UEQ-GR and UEQ-S-GR: Towards a Greek Adaptation of the User Experience Questionnaire and its Short Version

Georgios Melissourgos | Aristotle University of Thessaloniki, Greece
Christos Katsanos | **Aristotle University of Thessaloniki, Greece**

CHIGreece 2025 | 24 - 26 September 2025

Introduction

- **User experience (UX)**
  - ISO definition: “User’s perceptions and responses that result from the use and/or anticipated use of a system, product or service"[1]
  - Broader than usability → includes emotions, appeal, stimulation
- **Hassenzahl's key model for UX[2]**
  - Pragmatic Quality (PQ): efficient and effective goal achievement (strongly associated with usability)
  - Hedonic Quality (HQ): provides stimulation, identification, and provokes memories
- **Questionnaires are a very popular way to measure UX**
  - 42 out of 96 UX evaluation methods involves questionnaires[3]
  - Examples of standardized questionnaires: AttrakDiff 2, UEQ, SUPR-Q

[1] ISO 9241-11:2018. *ISO*. Retrieved April 8, 2025 from https://www.iso.org/standard/63500.html
[2] Hassenzahl, M. (2001). The effect of perceived hedonic quality on product appealingness. *International Journal of Human-Computer Interaction*, *13*(4), 481-499.
[3] Vermeeren, A. P., Law, E. L. C., Roto, V., Obrist, M., Hoonhout, J., & Väänänen-Vainio-Mattila, K. (2010). User experience evaluation methods: current state and development needs. In *NordiCHI 2010* (pp. 521-530).

Research motivation and goal

- **Research motivation**
  - User Experience Questionnaire (UEQ) is a very popular UX instrument
  - Used internationally, but cross-cultural adaptation is critical
  - Currently, UEQ is available in 37 languages, including Greek
  - Existing Greek UEQ translation: created for a master's thesis → no systematic adaptation or validation

- **Research goal**
  - Cross-cultural adaptation of UEQ and its shorter version (UEQ-S) in Greek

This work continues our research on creating Greek versions of popular HCI questionnaires, such as SUS-GR[2], UMUX-GR[3] and PSSUQ-GR[4].

[1] Kargas Z (2016). Η επίδραση του σημασιολογικού επανασχεδιασμού μιας πύλης αναζήτησης εργασίας στην ικανοποίηση των χρηστών [The impact of semantic redesign of a job search portal on user experience]. MSc thesis. Hellenic Open University. Retrieved April 29, 2025 from https://apothesis.eap.gr/archive/item/79785
[2] K Orfanou, K., Tselios, N., & Katsanos, C. (2015). Perceived usability evaluation of learning management systems: Empirical evaluation of the System Usability Scale. *The International Review of Research in Open and Distributed Learning*, *16*(2).
[3] Katsanos, C., Melissourgos, G., & Tselios, N. (2023). GR-UMUX and GR-UMUX-LITE: A first step towards standardization of the usability metric for user experience and its LITE version in Greek. In *PCI 2023* (pp. 102-108).
[4] Katsanos, C., Tselios, N., & Liapis, A. (2021). PSSUQ-GR: a first step towards standardization of the post-study system usability questionnaire in Greek. In *CHI Greece 2021* (pp. 1-6).

User Experience Questionnaire (UEQ) and UEQ-S (short)

- **UEQ**[1]
  - 26 bipolar adjective pairs
  - Semantic differential scale [1,7]
  - Half items start with positive adjective (reversed), half with negative (normal)
  - Scales:1.Attractiveness, PQ {2.Perspicuity, 3.Efficiency, 4.Dependability}, HQ {5.Stimulation, 6. Novelty}
- **UEQ-S**[1]
  - 8 items from UEQ
  - All items have normal order
  - Scales: 1.PQ, 2.HQ (+total score)

