Table S1. Demographic information and cognitive performance of the participants obtained during an interview session. Mean values (and standard deviation) are presented.

Age (years)		23.90 (3.32)
Handedness[1]		89.25 (5.81)
Education (years)		17.50 (3.50)
WRAT-3 reading score		89.19 (7.84)
	1-back (%)	97.83 (3.25)
Digit N-back test	*2-back (%)*	95.15 (4.45)
	3-back (%)	90.12 (6.87)
BDI		7.01 (3.92)
BAI		4.45 (3.56)
PAI-BOR		17.98 (7.81)

[1]: handedness is measured using Edinburg's Handedness Inventory (Oldfield, 1971); WRAT, wide range achievement verbal fluency test (Wilkinson and Robertson, 2006).

Table S2. The payoff structure in the competition (CP) and collaboration (CB) game modes.

CP trial index	Payoffs ($)		CB trial index	Payoffs ($)	
	Participant A B C D	*Staff* A B C D		*Participant* A B C D	*Staff* A B C D
1	2 3 1 4	1 3 4 2	1	2 3 1 4	4 2 1 3
2	2 3 1 4	2 4 3 1	2	2 3 1 4	4 1 2 3
3	2 3 1 4	3 2 4 1	3	2 4 1 3	3 2 1 4
4	3 1 2 4	3 2 4 1	4	3 1 2 4	2 3 1 4
5	3 2 1 4	2 3 4 1	5	3 2 1 4	3 2 1 4
6	3 2 1 4	4 2 3 1	6	3 2 1 4	1 4 2 3
7	3 4 2 1	1 3 4 2	7	3 1 4 2	4 1 2 3
8	3 4 1 2	1 3 4 2	8	3 2 1 4	4 1 3 2
9	2 1 4 3	4 2 3 1	9	2 3 4 1	1 4 2 3
10	2 1 3 4	4 2 3 1	10	2 4 3 1	1 4 2 3

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Table S3. Brain regions identified from the binary classification between the competition and collaboration modes followed by group inference that was conducted using one-sample t-tests shown in Fig. 4a (Bonferroni corrected p-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI space (x, y, z mm)	Number of voxels	Peak t-score	Peak p-value	Accuracy (M±SD%)	Corrected p-value*
	Across the myopic and predictive reasoning orders							
1	Middle/superior occipital gyrus, calcarine, lingual gyrus, cuneus	R	21, −78, 1	554	14.81	7.51×10^{-9}	85.3 ± 8.1	0.001
2	Inferior/middle/superior occipital gyrus, calcarine, lingual gyrus, cuneus	L	−24, −73, −7	651	8.78	4.65×10^{-6}	81.1 ± 12.6	0.004
