— METHODS & DESIGNS —

Recall norms of common spaces and activities of college students

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To collect normative data on familiar spaces and behaviors of college students, two recall tasks were performed. In Experiment 1, 219 undergraduates recalled spaces where they spend time. In Experiment 2, 155 undergraduates recalled the kinds of activities they do in familiar spaces. The norms provided here include 40 spaces and 123 different behaviors. Gender differences and transituational behaviors are also reported.

A number of researchers have employed a free-recall technique with the general aim of providing others with normative data on a variety of cognitive categories (e.g., Battig & Montague, 1969; Rosch, 1975). Despite the diversity of the categories that have been studied, no research has provided recall norms on the various behaviors of college students and settings in which they live. The absence of such data, and its potential usefulness for our research, provided the impetus for the investigations reported in the present paper. These norms have been used to construct a diverse array of familiar scenarios to study psychological reactions to windows (Butler & Biner, 1989; Butler & Biner, in press), skylight preferences (Butler & Biner, 1990), and environmental lighting preferences (Biner, Butler, Fischer, & Westergren, 1989; Butler & Biner, 1987).

Other researchers needing to know situations, spaces, and behaviors for which college students have good recollections may find these norms useful also. For example, environmental researchers may require such norms for sampling situations. Recently, Belcher (personal communication, 1989) used the norms to sample situations for his research on lighting. Also, researchers using scenarios as part of their instructions or manipulations may need scenarios that differ in familiarity. To some extent, the norms presented here may aid in the development of familiar as well as unfamiliar or taboo scenarios. They could be used, for example, to develop scenarios for attribution research (e.g., Kelley, 1972, 1973). In addition, cognitive researchers—both those studying memory and those

studying other cognitive processes—may have a need for norms on the recollection of common spaces and behaviors of college students, because of their unique qualities. One example of such uniqueness is that, in English, the spaces correspond to nouns whereas the behaviors generally correspond to verbs. Previous category research has almost exclusively concerned itself with nouns (e.g., types of furniture and kinds of precious gems).

In an effort to provide researchers with such norms, we conducted two studies in which we used a technique similar to Battig and Montague's (1969). In the first study, data were collected about common spaces, and in the second, data were collected about common behaviors in these spaces.

RECALL OF SPACES

Method

Subjects. The subjects were 147 female and 72 male undergraduate volunteers from introductory psychology classes at a large midwestern university. Their median age was 19. Twelve percent were married, and 14% had never lived in a college dormitory.

Procedure. The data were gathered from the subjects in large groups, in a large lecture room. The subjects were informed that the purpose behind the experiment was to understand where students spent time. They were then asked to provide their age, sex, marital status, and number of children, and to indicate if they had ever lived in college dormitories. The students were then asked to "Please name all of the rooms or spaces in which you spend time. Write down the names on the blank page in front of you. You will have only 60 seconds."¹

Results

A male and a female judge worked together to tabulate responses. All legible responses were included. The two judges eliminated redundant responses from those made

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Table 1
Where Students Remember Spending Time

Space	Females		Males		Significant Gender Diff. (Z)
	Freq.	%	Freq.	%	
Classroom	110	75	61	85	
Bathroom	99	67	48	67	
Dorm room	92	63	40	56	
Bedroom	70	48	43	60	
Kitchen	69	47	38	53	
Dining room	68	46	38	53	
Living room	49	33	35	49	-2.18
Lounge	47	32	23	32	
Library	42	29	23	32	
Vehicles	35	24	23	32	
Outside	35	24	18	25	
Gym	21	14	19	26	-2.18
Family room	25	17	12	17	2.35
House/home	16	11	21	29	-3.39
Hall	21	14	9	13	
Mall/store	21	14	6	8	
Restaurant	12	8	7	10	
Basement	7	5	10	14	-2.37
Office/workplace	13	9	4	5	
Laundry room	15	10	1	1	
Computer work room	4	3	6	8	
Garage	6	4	4	5	
Student Center	6	4	2	3	
Theatre/auditorium	6	4	2	3	
Church	5	3	2	3	
Elevator	6	4	1	1	
Sorority suite	7	5	0	0	
Closet	4	3	2	3	
Den	2	1	4	5	-2.27
Studio	1	1	4	5	
Stairway	4	3	0	0	
Lobby	3	2	0	0	
Music room	3	2	0	0	
Atrium	0	0	1	1	
Barn	1	1	0	0	
Breakroom	0	0	1	1	
Darkroom	0	0	1	1	
Daycare	1	1	0	0	
Foyer	0	0	1	1	
Parking lot	0	0	1	1	

by each subject individually, combined responses across subjects that were synonymous, and, in a few cases, combined responses that were clearly subcategorical. An example of synonymous responses would be "gym" and "gymnasium." An example of a subcategory would be "outside my house," which was included in the category "outside." Few such categorizations were necessary. For example, the response "parking lot" was not moved to the category "outside." The results are summarized in Table 1.