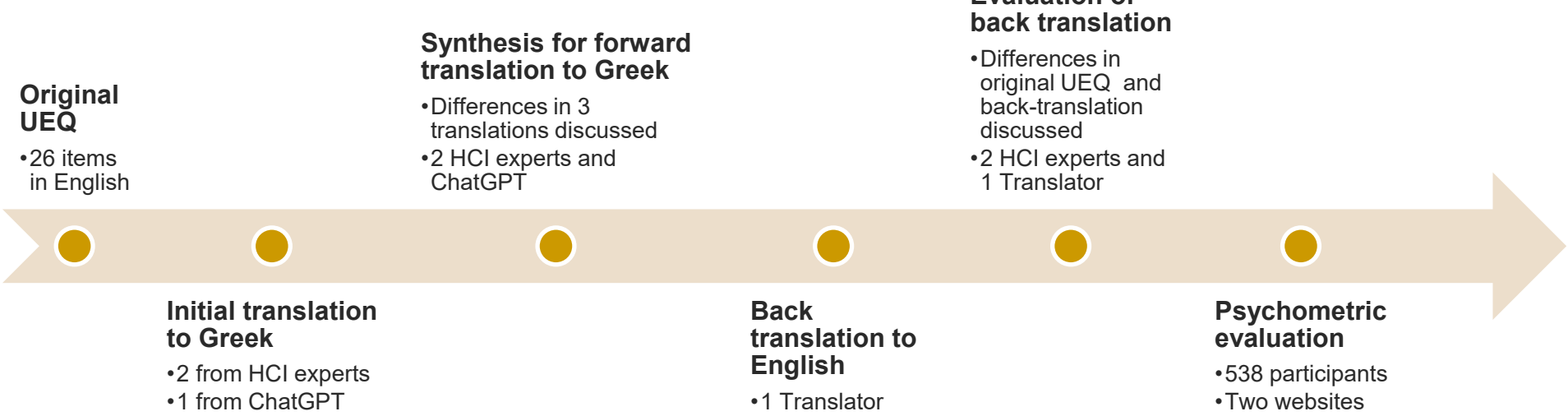
Please assess the product now by ticking one circle per line.

	1	2	3	4	5	6	7		
annoying	○	○	○	○	○	○	○	enjoyable	1
not understandable	○	○	○	○	○	○	○	understandable	2
creative	○	○	○	○	○	○	○	dull	3
easy to learn	○	○	○	○	○	○	○	difficult to learn	4
valuable	○	○	○	○	○	○	○	inferior	5
boring	○	○	○	○	○	○	○	exciting	6
not interesting	○	○	○	○	○	○	○	interesting	7
unpredictable	○	○	○	○	○	○	○	predictable	8
fast	○	○	○	○	○	○	○	slow	9
inventive	○	○	○	○	○	○	○	conventional	10
obstructive	○	○	○	○	○	○	○	supportive	11
good	○	○	○	○	○	○	○	bad	12
complicated	○	○	○	○	○	○	○	easy	13
unlikable	○	○	○	○	○	○	○	pleasing	14
usual	○	○	○	○	○	○	○	leading edge	15
unpleasant	○	○	○	○	○	○	○	pleasant	16
secure	○	○	○	○	○	○	○	not secure	17
motivating	○	○	○	○	○	○	○	demotivating	18
meets expectations	○	○	○	○	○	○	○	does not meet expectations	19
inefficient	○	○	○	○	○	○	○	efficient	20
clear	○	○	○	○	○	○	○	confusing	21
impractical	○	○	○	○	○	○	○	practical	22
organized	○	○	○	○	○	○	○	cluttered	23
attractive	○	○	○	○	○	○	○	unattractive	24
friendly	○	○	○	○	○	○	○	unfriendly	25
conservative	○	○	○	○	○	○	○	innovative	26

[1] Laugwitz, B., Held, T., & Schrepp, M. (2008). Construction and evaluation of a user experience questionnaire. In *Symposium of the Austrian HCI and usability engineerin4 group* (pp. 63-76). Berlin, Heidelberg: Springer Berlin Heidelberg.
[2] Hinderks, A. (2017). Design and evaluation of a short version of the user experience questionnaire (UEQ-S). *International Journal of Interactive Multimedia and Artificial Intelligence*.