3	Inferior/superior parietal lobule, precuneus	L	−36, −58, 46	389	12.12	5.55×10^{-8}	78.7 ± 8.5	0.014
4	Superior/inferior parietal lobule, angular gyrus, superior occipital gyrus	R	30, −61, 34	363	10.86	4.17×10^{-7}	78.5 ± 8.8	0.016
5	Precentral gyrus, inferior frontal gyrus	L	−48, 5, 19	98	5.89	3.90×10^{-4}	75.3 ± 7.5	0.038
6	Anterior insula, inferior frontal gyrus	L	−36, 23, −5	33	4.83	1.64×10^{-3}	75.1 ± 9.5	0.039
7	Superior/middle frontal gyrus, supplementary motor area, precentral gyrus, middle cingulate cortex	L/R	−21, 11, 55	402	5.61	4.05×10^{-4}	75.1 ± 8.9	0.040
8	Precentral gyrus	R	42, −7, 46	29	4.11	5.88×10^{-3}	74.2 ± 10.2	0.041
	From the myopic reasoning order							
1	Cuneus, lingual gyrus, calcarine	R	15, −58, 10	48	5.68	3.78×10^{-4}	76.1 ± 8.8	0.006
2	Cerebellum_6, fusiform gyrus	L	−24, −54, −17	112	5.51	4.23×10^{-4}	75.4 ± 10.2	0.006
3	Posterior cingulate cortex	L/R	6, −34, 24	24	4.75	1.60×10^{-3}	73.3 ± 13.1	0.006
4	Precuneus	L/R	−6, −55, 52	28	4.15	5.71×10^{-3}	77.1 ± 8.5	0.004
	From the predictive reasoning order							
1	Superior/middle occipital gyrus, lingual gyrus, calcarine, cuneus	L	−15, −88, 16	283	35.51	3.01×10^{-15}	82.8 ± 4.9	0.014
2	Cuneus, calcarine, lingual gyrus	R	15, −82, 7	245	32.15	2.11×10^{-14}	89.1 ± 5.7	0.001
3	Superior/inferior parietal lobule, angular gyrus	R	34, −56, 41	153	34.35	3.42×10^{-15}	82.3 ± 5.8	0.017
4	Inferior/superior parietal lobule	L	−21, −60, 54	262	28.21	7.54×10^{-12}	79.9 ± 6.5	0.035
5	Precentral gyrus	R	33, −19, 58	39	26.61	6.57×10^{-11}	81.2 ± 8.9	0.028
6	Supplementary motor area	L/R	3, 8, 49	68	25.11	6.78×10^{-11}	83.9 ± 9.1	0.011
7	Precentral/postcentral gyrus	R	33, −28, 61	49	23.17	4.13×10^{-10}	82.7 ± 9.3	0.012
8	Inferior frontal gyrus, precentral gyrus	L	−48, 8, 28	48	11.71	5.34×10^{-8}	82.3 ± 9.8	0.016
9	Anterior insula	L	−36, 17, 1	25	8.88	4.51×10^{-6}	78.5 ± 8.4	0.042
10	Posterior insula, superior temporal gyrus	R	48, −10, 4	55	12.58	5.77×10^{-8}	79.1 ± 8.6	0.041

