Supporting Information

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SI Methods

People and Places Selection. Participants had to have met each person and have been at each place at least once. Moreover, it had to be possible for them to encounter each person or place again, although not necessarily any time soon. For a place that comprised more than one room (e.g., apartment) or was a large area of space (e.g., supermarket), participants nominated a specific room (e.g., kitchen) or subsection (e.g., express check-out). They could only nominate one room or section per place. For each person, they provided the first and last name. For each place, they provided a short tag (five words maximum) that would allow them to effortlessly recognize the location.

Sentence Control Task. In the sentence task, we presented two concrete words (e.g., picture/nail). Participants first generated a word that was related to both (e.g., frame), and then covertly created a sentence that ranked these words according to the size of the objects that they refer to (e.g., "frame is bigger than picture is bigger than nail"). Participants then kept thinking about the three words until the end of the 7.5 s, before they indicated the difficulty of the task on a 5-point scale (1: easy; 5: difficult) within 2.5 s. This condition arguably shares some of the generative processes with the simulation task, including semantic retrieval, relational thinking, and mental imagery (1). Here, it merely served to assess whether episodic simulation was associated with activation in the same regions previously identified in comparison with similar control tasks (e.g., ref. 1).

Functional Localizer Tasks. Following the simulation phase, participants performed a localizer task to identify regions within the dmPFC and PHC that we expected to be preferentially involved in simulating either people or places (2, 3). Participants therefore pseudorandomly alternated between imagining either just a person or a place in isolation. These were selected from the 180 people and places provided by the participants. Each trial lasted for 7.5 s plus a preceding fixation cross for 0.5 s and a subsequent pseudorandom interstimulus interval determined by optseq2 (≥1 s; mean ± SD: 2,509 ± 2,136 ms). In total, participants imagined 24 people and 24 places in a single run. On six intermixed trials, they pictured an empty frame. The GLM analyzing the localizer data included three regressors, each coding for the 7.5-s periods of either the people, place, or frame condition. We identified regions preferentially involved in simulating people versus places by contrasting the respective estimates at the second level. Following this localizer, participants also engaged in a standard faces/places localizer, which was not analyzed for the current experiment.

Determining ROIs for PPI Analyses. Connectivity analyses were seeded within the dmPFC and PHC regions identified by the localizer. Within those regions (i.e., within 10-mm radius spheres centered on the group activation peaks), we identified the subject-specific peaks for the parametric effect of combined familiarity. For the PHC, the peaks also had to be within an anatomical mask of this region (4). The subject-specific peaks then served as centers for spherical ROIs (radius = 6 mm).

1. Addis DR, Wong AT, Schacter DL (2007) Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia* 45(7):1363–1377.
2. Hassabis D, et al. (2014) Imagine all the people: How the brain creates and uses personality models to predict behavior. *Cereb Cortex* 24(8):1979–1987.
3. Szpunar KK, St. Jacques PL, Robbins CA, Wig GS, Schacter DL (2014) Repetition-related reductions in neural activity reveal component processes of mental simulation. *Soc Cogn Affect Neurosci* 9(5):712–722.
4. Maldjian JA, Laurienti PJ, Kraft RA, Burdette JH (2003) An automated method for neuroanatomic and cytoarchitectonic atlas-based interrogation of fMRI data sets. *Neuroimage* 19(2):1233–1239.

