

## Supplementary Tables

**Supplementary Table S1. Bivariate regression result.** The table shows the result of the bivariate regression with the ratio of games won per round as the dependent variable. The columns show the coefficient, %95 confidence interval,  $p$ -value and the  $R$ -squared value of the regression respectively. Significance thresholds: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

|                               | $\beta$ | 95%CI              | $p$      | $R_{squared}$ |
|-------------------------------|---------|--------------------|----------|---------------|
| <b>Age</b>                    | -0.095  | (-0.124 to -0.066) | 0.000*** | 0.095         |
| <b>Gender</b>                 |         |                    |          |               |
| Female                        | -0.024  | (-0.054 to 0.006)  | 0.120    | 0.006         |
| Male                          | 0.025   | (-0.005 to 0.055)  | 0.102    | 0.007         |
| <b>Ethnicity</b>              |         |                    |          |               |
| White                         | -0.021  | (-0.052 to 0.009)  | 0.163    | 0.005         |
| African                       | -0.044  | (-0.074 to -0.015) | 0.004**  | 0.021         |
| Asian                         | 0.070   | (0.041 to 0.100)   | 0.000*** | 0.052         |
| Hispanic                      | 0.006   | (-0.024 to 0.036)  | 0.693    | 0.000         |
| <b>Political</b>              |         |                    |          |               |
| Liberal                       | 0.070   | (0.040 to 0.099)   | 0.000*** | 0.051         |
| Moderate                      | -0.031  | (-0.061 to -0.001) | 0.042*   | 0.010         |
| Conservative                  | -0.051  | (-0.081 to -0.021) | 0.001*** | 0.028         |
| <b>Language</b>               |         |                    |          |               |
| Native                        | 0.026   | (-0.004 to 0.056)  | 0.086    | 0.007         |
| Foreign                       | 0.085   | (0.056 to 0.114)   | 0.000*** | 0.075         |
| <b>Personality</b>            |         |                    |          |               |
| Agreeableness                 | 0.008   | (-0.022 to 0.038)  | 0.604    | 0.001         |
| Conscientiousness             | 0.027   | (-0.003 to 0.057)  | 0.077    | 0.008         |
| Extraversion                  | -0.003  | (-0.033 to 0.027)  | 0.834    | 0.000         |
| Neuroticism                   | -0.005  | (-0.036 to 0.025)  | 0.724    | 0.000         |
| Openness                      | 0.014   | (-0.016 to 0.044)  | 0.371    | 0.002         |
| <b>Wikigame</b>               | 0.099   | (0.071 to 0.128)   | 0.000*** | 0.104         |
| <b>Wikipedia<sub>1</sub></b>  | 0.071   | (0.042 to 0.100)   | 0.000*** | 0.053         |
| <b>Wikipedia<sub>2</sub></b>  | 0.008   | (-0.023 to 0.038)  | 0.620    | 0.001         |
| <b>Computer<sub>1</sub></b>   | 0.034   | (0.004 to 0.064)   | 0.025*   | 0.012         |
| <b>Computer<sub>2</sub></b>   | -0.020  | (-0.050 to 0.010)  | 0.197    | 0.004         |
| <b>Spatial<sub>1</sub></b>    | 0.034   | (0.004 to 0.064)   | 0.027*   | 0.012         |
| <b>Spatial<sub>2</sub></b>    | -0.022  | (-0.052 to 0.008)  | 0.155    | 0.005         |
| <b>Spatial<sub>3</sub></b>    | -0.001  | (-0.031 to 0.030)  | 0.968    | 0.000         |
| <b>Spatial<sub>4</sub></b>    | 0.022   | (-0.008 to 0.052)  | 0.147    | 0.005         |
| <b>Education<sub>1</sub></b>  | 0.015   | (-0.015 to 0.045)  | 0.329    | 0.002         |
| <b>Education<sub>2</sub></b>  | -0.016  | (-0.046 to 0.014)  | 0.288    | 0.003         |
| <b>Employment<sub>1</sub></b> | -0.009  | (-0.039 to 0.021)  | 0.556    | 0.001         |
| <b>Employment<sub>2</sub></b> | -0.000  | (-0.031 to 0.030)  | 0.979    | 0.000         |
| <b>Employment<sub>3</sub></b> | -0.043  | (-0.073 to -0.013) | 0.005**  | 0.020         |

