Supplementary Material

Katharina Reinecke, Tom Yeh, Luke Miratrix, Yuechen Zhao, Mardiko Rahmatri, Jenny Liu, and Krzysztof Z. Gajos. Predicting users' first impressions of website aesthetics with a quantification of perceived visual complexity and colorfulness. In *Proceedings of CHI '13*, 2013.

Prediction model for the ratings of aesthetics

Dependent variable is the mean between each participant's ratings in phase 1 and 2.

Regression equation in R:
model = lmer(meanratingaesthetics ~ (Gender + EducationLevel + Agegroup) * (colorfulnessmodel^2 + complexitymodel^2) + (1|StimulusID) + (1|ParticipantID), data=ae)

Summary of Fit

RSquare	0.478278
RSquare Adj	0.475578
Root Mean Square Error	1.466971
Mean of Response	4.693059
Observations (or Sum Wgts)	5633

Fixed Effect Tests

Source	Nparm	DF	DFDen	F Ratio	Prob > F
Gender	1	1	771.7	2.0658	0.1510
EducationLevel	4	4	834.3	1.4962	0.2014
Agegroup	4	4	784.8	6.6793	<.0001*
Square(colorfulnessmodel)	1	1	1715	0.1777	0.6734
Square(complexitymodel)	1	1	2935	25.4254	<.0001*
Square(colorfulnessmodel)*Gender	1	1	5134	1.7154	0.1903
Square(colorfulnessmodel)*EducationLevel	4	4	5137	2.6089	0.0338*
Square(colorfulnessmodel)*Agegroup	4	4	5132	1.0561	0.3766
Square(complexitymodel)*Gender	1	1	5158	0.5332	0.4653
Square(complexitymodel)*EducationLevel	4	4	5124	1.4326	0.2204
Square(complexitymodel)*Agegroup	4	4	5135	6.5338	<.0001*

Parameter Estimates

Term	Estimate	Std Error	DFDen	t Ratio	Prob>|t|
Intercept	5.5782392	0.300533	1507	18.56	<.0001*
Gender[Female]	-0.106048	0.073784	771.7	-1.44	0.1510
EducationLevel[college]	-0.557141	0.293345	1175	-1.90	0.0578
EducationLevel[graduate school]	-0.16365	0.296901	1171	-0.55	0.5816
EducationLevel[high school]	-0.339104	0.404817	880.6	-0.84	0.4024
EducationLevel[PhD]	-0.344007	0.302193	1154	-1.14	0.2552
Agegroup[16+]	0.0578443	0.159384	808.4	0.36	0.7168
Agegroup[25+]	0.2901694	0.129944	777.2	2.23	0.0258*
Agegroup[35+]	0.2224537	0.166991	744.5	1.33	0.1832
Agegroup[45+]	0.5698774	0.23241	806.7	2.45	0.0144*
Square(colorfulnessmodel)	0.0021148	0.005017	1715	0.42	0.6734
Square(complexitymodel)	-0.041055	0.008142	2935	-5.04	<.0001*
Square(colorfulnessmodel)*Gender[Female]	0.0018873	0.001441	5134	1.31	0.1903
Square(colorfulnessmodel)*EducationLevel[college]	0.0064444	0.004408	5182	1.46	0.1438
Square(colorfulnessmodel)*EducationLevel[graduate school]	0.0007065	0.004466	5170	0.16	0.8743
Square(colorfulnessmodel)*EducationLevel[high school]	-0.01212	0.006544	5096	-1.85	0.0641
Square(colorfulnessmodel)*EducationLevel[PhD]	-0.000895	0.004629	5188	-0.19	0.8467
Square(colorfulnessmodel)*Agegroup[16+]	0.0059267	0.003036	5129	1.95	0.0509
Square(colorfulnessmodel)*Agegroup[25+]	-0.000979	0.002493	5121	-0.39	0.6945
Square(colorfulnessmodel)*Agegroup[35+]	0.0003203	0.003247	5140	0.10	0.9214
Square(colorfulnessmodel)*Agegroup[45+]	-0.003613	0.004512	5141	-0.80	0.4233
Square(complexitymodel)*Gender[Female]	-0.001462	0.002003	5158	-0.73	0.4653
Square(complexitymodel)*EducationLevel[college]	0.0119262	0.007511	5110	1.59	0.1124
Square(complexitymodel)*EducationLevel[graduate school]	0.0048439	0.007628	5109	0.64	0.5254
Square(complexitymodel)*EducationLevel[high school]	0.0183528	0.010154	5129	1.81	0.0708
Square(complexitymodel)*EducationLevel[PhD]	0.003528	0.007744	5116	0.46	0.6487
Square(complexitymodel)*Agegroup[16+]	-0.007364	0.004373	5181	-1.68	0.0922
Square(complexitymodel)*Agegroup[25+]	-0.004175	0.003436	5125	-1.22	0.2244
Square(complexitymodel)*Agegroup[35+]	-0.006889	0.004446	5142	-1.55	0.1213
Square(complexitymodel)*Agegroup[45+]	-0.014548	0.006216	5112	-2.34	0.0193*

REML Variance Component Estimates

Random Effect	Var Ratio	Var Component	Std Error	95% Lower	95% Upper	Pct of Total
StimulusID	0.4117132	0.8860084	0.0751071	0.738801	1.0332157	24.703
ParticipantID	0.2549279	0.5486059	0.0606054	0.4298215	0.6673903	15.296
Residual		2.1520039	0.0432461	2.0696962	2.2393452	60.001
Total		3.5866182	0.1038223	3.3915217	3.7991324	100.000

-2 LogLikelihood = 21688.488346
Note: Total is the sum of the positive variance components.

Total including negative estimates = 3.5866182