Methodology: Translation of UEQ (1/2)

- **Forward-back translation approach**[1] (slightly tweaked)
  - Participants involved in translation
    - 2 HCI experts (proficient in English, native Greek speakers)
    - 1 Translator (English major, native Greek speaker, unfamiliar with UEQ)
    - 1 Large Language Model (ChatGPT free version of GPT-4-turbo)
  - Procedure



[1] Epstein, J., Santo, R. M., & Guillemin, F. (2015). A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *Journal of clinical epidemiology*, *68*(4), 435-441.

Methodology: Translation of UEQ (2/2)

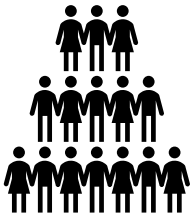
- **Original UEQ vs. back-translated UEQ**
  - Most adjectives (88%) were identical or direct synonyms
  - A few adjectives (12%) were discussed to reconcile differences e.g.
    - Item 21: "Clear – Confusing" => "Σαφές – Συγκεχυμένο" => "Clear – Vague" | in the end we used "Σαφές – Ασαφές"

Item	UEQ: English (source)	UEQ: Greek (final translation)
1	Annoying – Enjoyable	Ενοχλητικό – Απολαυστικό
2	Not understandable – Understandable	Ακατανόητο – Κατανοητό
3	Creative – Dull	Δημιουργικό – Ανιαρό
4	Easy to learn – Difficult to learn	Εύκολο στην εκμάθηση – Δύσκολο στην εκμάθηση
5	Valuable – Inferior	Πολύτιμο - Χαμηλής αξίας
6	*** Boring – Exciting**	*** Βαρετό – Συναρπαστικό**
7	*** Not interesting – Interesting**	*** Αδιάφορο – Ενδιαφέρον**
8	Unpredictable – Predictable	Απρόβλεπτο – Προβλέψιμο
9	Fast – Slow	Γρήγορο – Αργό
10	*** Inventive – Conventional**	*** Ευρηματικό – Συμβατικό**
11	*** Obstructive – Supportive**	*** Παρεμποδιστικό – Υποστηρικτικό**
12	Good – Bad	Καλό – Κακό
13	*** Complicated – Easy**	*** Πολύπλοκο – Απλό**
14	Unlikable – Pleasing	Αντιπαθητικό – Συμπαθητικό
15	*** Usual – Leading edge**	*** Συνηθισμένο – Πρωτοποριακό**
16	Unpleasant – Pleasant	Δυσάρεστο – Ευχάριστο
17	Secure – Not secure	Ασφαλές – Μη ασφαλές
18	Motivating – Demotivating	Παρακινητικό – Αποθαρρυντικό
19	Meets expectations – Does not meet expectations	Ανταποκρίνεται στις προσδοκίες – Δεν ανταποκρίνεται στις προσδοκίες
20	*** Inefficient – Efficient**	*** Μη αποδοτικό – Αποδοτικό**
21	*** Clear – Confusing**	*** Σαφές – Ασαφές**
22	Impractical – Practical	Μη πρακτικό – Πρακτικό
23	Organized – Cluttered	Οργανωμένο – Ακατάστατο
24	Attractive – Unattractive	Ελκυστικό – Μη ελκυστικό
25	Friendly – Unfriendly	Φιλικό – Μη φιλικό
26	Conservative – Innovative	Συντηρητικό – Καινοτόμο

*The UEQ-S and UEQ-S-GR pairs are denoted with an asterisk and also shown in bold

Methodology: Psychometric evaluation of UEQ-GR

- **Participants**
  - 538 (281 male, 257 female)
  - Age (M=27.4, SD=13.4)



- **Procedure**
  - Participants performed 3 tasks in two websites and task success and time on task data were collected

