

Supplemental Appendix

Additional Information and Results for Orquin, Lahm, and Stojic (2021)

Table A1

Eye-Tracker Specifications Table, With Accuracy and Precision for Each Eye-Tracker as Extracted From the Manufacturer Website, and Computed Artifact Multiplier Used for Correcting for a Bias in Effect Size Estimates

Eye-tracker model	a_a	Accuracy	Precision
ASL6000	0.5523	1.00	0.50
Easygaze	0.6866	0.70	0.35
Eye gaze 97	0.6794	0.72	0.50
Eye gaze tm	0.8209	0.40	0.50
EyeLink 1,000	0.7762	0.50	0.05
EyeLink 1,000 (acc = .33)	0.8523	0.33	0.05
EyeLink 1,000 Plus (acc <.5)	0.7762	0.50	0.05
EyeLink II	0.7762	0.50	0.01
ISCAN	0.5523	1.00	0.50
Nihon-Kohden EEG-1,100	0.5523	1.00	0.50
SMI Glasses	0.4583	1.21	0.19
SMI RED	0.8209	0.40	0.03
SMI iview	0.7762	0.50	0.01
SMI iview HED	0.5523	1.00	0.50
SMI model unknown (acc <.5)	0.7762	0.50	0.30
Tobii D10	0.7762	0.50	0.50
Tobii Glasses 1	0.3643	1.42	0.50
Tobii T120	0.8209	0.40	0.24
Tobii T1750	0.7762	0.50	0.25
Tobii T2150	0.7762	0.50	0.35
Tobii T60	0.7762	0.50	0.22
Tobii X1	0.7762	0.50	0.20
Tobii X2	0.8209	0.40	0.32
Tobii X60	0.7762	0.50	0.30
Tobii glasses 2	0.3643	1.42	0.34
Unknown	0.6919	0.69	0.30

Note. a_a = artifact multiplier; ASL = Applied Science Laboratories; SMI = SensoMotoric instruments.

Table A2

Metric Correction Factor A_m When Correcting to Either Fixation Count or Fixation Likelihood—These Correction Factors Were Used to Make Sure All Dependent Variables Are Comparable

Correcting from	Correcting to	A_m
Fixation count	Fixation likelihood	1.041
Fixation likelihood	Fixation count	0.961
Total dwell time	Fixation likelihood	0.913
Total dwell time	Fixation count	1.035
Dwell count	Fixation likelihood	0.844
Dwell count	Fixation count	0.957