**Supplementary Table S2. Linear regression result with covariates.** The table shows the result of the linear regression with *Wikigame* (prior experience with the Wikipedia navigation game) as the covariate and the ratio of games won as the dependent variable. The columns show the coefficient, %95 confidence interval, *p*-value and the *R*-squared value of the regression respectively. Significance thresholds: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

|                               | $\beta$ | 95%CI              | <i>p</i> | <i>R</i> <sub>squared</sub> |
|-------------------------------|---------|--------------------|----------|-----------------------------|
| <b>Age</b>                    | -0.072  | (-0.101 to -0.043) | 0.000*** | 0.155                       |
| <b>Gender</b>                 |         |                    |          |                             |
| <i>Female</i>                 | -0.007  | (-0.036 to 0.022)  | 0.631    | 0.105                       |
| <i>Male</i>                   | 0.008   | (-0.021 to 0.037)  | 0.599    | 0.105                       |
| <b>Ethnicity</b>              |         |                    |          |                             |
| <i>White</i>                  | -0.024  | (-0.053 to 0.004)  | 0.095    | 0.110                       |
| <i>African</i>                | -0.035  | (-0.063 to -0.006) | 0.017*   | 0.117                       |
| <i>Asian</i>                  | 0.057   | (0.029 to 0.086)   | 0.000*** | 0.138                       |
| <i>Hispanic</i>               | 0.014   | (-0.014 to 0.043)  | 0.326    | 0.106                       |
| <b>Political</b>              |         |                    |          |                             |
| <i>Liberal</i>                | 0.052   | (0.023 to 0.081)   | 0.000*** | 0.132                       |
| <i>Moderate</i>               | -0.022  | (-0.050 to 0.007)  | 0.138    | 0.109                       |
| <i>Conservative</i>           | -0.035  | (-0.064 to -0.006) | 0.017*   | 0.117                       |
| <b>Language</b>               |         |                    |          |                             |
| <i>Native</i>                 | 0.031   | (0.002 to 0.059)   | 0.036*   | 0.114                       |
| <i>Foreign</i>                | 0.081   | (0.054 to 0.109)   | 0.000*** | 0.174                       |
| <b>Personality</b>            |         |                    |          |                             |
| <i>Agreeableness</i>          | 0.005   | (-0.024 to 0.033)  | 0.745    | 0.104                       |
| <i>Conscientiousness</i>      | 0.025   | (-0.004 to 0.053)  | 0.091    | 0.111                       |
| <i>Extraversion</i>           | -0.005  | (-0.033 to 0.024)  | 0.753    | 0.104                       |
| <i>Neuroticism</i>            | 0.004   | (-0.024 to 0.033)  | 0.761    | 0.104                       |
| <i>Openness</i>               | 0.006   | (-0.023 to 0.035)  | 0.690    | 0.105                       |
| <b>Wikigame</b>               | -       | -                  | -        | -                           |
| <b>Wikipedia<sub>1</sub></b>  | 0.056   | (0.027 to 0.084)   | 0.000*** | 0.136                       |
| <b>Wikipedia<sub>2</sub></b>  | 0.013   | (-0.016 to 0.041)  | 0.378    | 0.106                       |
| <b>Computer<sub>1</sub></b>   | 0.017   | (-0.012 to 0.046)  | 0.251    | 0.107                       |
| <b>Computer<sub>2</sub></b>   | -0.007  | (-0.036 to 0.022)  | 0.650    | 0.105                       |
| <b>Spatial<sub>1</sub></b>    | 0.041   | (0.013 to 0.070)   | 0.004**  | 0.122                       |
| <b>Spatial<sub>2</sub></b>    | -0.019  | (-0.048 to 0.010)  | 0.193    | 0.108                       |
| <b>Spatial<sub>3</sub></b>    | -0.005  | (-0.033 to 0.024)  | 0.753    | 0.104                       |
| <b>Spatial<sub>4</sub></b>    | 0.021   | (-0.008 to 0.050)  | 0.149    | 0.109                       |
| <b>Education<sub>1</sub></b>  | 0.012   | (-0.016 to 0.041)  | 0.404    | 0.106                       |
| <b>Education<sub>2</sub></b>  | -0.009  | (-0.038 to 0.019)  | 0.522    | 0.105                       |
| <b>Employment<sub>1</sub></b> | -0.007  | (-0.036 to 0.021)  | 0.621    | 0.105                       |
| <b>Employment<sub>2</sub></b> | -0.005  | (-0.033 to 0.024)  | 0.750    | 0.104                       |
| <b>Employment<sub>3</sub></b> | -0.033  | (-0.062 to -0.005) | 0.023*   | 0.116                       |

