Supplement of

The Met Office Weather Game: investigating how different methods for presenting probabilistic weather forecasts influence decision-making

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Supplementary Information

S1. Preliminary / Socio-Demographic Questions

Age – The exact age of the participant asked for, and for UK Data Protection reasons this was banded into one of 6 groups; Under 16, 16-25, 26-35, 36-45, 46-55, or Over 55.

First 3 characters of post / zip code: For Data Protection reasons this was limited to the first half of the post code, and was asked so as to identify the geographical location of participants.

Gender (Male / Female)

Have you played the game before? (Yes / No) – so as to enable us to eliminate repeat players from the analysis. This will rely on participant honesty.

Educational Attainment – The participant was asked to select all qualifications that applied to them. For the analysis we took the highest level of attainment, and assumed that professional qualifications were at a level higher than a degree. This of course is not necessarily the case. A list of the options is shown below, for comparison with the US system, the first is a secondary school level qualification, the second are vocational qualifications, and the third contains qualifications (largely) for university entry.

- O levels / CSEs / GCSEs (any grade) / Foundation Level Diploma
- NVQ Level / GNVQ (any level) / City & Guilds Equivalent / BTEC or RSA Diploma
- A Level / AS Level / VCES
- Degree (for example BA BSC) or higher degree (for example MA, Ph.D, PGCE)
- Professional qualifications (for example accountancy) other vocational / work related qualifications
- Foreign qualifications
- No formal qualifications

Have you ever been taught or learnt about how scientists use computers to model the environment? (Yes, No, I'm not sure) – Asked to separate experts from non-experts.

Do you often make decisions or judgements based on risk, chance or probability? (Yes, No, I'm not sure) – Asked as a potential indication of risk awareness.

S2. ANOVA Test

For statistical testing the Presentation Types have been coded by their information content and their format:

Content: 1= deterministic, 2=rating, 3=probability

Format: 1=text only, 2=graphic, 3=graphic and text

Our intention was to use a mixed model of within and between factors, but we were heavily limited by computational power due to the size of the matrix created. We were therefore limited to a more simple ANOVA with main-effects and all 2-way interactions, carried out in 'R' using the following script:

anova=aov(squareerror~(age*qualifications+age*content+age*format+age*week_order+age *gender+age*week+qualifications*content+qualifications*format+qualifications*week+qualific ations*week_order+qualifications*gender+content*format+content*week+content*week_orde r+content*gender+format*week+format*week_order+format*gender+week*week_order+wee k*gender+week*week_order*gender),data=results)

	Df	Sum Sq	Mean Sq	F value	P Value
Age	5	32.7	6.5321	217.1215	< 2.2e-16
Qualifications	6	17	2.8332	94.174	< 2.2e-16
Content	1	5.4	5.4033	179.5995	< 2.2e-16
Format	1	0.2	0.1812	6.0214	0.014135
week_order	3	42.3	14.1116	469.0572	< 2.2e-16
Gender	1	2	1.9698	65.4739	5.94E-16
Week	3	22.4	7.4617	248.0209	< 2.2e-16
age:qualifications	30	6.5	0.215	7.148	< 2.2e-16
age:content	5	0.2	0.0364	1.2089	0.301918
age:format	5	0.9	0.1734	5.7621	2.53E-05
age:week_order	15	0.6	0.0426	1.4143	0.13012
age:gender	5	0.6	0.1172	3.8956	0.001566
age:week	15	2.6	0.1708	5.678	7.90E-12
qualifications:content	6	0.5	0.0868	2.8864	0.008184
qualifications:format	6	0.6	0.1063	3.5346	0.001685
qualifications:week	18	1.2	0.0676	2.2463	0.001824
qualifications:week_order	18	0.8	0.0464	1.5408	0.066241
qualifications:gender	6	1.5	0.2451	8.1477	7.89E-09
content:format	1	0.1	0.0862	2.8661	0.090466
content:week	3	0.9	0.2984	9.9184	1.56E-06
content:week_order	3	0.5	0.1603	5.3278	0.001143
content:gender	1	0	0.0447	1.4873	0.22264
format:week	3	0.2	0.068	2.2604	0.07921
format:week_order	3	0.3	0.0854	2.8376	0.036526
format:gender	1	0.1	0.0564	1.8763	0.170756
week_order:week	9	1.3	0.1423	4.7294	2.60E-06
gender:week	3	0.2	0.0826	2.7443	0.041442
week_order:gender	3	0.2	0.0607	2.0169	0.109176
week_order:gender:week	9	0.6	0.0718	2.385	0.010742