Table A3
Overview of Individual Effect Sizes

Authors	IV	<i>N</i>	a_a	r	Eye-tracker	Domain	Alt/att
Ares et al. (2014)	Pref	71	0.776	0.320	Tobii T60	Pref con	Att
Ashby et al. (2015)	Pref	27	0.821	0.069	Eye gaze tm	Pref con	Att
Ashby et al. (2015)	Pref	34	0.821	0.067	Eye gaze tm	Pref con	Att
Ashby et al. (2015)	Pref	81	0.821	0.104	Eye gaze tm	Pref con	Att
Atalay et al. (2012)	Center	63	0.776	0.187	Tobii T1750	Pref con	
Atalay et al. (2012)	Center	64	0.776	0.155	Tobii T1750	Pref con	
Bagger (2016)	Sal	20	0.776	0.117	EyeLink 1,000	Inf con	Att
Bagger (2016)	Sal	22	0.776	0.169	EyeLink 1,000	Inf con	Att
Bagger (2016)	Sal	40	0.776	0.163	EyeLink 1,000	Inf con	Att
Bagger (2016)	Sal	61	0.776	0.015	EyeLink 1,000	Inf con	Att
Behe et al. (2014)	Pref	330	0.776	0.094	Tobii X1	Pref con	Att
Behe et al. (2015)	Choice	101	0.776	0.079	Tobii X1	Pref con	
Behe et al. (2017)	Pref	214	0.776	0.159	Tobii X1	Pref con	Att
Bialkova and van Trijp (2011)	Task	10	0.821	0.868	SMI RED	Inf con	Att
Bialkova et al. (2014)	Task	80	0.821	0.347	SMI RED	Inf con	Att
Bialkova et al. (2014)	Task	80	0.821	0.270	SMI RED	Inf con	Att
Bialkova et al. (2020)	Task	30	0.776	0.232	SMI unknown	Pref con	Att
Bogomolova et al. (2020)	Sal	200	0.821	0.138	Tobii T120	Pref con	Att
Brandstätter and Körner (2014)	Choice	80	0.776	0.775	EyeLink II	Lotteries	
Cavanagh et al. (2014)	Choice	20	0.776	0.754	EyeLink 1,000	Lotteries	
Chandon et al. (2009)	LvR	348	0.552	0.019	ISCAN	Pref con	
Chandon et al. (2009)	Center	348	0.552	0.347	ISCAN	Pref con	
Chandon et al. (2009)	Size	348	0.552	0.346	ISCAN	Pref con	
Chandon et al. (2009)	Task	348	0.552	0.142	ISCAN	Pref con	Alt
Du and MacDonald (2014)	Pref	72	0.821	0.228	Tobii T120	Pref con	Att
Fiedler and Glöckner (2012)	Choice	21	0.821	0.718	Eye gaze tm	Lotteries	
Fiedler and Glöckner (2012)	Choice	36	0.821	0.548	Eye gaze tm	Lotteries	
Folke et al. (2016)	Choice	28	0.776	0.750	EyeLink II	Pref con	
Folke et al. (2016)	Choice	24	0.776	0.808	EyeLink 1,000	Pref con	
Gidlof et al. (2017)	Choice	260	0.458	0.207	SMI Glasses	Pref con	
Gidlof et al. (2017)	Center	260	0.458	0.523	SMI Glasses	Pref con	
Gidlof et al. (2017)	Pref	260	0.458	0.095	SMI Glasses	Pref con	Alt
Gidlof et al. (2017)	Sal	260	0.458	0.019	SMI Glasses	Pref con	
Gidlof et al. (2017)	Size	260	0.458	0.464	SMI Glasses	Pref con	
Gidlöf et al. (2013)	Task	40	0.552	0.040	SMI iview HED	Pref con	Alt
Glaholt and Reingold (2009a)	Task	16	0.776	0.000	EyeLink 1,000	Inf noncon	Alt
Glaholt and Reingold (2009b)	Choice	12	0.776	0.096	EyeLink 1,000	Inf noncon	
Glaholt and Reingold (2009b)	Choice	12	0.776	0.153	EyeLink 1,000	Pref noncon	
Glaholt and Reingold (2009b)	Task	12	0.776	0.153	EyeLink 1,000	Inf noncon	Alt
Glaholt and Reingold (2009b)	Task	12	0.776	0.455	EyeLink 1,000	Inf noncon	Alt
Glaholt et al. (2009)	Choice	16	0.776	0.755	EyeLink 1,000	Inf noncon	
Glaholt et al. (2010)	LvR	48	0.776	0.545	EyeLink 1,000	Inf noncon	
Glaholt et al. (2010)	Center	48	0.776	0.645	EyeLink 1,000	Inf noncon	
Glaholt and Reingold (2012)	Choice	24	0.776	0.646	EyeLink 1,000	Inf noncon	
Glaholt and Reingold (2012)	Task	24	0.776	0.451	EyeLink 1,000	Inf noncon	Alt
Graham and Roberto (2016)	Size	155	0.776	0.106	EyeLink 1,000	Pref con	
Grebitus et al. (2015)	Set size	130	0.776	0.019	Tobii T60	Pref con	Att
Guyader et al. (2017)	Task	66	0.458	0.487	SMI Glasses	Inf con	Alt
Hong et al. (2016)	Set size	75	0.821	0.440	Tobii T120	Pref con	Alt
Huang and Kuo (2011)	Task	88	0.776	0.221	EyeLink II	Pref noncon	Att
Hwang and Lee (2017)	Task	42	0.821	0.126	Tobii X2	Inf con	Att
Jenke et al. (2019)	Pref	122	0.776	0.308	Tobii T60	Inf noncon	Att
Jenke et al. (2019)	Set size	122	0.776	0.230	Tobii T60	Inf noncon	Att
Keller et al. (2014)	Task	159	0.776	0.388	SMI iview	Inf noncon	Att
Kim et al. (2012)	Pref	24	0.776	0.610	EyeLink II	Lotteries	Alt
Krajbich et al. (2010)	Choice	39	0.776	0.926	Tobii T2150	Pref con	
Kreplin et al. (2014)	LvR	19	0.552	0.270	ASL6000	Pref noncon	
Kreplin et al. (2014)	Center	19	0.552	0.730	ASL6000	Pref noncon	
Kwak and Huettel (2018)	LvR	63	0.776	0.453	Tobii T60	Lotteries	Alt
LeBoeuf et al. (2016)	Task	54	0.776	0.652	EyeLink 1,000	Inf con	Att
Lindner et al. (2014)	Choice	30	0.776	0.453	SMI iview	Inf noncon	
Lindner et al. (2014)	Pref	26	0.776	0.588	SMI iview	Inf noncon	Alt
Lohse (1997)	Sal	32	0.679	0.077	Eye gaze 97	Pref con	
Lohse (1997)	Size	32	0.679	0.174	Eye gaze 97	Pref con	
Meißner et al. (2016)	Center	60	0.776	0.230	EyeLink II	Pref con	

Table A3 (continued)