**Supplementary Table S3. Linear regression result with covariates.** The table shows the result of the linear regression with *Wikigame* (prior experience with the Wikipedia navigation game) and *Foreign* (speaks a foreign language or not) as the covariates and the ratio of games won as the dependent variable. The columns show the coefficient, %95 confidence interval, *p*-value and the *R*-squared value of the regression respectively. Significance thresholds: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

|                         | $\beta$ | 95%CI              | <i>p</i> | <i>R</i> <sub>squared</sub> |
|-------------------------|---------|--------------------|----------|-----------------------------|
| <b>Age</b>              | -0.063  | (-0.091 to -0.035) | 0.000*** | 0.211                       |
| <b>Gender</b>           |         |                    |          |                             |
| Female                  | -0.012  | (-0.040 to 0.016)  | 0.390    | 0.175                       |
| Male                    | 0.014   | (-0.014 to 0.042)  | 0.332    | 0.176                       |
| <b>Ethnicity</b>        |         |                    |          |                             |
| White                   | -0.013  | (-0.041 to 0.015)  | 0.356    | 0.175                       |
| African                 | -0.023  | (-0.051 to 0.004)  | 0.099    | 0.179                       |
| Asian                   | 0.047   | (0.019 to 0.074)   | 0.001*** | 0.196                       |
| Hispanic                | -0.002  | (-0.030 to 0.026)  | 0.878    | 0.174                       |
| <b>Political</b>        |         |                    |          |                             |
| Liberal                 | 0.040   | (0.011 to 0.068)   | 0.006**  | 0.189                       |
| Moderate                | -0.016  | (-0.043 to 0.012)  | 0.263    | 0.176                       |
| Conservative            | -0.028  | (-0.056 to -0.000) | 0.049*   | 0.182                       |
| <b>Language</b>         |         |                    |          |                             |
| Native                  | 0.002   | (-0.027 to 0.032)  | 0.880    | 0.174                       |
| Foreign                 | -       | -                  | -        | -                           |
| <b>Personality</b>      |         |                    |          |                             |
| Agreeableness           | 0.008   | (-0.020 to 0.035)  | 0.575    | 0.174                       |
| Conscientiousness       | 0.030   | (0.003 to 0.058)   | 0.032*   | 0.183                       |
| Extraversion            | -0.011  | (-0.038 to 0.017)  | 0.451    | 0.175                       |
| Neuroticism             | 0.006   | (-0.022 to 0.033)  | 0.686    | 0.174                       |
| Openness                | 0.002   | (-0.025 to 0.030)  | 0.861    | 0.174                       |
| <b>Wikigame</b>         | -       | -                  | -        | -                           |
| Wikipedia <sub>1</sub>  | 0.046   | (0.019 to 0.074)   | 0.001**  | 0.195                       |
| Wikipedia <sub>2</sub>  | 0.016   | (-0.012 to 0.043)  | 0.258    | 0.176                       |
| Computer <sub>1</sub>   | 0.017   | (-0.011 to 0.045)  | 0.243    | 0.176                       |
| Computer <sub>2</sub>   | -0.005  | (-0.033 to 0.023)  | 0.734    | 0.174                       |
| Spatial <sub>1</sub>    | 0.031   | (0.003 to 0.059)   | 0.028*   | 0.184                       |
| Spatial <sub>2</sub>    | -0.011  | (-0.038 to 0.017)  | 0.447    | 0.175                       |
| Spatial <sub>3</sub>    | -0.003  | (-0.031 to 0.024)  | 0.819    | 0.174                       |
| Spatial <sub>4</sub>    | 0.022   | (-0.006 to 0.049)  | 0.124    | 0.178                       |
| Education <sub>1</sub>  | -0.004  | (-0.032 to 0.024)  | 0.788    | 0.174                       |
| Education <sub>2</sub>  | -0.003  | (-0.031 to 0.025)  | 0.827    | 0.174                       |
| Employment <sub>1</sub> | -0.009  | (-0.036 to 0.019)  | 0.527    | 0.174                       |
| Employment <sub>2</sub> | -0.009  | (-0.036 to 0.019)  | 0.530    | 0.174                       |
| Employment <sub>3</sub> | -0.026  | (-0.054 to 0.001)  | 0.064    | 0.181                       |