Judges attempted to categorize the spaces into more global units. They determined the following categories: school (552 responses), home (411 responses), outside (112 responses), and other community buildings (73 responses). In addition, there were 289 ambiguous responses. For example, bathrooms and dining rooms can be in schools or homes.

Table 1 shows a number of significant gender differences. Significance was determined using a normal approximation to the binomial. Almost all (five of the six) of the differences concerned spaces in a home or house. Also, five of the six differences were the result of a greater percentage of females recalling a space.

RECALL OF ACTIVITIES

Method

Subjects. The subjects were 83 male and 72 female undergraduate volunteers from a large midwestern university subject pool. The median age was 19 years. Twelve of the males and 12 of the females had never lived in a college dormitory. Six percent of the subjects were married.

Settings. In order to investigate the recall of activities in a diverse number of settings, 12 spaces were chosen on the basis of their frequency rank in Experiment 1. The settings that were cited by subjects in Experiment 1 fell naturally into three categories, in terms of their frequencies: high-frequency spaces (classroom, bathroom, dorm room, and bedroom), moderate-frequency spaces (kitchen, dining room, living room, and library), and low-frequency spaces (family room, office, garage, and computer work room). It should be noted that the spaces selected reflect two dominant locations: home and school.

Procedure. Data were collected from the subjects in the same manner as in Experiment 1. After providing demographic information, they were given the following instructions:

The purpose of this experiment is to find out what behaviors you perform in various living/working spaces. The procedure will be as follows: You will be given the name of a room or space for you to think of. You will be given 60 seconds to write down in the notebook the behaviors that you do, have done, or would do in that space.² Write the behaviors in whatever order they happen to occur to you. Please be sure to write down every behavior that you think of for each of the rooms named, even those that may embarrass you. Your name will not appear with your answers, so everything you write will be completely anonymous. If you are asked to think of a room with which you are unfamiliar or have limited experience in, please write the words "NO EXPERIENCE" on the page.

The behaviors are to be written in the notebook, using a different page for each room. Before beginning each listing, please write the name of the room at the top of each page. When you hear the word "stop," you are to stop writing and turn immediately to the next page of the notebook. You will then be given the name of another room, and again you are to write as many behaviors performed in that room as you can think of. You are to use a different page of the notebook for each room. Please do not turn back to previous pages at any time. Also, be sure to write the name of the room at the top of each page. Now, if there are no questions, please open your notebook to the first page and get ready for the first room.

At this point, the experimenter began reading the names of rooms to subjects in a randomly determined order.

Results

Judges tabulated the responses as in Experiment 1. There was a total of 9,824 responses. Behaviors are reported here only if at least 4 subjects made the response for a particular setting. Given 95% confidence intervals for the normal approximation to a binomial distribution, four is the number that indicates a frequency different from zero. After the low-frequency behaviors were excluded, 9,059 responses remained. There were 123 different behaviors and an average of 25 behaviors per space. The data are summarized in Tables 2-13.

There was a large number of gender differences, as can be seen in Tables 2-13. Across spaces, there were 96 significant gender differences (i.e., a mean of 8 per space). Sixty-one of these differences resulted from a greater percentage of males recalling a behavior, and 35 differences resulted from a greater percentage of females recalling a behavior.

The total number of behaviors varied widely among spaces. Because we used a free recall task, it is possible that the frequency of behaviors reported for settings was related to the frequency with which those settings were reported. Given this reasoning, spaces named with high frequencies in Experiment 1 would be associated with high frequencies of behavior in Experiment 2. To examine this hypothesis, a Pearson product-moment correlation was computed between the frequency of naming a space and the frequency of reporting behaviors for that space. The correlation was significant for both males [$r(10) = .58, p < .05$] and females [$r(10) = .56, p < .05$]. This relationship suggests that there is an important association between where students report spending time and the number of behaviors they report performing there. Note that these significant correlations were obtained even though the spaces studied in Experiment 2 were all relatively common ones. Undoubtedly these correlations underestimate the true relationship between these variables.

