Quality and Descriptives

The initial dataset comprised 315 cases. After removing entries with incomplete responses on the study scales, 310 cases remained. Six participants failed at least one of the two attention checks and were excluded. Given the overall questionnaire length, two additional participants with completion times below 120 seconds were removed. Nineteen participants reported implausible values for daily digital-tool use (> 24 hours); these cases were retained in the dataset but excluded from analyses involving this variable.

After data cleaning, the final analysis samples consisted of 153 cases for the German version and 149 cases for the English version. Descriptive characteristics of both samples are summarised in Appendix Tables A1–A3. Internal consistencies for the auxiliary constructs were high (Digital Self-Efficacy: $\alpha = .92$; Technostress: $\alpha = .89$).

3.2 CFA English Version

The three-factor structure identified in WP131 (Waldhauser 2025b) was evaluated in the English sample using WLSMV estimation. The initial three-factor model showed better global fit than either a one-factor or a two-factor alternative (Table 1). Several items showed indications of local dependence. The highest modification indices were observed for DM01–DM02 (MI ≈ 36), DM14–DM15 (MI ≈ 24), and DM08–DM12 (MI ≈ 14). Allowing these three residual covariances led to a substantial improvement in model fit.

The modified three-factor model demonstrated acceptable global fit ($\chi^2(99) = 208.602$, $CFI = .893$, $TLI = .870$, $RMSEA = .086$ [.070, .103], $SRMR = .078$). Standardised item loadings ranged from .50 to .86 on the technology-related friction and strain factor (F1), from .48 to .80 on the broader consequences of technological change factor (F2), and from .55 to .72 on the analogue orientation factor (F3). All loadings were statistically significant ($p < .001$). Factor intercorrelations were moderate (F1–F2: $r = .52$; F1–F3: $r = -.41$; F2–F3: $r = -.28$), supporting the conceptual distinctiveness of the three dimensions.

Table 1: Model fit indices for CFA models (English sample). WLSMV models are shown in the upper block; MLR models in the lower block.

Model (WLSMV)	χ^2	df	CFI	TLI	RMSEA [90% CI]	SRMR
One-factor	457.07	104	.944	.936	.151 [.137, .166]	.112
Two-factor	412.67	103	.951	.943	.143 [.128, .157]	.108
Three-factor (unmodified)	313.27	101	.966	.960	.119 [.104, .134]	.095
Three-factor (mod., WLSMV)	246.35	98	.977	.971	.101 [.085, .117]	.086
Model (MLR)	χ^2	df	CFI	TLI	RMSEA [90% CI]	SRMR
Three-factor (mod., MLR)	196.77	98	.904	.882	.082 [.065, .099]	.079
Second-order (MLR)	196.77	98	.904	.882	.082 [.065, .099]	.079

Note. WLSMV models were estimated with ordered indicators. The second-order model could not be identified under WLSMV and was therefore estimated using MLR. To allow meaningful comparison, the modified three-factor model was re-estimated using MLR.

A second-order hierarchical model was examined but not retained. With three first-order factors, a higher-order specification is mathematically redundant and yields fit indices that are functionally identical to the reparameterised first-order model. In line with this, the second-order solution did not improve model fit or interpretability. Conceptually, the study does not assume a single latent general factor underlying all belief dimensions; instead, the global Digital Mindset score is treated as a manifest composite, reflecting the aggregated expression of the three empirically distinct but related factors. For these reasons, the first-order model was retained as the structural representation of the scale.

Standardised factor loadings are shown in Table 2. All items loaded substantially on their respective factors, with values ranging from .60 to .78 on F1, from .49 to .80 on F2, and from .37 to .71 on F3.

Table 2: Standardised factor loadings for the modified three-factor model (English sample)

Item	F1: Friction/Strain	F2: Broader consequences	F3: Analogue orientation
DM_DM01	.716	–	–
DM_DM02	.607	–	–
DM_DM03	.729	–	–
DM_DM04	.776	–	–
DM_DM05	.671	–	–
DM_DM06	.703	–	–
DM_DM07	.600	–	–
DM_DM08	–	.671	–
DM_DM09	–	.776	–
DM_DM10	–	.567	–
DM_DM11	–	.793	–
DM_DM12	–	.491	–
DM_DM13	–	.715	–
DM_DM14	–	–	.366
DM_DM15	–	–	.568
DM_DM16	–	–	.709

Note: Standardised loadings from the modified MLR-estimated three-factor model. All loadings $p < .001$. Residual covariances were estimated for the item pairs DM_DM01 - DM_DM02, DM_DM14 - DM_DM15, and DM_DM08 - DM_DM12.

3.3 CFA German Version

The three-factor structure was next examined in the German sample using MLR estimation. As in the English analysis, the model included three within-factor residual covariances identified in the English data. The model showed good overall fit ($\chi^2(98) = 143.693$, $CFI = .951$, $TLI = .940$, $RMSEA = .055$ [.034, .074], $SRMR = .059$).

