Supplemental Table 1: Learning Network. Average contrast of LRN vs. SMP on Day 1

	x	y	z	t-value
L MFG	-28	42	16	5.84
L MFG	-34	36	44	4.15
R MFG	42	34	40	5.61
R Middle orbital gyrus	28	44	-12	6.85
R MFG				
L Insula	-32	16	0	10.53
R Insula	30	18	2	9.64
Cingulate cortex (anterior)	4	12	44	10.54
preSMA/SMA	2	6	48	11.45
L PMC	-28	-14	56	12.70
R PMC				
L BG Caudate nucleus (body/tail)	-18	-12	20	8.66
R BG Caudate nucleus (body/tail)	20	-4	22	6.35
L Thalamus	-16	-12	12	9.01
R Thalamus	6	-18	10	8.82
L Precuneus	-10	-72	50	8.18
R Precuneus	12	-66	52	7.41
L PLs (BA 7)	-14	-68	44	8.09
R PLs	30	-64	48	6.29
L PLi	-28	-52	48	8.16
R PLi	34	-46	46	6.84
L CB X	-24	-34	-42	8.37
R CB X	30	-36	-44	8.91
L CB VI	-38	-52	-30	9.16
R CB VI	36	-52	-28	8.00
L CB VIIIA/B	-34	-54	-48	9.89
R CB VIIIA/B	34	-48	-50	7.53
CB Vermis	2	-54	-4	6.22
CB Vermis	-2	-76	-24	8.73
L Lateral occipital cortex	-22	-80	4	5.61

Supplemental Table 2: Changes on LRN between Day 1 and Day 2

	x	y	z	t-value
More Active on Day 2 than Day 1				
L Frontal pole (BA9)	-14	62	14	4.52
R Orbital frontal cortex	14	60	-16	3.96
L Middle orbital gyrus	0	48	-14	3.32
R Middle orbital gyrus	6	46	-16	3.44
L Lateral MFG	-44	52	-2	4.78
L MFG/SFG	-32	16	50	3.82
L Temporal pole	-24	10	-32	3.79
R Temporal pole	48	12	-30	4.66
L Hippocampus ($32mm^3$)	-20	-10	-12	3.34
R Hippocampus	24	-10	-12	4.11
L S1	-40	-20	-34	4.26
L S2	-58	-10	16	4.17
L Posterior MTG/STG	-58	-38	-6	4.17
R MTG	66	-26	-4	3.63
R Posterior MTG	46	-54	20	3.70
R STG	56	-10	0	3.95
L Lingual gyrus	-14	-54	-2	4.45
R Lingual gyrus	16	-50	2	4.38
R Insula	34	-20	20	3.68
R Posterior cingulate	4	-56	18	3.44
L Posterior cingulate	-4	-54	20	3.71
L PLi (BA 39)	-58	-64	38	4.26
R PLi (BA 39)	54	-68	30	5.01
L Lateral occipital cortex	-44	-84	24	3.73
Less Active on Day 2 than Day1				
R MFG	26	38	20	3.92
L PMC	-8	-14	66	4.64
R PMC	22	-6	62	5.09
R SMA	14	-14	70	4.00
Middle cingulate cortex	2	4	42	3.76
R PLs	42	-46	60	4.30
R PLi	40	-40	44	4.25
R ITG (posterior)	54	-60	-20	4.11
R Lingual gyrus	10	-88	-14	3.52

L CB X/VIII	-28	-36	-42	3.78
L CB VIIIB	-32	-48	-62	4.01
R CB VIIIA/B	34	-44	-58	4.28

Supplemental Table 3: Changes on LRN between Day 2 and Day 5

	x	y	z	t-value
More Active on Day 5 than Day 2				
Medial BA10	-2	60	18	4.08
L Superior frontal gyrus	-14	50	40	3.55
SMA	-2	26	66	3.27
L Putamen (96mm^3)	-18	6	-6	3.47
L S2	-38	-20	20	3.63
L Temporal pole (MTG)	-56	10	-16	3.84
R Temporal lobe (MTG)	60	4	-16	3.64
L MTG	-68	-16	-6	3.61
L Hippocampus	-24	-34	-10	3.71
R Hippocampus	26	-32	-12	3.33
L Precuneus cortex	-8	-52	40	4.32
Posterior cingulate cortex	0	-50	32	3.73
L Lateral PL (BA 39)	-54	-60	32	4.03
R Lateral PL (BA 39)	62	-60	20	3.97
Less Active on Day 5 than Day 2				
L MFG	-30	28	26	4.07
R MFG	30	34	30	3.36
R MFG	42	30	40	4.27
L Insular cortex	-28	20	6	4.67
R Insular cortex	30	24	8	4.59
R SMA	10	8	48	4.85
L BG Caudate nucleus (body)	-20	2	22	3.39
R BG Caudate nucleus (body)	20	-6	22	3.80
L BG Caudate nucleus (tail)	-24	-26	28	3.75
L PMC	-24	-8	54	4.45
R PMC	20	-2	64	3.53
R Thalamus	14	-22	16	3.73
L PLs	-26	-54	48	4.06
L PLs	-14	-62	54	4.24
L PLi	-54	-34	-34	4.77
L PLi	-46	-42	60	4.29
R PLi	60	-30	40	3.63
R PLi	58	-38	26	3.80
R PLi	36	-52	50	3.53
L CB VIIIB	-24	-44	-56	3.60
R CB VI	34	-46	-34	3.56
L CB CRI/VI	-42	-56	-34	4.45

