

Supplementary Material

A Scoping Survey to Inform Design of Digital Dementia Risk Reduction Interventions for Adults Concerned about their Cognitive Health

Supplementary Material 1

Overview of Answers to Survey Questions

Question summary	N	%
Technology		
Device type (<i>tick all that apply</i>)		
Desktop computer	158	63.5
Laptop	194	77.9
Mobile	244	98.0
Tablet	162	65.1
Smartwatch	65	26.1
Other	16	6.4
Don't use any	0	0.0
Device function (<i>tick all that apply</i>)		
Texting/messaging	241	96.8
Videocalls	155	62.2
Reading	182	73.1
Games	121	48.6
Health-related	118	47.4
Social media	174	69.9
Accessing general information	234	94.0
Other	83	33.3
Device use increased due to COVID?		
Yes	129	51.8

Same as before	86	34.5
No	34	13.7
Use of apps or online resources (<i>tick all that apply</i>)		
Yes, one with guidance from an instructor	19	7.6
Yes, one with goal-setting or reminders	32	12.9
Yes, one for stress reduction	40	16.1
Yes, one for diet	30	12.0
Yes, one for exercise	64	25.7
Yes, one for memory	40	16.1
Yes, other	11	4.4
Yes, I have in the past but I have stopped	35	14.1
None	97	39.0
Reason for stopping app or online resource		
<i>(tick all that apply, n = 35)</i>		
No time	3	8.6
No motivation	8	22.9
It wasn't right for me	5	14.3
Too complex	1	2.9
I forgot to use it	4	11.4
Lost interest	16	45.7
Other	9	25.7
Device issues (<i>tick all that apply</i>)		
Slow internet	72	28.9
Typing difficulties	22	8.8
Viewing screen difficulties	56	22.5
Headaches	14	5.6
Require assistance	9	3.6
Difficulty navigating	24	9.6
Difficulty using mouse	3	1.2

Other	7	2.8
None listed	122	49.0

Online learning courses

Device preference for an online course

(tick all that apply, n = 241)

Desktop computer	122	49.0
Laptop	145	58.2
Mobile	23	9.2
Tablet	42	16.9
Other	1	0.4
No preference	1	0.4

Preference for chapter duration (n = 246)

Less than 10 mins	0	0
10-20 mins	19	7.7
20-30mins	48	19.5
30-60 mins	106	43.1
more than 60 mins	73	29.7

Learning style (tick all that apply)

Visual (e.g., pictures, diagrams, and symbols)	125	50.2
Verbal explanation	108	43.4
Reading and writing things down	155	62.2
Activities and rehearsal	80	32.1
Homework	72	28.9
Other	10	4.0
Don't know	14	5.6

Inclusion of goals (n = 244)

Yes, I would be glad to use goal setting	155	63.5
No, I prefer just reading and absorbing information	49	20.1
No, I don't have time	20	8.2

No, I wouldn't like to/ I'm not interested	7	2.9
Other	13	5.3
^aUse of memory strategies (tick all that apply, n=242)		
Writing things down	239	98.8
Voice reminders	30	12.4
Alarms or phone reminders	169	69.8
Labels	43	17.3
Taking photos	51	21.1
Using GPS	144	59.5
Journaling	50	20.7
Having a routine or system	182	75.2
Mental strategies (n=240)	126	52.5
Interested in learning about healthy living and memory if it was an online course (n = 242)		
Yes	223	92.1
No	19	7.9
Interest in learning how 'exercise' relates to brain health and preventing memory and thinking impairment (n = 241)		
Very interested	148	61.4
Somewhat interested	66	27.4
Neutral	21	8.7
Not interested	6	2.5
Not at all interested	0	0
Interest in learning how 'diet' relates to brain health and preventing memory and thinking impairment (n = 243)		
Very interested	144	59.3
Somewhat interested	72	29.6
Neutral	21	8.6
Not interested	6	2.5
Not at all interested	0	0

Interest in learning how ‘social activities’ relate to brain health and preventing memory and thinking impairment (*n* = 243)