Standardised factor loadings were substantial for most items, ranging from .83 to .41 on the friction/strain factor (F1), from .82 to .41 on the broader consequences factor (F2), and from .84 to .59 on the analogue orientation factor (F3). All loadings were statistically significant (Table 3).

The loading pattern broadly mirrored the English results, with only minor differences in magnitude. Notably, the analogue-orientation factor (F3) exhibited somewhat higher loadings in the German sample, whereas several items on F2 showed slightly weaker loadings relative to the English version. The overall similarity in loadings, factor structure and model fit supported the use of the German version for measurement invariance testing.

Table 3: Standardised factor loadings for the modified three-factor model (German sample)

Item	F1: Friction/Strain	F2: Broader consequences	F3: Analogue orientation
DM_DM01	.829	–	–
DM_DM02	.754	–	–
DM_DM03	.709	–	–
DM_DM04	.693	–	–
DM_DM05	.565	–	–
DM_DM06	.663	–	–
DM_DM07	.411	–	–
DM_DM08	–	.413	–
DM_DM09	–	.816	–
DM_DM10	–	.545	–
DM_DM11	–	.811	–
DM_DM12	–	.422	–
DM_DM13	–	.683	–
DM_DM14	–	–	.708
DM_DM15	–	–	.841
DM_DM16	–	–	.590

Note Standardised loadings from the modified three-factor model (MLR estimation). All loadings $p < .001$. Residual covariances were fixed to match the English model.

3.4 Measurement Invariance Across English and German Versions

Measurement invariance across the English and German versions was examined using multi-group CFA with MLR estimation, following a stepwise procedure testing configural, metric and (for ordinal indicators) threshold invariance. The configural model, in which the three-factor structure was freely estimated in both groups, showed acceptable fit ($\chi^2(196)=340.463$, CFI = .926, TLI = .910, RMSEA = .070 [.057, .082], SRMR = .065), indicating that the basic pattern of factor–item relations was comparable across languages.

Constraining the factor loadings to equality (metric invariance) resulted in a small expected decrease in fit ($\chi^2(209)=366.300$, CFI = .920, TLI = .908, RMSEA = .071 [.058, .082], SRMR = .084). The change in fit relative to the configural model was minimal ($\Delta CFI = -.0065$; $\Delta RMSEA = +.0007$), remaining well within recommended thresholds for establishing metric invariance ($\Delta CFI \leq .01$; $\Delta RMSEA \leq .015$). This indicates that the strength of the item–factor relations is comparable across languages.

A threshold-invariant model, which constrains both loadings and category thresholds, produced nearly identical fit to the metric model ($\chi^2(209)=366.300$, CFI = .920, RMSEA = .071), yielding $\Delta CFI = 0$ and $\Delta RMSEA = 0$. While scalar invariance (intercepts) is not applicable for ordinal indicators, the threshold-invariant solution confirms that the underlying response scale functions similarly across languages.

Overall, the results support configural, metric and threshold invariance of the Digital Mindset scale across English and German versions. This level of invariance permits meaningful comparison of factor covariances and structural relations across groups, and supports the combined use of both samples in subsequent validity analyses.

Table 4: Measurement invariance across English and German versions of the Digital Mindset scale

Model	χ^2	Df	CFI	TLI	RMSEA [90% CI]	SRMR
Configural	340.463	196	.926	.910	.070 [.057, .082]	.065
Metric (loadings equal)	366.300	209	.920	.908	.071 [.058, .082]	.084
Threshold (loadings + thresholds)	366.300	209	.920	.908	.071 [.058, .082]	.084
Fit changes						
Δ CFI (Metric vs. Configural)					- 0.0065	
Δ RMSEA (Metric vs. Configural)					+ 0.0070	
Δ CFI (Threshold vs. Metric)					0	
Δ RMSEA (Threshold vs. Metric)					0	

Note. All models estimated with MLR. Threshold invariance corresponds to equality constraints on factor loadings and response category thresholds for ordinal indicators. Recommended cut-offs for invariance (Δ CFI \leq .01; Δ RMSEA \leq .015) were met

3.5 External Validity

As a prerequisite for the construct validation analyses, the internal consistency of the validation scales was examined. The Digital Self-Efficacy (DSE) scale showed excellent reliability (Cronbach's $\alpha = .92$, $\omega = .92$). Item-total correlations were uniformly high, and a one-factor solution accounted for the majority of common variance, supporting the interpretation of DSE as a homogeneous belief construct. The Technostress scale likewise demonstrated high internal consistency (Cronbach's $\alpha = .89$, $\omega = .90$), with item-total correlations in the moderate-to-high range. Model-based reliability estimates derived from the joint measurement model indicated satisfactory reliability for all latent factors, including the three Digital Mindset dimensions (Friction/Strain, Broader Consequences, Analogue Orientation), DSE and Technostress (all $\alpha \geq .72$).