L, left; R, right; MNI, Montreal Neurological Institute; Accuracy, classification accuracy across all 24 subjects; M, mean; SD, standard deviation.

Table S4. Brain regions identified from the binary classification between the myopic and predictive reasoning orders followed by group inference that was conducted using one-sample *t*-tests shown in Fig. 5a (Bonferroni corrected *p*-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI space (x, y, z mm)	Number of voxels	Peak t-score	Peak p-value	Accuracy (M±SD%)	Corrected p-value[*]
Across the competition and collaboration modes								
1	Cuneus, calcarine, lingual gyrus	R	15, −91, 7	154	8.89	4.23×10^{-6}	79.2 ± 9.9	0.002
2	Middle/inferior occipital gyrus, calcarine	L	−18, −94, 4	250	6.89	7.41×10^{-5}	81.5 ± 10.5	0.001
3	Inferior/superior parietal lobule	L	−36, −46, 43	75	5.91	3.51×10^{-4}	74.5 ± 6.7	0.023
4	Precentral gyrus	L	−45, 5, 31	24	4.36	5.69×10^{-3}	73.9 ± 8.1	0.027
5	Middle frontal gyrus, precentral gyrus	R	42, 5, 40	29	4.21	5.65×10^{-3}	73.8 ± 8.9	0.024
6	Supplementary motor area	L/R	−3, 14, 52	26	4.77	1.62×10^{-3}	73.2 ± 6.1	0.035
7	Medial superior frontal gyrus	L/R	3, 38, 43	21	4.55	5.55×10^{-3}	72.9 ± 10.2	0.044
8	Superior parietal lobule, superior occipital gyrus, angular gyrus	R	30, −67, 43	114	4.81	1.63×10^{-3}	76.1 ± 8.7	0.009
From the competition mode								
1	Inferior/superior parietal lobule	L	−36, −58, 40	115	37.32	4.25×10^{-16}	84.8 ± 8.1	0.010
2	Cuneus, calcarine, lingual gyrus, middle/superior occipital gyrus	L	−18, −94, 4	212	36.91	4.93×10^{-16}	88.1 ± 8.2	0.002
3	Middle occipital gyrus, calcarine, lingual gyrus	R	24, −91, 1	99	33.36	6.41×10^{-15}	89.1 ± 10.2	0.001
4	Superior parietal lobule, angular gyrus	R	21, −58, 58	101	12.60	5.68×10^{-8}	84.1 ± 12.0	0.015
5	Medial superior frontal gyrus	L/R	−12, 47, 25	45	8.49	6.24×10^{-6}	79.1 ± 13.1	0.041
6	Inferior frontal gyrus, opercula part of inferior frontal gyrus	L	−48, 11, 25	91	29.79	4.56×10^{-12}	81.1 ± 10.3	0.035
7	Middle frontal gyrus	R	48, 11, 31	31	8.51	5.65×10^{-6}	81.3 ± 9.9	0.031
8	Precentral gyrus	L	−39, −4, 37	43	8.55	5.38×10^{-6}	83.4 ± 12.1	0.015
9	Supplementary motor area, middle frontal gyrus	L/R	−21, 23, 49	122	12.35	6.87×10^{-8}	82.5 ± 9.3	0.023
10	Postcentral gyrus	R	42, −28, 46	38	8.67	4.35×10^{-6}	80.1 ± 11.9	0.031
11	Middle frontal gyrus, precentral gyrus	R	36, 2, 52	78	11.81	1.35×10^{-7}	84.7 ± 11.9	0.012
From the collaboration mode								
1	Cuneus, calcarine, lingual gyrus	R	15, −91, 4	175	53.73	1.01×10^{-20}	95.8 ± 4.3	0.001
2	Middle/occipital gyrus	L	−15, −85, 1	75	35.42	8.12×10^{-16}	87.3 ± 9.2	0.005
3	Superior/parietal lobule	L	−21, −61, 55	79	35.20	8.84×10^{-16}	90.8 ± 9.6	0.003
4	Superior/inferior parietal lobule, angular gyrus	R	27, −67, 46	95	36.16	6.45×10^{-16}	84.8 ± 8.8	0.008
5	Supplementary motor area, superior frontal gyrus	L/R	6, 23, 49	113	12.29	6.97×10^{-8}	81.1 ± 9.9	0.021
6	Postcentral gyrus	L	−36, −28, 55	28	11.99	1.03×10^{-7}	82.0 ± 11.4	0.017