Ministry website (old-fashioned design)	E-gov portal (modern design)
a) Find the person who is the head of a specific general directorate	a) Authorize an accountant to act in the tax office on their behalf
b) Find older exam questions for a state certificate	b) Enroll a child in a daycare center for unemployed parents
c) Find the bus line that stops closest to the ministry premises	c) Submit a suggestion for improving an online goverment service in the portal

  - After trying all the tasks with each website => UEQ-GR and SUS-GR[1]
  - At the end of session => Questionnaire on demographics

[1] K Orfanou, K., Tselios, N., & Katsanos, C. (2015). Perceived usability evaluation of learning management systems: Empirical evaluation of the System Usability Scale. *The International Review of Research in Open and Distributed Learning*, *16*(2).

Results for UEQ-GR: Validity (1/7)

- **Factor structure**
  - Exploratory Factory Analysis (EFA) with Principal Axis Factoring (PAF) and Promax rotation
  - Multiple EFAs
    - 5 factors (original UEQ)
    - 4 factors
    - 3 factors (based on scree plots)
    - 2 factors (PQ/HQ structure)
    - 1 factor (for attractiveness scale, assumed unidimensional)
  - Main findings
    - UEQ-GR has different factor structure than the original UEQ, mainly affected by item polarity
    - Such negative-positive dimensionality is not uncommon in HCI questionnaires[1,2]

[1] Lewis, J. R., Utesch, B. S., & Maher, D. E. (2013). UMUX-LITE: when there's no time for the SUS. In *SIGCHI 2013* (pp. 2099-2102).
[2] Sauro, J., & Lewis, J. R. (2011). When designing usability questionnaires, does it hurt to be positive?. In *SIGCHI 2011* (pp. 2215-2224).

Results for UEQ-GR: Validity (2/7)

- **Factor structure: 5-Factors**
  - Did not align with original UEQ
    - Factor 1 => most of the items with positive term on the left (reverse order)
    - Factor 2 => most of the items with negative term on the left (normal order)
    - Factors 3 and 4 => the rest items
    - Factor 5 => no items that load high enough

		Ministry Website					E-Government Portal				
Item	Left item label	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
9	fast						0.801				
20	inefficient		0.687					0.796			
22	impractical		0.680					0.777			
23	organized	0.697					0.832				
2	not understandable		0.769					0.790			
4	easy to learn	0.710					0.637				0.457
13	complicated		0.800					0.767			
21	clear	0.681					0.775				
8	unpredictable		0.584					0.616			
11	obstructive		0.726					0.642			
17	secure				0.453		0.832				
19	meets expectations	0.710					0.833				
5	valuable	0.518					0.698				
6	boring			0.618						0.862	
7	not interesting			0.613						0.625	
18	motivating	0.738					0.730				
3	creative	0.744					0.508				
10	inventive	0.763					0.488		0.520		
15	usual			0.736					0.754		
26	conservative			0.654					0.779		

Results for UEQ-GR: Validity (3/7)

- **Factor structure: 4-Factors**
  - No substantial differences from 5-factors one
- **Factor structure: 3-Factors**
  - Factor 1 => most of the items with reverse order
  - Factor 2 => most of the items with normal order
  - Factor 3 => four items of the HQ dimension with normal order*

		Ministry Website			E-Government Portal		
Item	Left item label	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
9	fast	0.546			0.812		
20	inefficient		0.735			0.783	
22	impractical		0.681			0.779	
23	organized	0.739			0.828		
2	not understandable		0.681			0.816	
4	easy to learn	0.692			0.772		
13	complicated		0.638			0.769	
21	clear	0.711			0.806		
8	unpredictable		0.700			0.654	
11	obstructive		0.692			0.661	
17	secure				0.788		
19	meets expectations	0.704			0.833		
5	valuable	0.662			0.737		
6	boring			0.695			0.606
7	not interesting			0.616			0.553
18	motivating	0.788			0.724		
3	creative	0.748			0.580		
10	inventive	0.690			0.465		0.615
15	usual			0.768			0.807
26	conservative			0.627			0.607