Average variance extracted (AVE) values were acceptable for all constructs (Digital Mindset factors: .41–.47; DSE: .67; Technostress: .46), indicating that a substantial proportion of variance in the indicators was attributable to the respective latent variables. Latent correlations from the joint measurement model are reported in Table 5.

Table 5: Latent correlations between Digital Mindset factors, Digital Self-Efficacy and Technostress

	M (SD)	F1	F2	F3	DSE	TS
F1 (Friction/Strain)	3.46 (1.09)	–				
F2 (Broader consequences)	5.01 (1.05)	0.74	–			
F3 (Analogue orientation)	3.96 (0.94)	0.80	0.61	–		
Digital Self-Efficacy (DSE)	5.34 (0.97)	-0.47	-0.33	-0.45	–	
Technostress (TS)	3.85 (1.19)	0.86	0.57	0.50	-0.45	–

Note. Values are latent correlations estimated using a joint measurement model with MLR. Means and standard deviations (right column) refer to manifest scale scores.

Digital Self-Efficacy showed moderate negative associations with all three Digital Mindset dimensions (Friction/Strain: $r = -.47$; Broader Consequences: $r = -.33$; Analogue Orientation: $r = -.45$). Individuals who endorsed more strain-oriented and analogue beliefs about digital technologies thus reported lower confidence in their ability to handle digital tools and digitally mediated work processes.

At the same time, DSE was moderately negatively correlated with Technostress ($r = -.45$), indicating that higher perceived capability to manage digital demands went along with weaker stress appraisals. Together, these relationships are consistent with the interpretation of the Digital Mindset scale as capturing belief structures that shape how digital environments are appraised and, in turn, how capable people feel in dealing with them.

Technostress showed a very strong positive association with the Digital Mindset factor capturing technology-related friction and strain ($r = .86$). Participants who perceived digital technologies as intrusive, effortful or exhausting reported substantially higher levels of technostress. The remaining two Digital Mindset dimensions were also positively related to Technostress, albeit to a lesser degree (Broader Consequences: $r = .57$; Analogue Orientation: $r = .50$).

This pattern suggests that Digital Mindset beliefs are closely intertwined with stress responses to digital demands: a more strain-focused and sceptical interpretative framework co-occurs with stronger technostress experiences. At the same time, the correlations indicate that Technostress is not reducible to any single Digital Mindset factor but reflects a broader response pattern in which beliefs about friction, wider societal consequences and analogue preferences all play a role.

The very high correlation between the Friction/Strain factor and Technostress points to substantial conceptual and empirical overlap between these constructs; implications for discriminant validity and the positioning of the Digital Mindset relative to established technostress models are considered in the Discussion.

3.6 Regression Analyses

To assess whether Digital Mindset beliefs help explain variance in the validation constructs beyond demographic and contextual characteristics, two sets of regression models were estimated. Following the analytic strategy, the Digital Mindset total score served as the main predictor. In a second step, exploratory models were fitted in which the three Digital Mindset factors replaced the total score to clarify their relative contribution.

As shown in Table 6, the Digital Mindset total score was a clear negative predictor of Digital Self-Efficacy ($b = -0.35, p < .001$). Participants who endorsed more strain-oriented or sceptical beliefs reported lower confidence in dealing with digital technologies. Apart from education - where higher qualifications were associated with higher DSE - none of the covariates showed meaningful effects. The model explained roughly one third of the variance in DSE ($R^2 = .32$).

Table 6: Regression analysis predicting Digital Self-Efficacy from the Digital Mindset total score

<i>Predictor</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	6.71	0.73	9.18	<.001
Digital Mindset (Total Score)	-0.35	0.05	-6.48	<.001
Age	-0.00	0.00	-0.72	.475
Gender: Female	-0.62	0.60	-1.03	.302
Gender: Male	-0.32	0.60	-0.54	.593
Gender: Non-binary	-1.21	0.73	-1.66	.099
Daily digital-use intensity	0.00	0.01	0.70	.483
Digital relevance: Slightly	-0.31	0.38	-0.82	.411
Digital relevance: Moderately	-0.18	0.35	-0.53	.595
Digital relevance: Considerably	-0.06	0.34	-0.18	.854
Digital relevance: Strongly	0.04	0.35	0.12	.909
Digital relevance: Very strongly	0.40	0.36	1.12	.265
Digital relevance: Almost fully digitalised	0.32	0.36	0.90	.368
Education: A-levels/High School	0.45	0.17	2.60	.010
Education: Bachelor	0.60	0.17	3.52	<.001
Education: Master	0.71	0.19	3.78	<.001
Education: Doctorate	0.50	0.36	1.41	.159

$R^2 = .32$, Adjusted $R^2 = .29$; $F(16, 277) = 8.31, p < .001$

The factor-level model (Appendix Table 18) offered a more fine-grained view. Here, only the Friction/Strain factor was associated with DSE ($b = -0.28, p < .001$). Broader Consequences and Analogue Orientation did not add explanatory value once Friction/Strain was included. The overall explanatory power of the model remained comparable to the total-score model. This suggests that reduced digital self-efficacy is tied specifically to

beliefs that portray digital technologies as taxing or overwhelming, rather than to more general concerns or analogue preferences.