Very interested	126	51.9
Somewhat interested	73	30.0
Neutral	37	15.2
Not interested	7	2.9
Not at all interested	0	0

Interest in learning how ‘cognitive activities’ relate to brain health and preventing memory and thinking impairment (*n* = 242)

Very interested	157	64.9
Somewhat interested	68	28.1
Neutral	15	6.2
Not interested	2	0.8
Not at all interested	0	0

Interest in learning how ‘stress’ relates to brain health and preventing memory and thinking impairment (*n* = 237)

Very interested	128	54.0
Somewhat interested	71	30.0
Neutral	28	11.8
Not interested	10	4.2
Not at all interested	0	0

Interest in learning how ‘anxiety’ relates to brain health and preventing memory and thinking impairment (*n* = 237)

Very interested	114	48.1
Somewhat interested	76	32.1
Neutral	32	13.5
Not interested	15	6.3
Not at all interested	0	0

Interest in learning how ‘mood’ relates to brain health and preventing memory and thinking impairment (*n* = 235)

Very interested	110	46.8
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Somewhat interested	74	31.5
Neutral	34	14.5
Not interested	17	7.2
Not at all interested	0	0

Some sample sizes were affected by branching or missing answers. $n = 249$ unless indicated in the question summary.

^aFor 'use of memory strategies', participants were asked how often they use the strategies on a 4-point Likert scale (0=Never, 1=Sometimes, 2=Often, 3=All the time); for the purpose of analysis, this was recoded to a 2-point scale (1=Never use, 2=Use) where previous scores of 0 were collapsed into a score of 1 and previous scores of 1, 2 or 3 was collapsed into a score of 2. Scores in the table indicate the response option 'use'.

Supplementary Material 2

Difference Between People with Cognitive Concern (CC) and No Cognitive Concern (NCC) for Technology and Online Learning Course Questions

Question summary	CC (<i>n</i> = 153)	NCC (<i>n</i> = 89)	X²	df	p
Technology					
Device type (n (%))					
Desktop computer	94 (61.4)	60 (67.4)	0.869	1	0.351
Laptop	118 (77.1)	71 (79.8)	0.231	1	0.631
Mobile	151 (98.7)	87 (97.8)	0.306	1	0.469 ^b
Tablet	102 (66.7)	59 (66.3)	0.004	1	0.953
Smartwatch	46 (30.1)	17 (19.1)	3.513	1	0.061
Other	7 (4.6)	9 (10.1)	2.794	1	0.095
Don't use any	0 (0.0)	0 (0.0)	n/a	n/a	n/a
Device function (n (%))					
Text/messaging	146 (95.4)	88 (98.9)	2.097	1	0.148
Videocalls	91 (59.5)	61 (68.5)	1.978	1	0.160
Reading	110 (71.9)	68 (76.4)	0.588	1	0.443
Games	76 (49.7)	43 (48.3)	0.042	1	0.838
Health-related	79 (51.6)	35 (39.3)	3.421	1	0.064
Social media	111 (72.5)	60 (67.4)	0.715	1	0.398
Accessing general information	143 (93.5)	85 (95.5)	0.430	1	0.512
Other	45 (29.4)	37 (41.6)	3.715	1	0.054
Device use increased due to COVID? (n (%))					
Yes	83 (54.2)	42 (47.2)			
Same as before	52 (34.0)	33 (37.1)	1.365	2	0.505
No	18 (11.8)	14 (15.7)			
Use of apps or online resources (n (%))					
Yes, one with guidance from an instructor	13 (8.5)	6 (6.7)	0.240	1	0.625

Yes, one with goal-setting or reminders	20 (13.1)	11 (12.4)	0.026	1	0.873
Yes, one for stress reduction	27 (17.6)	13 (14.6)	0.377	1	0.539
Yes, one for diet	18 (11.8)	12 (13.5)	0.153	1	0.696
Yes, one for exercise	46 (30.1)	17 (19.1)	3.513	1	0.061
Yes, one for memory	22 (14.4)	18 (20.2)	1.394	1	0.238
Yes, other	7 (4.6)	4 (4.5)	0.001	1	0.977
I have in the past but I have stopped	23 (15.0)	12 (13.5)	0.109	1	0.741
None	52 (34.0)	41 (46.1)	3.471	1	0.062