L, left; R, right; MNI, Montreal Neurological Institute; Accuracy, classification accuracy across all 24 subjects; M, mean; SD, standard deviation.

Table S5. Brain regions with significant activations from the contrast between the competition and collaboration modes via the univariate approach shown in Fig. 4c (Bonferroni corrected p-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI coordinate (x, y, z in mm)	Number of voxels	Peak t-score	Corrected p-value
Competition > collaboration across the myopic and predictive reasoning orders						
1	Middle/superior/inferior frontal gyrus	L	−37, 19, 43	287	6.67	0.013
2	Supplementary motor area	L/R	−1, 12, 57	89	6.45	0.016
3	Middle/inferior/superior frontal gyrus	R	45, 39, 30	121	6.31	0.019
4	Middle orbitofrontal cortex, insula	L	−37, 48, 8	75	6.13	0.023
5	Inferior orbitofrontal cortex	R	39, 44, −8	31	6.08	0.028
6	Insula	R	37, 19, −8	21	6.00	0.030
7	Inferior parietal lobule, angular gyrus	L	−44, −51, 40	68	5.87	0.033
8	Precuneus	L/R	1, −48, 40	59	5.79	0.035
9	Middle/inferior occipital gyrus, middle temporal gyrus	L	−43, −78, 15	81	5.58	0.039
10	Middle occipital gyrus, inferior occipital gyrus	R	40, −78, 17	51	5.34	0.041
11	Cuneus	L	−15, −64, 17	45	5.28	0.044
12	Cuneus	R	11, −63, 18	49	5.26	0.044
Collaboration > competition across the myopic and predictive reasoning orders						
1	Calcarine, lingual gyrus, inferior occipital gyrus	L/R	30, −79, −1	391	6.89	0.009
2	Insula, putamen	R	45, 5, −2	93	6.12	0.024
3	Supramarginal gyrus	R	58, −31, 29	38	6.03	0.029
4	Supplementary motor area	L/R	−2, 7, 49	53	5.81	0.035
5	Insula	L	−48, 7, 1	31	5.31	0.042
Competition > collaboration from the myopic reasoning order						
1	Precentral gyrus	R	45, −3, 42	54	6.98	0.009
2	Middle occipital gyrus	L	−33, −93, 3	28	6.20	0.020
3	Middle occipital gyrus	R	30, −90, 3	33	6.15	0.021
4	Cerebellum 4& 5, vermis 4& 5	L	−13, −45, −19	67	5.99	0.031
5	Middle frontal gyrus	R	42, 28, 41	44	5.75	0.035
6	Inferior parietal lobule	L	−53, −54, 42	31	5.68	0.036
7	Middle frontal gyrus	L	−36, 19, 50	23	5.56	0.038
8	Medial-superior frontal gyrus	L/R	8, 31, 49	42	5.48	0.040
9	Anterior cingulate cortex	R	5, 36, 30	21	5.41	0.041
10	Cuneus	R	18, −59, 28	30	5.32	0.042
11	Insula	L	−32, 27, 6	21	5.23	0.045
12	Middle frontal gyrus	L	−33, 50, 6	22	5.22	0.046
Collaboration > competition from the myopic reasoning order						
1	Precentral gyrus, postcentral gyrus	L	−42, −17, 50	65	5.84	0.032
2	Lingual gyrus	R	15, −62, 2	21	5.28	0.043
3	Superior occipital gyrus	R	20, −91, 27	20	5.23	0.044
Competition > collaboration from the predictive reasoning order						
1	Precentral gyrus, postcentral gyrus	R	38, −11, 48	134	7.12	0.008
2	Calcarine	R	21, −52, 8	43	6.91	0.010
3	Middle occipital gyrus	R	32, −94, 2	51	6.81	0.011
4	Calcarine	L	−14, −77, 7	61	6.75	0.011
5	Superior/medial-superior frontal gyrus	L/R	17, 30, 40	94	6.53	0.015
6	Inferior parietal lobule, angular gyrus	L	−44, −52, 48	68	6.31	0.018
7	Middle frontal gyrus	L	−37, 15, 48	35	6.18	0.021
8	Middle frontal gyrus	R	34, 22, 42	39	6.03	0.025
9	Thalamus, caudate	R	12, 2, 15	41	5.74	0.034
10	Thalamus	L	−10, −14, 15	28	5.51	0.037
11	Insula	L	−31, 25, 10	21	5.41	0.040
12	Superior orbitofrontal cortex	L	−25, 57, −1	30	5.33	0.042
13	Middle orbitofrontal cortex	R	35, 55, −1	23	5.28	0.044
14	Insula	R	36, 27, 5	21	5.19	0.048
15	Superior parietal lobule	R	22, 59, 51	34	5.18	0.049
Collaboration > competition from the predictive reasoning order						
1	Postcentral gyrus, precentral gyrus	L	−42, −19, 54	98	6.68	0.013
2	Cuneus	L	−18, −96, 13	59	6.61	0.014
3	Middle occipital gyrus, calcarine	R	19, −87, 20	86	6.42	0.016
4	Medial-superior frontal gyrus	L/R	−2, 65, 13	71	6.12	0.023
5	Superior frontal gyrus	R	16, 36, 44	41	5.88	0.031
6	Supplementary motor area	L	−3, −9, 55	31	5.52	0.036
7	Middle temporal gyrus	R	51, −27, 7	21	5.21	0.043

L, left; R, right; MNI, Montreal Neurological Institute.