Figure S1: ANOVA Summary Table

S3. Example Screengrabs
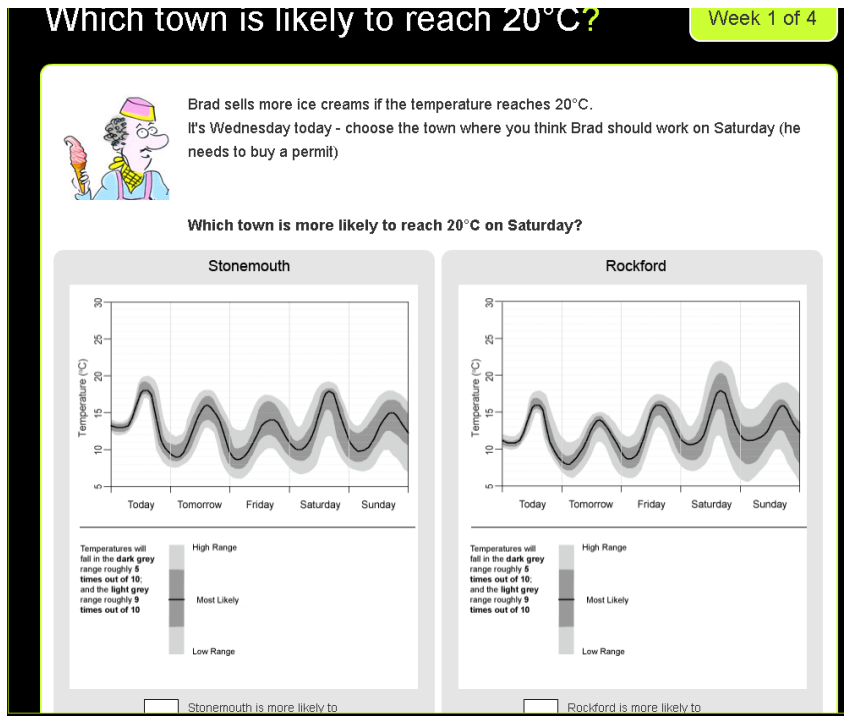
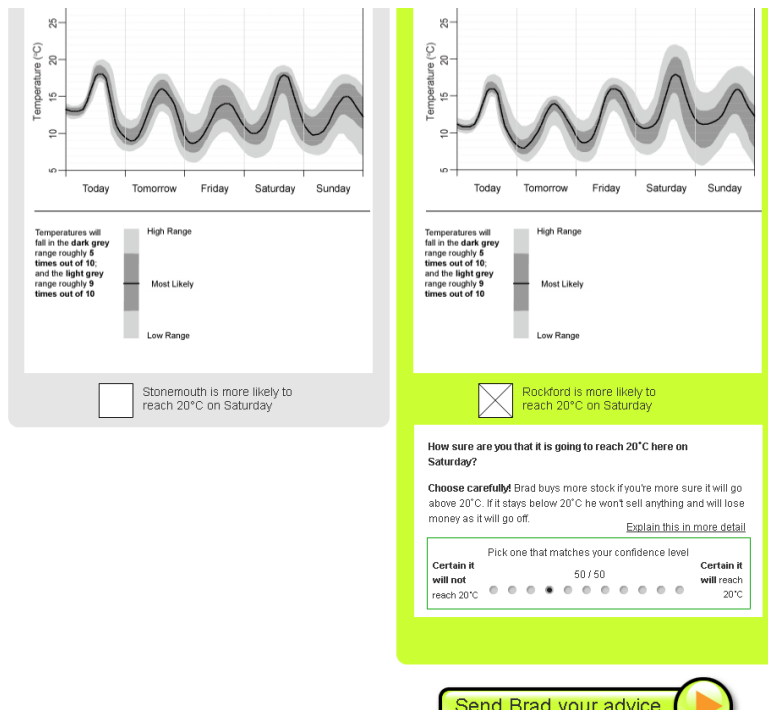
Figure S1: Temperature question - location choice

Figure S3: Temperature question - confidence choice

Figure S4: Relative decision making question - choice of which shift not to work

Figure S5: Ability to interpret a probability: how sure are you that it will not rain during this shift?