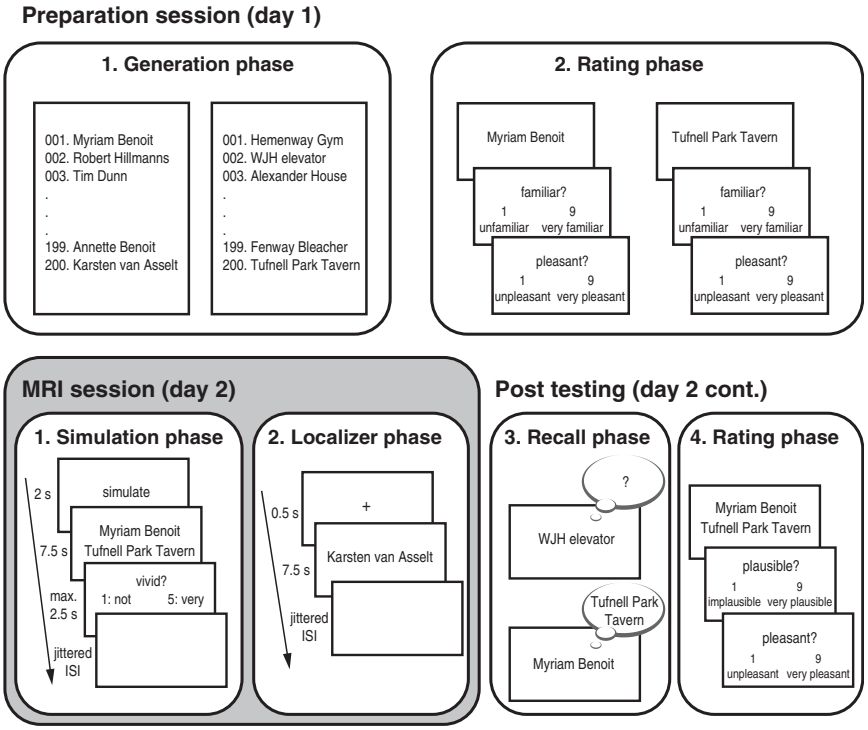

Fig. S1. Illustration of the procedure. During a preparation session, participants first named 200 people and places that they personally knew, before they rated each of those according to their familiarity and pleasantness. During the second session, participants were scanned by MRI while they performed the critical simulation task. They were presented with pseudorandom person/place pairings, and imagined interacting with the person in a manner that would be specific to the respective location (e.g., discussing the menu at the restaurant). During the subsequent functional localizer phase, they alternated between imagining familiar people or familiar places in isolation. Outside the scanner, participants were cued with either the person or the place of a given episode to recall the respective other element. Participants were then presented with each person/place pairing, and first indicated how plausible it would be to experience them together (where we deemed implausible combinations to be likely novel; e.g., high school teacher in college dorm room). The subjects then indicated the affective quality of the respective episode by rating the anticipated pleasantness.

Table S1. Regions exhibiting stronger activation during the episodic simulation than during the control task

			MNI (peak)				
Region	~BA	Hemisphere	*x*	*y*	*z*	Voxels	*Z* max
mPFC	11/10/32/24/25	R/L	8	46	−14	3,986*	7.81
			−2	28	−6	Same cluster	7.65
			−2	54	−8	Same cluster	7.33
TP	38	L	−44	18	−28	40	5.52
BG		L	−4	2	20	27	5.4
lTC	21/20	L	−58	−8	−18	348	6.55
PI	13	R	46	−10	10	135	5.51
PCG	4	R	42	−22	68	19	5.34
Cerebellum		L/R	−4	−54	−44	292	6.43
			8	−46	−46	Same cluster	6.02
PCC, RSC, MTL	23/30/31/29	R/L	6	−54	18	7,425	>8.00
			8	−52	6	Same cluster	7.81
			16	−54	14	Same cluster	7.62
lSTC	39/22	R	52	−64	22	271	5.76
			62	−60	18	Same cluster	4.93
Cerebellum		L	−26	−76	−36	23	5.53
Precuneus	19	L	−40	−76	36	43	5.17
OL	18	R	14	−80	−6	23	5.18

Thresholded at $P < 0.05$ FWE-corrected, at least 20 voxels. BG, basal ganglia; lSTC, lateral superior temporal cortex; lTC, lateral temporal cortex; L, left; MNI, Montreal Neurological Institute; mPFC, medial prefontal cortex; MTL, medial temporal lobe; OL, occipital lobe; PCC, posterior cingulate; PCE, precentral gyrus; PI, posterior insula; R, right; RSP, retrosplenial cortex; TP, temporal pole.
*Includes the vmPFC.

Table S2. Regions exhibiting stronger activation during the simulation of episodes with a greater combined familiarity of person and place

			MNI (peak)				
Region	~BA	Hemisphere	*x*	*y*	*z*	Voxels	*Z* max
MeFG, SFG	10	L	−10	54	20	38	5.38
SFG, MeFG	9	L	−12	50	36	17	5.23
MeFG, ACC	10/32	L	−10	48	−8	28*	5.15
		L	−6	40	−8	Same cluster	4.92
ACC	32	L	−6	46	10	22	5.05
		L	−14	40	10	Same cluster	4.93
MiFG	8	L	−24	32	46	30	5.02
AG	39	L	−38	−76	32	13	5.12

Thresholded at $P < 0.05$ FWE-corrected, at least 10 voxels. ACC, anterior cingulate cortex; AG, angular gyrus; MeFG, medial frontal gyrus; MiFG, middle frontal gyrus; SFG, superior frontal gyrus.
*Indicates the vmPFC.