The main model predicting Technostress (Table 7) showed a strong positive association with the Digital Mindset total score ($b = 0.85, p < .001$). Individuals who viewed digital technologies as demanding or taxing reported higher technostress. Several categories of digital relevance were also positively associated with Technostress, indicating that respondents who experienced digitalisation as more central to their work reported higher stress levels. The model explained nearly half of the variance ($R^2 = .48$).

The exploratory factor model (Appendix Table 19) clarified this pattern. The Friction/Strain factor largely accounted for the effect observed in the total-score model and was the only strong predictor. Broader Consequences showed a small positive trend, and Analogue Orientation a modest negative association. Together, these results indicate that technostress is closely tied to beliefs that frame digital technologies as effortful or intrusive, while the other dimensions contribute comparatively little once this strain component is accounted for.

Table 7: Regression analysis predicting Technostress from the Digital Mindset total score

<i>Predictor</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	-2.02	0.78	-2.59	.010
Digital Mindset (Total Score)	0.85	0.06	14.73	<.001
Age	0.00	0.00	0.78	.438
Gender: Female	0.87	0.64	1.37	.173
Gender: Male	0.83	0.64	1.30	.194
Gender: Non-binary	0.75	0.78	0.96	.337
Daily digital-use intensity	0.00	0.01	0.54	.592
Digital relevance: Slightly	0.68	0.40	1.71	.089
Digital relevance: Moderately	1.12	0.37	3.04	.003
Digital relevance: Considerably	1.29	0.36	3.54	<.001
Digital relevance: Strongly	1.32	0.37	3.53	<.001
Digital relevance: Very strongly	1.37	0.38	3.60	<.001
Digital relevance: Almost fully digitalised	1.34	0.38	3.50	<.001
Education: A-levels/High School	0.26	0.19	1.39	.166
Education: Bachelor	0.27	0.18	1.47	.142
Education: Master	0.19	0.20	0.94	.349
Education: Doctorate	0.65	0.38	1.72	.088

$R^2 = .48$, Adjusted $R^2 = .45$; $F(16, 277) = 16.17, p < .001$

Overall, the regression results support the construct validity of the Digital Mindset scale. Both Digital Self-Efficacy and Technostress showed systematic associations with Digital Mindset beliefs, with the

Friction/Strain dimension emerging as the most influential component in the exploratory analyses. The other two dimensions contributed comparatively little once this strain component was taken into account. Together with the correlational results, these findings suggest that the Digital Mindset captures belief patterns that shape how people interpret digital demands and evaluate their ability to manage them.

4 Discussion

The aim of this working paper was to examine the structural robustness and external validity of the Digital Mindset scale developed in WP131 (Waldhauser 2025b). Building on the belief-based framework established in the qualitative and belief-analytic work of WP128 (Waldhauser 2025a), and on the exploratory factor-analytic findings of WP131 (Waldhauser 2025b), this paper tested whether the three-factor structure replicates in an independent sample, generalises across languages, and shows coherent links to theoretically adjacent constructs. The results provide converging evidence that the Digital Mindset can be captured as a multidimensional belief structure that is stable enough to support cross-language comparison and meaningfully related to digital self-efficacy and technostress.

The structural analyses offer a first set of conclusions. Across the English and German samples, the three-factor solution identified in WP131 (Waldhauser 2025b) replicated with good model fit and substantial, pattern-consistent loadings. The factors again reflected (1) technology-related friction and strain, (2) broader perceived consequences of technological change, and (3) analogue orientation and identity positioning. Multi-group analyses supported configural and metric invariance, as well as equality of response thresholds, indicating that the same latent structure underlies responses in both language versions. In the context of the broader project, this suggests that the empirically emergent belief configurations observed in WP131 (Waldhauser 2025b) are not a sample-specific artefact but reflect a more general structure of digital meaning-making.

These findings sit well with the view of belief systems as organised clusters rather than isolated statements. Earlier stages of the project framed the Digital Mindset as a framework of beliefs about technology, the self in interaction with technology, and meta-level orientations, informed by work on belief organisation and epistemic beliefs (e.g. Rokeach 1968; Schommer-Aikins 2002). WP131 (Waldhauser 2025b) showed that, when quantified, these domains do not appear as three cleanly separable layers but as empirically emergent factors that distinguish between technology-focused appraisals and identity-related positioning. This working paper strengthens this interpretation by demonstrating that the same three domains re-emerge under more stringent modelling conditions and across languages. The Digital Mindset, in this sense, is best understood as a structured system of interpretative orientations toward digitalisation rather than as a simple list of attitudes or skills.

