

Supplementary Materials

Security, Status and Freedom: Three Separable Value Orientations in Family Study-Abroad Decisions, Invariant across Parents and Students

Supplementary tables are numbered sequentially in the order of their first citation in the main manuscript. Calibration and validation analyses use a single family-level split of the full sample (calibration $n = 895$; validation $n = 907$). Abbreviations follow the main text: SSF-OS = Security-Status-Freedom Orientation Scale; WLSMV = weighted least squares mean- and variance-adjusted estimation; ML = maximum likelihood; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual; AVE = average variance extracted; CR = composite reliability; HTMT = heterotrait-monotrait ratio; SF = short form.

Supplementary Table S1. Construct definitions and boundaries

Construct	Definition	Includes	Excludes	Closest established constructs	Why a domain-specific measure
Security	A decision-specific concern with safety, predictability, employability, financial sustainability and reducing exposure to undesirable outcomes in the study-abroad decision.	Risk reduction; return on investment; stability; graduate employability; physical safety.	General trait anxiety; risk aversion as a stable disposition; financial literacy.	Schwartz security/conservation values; risk aversion; career-decision difficulty (Gati et al., 1996).	General inventories sample life-wide priorities; they do not index what a family is protecting against in this decision.
Status	A decision-specific concern with institutional prestige, rankings, recognition, reputation and the social or positional value of the educational choice.	Rankings weight; reputational signalling; social recognition of the choice.	Trait narcissism; general materialism; achievement motivation as a disposition.	Schwartz achievement/power values; prestige motivation; positional-good consumption (Bourdieu, 1986; Marginson, 2006).	Positional concerns attach to the specific option set (institutions, destinations), not to life goals in general.
Freedom	A decision-specific concern with autonomy, exploration, flexibility, identity development and psychological ownership of the decision.	Decision ownership; exploration; identity work; flexibility of pathways.	Trait independence; general self-efficacy; rebellion against parents.	Self-determination autonomy (Deci & Ryan, 2000); self-direction values; career-construction agency (Savickas, 2005).	Ownership is of this decision; general autonomy measures do not capture who is steering a specific family choice.

Supplementary Appendix A. Full scored item set

Note. SF = item retained in the provisional SSF-OS-18 short form. Both questionnaire versions also contained one unscored instructed-response attention check, which is not part of the scored item set and is not listed here.

Security (10 items)

Code	Item	SF
S1	It is important to me that studying abroad leads to a stable, secure career. <i>Parent: It is important to me that my child's study-abroad path leads to a stable, secure career.</i>	SF
S2	I prefer universities and countries that feel safe and low-risk. <i>Parent: I prefer universities and countries that feel safe and low-risk for my child.</i>	
S3	Financial security after graduation is a major factor in my decision. <i>Parent: My child's financial security after graduation is a major factor in our decision.</i>	SF
S4	I want a study-abroad path with predictable, reliable outcomes. <i>Parent: I want a study-abroad path with predictable, reliable outcomes for my child.</i>	
S5	Avoiding unnecessary risk is important when I choose where to study. <i>Parent: Avoiding unnecessary risk is important when we choose where my child studies.</i>	SF
S6	I feel more comfortable choosing options with clear job prospects. <i>Parent: I feel more comfortable choosing options with clear job prospects for my child.</i>	SF
S7	Personal safety strongly influences where I choose to study. <i>Parent: My child's personal safety strongly influences where we choose.</i>	
S8	I would rather choose a safe option than gamble on an uncertain one. <i>Parent: I would rather my child choose a safe option than gamble on an uncertain one.</i>	
S9	Knowing I can support myself financially is central to my plans. <i>Parent: Knowing my child can support themselves financially is central to our plans.</i>	SF
S10	Peace of mind about my future matters more than taking chances. <i>Parent: Peace of mind about my child's future matters more than taking chances.</i>	SF

Status (10 items)