Authors	IV	<i>N</i>	a_a	<i>r</i>	Eye-tracker	Domain	Alt/att
Meißner et al. (2016)	Pref	60	0.776	0.798	EyeLink II	Pref con	Alt
Meißner et al. (2016)	Pref	60	0.776	0.836	EyeLink II	Pref con	Att
Meißner et al. (2016)	Center	35	0.821	0.120	Tobii T120	Pref con	
Meißner et al. (2016)	Pref	35	0.821	0.775	Tobii T120	Pref con	Att
Meißner et al. (2016)	Pref	35	0.821	0.881	Tobii T120	Pref con	Alt
Meißner et al. (2016)	Pref	70	0.776	0.906	Tobii T2150	Pref con	Alt
Meißner et al. (2016)	Pref	70	0.776	0.930	Tobii T2150	Pref con	Att
Meißner et al. (2016)	Center	70	0.692	0.220	Unknown	Pref con	
Meissner et al. (2016)	Set size	40	0.821	0.420	Tobii T120	Pref con	Alt
Meyerding and Merz (2018)	Pref	73	0.364	0.301	Tobii glasses 2	Pref con	Att
Miller et al. (2015)	Pref	358	0.776	0.382	EyeLink 1,000	Pref con	Att
Mitsuda and Glaholt (2014)	Choice	48	0.776	0.842	EyeLink II	Inf noncon	
Neuhofer et al. (2020)	Size	164	0.821	0.238	Tobii X2	Pref con	Att
Nittono and Wada (2009)	Choice	10	0.552	0.248	Nihon-Kohden	Inf noncon	
Nittono and Wada (2009)	Task	10	0.552	-0.062	Nihon-Kohden	Inf noncon	Alt
Orquin et al. (2013)	Pref	68	0.776	0.195	Tobii T2150	Pref con	Att
Orquin and Lagerkvist (2015)	Sal	150	0.776	0.067	Tobii T60	Pref con	Att
Orquin and Lagerkvist (2015)	Task	100	0.776	0.052	Tobii T60	Pref con	Att
Orquin et al. (2019)	Center	91	0.776	0.267	Tobii T2150	Pref con	Att
Orquin et al. (2019)	Sal	91	0.776	0.088	Tobii T2150	Pref con	Att
Orquin et al. (2019)	Set size	91	0.776	0.078	Tobii T2150	Pref con	Att
Orquin et al. (2019)	Size	91	0.776	0.222	Tobii T2150	Pref con	Att
Orquin et al. (2019)	Center	76	0.776	0.068	EyeLink 1,000	Inf con	Att
Orquin et al. (2019)	Sal	76	0.776	0.048	EyeLink 1,000	Inf con	Att
Orquin et al. (2019)	Set size	76	0.776	0.020	EyeLink 1,000	Inf con	Att
Orquin et al. (2019)	Size	76	0.776	0.230	EyeLink 1,000	Inf con	Att
Orquin et al. (2019)	Task	52	0.776	0.083	EyeLink 1,000	Inf con	Att
Orquin et al. (2021)	Set size	71	0.776	0.423	Tobii T60	Pref con	Alt
Orquin et al. (2021)	Set size	16	0.776	0.033	Tobii T60	Pref con	Alt
Orquin et al. (2021)	Set size	11	0.776	0.027	Tobii T60	Pref con	Alt
Orquin et al. (2021)	Set size	68	0.776	0.508	Tobii T60	Pref con	Alt
Pärnamets et al. (2015)	Task	58	0.821	0.504	SMI RED	Pref noncon	Alt
Pärnamets et al. (2015)	Task	37	0.821	0.342	SMI RED	Pref noncon	Alt
Peschel et al. (2019)	Sal	127	0.776	0.004	Tobii T60	Pref con	Att
Peschel et al. (2019)	Size	127	0.776	0.098	Tobii T60	Pref con	Att
Pieters and Warlop (1999)	Task	54	0.692	0.051	Unknown	Pref con	Att
Robertson and Lunn (2020)	LvR	74	0.776	0.130	EyeLink 1,000*	Pref con	Att
Rubaltelli et al. (2012)	Task	37	0.821	0.324	Eye gaze tm	Lotteries	Att
Schoemann et al. (2019)	Task	40	0.852	0.855	EyeLink 1,000*	Lotteries	Att
Schotter et al. (2010)	Choice	32	0.776	0.262	EyeLink II	Inf noncon	
Schotter et al. (2010)	Choice	32	0.776	0.290	EyeLink II	Pref noncon	
Schotter et al. (2012)	Choice	32	0.776	0.292	EyeLink 1,000	Inf noncon	
Spinks and Mortimer (2016)	Set size	32	0.821	0.602	Tobii T120	Inf noncon	Att
Su et al. (2013)	Task	49	0.776	0.454	EyeLink II	Lotteries	Att
Turner et al. (2014)	Task	89	0.776	0.534	Tobii D10	Pref con	Att
van der Laan et al. (2015)	Choice	22	0.687	0.451	Easygaze	Inf con	
van der Laan et al. (2017)	Pref	125	0.687	0.263	Easygaze	Pref con	Alt
Van Herpen and Van Trijp (2011)	Task	309	0.821	0.150	SMI RED	Pref con	Att
Van Loo et al. (2015)	Pref	81	0.821	0.257	SMI RED	Pref con	Att
Van Loo et al. (2019)	Set size	103	0.821	0.110	Tobii X2	Pref con	Att
Van Loo et al. (2019)	Pref	103	0.821	0.132	Tobii X2	Pref con	Att
Wästlund et al. (2015)	Task	98	0.364	0.247	Tobii Glasses 1	Inf con	Alt
Wästlund et al. (2015)	Task	66	0.364	0.381	Tobii Glasses 1	Inf con	Alt
Wolfson et al. (2017)	Pref	234	0.776	0.071	EyeLink 1,000	Pref con	Att
Zuschke (2020)	Sal	172	0.776	0.262	Tobii X60	Pref con	Att
Zuschke (2020)	Size	172	0.776	0.303	Tobii X60	Pref con	Att
Zuschke (2020)	Set size	172	0.776	0.080	Tobii X60	Pref con	Att