*except for item 10 (inventive – conventional) in the case of the e-government portal

Results for UEQ-GR: Validity (4/7)

- **Factor structure: 2-Factors**
  - Did not align with original UEQ PQ/HQ structure
    - Factor 1 => all the items with normal order
    - Factor 2 => all the items with reverse order*

*Only exception was item 17 (secure – not secure) which does not load to any factor for the Ministry website. This could be related to the fact that the users did not have to perform any task that raised security considerations

		Ministry Website		E-Gov. Portal	
Item	Left item label	Factor 1	Factor 2	Factor 1	Factor 2
9	fast		0.608	0.839	
20	inefficient	0.768			0.778
22	impractical	0.749			0.737
23	organized		0.795	0.859	
2	not understandable	0.735			0.754
4	easy to learn		0.751	0.801	
13	complicated	0.704			0.706
21	clear		0.781	0.834	
8	unpredictable	0.473			0.542
11	obstructive	0.725			0.803
17	secure			0.813	
19	meets expectations		0.752	0.864	
5	valuable		0.707	0.762	
6	boring	0.779			0.764
7	not interesting	0.818			0.767
18	motivating		0.817	0.737	
3	creative		0.706	0.583	
10	inventive		0.602	0.433	
15	usual	0.577			0.659
26	conservative	0.685			0.669

Results for UEQ-GR: Validity (5/7)

- **Factor structure: 1-Factor (for Attractiveness scale)**
  - Did not align with original UEQ unidimensional structure
    - Factor 1 => all the items with normal order
    - Factor 2 => all the items with reverse order

		Ministry Website		E-Gov. Portal	
Item	**Left item label**	**Factor 1**	**Factor 2**	**Factor 1**	**Factor 2**
1	annoying	0.802		0.795	
12	good		0.619		0.737
14	unlikable	0.854		0.885	
16	unpleasant	0.817		0.880	
24	attractive		0.809		0.630
25	friendly		0.897		1.027

Results for UEQ-GR: Validity (6/7)

- **Known-groups validity**
  - E-gov portal significantly better than Ministry website in all collected metrics ($p<0.001$ with large effect sizes)

Mean values of metrics collected in our study for the two websites

	Task Success	Time on Task (sec)	SUS-GR Score
Ministry website	58.24%	223.23	43.79
E-gov portal	86.18%	115.56	73.95

  - UEQ-GR should capture these differences too
  - Main findings
    - All UEQ-GR subscales for the E-gov portal were significantly higher than for the Ministry website ($p<0.001$ with large effect sizes)
    - UEQ-GR successfully captures the differences between the two websites

Results for UEQ-GR: Validity (7/7)

- **Convergent & Discriminant validity**
  - UEQ PQ should correlate with SUS *(convergent)*
  - UEQ HQ should correlate less with SUS *(discriminant)*
    - SUS can capture emotional aspects[1] so UEQ cannot be uncorrelated

Correlations between the SUS and the subscales of UEQ-GR

	PQ EFF	PQ PER	PQ DEP	HQ STI	HQ NOV	ATT	PQ	HQ
Ministry website	0.680	0.716	0.636	0.634	0.412	0.675	0.737	0.569
E-gov portal	0.659	0.735	0.611	0.578	0.431	0.672	0.714	0.549

All correlations are significant at $p<0.001$. Eff. = Efficiency, Per. = Perspicuity, Dep. = Dependability, Sti. = Stimulation, Nov. = Novelty, Att. = Attractiveness, PQ = Pragmatic Quality, HQ = Hedonic Quality

  - Main findings
    - PQ correlated higher with SUS than HQ
    - All PQ subscales (Eff, Per, Dep) correlated higher with SUS than HQ-Nov
    - Unexpectedly, HQ-Sti and PQ subscales correlated similarly with SUS
    - <u>UEQ Subscales are not as independent as originally suggested</u>

[1] Lewis, J. R., & Mayes, D. K. (2014). Development and psychometric evaluation of the emotional metric outcomes (EMO) questionnaire. *International Journal of Human-Computer Interaction*, *30*(9), 685-702.