Reason for stopping app or resource (n (%)) (n = 35)

No time	1 (4.3)	2 (16.7)	1.527	1	0.266 ^b
No motivation	8 (34.8)	0 (0.0)	5.411	1	=0.032^b
It wasn't right for me	4 (17.4)	1 (8.3)	0.528	1	0.640 ^b
Too complex	0 (8.3)	0 (0.0)	1.973	1	0.343 ^b
I forgot to use it	4 (17.4)	0 (0.0)	2.356	1	0.275 ^b
Lost interest	11 (47.8)	5 (41.7)	0.121	1	0.728
Other	5 (21.7)	4 (33.3)	0.555	1	0.685 ^b

Device issues (n (%))

Slow internet	46 (30.1)	23 (25.8)	0.492	1	0.483
Typing difficulties	14 (9.2)	7 (7.9)	0.117	1	0.732
Viewing screen difficulties	37 (24.2)	17 (19.1)	0.838	1	0.360
Headaches	13 (8.5)	1 (1.1)	5.612	1	=0.018
Require assistance	6 (3.9)	3 (3.4)	0.048	1	0.827
Difficulty navigating	16 (10.5)	8 (9.0)	0.136	1	0.712
Difficulty using mouse	3 (2.0)	0 (0.0)	1.767	1	0.300 ^b
Other	6 (3.9)	1 (1.1)	1.568	1	0.428 ^b
None listed	67 (43.6)	52 (58.4)	4.823	1	=0.028

Online learning courses

Preference of device for an online course (n (%))
(n = 241)

Desktop computer	72 (47.1)	48 (53.9)	1.064	1	0.302
Laptop	90 (58.8)	52 (58.4)	0.004	1	0.952
Mobile	14 (9.2)	8 (9.0)	0.002	1	0.966
Tablet	25 (16.3)	17 (19.1)	0.299	1	0.584
Other	0 (0.0)	1 (1.1)	1.726	1	0.368 ^b
No preference	1 (1.1)	0 (0.0)	0.584	1	1.00 ^b
Preference for chapter duration (n (%)) (n = 241)					
Less than 10 min	0 (0.0)	0 (0.0)			
10-20 min	10 (11.4)	8 (9.1)	5.745	3	0.125
20-30 min	23 (15)	23 (26.1)			
30-60 min	69 (45.1)	35 (39.8)			
more than 60 min	51 (33.3)	22 (25.0)			
Learning style (n (%))					
Visual (e.g., pictures, diagrams, and symbols)	72 (47.1)	50 (56.2)	1.873	1	0.171
Verbal explanation	67 (43.8)	37 (41.6)	0.113	1	0.737
Reading and writing things down	91 (59.5)	62 (69.7)	2.511	1	0.113
Activities and rehearsal	50 (32.7)	29 (32.6)	0.000	1	0.998
Homework	41 (26.8)	30 (33.7)	1.296	1	0.255
Other	4 (2.6)	6 (6.7)	2.419	1	0.120
Don't know	8 (5.2)	6 (6.7)	0.236	1	0.627
Inclusion of goals (n (%)) (n = 240)					
Yes, I would be glad to use goal setting	102 (66.7)	50 (57.5)			
No, I prefer just reading and absorbing information	30 (19.6)	19 (21.8)	6.781	4	0.148
No, I don't have time	12 (7.8)	8 (9.2)			
No, I wouldn't like to/ I'm not interested	1 (0.7)	5 (5.7)			
Other	8 (5.2)	5 (5.7)			
^aUse of memory strategies (n (%))					
Writing things down	152 (99.3)	87 (97.8)	1.167	1	0.556 ^b