Code	Item	SF
ST1	Attending a highly ranked university is important to me. <i>Parent: Attending a highly ranked university is important for my child.</i>	SF
ST2	The reputation or brand of the university strongly influences my choice. <i>Parent: The reputation or brand of the university strongly influences our choice.</i>	SF
ST3	I want to study somewhere that others regard as prestigious. <i>Parent: I want my child to study somewhere that others regard as prestigious.</i>	SF
ST4	Being admitted to a well-known institution would make me proud. <i>Parent: My child being admitted to a well-known institution would make me proud.</i>	
ST5	It matters to me what relatives and friends think of where I study. <i>Parent: It matters to me what relatives and friends think of where my child studies.</i>	SF
ST6	A globally recognised university name is a priority for me. <i>Parent: A globally recognised university name is a priority for us.</i>	
ST7	I am drawn to institutions that signal high achievement and status. <i>Parent: I am drawn to institutions that signal high achievement and status for my child.</i>	
ST8	The social recognition that comes with a top university matters to me. <i>Parent: Same wording.</i>	SF
ST9	A prestigious institution is a high priority for me. <i>Parent: A prestigious institution is a high priority for my child.</i>	
ST10	Impressing others is part of why I want to study abroad. <i>Parent: Impressing others is part of why I want my child to study abroad.</i>	SF

Freedom (10 items)

Code	Item	SF
F1	Studying abroad is about the freedom to explore who I am. <i>Parent: Studying abroad is about the freedom for my child to explore who they are.</i>	SF
F2	I value being able to follow my own interests when choosing a course. <i>Parent: I value my child being able to follow their own interests when choosing a course.</i>	SF
F3	The chance for personal growth drives my decision. <i>Parent: The chance for personal growth drives our decision.</i>	SF
F4	I want the independence to make my own choices about my future. <i>Parent: I want my child to have the independence to make their own choices.</i>	
F5	Discovering different cultures and perspectives is important to me. <i>Parent: Discovering different cultures and perspectives is important for my child.</i>	SF
F6	I prefer a path that lets me keep my options open. <i>Parent: I prefer a path that lets my child keep their options open.</i>	
F7	Pursuing what genuinely excites me is a priority in this decision. <i>Parent: My child pursuing what genuinely excites them is a priority in this decision.</i>	

Code	Item	SF
F8	I want the flexibility to change direction if my interests evolve. <i>Parent: I want my child to have the flexibility to change direction as their interests evolve.</i>	SF
F9	Self-discovery is a key reason I want to study abroad. <i>Parent: Self-discovery is a key reason I want my child to study abroad.</i>	SF
F10	I value the chance to live and think independently. <i>Parent: I value my child having the chance to live and think independently.</i>	

Decision Clarity (4 items)

Code	Item
CLAR1	I have a clear idea of what I want from studying abroad. <i>Parent: I have a clear idea of what our family wants from my child studying abroad.</i>
CLAR2	I feel confident about the choices I am making. <i>Parent: I feel confident about the choices we are making.</i>
CLAR3	I understand my own priorities in this decision. <i>Parent: I understand our priorities in this decision.</i>
CLAR4	I know what factors matter most to me. <i>Parent: I know what factors matter most to us.</i>

Decision Strain (4 items)

Code	Item
STR1	This decision has caused me a lot of stress. <i>Parent: This decision has caused our family a lot of stress.</i>
STR2	There is tension in my family about these choices. <i>Parent: There is tension in our family about these choices.</i>
STR3	I feel pressure that makes this decision difficult. <i>Parent: Same wording.</i>
STR4	I often feel anxious or overwhelmed about this decision. <i>Parent: Same wording.</i>

Supplementary Table S2. Primary WLSMV item statistics and robustness summaries

S2a. Full-sample WLSMV standardised loadings and communalities (N = 1,802).

Item	Factor	Standardised loading	Communality (λ^2)
S1	Security	.755	.570
S2	Security	.663	.440
S3	Security	.751	.564
S4	Security	.540	.291
S5	Security	.700	.491
S6	Security	.795	.632
S7	Security	.512	.262
S8	Security	.604	.365
S9	Security	.629	.395
S10	Security	.640	.410
ST1	Status	.565	.320
ST2	Status	.625	.391
ST3	Status	.719	.517
ST4	Status	.516	.266
ST5	Status	.539	.290
ST6	Status	.660	.435
ST7	Status	.492	.242
ST8	Status	.672	.452
ST9	Status	.596	.355
ST10	Status	.553	.305
F1	Freedom	.661	.436
F2	Freedom	.582	.338
F3	Freedom	.735	.540
F4	Freedom	.571	.326
F5	Freedom	.641	.410
F6	Freedom	.568	.323
F7	Freedom	.609	.370
F8	Freedom	.660	.435
F9	Freedom	.662	.439
F10	Freedom	.562	.316

S2b. Reliability, convergent and discriminant validity by role (WLSMV loadings; Pearson HTMT).