**Supplementary Table S4. Linear regression result with covariates.** The table shows the result of the linear regression with *Wikigame* (prior experience with the Wikipedia navigation game), *Foreign* (speaks a foreign language or not) and *Age* as the covariates and the ratio of games won as the dependent variable. The columns show the coefficient, %95 confidence interval, *p*-value and the *R*-squared value of the regression respectively. Significance thresholds: \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

|                                | $\beta$ | 95%CI             | <i>p</i> | <i>R</i> <sub>squared</sub> |
|--------------------------------|---------|-------------------|----------|-----------------------------|
| <b>Age</b>                     | -       | -                 | -        | -                           |
| <b>Gender</b>                  |         |                   |          |                             |
| <i>Female</i>                  | -0.007  | (-0.035 to 0.020) | 0.610    | 0.212                       |
| <i>Male</i>                    | 0.009   | (-0.018 to 0.037) | 0.506    | 0.212                       |
| <b>Ethnicity</b>               |         |                   |          |                             |
| <i>White</i>                   | -0.001  | (-0.028 to 0.027) | 0.967    | 0.211                       |
| <i>African</i>                 | -0.027  | (-0.054 to 0.000) | 0.054    | 0.219                       |
| <i>Asian</i>                   | 0.039   | (0.011 to 0.066)  | 0.006**  | 0.226                       |
| <i>Hispanic</i>                | -0.009  | (-0.036 to 0.019) | 0.542    | 0.212                       |
| <b>Political</b>               |         |                   |          |                             |
| <i>Liberal</i>                 | 0.039   | (0.012 to 0.067)  | 0.005**  | 0.227                       |
| <i>Moderate</i>                | -0.018  | (-0.045 to 0.009) | 0.192    | 0.215                       |
| <i>Conservative</i>            | -0.023  | (-0.051 to 0.004) | 0.093    | 0.217                       |
| <b>Language</b>                |         |                   |          |                             |
| <i>Native</i>                  | -0.008  | (-0.037 to 0.021) | 0.585    | 0.212                       |
| <i>Foreign</i>                 | -       | -                 | -        | -                           |
| <b>Personality</b>             |         |                   |          |                             |
| <i>Agreeableness</i>           | 0.004   | (-0.023 to 0.031) | 0.782    | 0.212                       |
| <i>Conscientiousness</i>       | 0.033   | (0.006 to 0.060)  | 0.015*   | 0.223                       |
| <i>Extraversion</i>            | -0.013  | (-0.040 to 0.014) | 0.340    | 0.213                       |
| <i>Neuroticism</i>             | 0.006   | (-0.021 to 0.034) | 0.639    | 0.212                       |
| <i>Openness</i>                | -0.001  | (-0.028 to 0.026) | 0.964    | 0.211                       |
| <b>Wikigame</b>                | -       | -                 | -        | -                           |
| <i>Wikipedia</i> <sub>1</sub>  | 0.047   | (0.020 to 0.074)  | 0.001*** | 0.234                       |
| <i>Wikipedia</i> <sub>2</sub>  | 0.008   | (-0.019 to 0.035) | 0.550    | 0.212                       |
| <i>Computer</i> <sub>1</sub>   | 0.007   | (-0.021 to 0.034) | 0.637    | 0.212                       |
| <i>Computer</i> <sub>2</sub>   | -0.002  | (-0.030 to 0.025) | 0.863    | 0.212                       |
| <i>Spatial</i> <sub>1</sub>    | 0.037   | (0.010 to 0.064)  | 0.008**  | 0.225                       |
| <i>Spatial</i> <sub>2</sub>    | -0.006  | (-0.033 to 0.021) | 0.679    | 0.212                       |
| <i>Spatial</i> <sub>3</sub>    | -0.005  | (-0.032 to 0.022) | 0.720    | 0.212                       |
| <i>Spatial</i> <sub>4</sub>    | 0.020   | (-0.007 to 0.047) | 0.150    | 0.216                       |
| <i>Education</i> <sub>1</sub>  | 0.011   | (-0.017 to 0.039) | 0.441    | 0.213                       |
| <i>Education</i> <sub>2</sub>  | -0.000  | (-0.027 to 0.027) | 0.983    | 0.211                       |
| <i>Employment</i> <sub>1</sub> | 0.005   | (-0.022 to 0.033) | 0.702    | 0.212                       |
| <i>Employment</i> <sub>2</sub> | -0.020  | (-0.047 to 0.007) | 0.151    | 0.216                       |
| <i>Employment</i> <sub>3</sub> | -0.027  | (-0.054 to 0.000) | 0.051    | 0.219                       |