Note. IV = independent variable (LvR = left vs. right position, Center = center position, Sal = salience, Pref = preferential viewing, Choice = choice-gaze effect, Task = task instructions); *N* = number of participants; a_a = artifact multiplier; *r* = attenuated effect size correlation expressed in the fixation count metric; Domain = research domain (Pref Con = preferential consumer choice, Pref Non-Con = preferential nonconsumer choice, Inf Con = inferential consumer choice, Inf Non-Con = inferential non-consumer choice, Lotteries = risky gambles); Alt/Att = alternative or attribute manipulation; SMI = SensoMotoric instruments.

* accuracy = 0.33 of visual angle.

Table A4
Participant Sample Characteristics Grouped by Visual and Cognitive Factors

Characteristic	Salience	Surface size	Left versus right position	Center position	Set size	Task instructions	Preferential viewing	Choice-gaze effect
<i>k</i>	12	9	5	11	13	28	21	18
Age								
Not reported	3	4	4	6	9	11	9	8
<i>M</i>	34.13	34.26	23	36.04	35.52	28.99	30.91	24.99
Gender: female								
Not reported	2	3	4	5	9	9	7	6
Percent	52.28	54.96	68.18	53	57.81	55.57	58.23	54.22
Ethnicity								
Not reported						3		
Asian						4		2
Latino							1	
White	12	9	5	11	13	21	20	16
Country								
Not reported				2		3	2	
Australia	1			1	2		1	
Austria								1
Canada			1	1		4		3
China						1		
Denmark	8	3		2	6	2	1	
France				2				
Germany	1	1			1	3	5	3
Ireland			1					
Japan						1		2
Korea						1		
Netherlands						3	1	1
Sweden	1	1		1		6	1	1
Switzerland						1		
Taiwan						1		
UK			1	1	1			2
Uruguay							1	
USA	1	4	2	1	3	2	9	5

Table A5
Moderator Analysis Results

Group	<i>k</i>	<i>N</i>	ρ	<i>SE</i>	<i>Z</i>	<i>p</i>	CI _{LL} ⁹⁵	CI _{UL} ⁹⁵	<i>I</i> ²
Set size									
Alternative	6 (2)	281 (146)	0.5 (0.52)	0.01 (0.09)	48.55 (6.01)	<.001 (<.001)	0.45 (0.35)	0.54 (0.69)	0 (0)
Attribute	7 (2)	726 (302)	0.14 (0.07)	0.05 (0.07)	2.88 (0.95)	.035 (.343)	0.02 (-0.07)	0.27 (0.21)	30.38 (0)
Task instruction									
Alternative	12 (2)	787 (406)	0.39 (0.34)	0.08 (0.11)	4.79 (3.13)	.001 (.002)	0.2 (0.13)	0.57 (0.56)	10.85 (38.13)
Attribute	16 (2)	1,273 (468)	0.34 (0.28)	0.06 (0.1)	5.32 (2.67)	<.001 (.008)	0.2 (0.07)	0.48 (0.48)	64.64 (68.33)
Preferential viewing									
Alternative	7 (2)	600 (385)	0.61 (0.29)	0.19 (0.08)	3.17 (3.64)	.034 (<.001)	0.08 (0.13)	1.13 (0.45)	76.81 (0)
Attribute	17 (2)	2,033 (688)	0.31 (0.31)	0.08 (0.13)	3.95 (2.43)	.002 (.015)	0.14 (0.06)	0.47 (0.55)	77.03 (86.6)

Note. *k* = number of studies; *N* = number of participants; ρ = unattenuated effect size estimate; *SE* = standard error of estimate; *Z* = *Z* statistic; *p* = significance level; CI_{LL}⁹⁵ = lower limit of the 95% confidence interval; CI_{UL}⁹⁵ = upper limit of the 95% confidence interval; *I*² = within-group heterogeneity. The most important values are the corrected effect size estimate, ρ , and the associated heterogeneity, *I*². Results of the Top10 analysis are in parentheses.