Table S6. Brain regions with significant activations from the contrast between myopic and predictive reasoning orders via the univariate approach shown in Fig. 5c (Bonferroni corrected *p*-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI coordinate (x, y, z in mm)	Number of voxels	Peak t-score	Corrected p-value
*Myopic > predictive reasoning orders across competition and collaboration*
1	Calcarine, lingual gyrus, middle/inferior occipital gyrus	L/R	−3, −92, 4	689	7.85	0.003
2	Inferior/superior parietal lobule, angular gyrus	L	−48, −49, 42	134	6.34	0.017
3	Superior/inferior parietal lobule, angular gyrus	R	36, −65, 42	108	6.28	0.019
4	Middle frontal gyrus, precentral gyrus	R	38, 14, 42	74	6.19	0.022
5	White matter, middle cingulate cortex	L	−31, −6, 41	45	6.01	0.028
6	Triangular part of inferior frontal gyrus, insula	R	39, 32, 3	54	5.84	0.031
7	Insula	L	−33, 24, 3	23	5.46	0.038
8	Calcarine	L	−15, −48, 13	24	5.38	0.041
9	White matter	R	27, −45, 12	21	5.12	0.048
*Predictive > myopic reasoning orders across competition and collaboration*
1	Angular gyrus, inferior parietal lobule	L	−56, −57, 40	88	6.23	0.020
2	Angular gyrus, inferior parietal lobule	R	50, −63, 40	34	6.12	0.025
3	Medial orbitofrontal cortex	L/R	1, 64, −2	58	6.09	0.028
4	Middle orbitofrontal cortex	R	38, 58, −3	41	5.77	0.033
5	Medial-superior/superior frontal gyrus	L/R	−3, 41, 45	39	5.54	0.036
6	Superior frontal gyrus	L	−18, 36, 47	54	5.48	0.037
7	Superior frontal gyrus	R	17, 35, 45	39	5.32	0.038
8	Superior temporal gyrus	L	−49, −26, 7	22	5.21	0.042
9	Superior temporal gyrus	R	50, −26, 8	23	5.18	0.048
10	Precuneus	L/R	0, −47, 39	28	5.15	0.049
*Myopic > predictive reasoning orders from competition*
1	Calcarine, lingual gyrus, superior/middle occipital gyrus	L/R	−22, −80, 4	851	6.45	0.013
2	Inferior/superior parietal lobule, angular gyrus	L	−40, −38, 42	105	6.32	0.018
3	Inferior/superior parietal lobule, angular gyrus	R	48, −49, 40	88	6.12	0.024
4	Precentral/postcentral gyrus	R	45, −5, 42	92	6.08	0.025
5	Thalamus, putamen	R	16, −19, 6	45	5.61	0.034
6	Hippocampus	L	−25, −34, 6	22	5.58	0.035
7	Triangular part of inferior frontal gyrus	R	33, 24, 28	45	5.42	0.040
8	Caudate	L	−18, 20, 9	21	5.22	0.043
*Predictive > myopic reasoning orders from competition*
1	Postcentral/precentral gyrus	L	−45, −23, 51	56	7.11	0.009
2	Precuneus	L	−10, −62, 31	38	6.15	0.023
3	Middle frontal gyrus	R	38, 36, 36	21	5.54	0.036
4	Medial-superior frontal gyrus	L/R	1, 50, 36	40	5.42	0.037
5	Superior/middle frontal gyrus	L	−19, 52, 36	33	5.15	0.048
6	Middle temporal gyrus	L	−47, −51, 22	25	5.13	0.049
*Myopic > predictive reasoning orders from collaboration*
1	Precentral/postcentral gyrus	L	−47, −15, 48	68	6.86	0.010
2	Middle frontal gyrus	R	45, 16, 48	45	6.47	0.015
3	Calcarine	L	−11, −84, 4	34	5.91	0.029
4	Middle/inferior occipital gyrus	L	−39, −82, 5	55	5.56	0.036
*Predictive > myopic reasoning orders from collaboration*
1	Supplementary motor area	L/R	2, −17, 57	38	6.63	0.014
2	Precentral/postcentral gyrus	R	46, −5, 57	81	6.24	0.021
3	Medial-superior frontal gyrus	L/R	1, 54, 8	44	5.78	0.033
4	Insula	R	40, −7, 8	38	5.61	0.034
5	Superior occipital gyrus	L	−33, −71, 43	23	5.58	0.037
6	Inferior part of orbitofrontal cortex	R	41, 48, −11	29	5.52	0.037
7	Inferior temporal gyrus	L	−55, −43, −11	21	5.15	0.049

L, left; R, right; MNI, Montreal Neurological Institute.