DISCUSSION

The frequencies and percentages reported in Tables 2-13 can provide researchers with a useful set of familiar spaces and behaviors. Researchers should be aware that, because subjects were given a relatively short recall time, nearly every space and behavior reported here should have a reasonably strong memory trace. Even spaces and behaviors rarely recalled in our studies would undoubtedly be recognized by most, if not all, subjects. Utilizing these data in our research to create scenarios, we have had no difficulty with subjects understanding even relatively low-frequency responses from Tables 2-13. For example, subjects in our studies have had no difficulty understanding situations such as "writing in the bedroom" (6%) or "put dishes away in the kitchen" (5%).

Although we are not suggesting that the data in Tables 2-13 should be interpreted as valid indications of ac-

tual behavior frequencies for these settings, comparisons with such data might be useful. One possible comparison would concern the relation between behaviors and environments. Chenoweth, Weidemann, Anderson, and Selby (1974) suggested one useful method for viewing this relationship; it employs conditional probabilities. They argued that conditional probabilities [i.e., $p(B_i/S_j)$, which stands for the probability of behavior i , given setting j] should be compared to the base rate of the behavior [$P(B_i)$] across settings. They proposed the use of differences between conditional probabilities and base rates, so that signs of differences would show facilitation and inhibition of the setting on the behavior. These differences are included in Tables 2-13.

We have noted several problems with the Chenoweth et al. (1974) approach. One problem with Chenoweth difference scores is that they tend to approach zero in large, comprehensive data sets; this trend is especially strong for relatively uncommon behaviors. For instance, "put in contacts," a behavior our subjects recalled only in the bathroom, has a Chenoweth difference score of .01.

An alternative measure, which has all the advantages of the Chenoweth difference score, is a ratio of the conditional probability and the base rate. These values are given in Tables 2-13. Inhibition is indicated by scores between zero and one, whereas facilitation is indicated by scores greater than one. The maximum ratio score increases with data set size in a manner similar to that of F ratios. The ratio scores here may be valuable to environmental psychologists who wish to examine the relationship between recall of situational behaviors and observations of those situational behaviors.

These norms can also be used to construct unfamiliar, taboo, or perhaps bizarre scenarios. The last column of Tables 2-13 indicates the probability that a behavior was recalled in a different setting. Researchers can select behaviors with low probabilities in this column and create a scenario by matching this behavior with another setting. By way of example, we generated the following examples using this technique: "Work on car in the library," "brush teeth in a computer work room," or "make copies in the bathroom." Note that the norms do not help discriminate taboo, bizarre, and unfamiliar situations or scenarios.

We believe that these norms can be used by a variety of researchers. They do have some limitations, however. First, we have found no previous norms that are similar, and it is therefore difficult to know how well these norms will generalize to other subject populations. Second, the norms represent beliefs or memories and should not be construed as observations of behavior. Although it would not be surprising if these data were found to be reasonable approximations of environmental occurrences, these norms should not be used as a substitute for observational data unless one also has strong corroborating data. Third, we have no estimates of the demand characteristics of the approach that we used to elicit the norms. Undoubtedly, responses were influenced, at least to some extent, by recency effects (they were run in a classroom).