Table A6

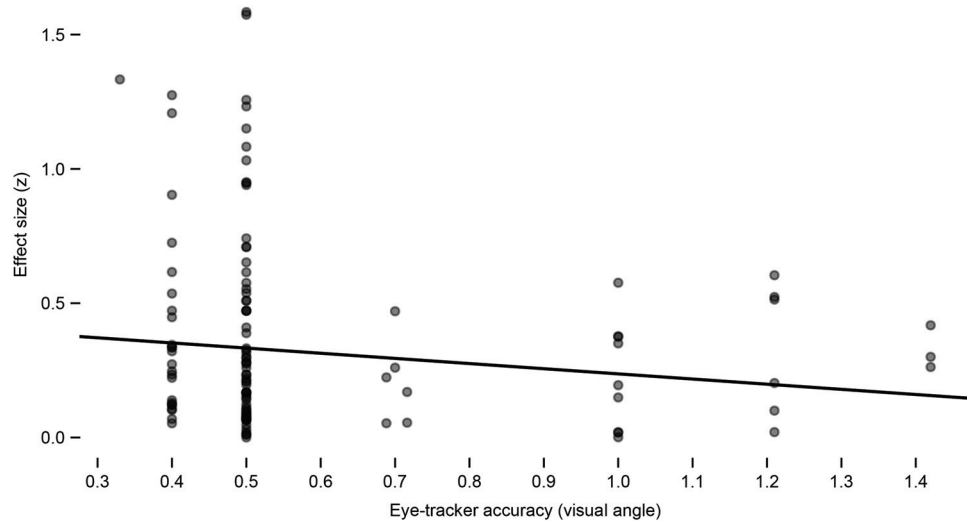
Publication Bias Analysis With Precision-Effect Test (PET) and Precision-Effect Estimate Test (PEESE) of Complete Data

Parameter	β	SE	t	df	p
PET					
Intercept	0.169	0.102	1.651	1.505	.279
SD	2.156	0.622	3.468	8.888	.007
A	-0.118	0.156	-0.753	3.01	.506
PEESE					
Intercept	0.23	0.098	2.355	1.627	.171
Var	5.598	1.886	2.969	12.94	.011
A	-0.001	0.172	-0.004	2.417	.997

Note. See Method for details on the tests.

Figure A1

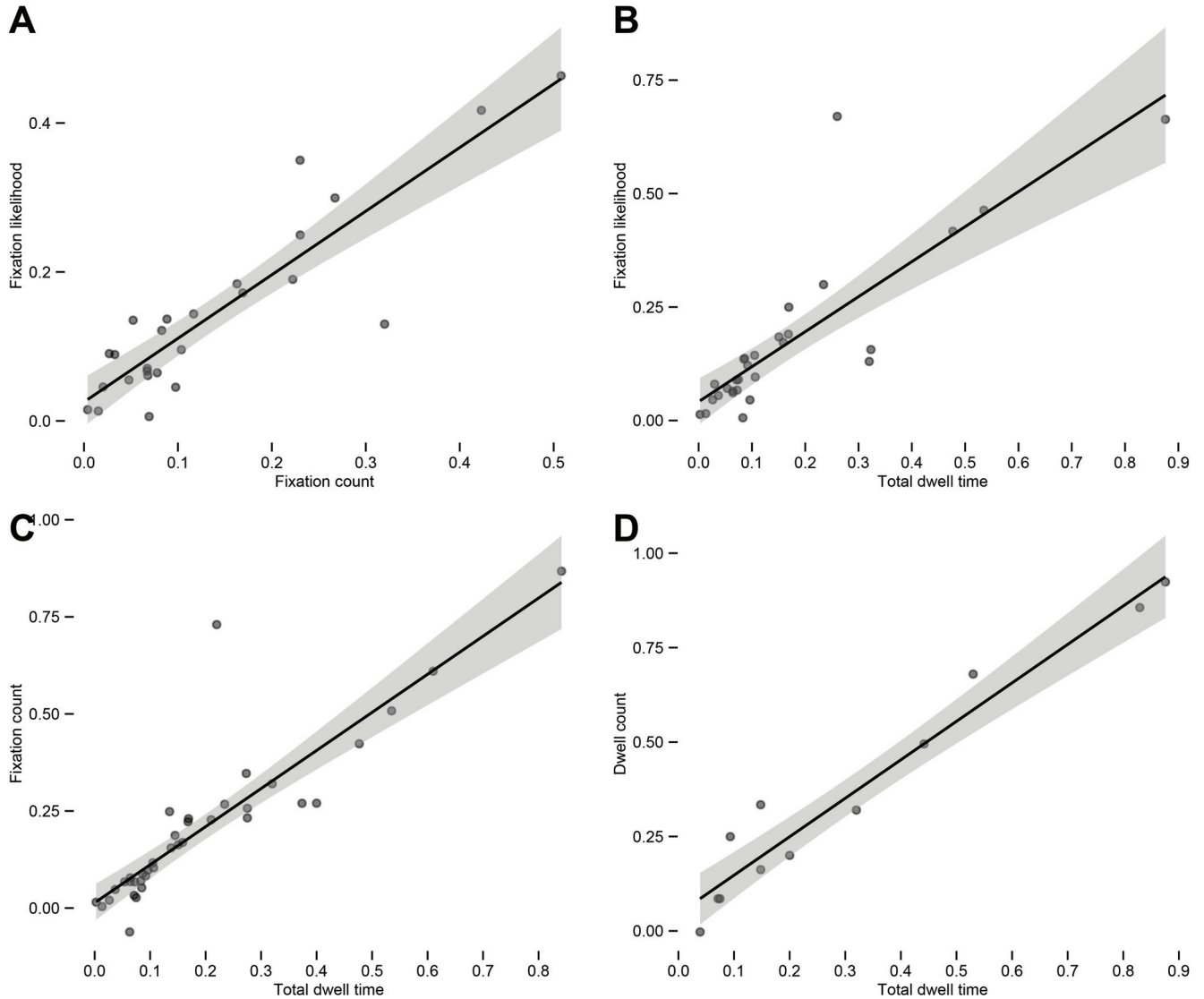
Accuracy of the Eye-Tracker Affects the Ability to Reliably Measure Effect Sizes in Each Study