The findings also clarify the status of meta-beliefs within this system. WP128 (Waldhauser 2025a), had highlighted reflective stance-taking as a salient feature of how participants described their digital orientation, and the initial conceptual model therefore treated meta-beliefs as a potential third layer alongside technology- and self-related beliefs. The quantitative work, however, consistently failed to identify a distinct meta-belief

factor. WP131 (Waldhauser 2025b) already indicated that items targeting reflective appraisals distributed their variance across the technology-focused domains. This working paper confirms this pattern in confirmatory analyses: the three-factor model shows good fit, and attempts to impose an additional meta-belief factor are not supported. Rather than constituting a separate latent dimension, meta-belief processes appear to be embedded in how people articulate friction, broader consequences, and identity positioning. This is consistent with theories that treat meta-level evaluations as transversal mechanisms shaping the coherence of domain beliefs without necessarily forming independent factors (e.g. Schommer-Aikins 2002). Conceptually, this refines the original model by locating meta-beliefs as an organising feature of the Digital Mindset rather than as a standalone component.

The external validity analyses further situate the Digital Mindset within existing psychological frameworks. Digital Self-Efficacy, as an extension of general self-efficacy theory to digitally mediated work processes (Bandura 1997; Compeau/Higgins 1995; Ulfert-Blank/Schmidt 2022), represents a belief about one's own capability to navigate digital demands. Technostress, in contrast, captures stress appraisals that arise when digital technologies are experienced as overloading, complex, or intrusive (e.g. Nastjuk et al. 2024; Tarafdar et al. 2007, 2019). Both constructs are belief- and appraisal-based, but they operate at different points in the cognitive sequence: self-efficacy focusses on perceived capability, while technostress focusses on strain responses.

The pattern of associations in this working paper aligns with this. Latent correlations showed that all three Digital Mindset dimensions were moderately negatively related to Digital Self-Efficacy and positively related to Technostress, with the strongest links consistently observed for the Friction/Strain factor. Regression models that controlled for age, gender, digital-use intensity, digital use relevance, and education confirmed that Digital Mindset beliefs contribute unique variance beyond exposure-related variables. For Digital Self-Efficacy, the total Digital Mindset score was a substantial negative predictor, and in factor-based models only the Friction/Strain dimension remained a significant predictor. For Technostress, Friction/Strain again emerged as the dominant predictor, with Broader Consequences showing a small positive trend and Analogue Orientation a modest negative association once strain-related beliefs were accounted for.

This pattern is theoretically coherent. The Friction/Strain factor captures beliefs that frame digital technologies as effortful, intrusive, and unreliable in everyday contexts. Within appraisal theory, such generalised expectations about demands and controllability provide a backdrop for both capability judgements and stress responses. If digital tasks are routinely interpreted through a strain-focused lens, it is unsurprising that people feel less capable of managing them and report more technostress. The weaker and more inconsistent contributions of the Broader Consequences and Analogue Orientation factors fit their more distal character: beliefs about creativity, societal risk or analogue identity position digitalisation within broader narratives but are less tightly coupled to moment-to-moment efficacy and strain.

At the same time, the dominance of the Friction/Strain factor in the prediction models should not be interpreted solely in substantive terms. The current instrument assigns more items to this factor than to the other two, and the content of these items is closer to the validation constructs than the more distal, identity-laden statements of the analogue orientation factor. This likely amplifies the statistical weight of Friction/Strain

relative to the other dimensions. The present results therefore point to a dual conclusion: strain-related beliefs are central to how digital demands are appraised and how capable individuals feel in dealing with them, but their prominence is also partly shaped by the scale's current item architecture. Future refinement may benefit from more balanced item representation and from additional items that include identity-related and reflective aspects with similar specificity.

The relation between the Digital Mindset and technostress also has implications for how the construct is positioned relative to existing models. The very high correlation between Friction/Strain and Technostress indicates substantial conceptual overlap, especially with stressors related to overload, complexity and invasion (Tarafdar et al. 2007). However, the Digital Mindset scale was not designed to measure stressors directly. It captures the interpretative frame through which technological demands are viewed, including broader narratives about change and identity. The present findings, therefore, suggest a nested relationship: strain-oriented Digital Mindset beliefs form part of the cognitive terrain in which technostress arises, but they are not reducible to specific stressor categories. This resonates with recent work arguing that digital mindsets shape how techno-stressors are appraised and responded to (e.g. Valta et al. 2024), while providing a more explicit belief-based account of the underlying structure.

From a practical perspective, these results suggest that differences in how people experience digitalisation cannot be understood solely in terms of objective workload, access to technology, or skill level. The belief structures captured by the Digital Mindset scale account for substantial variance in both perceived capability and stress responses, even when digital exposure is controlled. This suggests that interventions aimed at improving digital wellbeing may need to address not only working conditions and training, but also the interpretative frameworks through which digital demands are viewed. The present data are cross-sectional and cannot establish causality, but they point to structured reflective or reframing practices as a promising avenue: if strain-focused beliefs can be shifted toward more differentiated or resource-oriented interpretations, this may alter how digital demands are appraised. Whether such changes are achievable and sustainable remains an empirical question for future work.