Table S7. Brain regions identified from the regression analysis based on the results of the classification of the competition and collaboration modes and statistical tests via random permutation shown in Fig. 6a (Bonferroni corrected *p*-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI space (x, y, z mm)	Number of voxels	Peak t-score	Corrected p-value
Related to competition across the myopic and predictive reasoning orders						
1	Middle occipital gyrus	R	19, −78, 1	22	6.98	0.026
2	Inferior occipital gyrus	L	−24, −73, −7	21	6.37	0.027
3	Inferior parietal lobule	L	−36, −58, 46	94	5.88	0.037
4	Superior parietal lobule	R	30, −61, 34	62	5.84	0.039
5	Precentral gyrus	L	−48, 5, 19	49	5.54	0.041
6	Anterior insula	L	−36, 23, −5	31	5.12	0.043
7	Precentral gyrus	R	42, −7, 46	22	4.78	0.049
Related to collaboration across the myopic and predictive reasoning orders						
1	Middle occipital gyrus	R	21, −78, 1	25	6.24	0.029
2	Inferior occipital gyrus	L	−23, −74, −8	23	5.42	0.044
3	Precentral gyrus	L	−49, 8, 25	21	5.23	0.045
4	Superior frontal gyrus	L/R	−21, 11, 55	43	5.22	0.046
Related to competition from the myopic reasoning order						
1	Cerebellum_6	L	−24, −54, −17	32	5.31	0.043
2	Precuneus	L/R	−6, −55, 52	20	5.15	0.049
Related to collaboration from the myopic reasoning order						
1	Cuneus	R	15, −58, 10	21	5.71	0.038
Related to competition from the predictive reasoning order						
1	Cuneus	R	15, −81, 8	25	6.41	0.024
2	Superior/inferior parietal lobule	R	33, −55, 42	59	6.35	0.025
3	Inferior/superior parietal lobule	L	−22, −58, 53	78	6.23	0.026
4	Precentral gyrus	R	32, −28, 61	21	5.59	0.041
5	Supplementary motor area	L/R	1, 8, 48	34	5.47	0.042
6	Anterior insula	L	−36, 17, 1	21	5.44	0.042
7	Posterior insula	R	47, −11, 4	25	5.38	0.045
Related to collaboration from the predictive reasoning order						
1	Cuneus	R	15, −82, 7	75	6.85	0.025
2	Postcentral gyrus	R	33, −31, 62	22	5.21	0.047
3	Posterior insula	R	48, −10, 5	21	5.19	0.048

L, left; R, right; MNI, Montreal Neurological Institute.

Table S8. Brain regions identified from the regression analysis based on the results of the classification of the myopic and predictive reasoning orders and statistical tests via random permutation shown in Fig. 7a (Bonferroni corrected p-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI space (x, y, z mm)	Number of voxels	Peak t-score	Corrected p-value
*Related to predictive reasoning order across competition and collaboration*
1	Superior parietal lobule	R	30, −66, 42	44	7.13	0.013
2	Inferior parietal lobule	L	−34, −45, 43	20	5.45	0.041
3	Medial superior frontal gyrus	L/R	1, 38, 44	21	5.15	0.048
*Related to myopic reasoning order across competition and collaboration*
2	Middle occipital gyrus	L	−18, −94, 4	25	5.84	0.034
*Related to predictive reasoning order in competition mode*
1	Superior parietal lobule	R	22, −58, 57	45	7.68	0.005
2	Postcentral gyrus	R	43, −27, 46	29	6.13	0.028
3	Inferior frontal gyrus	L	−45, 13, 25	30	5.58	0.039
4	Inferior parietal lobule	L	−35, −56, 38	21	5.43	0.041
5	Postcentral gyrus	L	−39, −4, 36	20	5.35	0.042
6	Middle frontal gyrus	L	−25, 25, 51	32	5.32	0.042
7	Medial superior frontal gyrus	L/R	−2, 44, 25	25	5.29	0.043
8	Middle frontal gyrus	R	48, 11, 31	21	5.11	0.049
*Related to myopic reasoning order from the competition mode*
1	Middle occipital gyrus	R	24, −91, 2	65	6.68	0.015
2	Inferior parietal lobule	L	−36, −58, 38	21	5.22	0.042
3	Supplementary motor area	L/R	−1, 22, 50	42	5.18	0.044
*Related to predictive reasoning order from the collaboration mode*
1	Superior parietal lobule	L	−23, −60, 54	52	6.28	0.022

L, left; R, right; MNI, Montreal Neurological Institute.