Note. Points denote the accuracy of an eye-tracker used in a study and the effect size measured with it. The line is based on the estimated intercept and slope from the best-fitting mixed-effect model, which was used to compute artifact multiplier, a_a . The multiplier was used to correct for a bias in estimated effect sizes attributable to differences in measurement accuracy of eye-trackers.

Figure A2

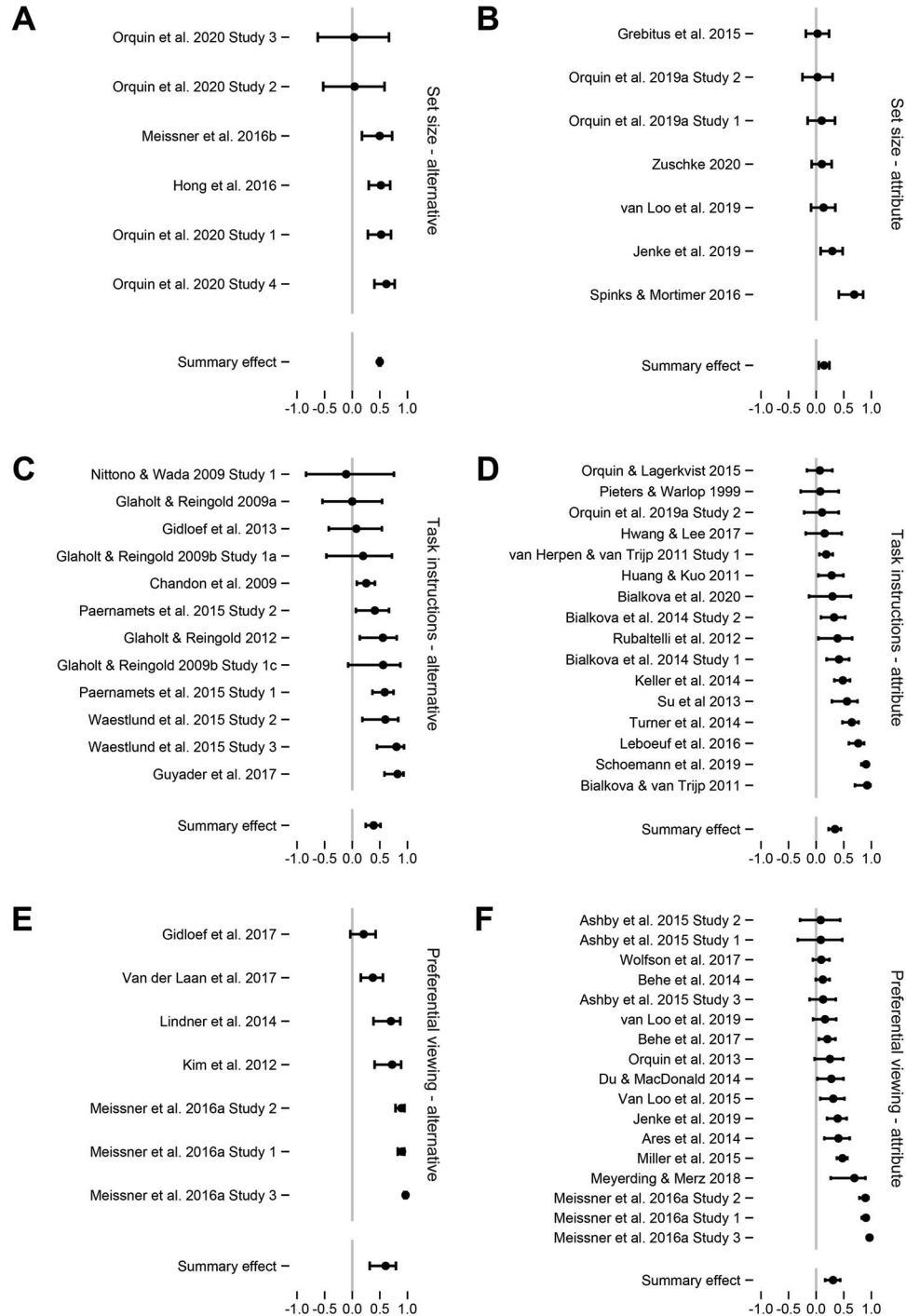
Several Eye Movement Metrics Are Used as Dependent Variable, but They Are All Highly Correlated, Suggesting They Are All Measuring the Same Underlying Construct



Note. Scatterplots show the relationship (A) between effect sizes expressed in fixation likelihood and fixation count, (B) between total dwell time and fixation likelihood, (C) between total dwell time and fixation count, (D) between total dwell time and dwell count. Lines in each plot represent the best-fitting linear regression line, and the shaded area 95% confidence interval.