Results for UEQ-GR: Reliability

- **Internal consistency**
  - We calculated Cronbach's alpha (α) per UEQ-GR subscale
    - Acceptable values between 0.70 and 0.95[1]

Cronbach's alpha values of SUS and the subscales of UEQ-GR

	SUS	UEQ EFF	UEQ PER	UEQ DEP	UEQ STI	UEQ NOV	UEQ ATT	UEQ PQ	UEQ HQ
Ministry website	0.902	0.812	0.811	0.677	0.773	0.697	0.876	0.910	0.845
E-gov portal	0.916	0.827	0.834	0.723	0.794	0.744	0.893	0.926	0.856

Eff. = Efficiency, Per. = Perspicuity, Dep. = Dependability, Sti. = Stimulation, Nov. = Novelty, Att. = Attractiveness, PQ = Pragmatic Quality, HQ = Hedonic Quality

  - Main findings
    - All UEQ-GR subscales' α values in [0.72, 0.93] except for Dependability (0.677) and Novelty (0.697) subscales for the Ministry Website
    - UEQ-GR subscales are sufficiently reliable

[1] Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, *2*, 53.

Results for UEQ-S-GR: Validity (1/3)

- **Factor structure**
  - Exploratory Factory Analysis (EFA) with Principal Axis Factoring (PAF) and Promax rotation constrained to 2-factor solution (original UEQ-S)
  - Two-factor solution aligned with original UEQ-S
    - Factor 1 => all the items of the PQ scale
    - Factor 2 => all the items of the HQ scale (except item 10 for Ministry)

		Ministry Website		E-Government Website	
Item.	**Left item label**	**1 (PQ)**	**2 (HQ)**	**1 (PQ)**	**2 (HQ)**
11	obstructive	0.789		0.721	
13	complicated	0.609		0.818	
20	inefficient	0.841		0.896	
21	confusing	0.655		0.605	
6	boring		0.898		0.774
7	not interesting		0.684		0.690
10	conventional				0.537
15	usual		0.688		0.742

[1] Lewis, J. R., Utesch, B. S., & Maher, D. E. (2013). UMUX-LITE: when there's no time for the SUS. In *SIGCHI 2013* (pp. 2099-2102).
[2] Sauro, J., & Lewis, J. R. (2011). When designing usability questionnaires, does it hurt to be positive?. In *SIGCHI 2011* (pp. 2215-2224).

Results for UEQ-S-GR: Validity (2/3)

- **Known-groups validity**
  - E-gov portal significantly better than Ministry website in all collected metrics ($p<0.001$ with large effect sizes)

Mean values of metrics collected in our study for the two websites

	Task Success	Time on Task (sec)	SUS-GR Score
Ministry website	58.24%	223.23	43.79
E-gov portal	86.18%	115.56	73.95

  - UEQ-S-GR should capture these differences too
  - Main findings
    - All UEQ-S-GR subscales and total score for the E-gov portal were significantly higher than for the Ministry website ($p<0.001$ with large effect sizes)
    - UEQ-S-GR successfully captures the differences between the two websites

Results for UEQ-S-GR: Validity (3/3)

- **Convergent & Discriminant validity**
  - UEQ-S PQ should correlate with SUS *(convergent)*
  - UEQ-S HQ should correlate less with SUS *(discriminant)*
    - SUS can capture emotional aspects[1] so UEQ cannot be uncorrelated

Correlations between the SUS and the subscales of UEQ-S-GR

	Total Score	PQ	HQ
Ministry website	0.728	0.759	0.526
E-gov portal	0.705	0.757	0.502

All correlations are significant at p<0.001.PQ = Pragmatic Quality, HQ = Hedonic Quality

  - Main findings
    - PQ correlated higher with SUS than HQ
    - Total score correlated significantly with SUS

[1] Lewis, J. R., & Mayes, D. K. (2014). Development and psychometric evaluation of the emotional metric outcomes (EMO) questionnaire. *International Journal of Human-Computer Interaction*, *30*(9), 685-702.