Table S9. Brain regions identified from the regression analysis based on the results of the contrast between competition and collaboration via the univariate approach and statistical tests via random permutation shown in Fig. 8a (Bonferroni corrected *p*-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI coordinate (x, y, z in mm)	Number of voxels	Peak t-score	Corrected p-value
Related to competition from competition vs. collaboration across the myopic and predictive reasoning orders						
1	Middle orbitofrontal cortex	L	−41, 49, 8	21	5.13	0.048
Related to collaboration from competition vs. collaboration across the myopic and predictive reasoning orders						
1	Supplementary motor area	L/R	−2, 9, 50	20	5.21	0.046
Related to competition from competition vs. collaboration for the myopic reasoning order						
1	Postcentral gyrus	R	46, −4, 41	28	5.38	0.040
2	Inferior parietal lobule	L	−52, −54, 41	21	5.19	0.046
Related to collaboration from competition vs. collaboration for the myopic reasoning order						
1	Cerebellum 4& 5	L	−14, −44, −19	37	5.45	0.038
2	Cuneus	R	18, −60, 29	20	5.22	0.045
Related to competition from competition vs. collaboration for the predictive reasoning order						
1	Insula	L	−31, 25, 10	21	5.31	0.040
2	Thalamus	R	12, 2, 15	23	5.21	0.041
3	Caudate	L	−10, −14, 15	24	5.20	0.043
4	Insula	R	36, 27, 5	21	5.19	0.048
2	Cuneus	L	−18, −96, 13	20	5.15	0.049
Related to collaboration from competition vs. collaboration for the predictive reasoning order						
1	Middle occipital gyrus	R	21, −88, 21	43	5.39	0.038

L, left; R, right; MNI, Montreal Neurological Institute.

Table S10. Brain regions identified from the regression analysis based on the results of the contrast between the myopic and predictive reasoning orders via the univariate approach and statistical tests via random permutation shown in Fig. 9a (Bonferroni corrected p-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI coordinate (x, y, z in mm)	Number of voxels	Peak t-score	Corrected p-value
Related to predictive reasoning order from myopic vs. predictive reasoning orders across competition and collaboration						
1	Inferior parietal lobule	L	−46, −50, 41	31	5.43	0.037
2	Superior parietal lobule	R	35, −63, 42	21	5.28	0.040
3	Middle cingulate cortex	L	−32, −8, 35	22	5.14	0.048
4	Precentral gyrus	R	37, 14, 41	21	5.13	0.048
Related to myopic reasoning order from myopic vs. predictive reasoning orders across competition and collaboration						
1	Middle occipital gyrus	L/R	−3, −90, 5	44	5.87	0.031
Related to myopic reasoning order from myopic vs. predictive reasoning orders on competition						
1	Postcentral gyrus	R	45, −5, 43	28	5.78	0.033
2	Superior occipital gyrus	L	−12, −70, 6	38	5.65	0.035
3	Middle occipital gyrus	L	−23, −81, 3	21	5.31	0.038
4	Thalamus	R	16, −19, 6	20	5.11	0.049
Related to myopic reasoning order from myopic vs. predictive reasoning orders on collaboration						
1	Postcentral gyrus	L	−48, −18, 50	28	5.98	0.028
2	Middle occipital gyrus	L	−40, −78, 6	21	5.33	0.038

L, left; R, right; MNI, Montreal Neurological Institute.

Table S11. Brain regions identified from four-class classification followed by group inference that was conducted using one-sample *t*-tests shown in Fig. 10a (Bonferroni corrected *p*-value < 0.05 from 10,000 random permutation with 20 contiguous voxels).

Cluster index	Brain region	Side	MNI space (x, y, z mm)	Number of voxels	Peak t-score	Peak p-value	Accuracy (M±SD%)	Corrected p-value*
1	Calcarine, cuneus, lingual gyrus	L/R	−13, −89, 6	213	18.88	4.95×10^{-12}	69.1 ± 9.8	0.008
2	Superior parietal lobule	R	44, −48, 43	88	13.45	4.17×10^{-8}	65.5 ± 8.9	0.017
3	Inferior/superior parietal lobule	L	−48, −47, 46	38	12.67	6.12×10^{-8}	62.4 ± 10.1	0.025
4	Supplementary motor area	L/R	2, 21, 50	52	10.87	5.25×10^{-7}	61.0 ± 9.3	0.031
5	Middle frontal gyrus	R	16, 25, 42	46	9.54	3.51×10^{-6}	59.2 ± 8.5	0.034
6	Inferior frontal gyrus	L	−49, 12, 26	40	6.65	7.98×10^{-5}	57.1 ± 9.2	0.040

L, left; R, right; MNI, Montreal Neurological Institute; Accuracy, classification accuracy across all 24 subjects; M, mean; SD, standard deviation.