**Supplementary Table S5. Linear regression result with covariates.** The table shows the result of the linear regression with *Wikigame* (prior experience with the Wikipedia navigation game), *Foreign* (speaks a foreign language or not), *Age* (age) and *Wikipedia<sub>1</sub>* (first components of the variables describing the previous experience with Wikipedia) as the covariates and the ratio of games won as the dependent variable. The columns show the coefficient, %95 confidence interval, *p*-value and the *R*-squared value of the regression respectively. Significance thresholds: \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

|                               | $\beta$ | 95%CI              | <i>p</i> | <i>R</i> <sub>squared</sub> |
|-------------------------------|---------|--------------------|----------|-----------------------------|
| <b>Age</b>                    | -       | -                  | -        | -                           |
| <b>Gender</b>                 |         |                    |          |                             |
| <i>Female</i>                 | -0.005  | (-0.032 to 0.022)  | 0.737    | 0.234                       |
| <i>Male</i>                   | 0.007   | (-0.020 to 0.034)  | 0.622    | 0.235                       |
| <b>Ethnicity</b>              |         |                    |          |                             |
| <i>White</i>                  | -0.000  | (-0.028 to 0.027)  | 0.995    | 0.234                       |
| <i>African</i>                | -0.028  | (-0.055 to -0.001) | 0.040*   | 0.242                       |
| <i>Asian</i>                  | 0.043   | (0.016 to 0.070)   | 0.002**  | 0.252                       |
| <i>Hispanic</i>               | -0.011  | (-0.039 to 0.016)  | 0.417    | 0.235                       |
| <b>Political</b>              |         |                    |          |                             |
| <i>Liberal</i>                | 0.033   | (0.005 to 0.060)   | 0.021*   | 0.244                       |
| <i>Moderate</i>               | -0.016  | (-0.043 to 0.010)  | 0.232    | 0.237                       |
| <i>Conservative</i>           | -0.017  | (-0.045 to 0.010)  | 0.211    | 0.237                       |
| <b>Language</b>               |         |                    |          |                             |
| <i>Native</i>                 | -0.012  | (-0.040 to 0.017)  | 0.430    | 0.235                       |
| <i>Foreign</i>                | -       | -                  | -        | -                           |
| <b>Personality</b>            |         |                    |          |                             |
| <i>Agreeableness</i>          | 0.002   | (-0.025 to 0.028)  | 0.912    | 0.234                       |
| <i>Conscientiousness</i>      | 0.032   | (0.005 to 0.058)   | 0.019*   | 0.245                       |
| <i>Extraversion</i>           | -0.019  | (-0.046 to 0.008)  | 0.169    | 0.238                       |