Form / role	Subscale	AVE	Omega	Alpha [95% CI] (full sample)	HTMT (max, vs other factors)
30-item / Student	Sec / Sta / Fre	.434 / .336 / .391	.883 / .833 / .864	.869 [.860, .878] / .824 [.812, .836] / .848 [.838, .859]	.338
30-item / Parent	Sec / Sta / Fre	.444 / .367 / .399	.887 / .852 / .868	.869 [.860, .878] / .824 [.812, .836] / .848 [.838, .859]	.334
18-item / Student	Sec / Sta / Fre	.509 / .378 / .436	.860 / .782 / .822	.842 [.830, .853] / .768 [.751, .784] / .798 [.783, .812]	.291
18-item / Parent	Sec / Sta / Fre	.518 / .414 / .437	.865 / .807 / .822	.842 [.830, .853] / .768 [.751, .784] / .798 [.783, .812]	.271

Note. Corrected item-total correlations (full sample, 30-item form): Security .466-.681; Status .445-.629; Freedom .496-.635. All within-scale inter-item correlations were positive (no reverse-coding errors).

S2c. Dyadic-dependence resampling. The WLSMV role-invariance sequence (configural vs thresholds-plus-loadings) was re-estimated in 20 random one-respondent-per-family subsamples ($n = 1,001$ each): ΔCFI ranged from $-.002$ to $+.002$ ($M = .000$); every draw satisfied $|\Delta CFI| \leq .01$.

S2d. Decision-stage robustness. Three-factor WLSMV fit in active-decision respondents only ($n = 1,207$): $\chi^2(402) = 1,309.4$, CFI = .943, TLI = .939, RMSEA = .043 [.041, .046], SRMR = .049. Pre- vs post-decision invariance: configural CFI = .944; thresholds .943; thresholds+loadings .947 (all $|\Delta CFI| \leq .004$ between successive steps). Clarity-Strain correlation: $r = -.05$ (pre-decision), $r = .01$ (post-decision).

Supplementary Table S3. Exploratory factor pattern matrix, calibration sample ($n = 895$; maximum likelihood, oblimin rotation)

Item	Intended factor	Security	Status	Freedom	Primary	Largest cross-loading
S1	Security	+.74	-.03	+.03	.74	.03 (Freedom)
S2	Security	+.60	+.04	-.04	.60	.04 (Freedom)
S3	Security	+.70	-.01	+.00	.70	.01 (Status)
S4	Security	+.48	+.02	-.02	.48	.02 (Status)
S5	Security	+.64	-.02	+.01	.64	.02 (Status)
S6	Security	+.75	+.04	+.02	.75	.04 (Status)
S7	Security	+.49	+.03	-.02	.49	.03 (Status)
S8	Security	+.50	+.04	-.19	.50	.19 (Freedom)
S9	Security	+.64	-.07	+.02	.64	.07 (Status)
S10	Security	+.61	+.01	-.05	.61	.05 (Freedom)
ST1	Status	+.06	+.49	-.01	.49	.06 (Security)
ST2	Status	+.07	+.48	+.13	.48	.13 (Freedom)
ST3	Status	-.04	+.75	-.04	.75	.04 (Freedom)
ST4	Status	-.01	+.49	+.01	.49	.01 (Freedom)
ST5	Status	-.07	+.54	+.03	.54	.07 (Security)
ST6	Status	+.32	+.40	+.08	.40	.32 (Security)
ST7	Status	-.05	+.50	+.02	.50	.05 (Security)
ST8	Status	-.04	+.69	+.00	.69	.04 (Security)
ST9	Status	+.23	+.40	+.01	.40	.23 (Security)
ST10	Status	+.06	+.50	-.01	.50	.06 (Security)
F1	Freedom	+.06	+.01	+.64	.64	.06 (Security)
F2	Freedom	+.04	-.01	+.58	.58	.04 (Security)
F3	Freedom	-.03	+.06	+.68	.68	.06 (Status)
F4	Freedom	-.05	-.01	+.53	.53	.05 (Security)
F5	Freedom	-.08	-.03	+.59	.59	.08 (Security)
F6	Freedom	+.03	-.05	+.55	.55	.05 (Status)
F7	Freedom	+.02	+.09	+.57	.57	.09 (Status)
F8	Freedom	+.02	-.04	+.64	.64	.04 (Status)
F9	Freedom	-.03	+.00	+.67	.67	.03 (Security)
F10	Freedom	-.03	+.00	+.54	.54	.03 (Security)

Note. Primary loadings all $\geq .40$ (range .40–.75). Twenty-nine of 30 items met the cross-loading criterion of $< .30$; one item (ST6) shows a secondary loading of .32 on Security. Maximum-likelihood extraction with oblimin rotation on the calibration half ($n = 895$).