Figure S6: Example of feedback provided to participants at the end of each 'week'

Figure S7: Feedback at end of game
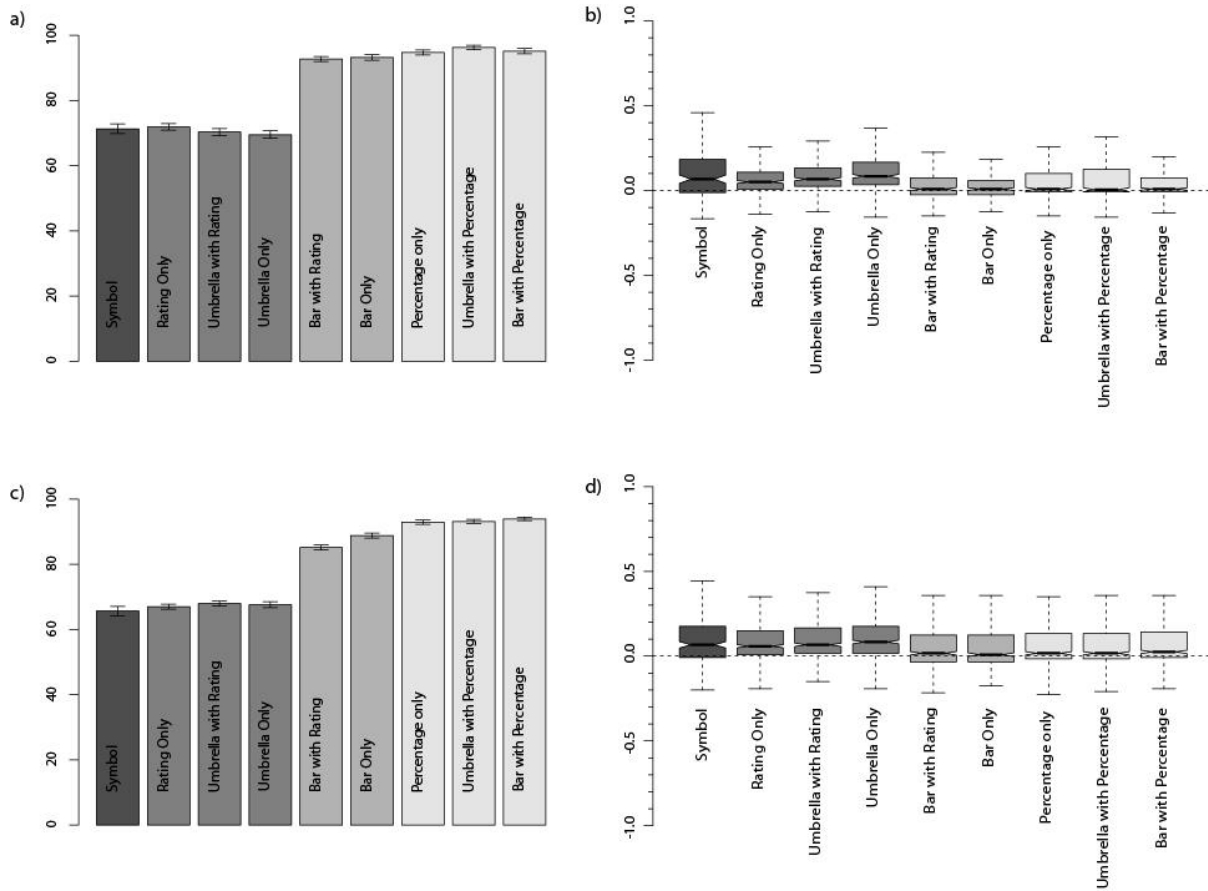
S4. Impact of modelling question

Figure 2: Differences in outcomes for all rainfall questions depending on if participant answered yes (n=2753, shown in a&b) or no (n=4686, shown in c&d) to "Have you ever been taught or learnt about how scientists use computers to model the environment"?