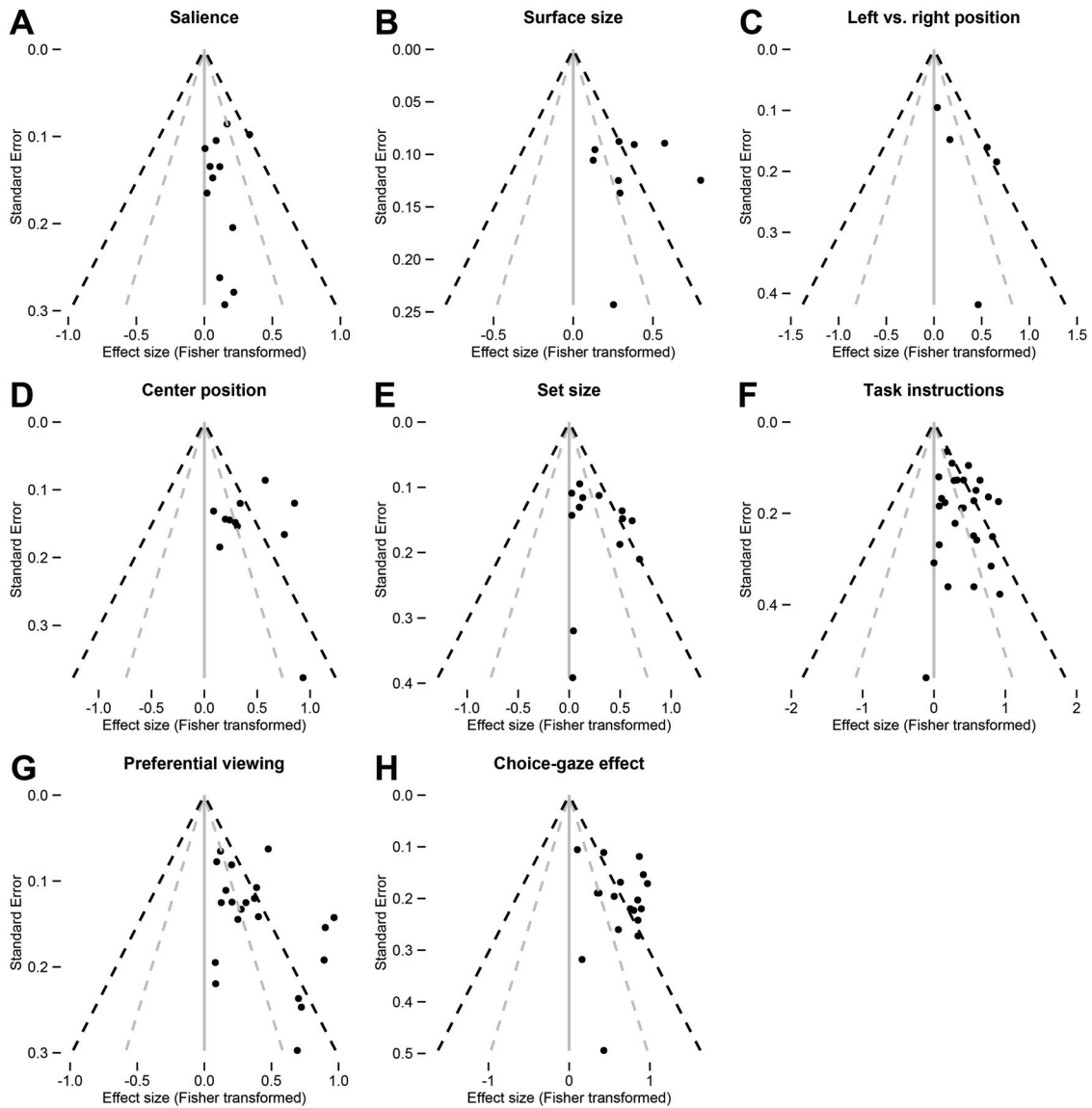
Figure A3

Effect Sizes of the Factors That Were Decomposed Into Alternative and Attribute Parts for Moderator Analyses



Note. Forest plots show the unattenuated effect size correlations for each study in a group, as well as average effect across the group. Forest plot in (A) shows the effect sizes for set size – alternative, in (B) for set size – attribute, in (C) for task instructions – alternative, in (D) for task instructions – attribute, in (E) for preferential viewing – alternative, and in (F) for preferential viewing – attribute. Error bars represent the 95% confidence interval around the mean.