CB Vermis	2	-64	-14	3.84
L CB VIIIA/VIIB	-32	-70	-56	3.49
R CB VIIIA/VIIB	32	-70	-54	3.86
L CB CRI/VI	-18	-70	-36	3.66

Supplemental Table 4: Different components of learning. LRN-SMP contrast correlated with accuracy (PCOR) on Days 1, 2, and 5.

	x	y	z	t-value
Increasing with improvements in performance				
L Frontal pole (BA 9)	-8	60	20	6.07
R Frontal pole (BA 10)	12	52	20	6.55
L Putamen	-22	8	-10	4.94
R Putamen	16	8	-10	4.09
L Hipp.	-20	-20	14	4.75
R Hipp.	26	-14	-22	5.07
R Heschl's gyrus	52	-12	6	5.10
L STG/Planum temporale	-60	-20	8	4.43
R STG/Planum temporale	60	-26	8	5.82
L MTG	-54	-42	-6	5.23
R MTG	68	-34	-2	4.90
L Temporal pole	-48	20	-20	4.08
R Temporal pole	54	14	-20	4.76
L Pli (BA 39/19)	-50	-62	22	7.68
R Pli (BA 39/19)	54	-64	32	6.44
L Posterior cingulate cortex	-10	-48	30	5.81
R Posterior cingulate cortex	6	-48	30	6.30
Cuneous cortex	2	-70	28	5.25
Decreasing with improvements in performance				
L Frontal pole (lateral BA 10)	-32	44	12	6.27
R Frontal pole (lateral BA 10)	38	40	10	6.07
L MFG	-50	30	34	6.76
R MFG	36	-32	50	6.16
L IFG	-46	8	12	3.91
R IFG	48	20	10	5.59
L Insular cortex	-34	16	4	6.46
R Insular cortex	30	18	2	5.92
preSMA/SMA	6	12	54	6.59
R PMC				
L PMC/M1 (anterior bank of precentral gyrus)	-36	-8	56	5.67
R PMC/M1 (anterior bank of precentral gyrus)	30	-16	58	5.11
L Thalamus	-14	-22	12	4.84
R Thalamus	4	-14	10	5.35
L PLs (BA7)	-56	-44	54	4.38
L PLs	-22	-52	46	4.36
R PLs	48	-46	62	7.37
L PLi	-44	-50	44	4.23
R PLi	40	-52	40	5.34

L CB VI/CrI	-48	-56	-36	4.94
R CB VI	22	-58	-22	3.76
L CB VIIB	-34	-68	-56	3.71
R CB VIIB/VIIIA	28	-70	-58	3.63
CB Medial VIIAt	-2	-78	-36	5.44
CB Vermis	4	-62	-24	4.00
L Occipital gyrus (middle/inferior)	-34	-84	2	4.84
R Occipital gyrus (inferior)	30	-86	-8	4.92

Supplemental Table 5: Different components of learning. LRN-SMP contrast correlated with sensorimotor synchronisation (PSYN) on Days 1, 2, and 5.

	x	y	z	t-value
Increasing with improvements in performance				
L Precentral gyrus (BA 6)	-50	-2	22	3.32
L STG	-46	-46	22	3.67
R STG	52	-22	2	3.51
L M1/PMC	-50	-8	40	4.05
L M1/PMC	-32	-14	68	4.34
L M1	-12	-24	68	3.81
L S1	-50	-2	22	3.32
L PLs (BA 7)	-16	-68	68	5.83
L PLs/PLi	-38	-74	42	5.41
R CB VIIIA/VIIB	30	-62	-46	3.32
Decreasing with improvements in performance				
L MFG (BA 8)	-30	26	42	3.96
SMA	0	24	48	3.35
R Postcentral gyrus (BA40/2)	64	-18	36	3.62

Supplemental Table 6: Consolidation Predictors. Consolidation on PSYN correlated with activity in the LRN condition on the first run of Day 1.

	x	y	z	t-value
Increasing				
R IFG (BA 45)	52	20	26	3.58
L Fusiform gyrus	-36	-52	-20	3.70
R Fusiform gyrus	32	-58	-16	3.41