Several limitations of the present study should be noted. Both samples were drawn from an online panel and, although heterogeneous in age and education, do not constitute representative population samples. The design was cross-sectional and relied exclusively on self-report, which limits causal inference and raises the possibility of common-method variance. The use of different estimators across parts of the analysis (WLSMV in the English CFA, MLR in the German CFA and invariance models) reflects practical constraints rather than an idealised modelling strategy, even though the three-factor solution proved robust across these specifications. Cultural nuances in how digitalisation is discussed and evaluated were not examined explicitly and may affect the generalisability of the results beyond the language groups studied here.

Despite these constraints, this paper strengthens the empirical foundation of the Digital Mindset construct. It confirms the three-factor structure identified in WP131 (Waldhauser 2025b), demonstrates cross-language invariance, and situates the scale within a network of theoretically relevant constructs. In combination with the qualitative and belief-analytic work of WP128 (Waldhauser 2025a) and the exploratory factor-analytic evidence from WP131 (Waldhauser 2025b), the present findings support the interpretation of the Digital Mindset as a

belief-based framework that shapes how individuals appraise digital environments and their own capability to navigate them.

This provides a coherent basis for subsequent longitudinal, experimental and intervention studies that examine how these belief structures develop, how they interact with digital demands, and whether they can be modified through structured reflective or reframing practices.

5 Conclusion

This paper provides a more rigorous test of the Digital Mindset scale developed in WP131 (Waldhauser 2025b). The three-factor structure replicated across independent samples and showed metric and threshold invariance across English and German versions, indicating that the belief domains are stable and transferable across languages. The scale also demonstrated coherent associations with Digital Self-Efficacy and Technostress, supporting its position within a network of appraisal- and belief-based constructs. Strain-focused interpretations of digital technologies were most closely linked to capability judgements and stress responses, while broader consequence-oriented and identity-related beliefs played a more distal role.

These findings strengthen the interpretation of the Digital Mindset as a structured system of meaning-making rather than a trait or skill measure. They also help refine the conceptual model developed in earlier stages of the project: meta-belief processes appear embedded within technology-focused domains rather than forming a separate factor. The present results therefore consolidate the theoretical grounding of the construct and provide an empirical basis for further refinement.

Several developments follow from this work. More balanced item representation and additional items tapping reflective and identity-related beliefs may enhance the breadth of the measure. Longitudinal and experimental studies are needed to examine how Digital Mindset beliefs evolve and whether they influence, or are influenced by, digital demands over time. The associations observed here also suggest that structured reflective or reframing practices may offer a viable direction for intervention, though this requires systematic testing.

Overall, the findings provide a clearer and more stable empirical basis for the three-factor structure and its relation to adjacent constructs. They also refine the conceptual scope of the Digital Mindset by showing how the belief domains organise in practice. These results offer a straightforward foundation for further scale refinement and for examining how the construct functions in different digital contexts.

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7 Appendix

Appendix A – Sample descriptives

Table 8: Participants' ages

Language	n	M	SD	Min	Max	Median
de	150	36.97	11.90	18	74	34
en	145	46.42	12.94	22	75	47
Total	295	41.61	13.28	18	75	40

Table 9: Gender distribution by survey language

Education	de (n = 152)	en (n = 148)	all (N = 300)
Female	57 (37.5%)	67 (45.3%)	124 (41.3)
Male	92 (60.5%)	80 (54.1%)	172 (57.3)
Non-binary	3 (2.0%)	1 (0.7%)	4 (1.3)

Table 10: Highest level of education

Education	de (n = 153)	en (n = 149)	Gesamt (N = 302)
A-levels/High School	31 (20.3%)	51 (34.2%)	82 (27.2%)
Bachelor	49 (32.0%)	65 (43.6%)	114 (37.7%)
Lower secondary	25 (16.3%)	9 (6.0%)	34 (11.3%)
Master	46 (30.1%)	19 (12.8%)	65 (21.5%)
Doktorat / Doctorate	2 (1.3%)	5 (3.4%)	7 (2.3%)

Table 11: Digital tool use relevance by survey language

Digital tool use relevance	de (n = 152)	en (n = 149)	Gesamt (N = 301)
Almost fully digitalized	21 (13.8%)	15 (10.1%)	36 (12.0%)
Considerably	31 (20.4%)	36 (24.2%)	67 (22.3%)
Moderately	21 (13.8%)	34 (22.8%)	55 (18.3%)
Not at all	2 (1.3%)	5 (3.4%)	7 (2.3%)
Slightly	7 (4.6%)	13 (8.7%)	20 (6.6%)
Strongly	40 (26.3%)	23 (15.4%)	63 (20.9%)
Very strongly	30 (19.7%)	23 (15.4%)	53 (17.6%)

