

Table S1: Table of candiate models used for each analysis.

	AICc	ΔAICc	wi
A) Bumblebee PER, binomial learning; analysed with a generalized linear mixed effect model (binomial); colony included as random factor			
Null model	129.7	0	0.658
Bee size	131.7	1.94	0.249
Treatment	134.3	4.6	0.066
Treatment + Bee size	136.2	6.5	0.026
Treatment + Bee size + Treatment:Bee size	142.4	12.65	0.001
B) Honeybee PER, binomial learning; analysed with a generalized linear mixed effect model (binomial); colony included as random factor			
Null model	134.4	0	0.54
Bee size	136.5	2.1	0.189
Treatment	137.3	2.91	0.126
Treatment + Bee size + Treatment:Bee size	137.7	3.34	0.102
Treatment + Bee size	139.4	5.06	0.043
C) Bumblebee PER, learning level; analysed with a generalized linear mixed effect model (poisson); colony included as random factor			
Null model	215.8	0	0.533
Bee size	216.2	0.4	0.437
Treatment	222.7	6.85	0.017
Treatment + Bee size	223.3	7.47	0.013
Treatment + Bee size + Treatment:Bee size	229.9	14.12	0
D) Honeybee PER, learning level; analysed with a generalized linear mixed effect model (poisson); colony included as random factor			
Bee size	284	0	0.492
Null model	285.1	1.11	0.283
Treatment + Bee size	287.6	3.61	0.081
Treatment + Bee size + Treatment:Bee size	287.7	3.66	0.079
Treatment	288.1	4.06	0.065
E) Bumblebee PER, Speed to learn			
Null model	413.3	0	0.587
Bee size	414.6	1.28	0.309
Treatment	417.8	4.46	0.063
Treatment + Bee size	418.8	5.5	0.038
Treatment + Bee size + Treatment:Bee size	423.2	9.9	0.004
F) Honeybee PER, Speed to learn			
Null model	391.7	0	0.579
Bee size	393.7	2.05	0.208
Treatment	394.6	2.94	0.133
Treatment + Bee size	396.8	5.11	0.045
Treatment + Bee size + Treatment:Bee size	397.3	5.66	0.034
G) Bumblebee PER, Memory 3H			
Null model	58.9	0	0.64
Bee size	60.8	1.87	0.251
Treatment	63.2	4.27	0.075
Treatment + Bee size	65	6.13	0.03
Treatment + Bee size + Treatment:Bee size	69.1	10.25	0.004
H) Honeybee PER, Memory 3H			
Null model	101.5	0	0.526
Bee size	102	0.47	0.416
Treatment	107.1	5.55	0.033
Treatment + Bee size	107.8	6.22	0.023
Treatment + Bee size + Treatment:Bee size	113.8	12.27	0.001
I) Bumblebee PER, Memory 24H			
Null model	50.9	0	0.716
Bee size	53.2	2.27	0.23
Treatment	56.6	5.65	0.042
Treatment + Bee size	59.3	8.36	0.011
Treatment + Bee size + Treatment:Bee size	67.3	16.32	0
J) Honeybee PER, Memory 24H			
Null model	96.5	0	0.453
Bee size	97.9	1.4	0.225
Treatment	98	1.43	0.222
Treatment + Bee size	99.6	3.08	0.097
Treatment + Bee size + Treatment:Bee size	106.5	9.94	0.003
K) RAM, total revisits			
Null model	321.7	0	0.468
Treatment	323	1.37	0.236
Bee size	323.2	1.51	0.22
Treatment + Bee size	325.4	3.75	0.072
Treatment + Bee size + Treatment:Bee size	330.5	8.8	0.006
L) RAM, correct in first 8			
Null model	229	0	0.706
Bee size	231.1	2.13	0.244
Treatment	234.8	5.84	0.038
Treatment + Bee size	237.2	8.23	0.012
Treatment + Size + Treatment:Bee size	244.7	15.74	0
M) RAM, correct before revisit			
Treatment	356.6	0	0.437
Null model	357.3	0.72	0.306
Treatment + Bee size	358.9	2.27	0.141
Bee size	359.4	2.76	0.11
Treatment + Bee size + Treatment:Bee size	365.2	8.57	0.006