Results for UEQ-S-GR: Reliability

- **Internal consistency**
  - We calculated Cronbach's alpha (α) per UEQ-S-GR subscale
    - Acceptable values between 0.70 and 0.95[1]

Cronbach's alpha values of SUS and the subscales of UEQ-S-GR

	SUS	UEQ-S	UEQ-S PQ	UEQ-S HQ
Ministry website	0.902	0.851	0.825	0.741
E-gov portal	0.916	0.865	0.842	0.788

PQ = Pragmatic Quality, HQ = Hedonic Quality

  - Main findings
    - All UEQ-S-GR subscales' α values in [0.74, 0.87]
    - UEQ-S-GR subscales show good reliability

[1] Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, *2*, 53.

Limitations & Future directions

- Perception of PQ and HQ are **highly dependent on the type of the system evaluated**
  - More studies with a greater variety of systems and large sample sizes are required
- Investigate UEQ factor structure with **Confirmatory Factor Analysis**
- **Effect (if any) of various factors on UEQ-GR scores:**
  - User-related factors (e.g., users' prior experience with the system)
  - System-related factors (e.g., system critical feedback[1])

[1] Melissourgos, G., & Katsanos, C. (2023). Do Not Shoot the Messenger: Effect of system critical feedback on user-perceived usability. In *HCII 2023* (pp. 455-467), Springer.

Summary & Questions

- **Summary**
  - We presented a cross-culturally adapted Greek version of the User Experience Questionnaire (UEQ-GR) and its short version (UEQ-S-GR)
  - A forward-back translation approach was employed involving a) 2 HCI experts, 1 English major, b) an LLM (ChatGPT), and c) psychometric evaluation with 538 participants interacting with 2 websites
  - UEQ-GR was found to be valid and reliable but with different factor structure than the original UEQ (affected by item polarity)
  - UEQ-S-GR was found to be valid, reliable and retain its intended PQ/HQ structure.
- **Questions?**
  - Shoot!
- **More questions and not enough time! No worries ☺**
  - Christos Katsanos (ckatsanos@csd.auth.gr)

Backup/Extra slides

Inter-correlations of the UEQ-GR

	Eff.	Per.	Dep.	Sti.	Nov.	Att.	PQ	HQ
Eff.	1	0.843	0.848	0.738	0.566	0.857	0.955	0.709
Per.	0.843	1	0.791	0.721	0.531	0.839	0.939	0.681
Dep.	0.848	0.791	1	0.734	0.543	0.815	0.928	0.694
Sti.	0.738	0.721	0.734	1	0.688	0.848	0.776	0.918
Nov.	0.566	0.531	0.543	0.688	1	0.676	0.581	0.919
Att.	0.857	0.839	0.815	0.848	0.676	1	0.891	0.830
PQ	0.955	0.939	0.928	0.776	0.581	0.891	1	0.738
HQ	0.709	0.681	0.694	0.918	0.919	0.830	0.738	1

All correlations are significant at $p<0.001$. Eff. = Efficiency, Per. = Perspicuity, Dep. = Dependability, Sti. = Stimulation, Nov. = Novelty, Att. = Attractiveness, PQ = Pragmatic Quality, HQ = Hedonic Quality

Inter-correlations of the UEQ-S-GR

		Ministry Website		E-Government Website	
	Factor label	Factor 1	Factor 2	Factor 1	Factor 2
Factor 1	Pragmatic Quality	1	0.692	1	0.712
Factor 2	Hedonic Quality	0.692	1	0.712	1

All correlations are significant at p<0.001.PQ = Pragmatic Quality, HQ = Hedonic Quality