Table 12: Daily digital tool use

Language	n	M	SD	Min	Max	Median
de	145	8.65	3.52	1	18	8.0
en	138	7.04	3.41	1	16	6.5
Total	283	7.86	3.55	1	18	8.0

Table 13: Survey Response Time in Seconds

Language	n	M	SD	Min	Max	Median
de	153	308.27	190.38	123.99	1544.13	258.27
en	149	317.87	208.51	127.74	1546.85	267.54
Total	302	313.01	199.26	123.99	1546.85	262.96

Appendix B - Scale Items and Descriptives

Table 14: Digital Mindset Scale

Code	Item (English)	Item (German)
DM01	Technology complicates my life.	Technologie verkompliziert mein Leben.
DM02	I find new tech increasingly difficult and frustrating to set up.	Ich finde neue Technologien zunehmend schwierig und frustrierend einzurichten.
DM03	Even when I see technology benefits, my overall negative view is still valid.	Auch wenn ich Vorteile sehe, bleibt meine grundsätzlich negative Sicht bestehen.
DM04	Technology increases stress and workload despite its benefits.	Technologie erhöht Stress und Arbeitsbelastung trotz ihrer Vorteile.
DM05	I feel pressured by work-related digital communication.	Ich fühle mich durch arbeitsbezogene digitale Kommunikation unter Druck gesetzt.
DM06	Technology fails when you need it most.	Technologie versagt, wenn man sie am dringendsten braucht.
DM07	Some tech design choices are nonsensical and create avoidable barriers.	Manche technischen Designentscheidungen sind unsinnig und schaffen unnötige Hürden.
DM08	Failures are especially disruptive because we expect modern tech to be reliable.	Ausfälle sind besonders störend, weil wir moderne Technologien als zuverlässig erwarten.
DM09	Depending too much on AI reduces human originality.	Sich zu sehr auf KI zu verlassen, mindert menschliche Originalität.
DM10	Rapid digital change brings work-life balance benefits but also new risks such as bots, VR, and misinformation.	Rascher digitaler Wandel bringt Vorteile für Work-Life-Balance, aber auch neue Risiken wie Bots, VR und Fehlinformationen.
DM11	Digital technology causes people to unlearn independent thinking skills.	Digitale Technologie führt dazu, dass Menschen unabhängiges Denken verlernen.
AC_DM	Please select "Strongly agree" for this statement to show that you are paying attention.	Bitte wählen Sie „Stimme voll zu“, um zu zeigen, dass Sie aufmerksam lesen.
DM12	My frustration reveals I expect technology to be reliable and seamless.	Meine Frustration zeigt, dass ich erwarte, dass Technologie zuverlässig und reibungslos funktioniert.
DM13	AI is powerful and amazing, but it may become dangerous and uncontrollable.	KI ist mächtig und beeindruckend, könnte aber gefährlich und unkontrollierbar werden.
DM14	I take pride in keeping my household analog.	Ich bin stolz darauf, meinen Haushalt analog zu halten.
DM15	I work best with physical, analog tools.	Ich arbeite am besten mit physischen, analogen Werkzeugen.
DM16	Physical sources of information are more reliable than digital ones.	Physische Informationsquellen sind verlässlicher als digitale.

Table 15: Digital Self-Efficacy Scale (DSE-6)

Code	Item (English)	Item (German)
DSE01	I can learn to use a new digital tool, even when it is complex.	Ich kann ein neues digitales Werkzeug erlernen, auch wenn es komplex ist.
DSE02	When a digital tool causes problems, I can usually solve them on my own.	Wenn ein digitales Tool Probleme macht, finde ich normalerweise selbst eine Lösung.
DSE03	I can analyse and resolve digital problems step by step.	Ich kann digitale Probleme Schritt für Schritt analysieren und lösen.
DSE04	I can familiarise myself with an unfamiliar digital system quickly.	Ich kann mich schnell in ein mir unbekanntes digitales System einarbeiten.
DSE05	I stay calm and capable of acting even when digital tasks suddenly become difficult.	Ich bleibe ruhig und handlungsfähig, selbst wenn digitale Aufgaben plötzlich schwierig werden.
DSE06	When I get stuck with a digital tool, I can usually figure it out with some effort.	Wenn ich mit einem digitalen Tool nicht weiterweiß, kann ich mich in der Regel hineindenken.