| <i>Neuroticism</i>            | 0.010   | (-0.017 to 0.036)  | 0.484    | 0.235                       |
| <i>Openness</i>               | -0.004  | (-0.031 to 0.023)  | 0.764    | 0.234                       |
| <b>Wikigame</b>               | -       | -                  | -        | -                           |
| <b>Wikipedia<sub>1</sub></b>  | -       | -                  | -        | -                           |
| <b>Wikipedia<sub>2</sub></b>  | 0.008   | (-0.019 to 0.034)  | 0.582    | 0.235                       |
| <b>Computer<sub>1</sub></b>   | 0.001   | (-0.026 to 0.029)  | 0.924    | 0.234                       |
| <b>Computer<sub>2</sub></b>   | 0.000   | (-0.027 to 0.027)  | 0.992    | 0.234                       |
| <b>Spatial<sub>1</sub></b>    | 0.033   | (0.007 to 0.060)   | 0.015*   | 0.245                       |
| <b>Spatial<sub>2</sub></b>    | -0.001  | (-0.028 to 0.026)  | 0.947    | 0.234                       |
| <b>Spatial<sub>3</sub></b>    | -0.008  | (-0.034 to 0.019)  | 0.574    | 0.235                       |
| <b>Spatial<sub>4</sub></b>    | 0.013   | (-0.014 to 0.040)  | 0.330    | 0.236                       |
| <b>Education<sub>1</sub></b>  | 0.006   | (-0.022 to 0.034)  | 0.677    | 0.234                       |
| <b>Education<sub>2</sub></b>  | -0.002  | (-0.028 to 0.025)  | 0.899    | 0.234                       |
| <b>Employment<sub>1</sub></b> | 0.001   | (-0.026 to 0.029)  | 0.929    | 0.234                       |
| <b>Employment<sub>2</sub></b> | -0.018  | (-0.045 to 0.009)  | 0.189    | 0.237                       |
| <b>Employment<sub>3</sub></b> | -0.024  | (-0.050 to 0.003)  | 0.084    | 0.240                       |

**Supplementary Table S6.** The table shows the Pearson correlation of speaking a foreign language and winning the game for each of the 9 games. A game is considered involving "Only US" if the person on the source and target Wikipedia pages are both from the US. We found that speaking a foreign language doesn't necessarily give players an advantage for games that involve non-US persons' Wikipedia pages.

| Game | Start page             | End page                 | Only US | Pearson r |
|------|------------------------|--------------------------|---------|-----------|
| A1   | Bill Gates             | Eminem                   | Yes     | 0.223     |
| B1   | Jeff Bezos             | Kanye West               | Yes     | 0.223     |
| B0   | Donald Trump           | Pyotr Ilyich Tchaikovsky | No      | 0.192     |
| O2   | Elizabeth I of England | Albert Einstein          | No      | 0.184     |
| A0   | Barack Obama           | Vincent van Gogh         | No      | 0.168     |
| O1   | Steve Jobs             | Charlie Chaplin          | No      | 0.133     |
| A2   | Marie Curie            | Chuck Berry              | No      | 0.119     |
| B2   | Angelina Jolie         | Charles Darwin           | No      | 0.117     |
| O0   | Alexander the Great    | Tim Burton               | No      | 0.048     |