Supplementary Table S4. Confirmatory factor loadings, validation sample ($n = 907$; WLSMV, standardised)

Item	Factor	Standardised loading	Uniqueness
S1	Security	.77	.40
S2	Security	.67	.55
S3	Security	.78	.39
S4	Security	.56	.68
S5	Security	.74	.45
S6	Security	.80	.36
S7	Security	.48	.76
S8	Security	.62	.62
S9	Security	.63	.60
S10	Security	.63	.61
ST1	Status	.59	.66
ST2	Status	.66	.56
ST3	Status	.72	.48
ST4	Status	.54	.70
ST5	Status	.57	.67
ST6	Status	.65	.58
ST7	Status	.51	.74
ST8	Status	.68	.54
ST9	Status	.61	.63
ST10	Status	.57	.67
F1	Freedom	.68	.54
F2	Freedom	.57	.67
F3	Freedom	.73	.46
F4	Freedom	.57	.67
F5	Freedom	.65	.57
F6	Freedom	.59	.65
F7	Freedom	.61	.63
F8	Freedom	.67	.55
F9	Freedom	.61	.62
F10	Freedom	.56	.69

Note. Independent-cluster model estimated on the held-out validation sample by WLSMV on polychoric correlations; correlation metric. Model fit: $\chi^2(402) = 1,073.5$, CFI = .947, TLI = .942, RMSEA = .043 [.040, .046], SRMR = .051.

Supplementary Table S5. Short form (SSF-OS-18): item loadings and subscale properties (ML estimates on the full sample)

Item	Subscale	Loading			
S1	Security	.753			
S3	Security	.742			
S5	Security	.658			
S6	Security	.750			
S9	Security	.622			
S10	Security	.590			
ST1	Status	.518			
ST2	Status	.534			
ST3	Status	.750			
ST5	Status	.551			
ST8	Status	.693			
ST10	Status	.529			
F1	Freedom	.642			
F2	Freedom	.553			
F3	Freedom	.678			
F5	Freedom	.621			
F8	Freedom	.650			
F9	Freedom	.644			
Subscale	α	ω	CR	AVE	
Security	.842	.843	.843	.475	
Status	.768	.770	.770	.363	
Freedom	.798	.799	.799	.400	

Note. Loadings from single-factor congeneric ML models on the full sample. The corresponding WLSMV estimates by role in Table S2b are systematically higher, because polychoric-based estimation yields larger standardised loadings than Pearson-based ML for ordered-categorical items; the two sets are not directly comparable, and WLSMV is the primary specification throughout. AVE remains below .50 for all three subscales; the short form is therefore provisional.

Supplementary Table S6. Measurement invariance of the outcome measures (Decision Clarity and Decision Strain) across students and parents

Model	χ^2	df	CFI	RMSEA	ΔCFI
Configural	37.0	38	1.000	.000	—
Equal thresholds	46.0	54	1.000	.000	+.0000
Equal thresholds and loadings	53.0	60	1.000	.000	+.0000

Note. Eight outcome items (four Decision Clarity, four Decision Strain). Estimated by WLSMV on polychoric correlations, using the threshold-based invariance sequence appropriate to ordered-categorical indicators. Invariance supported where $|\Delta CFI| \leq .01$. Students $n = 1,001$; parents $n = 801$.

Supplementary Appendix B. Robustness to covariates (full text)

Because role is almost perfectly confounded with age in this design ($r = .98$ between parent status and age), age cannot be entered as a covariate in the student–parent comparisons; it is used only within roles. Adjusting the role comparisons for gender, decision stage and intended destination left them essentially unchanged: Security $b = +0.21$, 95% CI [0.14, 0.28]; Status $b = +0.24$ [0.18, 0.30]; Strain $b = +0.23$ [0.14, 0.32]; with Freedom ($b = +0.01$, $p = .79$) and Clarity ($b = +0.03$, $p = .45$) remaining null. Within each role, age, gender and decision stage together accounted for very little variance in the orientations ($R^2 = .008-.013$), with only isolated and unstable gender coefficients reaching significance.