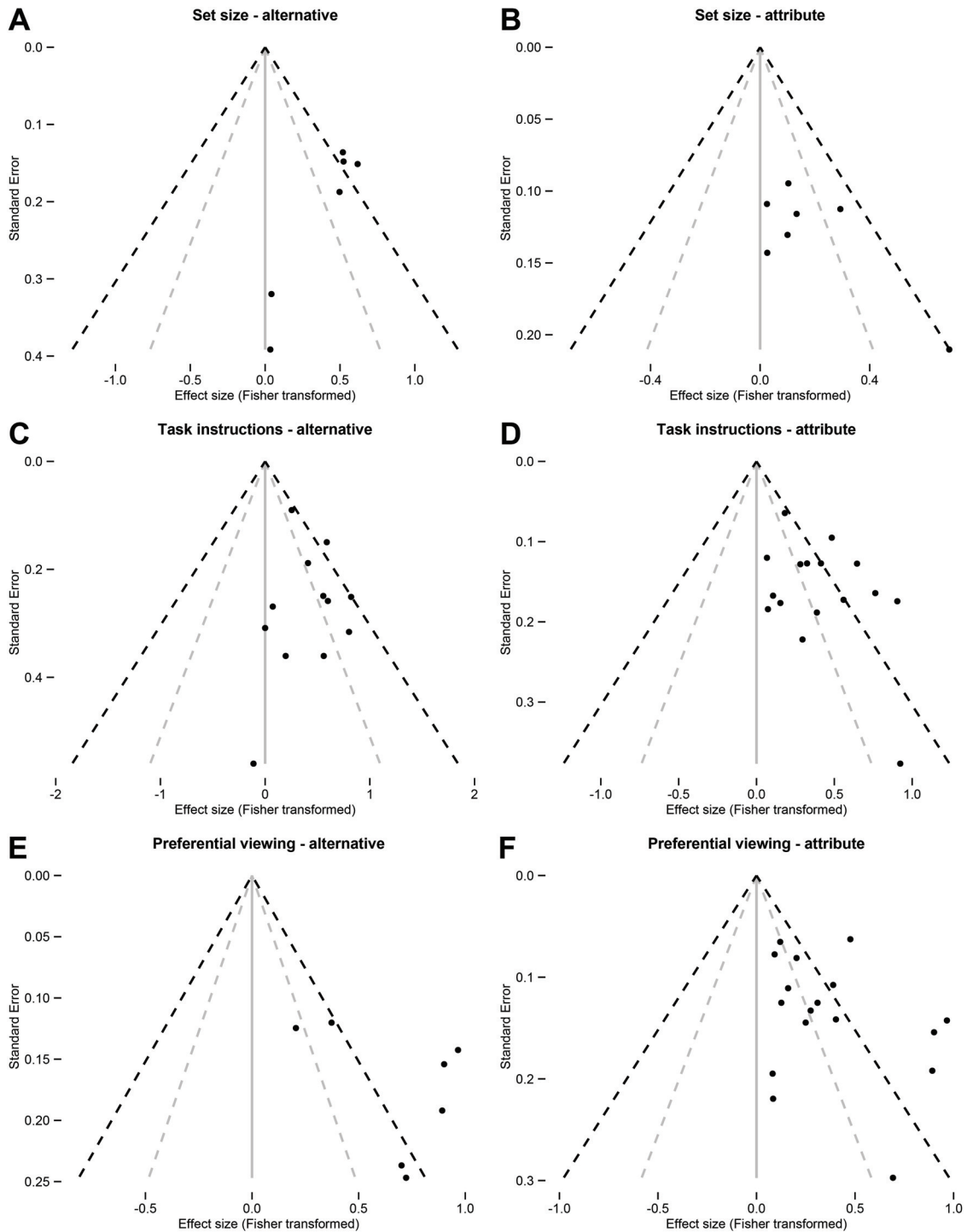
Figure A4
Funnel Plots for Each Factor That Can Be Used as a Qualitative Check of a Publication Bias



Note. Points are Fisher transformed correlation coefficients against their standard error. Asymmetric distributions of points can indicate the presence of publication bias because smaller studies (those with higher standard errors) have more variable effect sizes and are less likely to be published unless the effect is large. The gray dashed line indicates the region Funnel plot for (A) salience, (B) surface size, (C) left vs. right position, (D) central position, (E) set size, (F) task instructions, (G) preferential viewing, and (H) choice-gaze effect.

Figure A5

Funnel Plots for Factors That Were Decomposed Into Alternative and Attribute Parts for Moderator Analyses



Note. Points are Fisher transformed correlation coefficients against their standard error. Asymmetric distributions of points can indicate the presence of publication bias since smaller studies (those with higher standard errors) have more variable effect sizes and are less likely to be published unless the effect is large. Funnel plot for (A) set size – alternative, (B) set size – attribute, (C) task instructions – alternative, (D) task instructions – attribute, (E) preferential viewing – alternative, (F) preferential viewing – attribute.