Voice reminders	20 (13.1)	10 (11.2)	0.175	1	0.676
Alarms or phone reminders	111 (72.5)	58 (65.2)	1.455	1	0.228
Labels	31 (20.3)	12 (13.5)	1.769	1	0.183
Taking photos	35 (22.9)	16 (18.0)	0.812	1	0.368
Using GPS	92 (60.1)	52 (58.4)	0.068	1	0.795
Journalling	34 (22.2)	16 (18.0)	0.618	1	0.432
Having a routine or system	126 (82.4)	56 (62.9)	11.394	1	<0.001
Mental strategies	84 (55.3)	42 (47.7)	1.269	1	0.260

Interested in learning about healthy living and memory if it was an online course (*n* (%)) (*n* = 239)

Yes	136 (90.1)	84 (95.5)	2.206	1	0.137
No	15 (9.9)	4 (4.5)			

^bInterest in learning how ‘exercise’ relates to brain health and preventing memory and thinking impairment (*n* (%)) (*n* = 238)

Interested	130 (86.1)	81 (93.1)			
Neutral	17 (11.3)	4 (4.6)	3.401	2	0.183 ^d
Not interested	4 (2.6)	2 (2.3)			

^bInterest in learning how ‘diet’ relates to brain health and preventing memory and thinking impairment (*n* (%)) (*n* = 240)

Interested	133 (87.5)	80 (90.9)			
Neutral	14 (9.2)	7 (8.0)	1.342	2	0.511 ^d
Not interested	5 (3.3)	1 (1.1)			

^bInterest in learning how ‘social activities’ relate to brain health and preventing memory and thinking impairment (*n* (%)) (*n* = 240)

Interested	123 (80.9)	74 (84.1)			
Neutral	26 (17.1)	10 (11.4)	2.551	2	0.279 ^d
Not interested	3 (2.0)	4 (4.5)			

^bInterest in learning how ‘cognitive activities’ relate to brain health and preventing memory

and thinking impairment (n (%)) (n = 240)

Interested	140 (92.1)	84 (95.5)			
Neutral	11 (7.2)	3 (3.4)	1.620	2	0.420 ^d
Not interested	1 (0.7)	1 (1.1)			

^bInterest in learning how ‘stress’ relates to brain health and preventing memory and thinking impairment (n (%)) (n = 234)

Interested	124 (83.8)	73 (84.9)			
Neutral	19 (12.8)	8 (9.3)	1.352	2	0.509
Not interested	5 (3.4)	5 (5.8)			

^bInterest in learning how ‘anxiety’ relates to brain health and preventing memory and thinking impairment (n (%)) (n = 234)

Interested	121 (81.8)	67 (77.9)			
Neutral	19 (12.8)	12 (14.0)	0.786	2	0.675
Not interested	8 (5.4)	7 (8.1)			

^bInterest in learning how ‘mood’ relates to brain health and preventing memory and thinking impairment (n (%)) (n = 233)

Interested	115 (78.8)	68 (78.2)			
Neutral	21 (14.4)	12 (13.8)	0.123	2	0.940
Not interested	10 (6.8)	7 (8.0)			

Pearson’s Chi-Square Test was used unless indicated otherwise. Some sample sizes were affected by branching or missing answers. $n = 242$ unless indicated in the question summary.

^aRecoding: Use of memory strategies was rated on a 4-point Likert scale (0=Never to 3=All the time) and recoded to a binary scale (1=Never Use, 2=Use) for analysis, combining 0 with 1 and grouping 1-3 as 2.

^bRecoding: Interest level questions, originally on a 5-point scale (0=Very Interested to 4=Not at All Interested), were recoded to a 3-point scale (1=Interested, 2=Neutral, 3=Not Interested). Scores of 0 or 1 were combined into 1 (Interested), 2 remained as 2 (Neutral), and 3 or 4 were merged into 3 (Not Interested) for clear and concise conclusions.

^cFisher’s Exact Test was employed for 2x2 tables where $\geq 25\%$ of cells had expected counts less than 5.

^dThe Likelihood Ratio test was employed for 2x3 tables where $\geq 20\%$ of cells had expected counts less than 5.