Table S3. Regions identified by the functional localizer to be more strongly engaged during the simulation of people vs. places

			MNI (peak)				
Region	~BA	Hemisphere	*x*	*y*	*z*	Voxels	*Z* max
Places > people							
MiFG	6	L	−24	6	50	789	>8.0
MiFG	6	R	28	10	54	483	6.95
PHC, PCC, SOG, precuneus	36/19/30/29/19/7	L/R	−28	−40	−10	8,215*	>8.0
			32	−42	−8	Same cluster	>8.0
			14	−54	14	Same cluster	>8.0
Cerebellum		R	16	−46	−48	67	5.72
ITG; MTG	37/21	L	−58	−60	−8	191	5.74
			−58	−52	−2	Same cluster	5.21
PL, precuneus	19	R	38	−76	34	823	7.68
OL	18/17	L	−10	−82	2	77	5.62
OL	17/18	R	12	−84	2	50	5.32
			8	−84	−6	Same cluster	4.82
			8	−76	−8	Same cluster	4.8
People > places							
MeFG	9	R	8	52	24	31†	5.11
PCC, precuneus	31	R/L	4	−52	28	34	5.1

Thresholded at $P < 0.05$, FWE-corrected, at least 20 voxels. ITG, inferior temporal gyrus; MiFG, middle frontal gyrus; MTG, middle temporal gyrus; OL, occipital lobe; PCC, posterior cingulate; PHC, parahippocampal cortex; PL, parietal lobe; SOG, superior occipital gyrus.
*Includes the left PHC peak.
†Includes the dmPFC.

Table S4. Connectivity with the dmPFC seed (i.e., the region preferentially involved in the simulation of people as determined by the localizer task)

Region	~BA	Hemisphere	MNI (peak)			Voxels	*Z* max
			x	*y*	*z*		
Stronger coupling with greater person familiarity							
MiFG	9	L	−30	48	42	31	3.37
			−36	42	42	Same cluster	2.98
MeFG	11/10	L	−8	42	−14	24*	2.82
ACC	32	L	−10	38	12	51	3.45
ACC	32	R	12	34	−8	39	3.33
IFG	47	R	40	32	−10	15	2.83
IFG	45/46	R	46	30	4	109	3.31
			52	32	10	Same cluster	3.06
ACC	33	R	10	12	24	10	3.12
Caudate nucleus		R	6	8	12	65	3.19
			12	2	18	Same cluster	2.86
MTG	21	R	46	6	−32	128	3.69
PHC	28	L	−14	−4	−12	10	2.86
Amygdala		L	−28	−8	−20	22	2.88
Midbrain			4	−12	−12	13	3.07
Midbrain		L	−18	−16	−12	17	2.83
PHC	36	L	−24	−32	−14	108	3.37
	37	L	−28	−42	−10	Same cluster	2.84
			−24	−24	−18	Same cluster	2.66
PHC	30	L	−16	−48	−2	39	2.91
			−10	−42	0	Same cluster	2.83
Cerebellum		R	10	−50	−50	56	3.93
PCC	29	R	6	−52	10	16	2.76
Cerebellum		L	−18	−52	−48	91	3.91
			−26	−56	−46	Same cluster	2.7
PCC	30	L	−10	−54	16	32	2.83
MOG	18	L	−38	−96	−6	27	3.19
Stronger coupling with greater place familiarity							
MiFG	46	L	−54	38	26	11	3.56
IFG	47	L	−42	38	0	10	2.8
IFG, MeFG	11/25	L	−12	28	−22	42	3.25
			−10	16	−18	Same cluster	2.76
MeFG	25	R	12	22	−18	10	2.82
IFG	9	L	−38	6	32	21	2.78
PHC	20	R	36	−16	−26	16	2.94
Precuneus	19	L	−34	−74	34	11	2.8

Thresholded at $P < 0.005$ uncorrected, at least 10 voxels. ACC, anterior cingulate; IFG, inferior frontal gyrus; MeFG, medial frontal gyrus; MiFG, middle frontal gyrus; MOG, middle occipital gyrus; MTG, middle temporal gyrus; PCC, posterior cingulate; PHC, parahippocampal cortex.
*Indicates the vmPFC.