Table 16: Technostress Short Scale (TS-10)

Code	Item (English)	Item (German)
TS01	Digital technologies increase the pressure to complete more tasks in less time.	Digitale Technologien erhöhen den Druck, mehr Aufgaben in weniger Zeit erledigen zu müssen.
TS02	I often feel that digital tools increase my workload rather than reduce it.	Ich habe oft das Gefühl, dass digitale Tools meine Arbeitsmenge eher erhöhen als reduzieren.
TS03	It is difficult for me to disconnect from digital communication channels.	Es fällt mir schwer, mich von digitalen Kommunikationskanälen abzugrenzen.
TS04	Digital technologies make it hard to switch off after work.	Digitale Technologien machen es schwer, nach der Arbeit wirklich abzuschalten.
TS05	Some digital systems are so complex that they feel burdensome.	Manche digitalen Systeme sind so komplex, dass sie mich zusätzlich belasten.
TS06	I sometimes feel I cannot keep up with the complexity of new digital tools.	Ich habe manchmal das Gefühl, mit der Komplexität neuer digitaler Tools nicht Schritt halten zu können.
TS07	Rapid digital change sometimes makes me worry about falling behind professionally.	Durch den schnellen digitalen Wandel habe ich manchmal Angst, beruflich ins Hintertreffen zu geraten.
TS08	I occasionally worry that others handle new digital technologies better than I do.	Ich mache mir gelegentlich Sorgen, dass andere mit neuen digitalen Technologien besser zurechtkommen als ich.
TS09	Constant updates or new features require me to readjust frequently.	Ständige Updates oder neue Funktionen zwingen mich, mich regelmäßig wieder umzustellen.
TS10	I find it exhausting how often digital technologies are changed or redesigned.	Ich finde es anstrengend, wie oft digitale Technologien geändert oder neugestaltet werden.

Table 17

Descriptive statistics of the validation scales by survey language

Skala	Deutsch (n = 153)	English (n = 149)	Total (N = 302)
Digital Mindset – Factor 1	3.26 (1.04)	3.67 (1.10)	3.46 (1.09)
Digital Mindset – Factor 2	4.95 (1.03)	5.08 (1.06)	5.01 (1.05)
Digital Mindset – Factor 3	3.81 (0.98)	4.11 (0.88)	3.96 (0.94)
Digital Mindset – Total	3.87 (0.91)	4.18 (0.91)	4.03 (0.92)
Digital Self-Efficacy	5.32 (0.96)	5.35 (0.99)	5.34 (0.97)
Technostress	3.65 (1.14)	4.05 (1.21)	3.85 (1.19)

Appendix C - External Validation Models**Table 18:** Exploratory regression analysis predicting Digital Self-Efficacy from Digital Mindset factors

Predictor	b	SE	t	p
Intercept	6.36	0.75	8.45	<.001
F1: Friction/Strain	-0.28	0.07	-4.21	<.001
F2: Broader Consequences	-0.02	0.07	-0.27	.784
F3: Analogue Orientation	-0.04	0.09	-0.43	.667
Age	-0.00	0.00	-0.70	.487
Gender: Female	-0.55	0.60	-0.92	.358
Gender: Male	-0.23	0.59	-0.39	.694
Gender: Non-binary	-1.11	0.73	-1.52	.129
Daily digital-use intensity	0.00	0.01	0.75	.454
Digital relevance: Slightly	-0.27	0.38	-0.71	.479
Digital relevance: Moderately	-0.13	0.35	-0.38	.705
Digital relevance: Considerably	-0.03	0.34	-0.08	.934
Digital relevance: Strongly	0.08	0.35	0.24	.812
Digital relevance: Very strongly	0.43	0.36	1.20	.230
Digital relevance: Almost fully digitalised	0.37	0.36	1.02	.309
Education: A-levels/High School	0.46	0.17	2.68	.008
Education: Bachelor	0.63	0.17	3.69	<.001
Education: Master	0.74	0.19	3.94	<.001
Education: Doctorate	0.57	0.36	1.61	.109

$R^2 = .34$, Adjusted $R^2 = .29$; Residual SE = 0.82

Table 19: Regression analysis predicting Technostress from Digital Mindset factors

Predictor	b	SE	t	p
Intercept	-0.50	0.73	-0.69	.490
F1: Friction/Strain	0.85	0.06	13.38	<.001
F2: Broader Consequences	0.12	0.07	1.78	.076
F3: Analogue Orientation	-0.22	0.08	-2.62	.009
Age	0.00	0.00	0.52	.603
Gender: Female	0.61	0.57	1.06	.291
Gender: Male	0.50	0.57	0.87	.386
Gender: Non-binary	0.36	0.70	0.52	.607
Daily digital-use intensity	0.00	0.00	0.22	.825
Digital relevance: Slightly	0.45	0.36	1.24	.217
Digital relevance: Moderately	0.84	0.33	2.52	.012
Digital relevance: Considerably	1.02	0.33	3.07	.002
Digital relevance: Strongly	1.01	0.34	2.97	.003
Digital relevance: Very strongly	1.07	0.35	3.09	.002
Digital relevance: Almost fully digitalised	0.96	0.35	2.75	.006
Education: A-levels/High School	0.18	0.17	1.10	.271
Education: Bachelor	0.16	0.16	1.00	.320
Education: Master	0.06	0.18	0.35	.726
Education: Doctorate	0.37	0.34	1.08	.282

Model fit: $R^2 = .58$, Adjusted $R^2 = .56$; $F(18, 275) = 21.52$, $p < .001$

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