Table S5. Connectivity with the PHC seed (i.e., the region preferentially involved in the simulation of places as determined by the localizer task)

Region	~BA	Hemisphere	MNI (peak) x	y	z	Voxels	*Z* max
Stronger coupling with greater person familiarity							
Hypothalamus		R	6	−4	−6	20	2.88
MTG	21	R	70	−10	−12	20	3.46
PHC	36	L	−28	−34	−12	46	3.34
		L	−30	−42	−8	Same cluster	2.94
PHC	37	R	34	−38	−8	10	3.01
Stronger coupling with greater place familiarity							
MeFG	11/10	L	−12	54	−10	13*	3.51
MTG	21	L	−60	−4	−24	21	2.85
			−54	2	−30	Same cluster	2.79
MiFG	6	L	−28	−4	46	64	3.2
PHC	35	R	16	−36	−14	22	3.22
PHC	37	L	−30	−38	−8	14	3.12
Cerebellum		R	36	−56	−32	33	2.87
Cerebellum		R	4	−58	−50	12	2.78
STG	39	R	48	−62	16	26	2.94
	22	R	40	−58	14	Same cluster	2.67
MTG	39	L	−36	−64	22	52	3.28
Cerebellum		R	18	−66	−28	24	2.95
SPL	7	L	−18	−72	54	41	2.91
Cerebellum		R	12	−78	−40	18	2.89

Thresholded at $P < 0.005$ uncorrected, at least 10 voxels. MeFG, medial frontal gyrus; MiFG, middle frontal gyrus; MTG, middle temporal gyrus; PHC, parahippocampal cortex; SPL, superior parietal lobule; STG, superior temporal gyrus.
*Indicates the vmPFC.

Table S6. Regions exhibiting activation changes as a function of the anticipated pleasantness of the simulated episodes

Region	~BA	Hemisphere	MNI (peak) *x*	*y*	*z*	Voxels	*Z* max
Positive effect of anticipated pleasantness							
MeFG	10/32	R	−12	48	−8	26*	3.45
MeFG	10	R	18	36	−6	52	3.89
			26	38	2	Same cluster	3.13
MiFG	8	L	−20	18	46	241	4.21
			−18	34	46	Same cluster	3.45
Caudate nucleus		L/R	10	16	8	1,296	4.87
			−10	18	10	Same cluster	4.51
			−4	14	−6	Same cluster	4.49
Thalamus		R	16	−6	10	46	3.92
Thalamus		L	−2	−8	6	150	3.83
			−16	−10	12	Same cluster	3.83
Thalamus		R	22	−22	20	27	3.53
			24	−22	28	Same cluster	3.26
MTL	37/36	L	−34	−34	−8	45	3.88
MTL	36/37	R	38	−34	−10	97	3.86
			34	−42	−8	Same cluster	3.63
			26	−40	−10	Same cluster	3.59
PCC	31	L	−18	−40	28	65	4.59
			−14	−48	24	Same cluster	3.71
Cerebellum		R	24	−42	−46	61	3.74
			18	−42	−40	Same cluster	3.29
Caudate nucleus		R	36	−44	8	53	3.74
Cerebellum		L/R	−4	−50	−46	87	3.49
			6	−48	−48	Same cluster	3.39
			−14	−42	−44	Same cluster	3.35
PCC	29	L	−16	−50	6	108	3.91
			−4	−50	10	Same cluster	3.64
Cerebellum		R	42	−58	−40	1,248	5.03
			46	−70	−40	Same cluster	4.47
			42	−78	−32	Same cluster	4.03
Cerebellum		L	−36	−58	−26	89	3.71
			−44	−70	−28	Same cluster	3.31
Cerebellum		L	−22	−64	−20	53	3.61
Cerebellum		L/R	0	−72	−14	30	3.96
Cerebellum		L	−20	−76	−46	25	3.38
AG	39	L	−38	−78	32	34	3.49
Negative effect of anticipated pleasantness							
MiFG	10	R	46	50	−4	59	3.39
			38	62	−4	Same cluster	3.35
MiFG	11	R	46	44	−20	63	4.19
MeFG	9	R	6	42	36	71	3.78
SFG	6	R	16	24	58	33	3.84
IFG	47	R	34	24	−10	47	3.45
MiFG	8	R	48	22	44	131	4.44
MTG	21	R	64	−28	−8	311	5.05
			66	−24	−20	Same cluster	3.32
SMG	40	R	58	−54	36	254	4.18
			52	−52	44	Same cluster	3.81

Thresholded at $P < 0.001$ uncorrected, at least 20 voxels. AG, angular gyrus; IFG, inferior frontal gyrus; MeFG, medial frontal gyrus; MiFG, middle frontal gyrus; MTG, middle temporal gyrus; MTL, medial temporal lobe; PCC, posterior cingulate; SFG, superior frontal gyrus; SMG, supramarginal gyrus.
*Indicates the vmPFC.