Table 2
Classroom Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Listen	49	68	54	65		103	66	107	0.10	9.12	0.04
Sleep	50	69	53	64		103	66	628	0.04	1.55	0.84
Talk	50	69	48	58		98	63	751	0.02	1.24	0.87
Study/do homework	47	65	39	47	2.29	86	55	700	0.01	1.16	0.88
Take notes	39	54	41	49		80	52	80	0.07	9.47	0.00
Read	31	43	35	42		66	43	573	0.01	1.09	0.88
Think	38	53	27	33	2.55	65	42	128	0.05	4.81	0.49
Take tests	26	36	32	39		58	37	68	0.05	8.08	0.15
Write	32	44	19	23	2.85	51	33	250	0.03	1.93	0.80
Learn	14	19	25	30		39	25	39	0.04	9.47	0.00
Eat	11	15	11	13		22	14	705	-0.05	0.30	0.97
Look at people	0	0	18	22	-4.20	18	12	54	0.01	3.16	0.67
Watch movies	9	13	8	10		17	11	17	0.02	9.47	0.00
Drink	6	8	9	11		15	10	266	-0.01	0.53	0.94
Sit	10	14	4	5		14	09	79	0.01	1.68	0.82
Get bored	6	8	7	8		13	08	13	0.01	9.47	0.00
Look around	10	14	3	4		13	08	19	0.01	6.48	0.32
Draw	7	10	5	6		12	08	16	0.01	7.10	0.25
Ask questions	5	7	6	7		11	07	11	0.01	9.47	0.00
Play	10	14	1	1		11	07	30	0.01	3.47	0.63
Meet people	5	7	5	6		10	06	10	0.01	9.47	0.00
Do experiments	6	8	4	5		10	06	10	0.01	9.47	0.00
Listen to music	1	1	7	8	-2.52	8	05	396	-0.04	0.19	0.98
Do work	0	0	7	8	-2.52	7	05	53	0.00	1.25	0.87
Make fun of professor	2	3	5	6		7	05	7	0.01	9.47	0.00
Flirt	2	3	5	6		7	05	7	0.00	9.47	0.00
Socialize	0	0	6	7	-2.33	6	04	6	0.01	9.47	0.00
Cause trouble	0	0	6	7	-2.33	6	04	6	0.01	9.47	0.00
Sum	466		490			956					

Note—Columns labeled "Combined" represent the summative frequency and percentage of males and females for each behavior. The column labeled "Spaces" indicates the overall frequency with which each behavior was cited across all spaces.

Table 3
Bathroom Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Use toilet	65	90	83	100	-2.91	148	95	148	0.16	10.72	0.00
Shower	58	81	71	86		29	83	129	0.14	10.72	0.00
Brush teeth	40	56	53	64		93	60	93	0.10	10.72	0.00
Do hair (comb, dry, style)	53	74	37	45	3.68	90	58	112	0.09	8.61	0.20
Shave	21	29	50	60	-3.87	71	46	71	0.08	10.72	0.00
Bathe	43	60	26	32	3.55	69	45	69	0.07	10.72	0.00
Wash (face, hands)	22	31	35	42		57	37	57	0.06	10.72	0.00
Read	10	14	21	25		31	20	573	-0.03	0.58	0.95
Romantic/sexual behavior	6	9	24	29	-3.23	30	19	480	-0.02	0.67	0.94
Dress	15	21	10	12		25	16	151	0.01	1.77	0.83
Clean (bathroom)	10	14	6	7		16	10	263	-0.01	0.65	0.94
Look in mirror	4	6	10	12		14	09	14	0.02	10.72	0.00
Vomit	1	1	9	11	-2.88	10	06	10	0.01	10.72	0.00
Get ready	6	9	1	1	2.68	7	05	7	0.01	10.72	0.00
Undress	3	4	3	4		6	04	26	0.00	2.47	0.77
Blow nose	5	7	0	0	2.44	5	03	5	0.01	10.72	0.00
Bathe dog	1	1	4	5		5	03	5	0.01	10.72	0.00
Listen to music	3	4	2	2		5	03	396	-0.04	0.14	0.99
Put in contacts	1	1	4	5		5	03	5	0.01	10.72	0.00
Talk	3	4	2	2		5	03	751	-0.08	0.07	0.99
Weigh self	4	6	0	0	2.18	4	03	14	0.00	10.72	0.00
Do laundry	3	4	1	1		4	03	266	0.00	3.06	0.71
Drink	0	0	4	5		4	03	26	-0.02	0.16	0.98
Groom	0	0	4	5		4	03	4	0.00	1.65	0.85
Pick zits	0	0	4	5		4	03	4	0.00	10.72	0.00
Take medicine	2	3	2	2		4	03	4	0.00	10.72	0.00
Sum	379		466			845					

Note—Columns labeled "Combined" represent the summative frequency and percentage of males and females for each behavior. The column labeled "Spaces" indicates the overall frequency with which each behavior was cited across all spaces.

Table 4
Dorm Room Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Study/do homework	67	93	60	72	3.35	127	82	700	0.03	1.34	0.82
Sleep	61	85	65	78		126	81	628	0.03	1.48	0.80
Eat	59	82	55	66	2.21	114	74	705	0.02	1.20	0.84
Romantic/sexual behavior	39	54	64	77	-3.02	103	66	480	0.03	1.59	0.79
Listen to music	45	63	48	58		93	60	396	0.03	1.74	0.77
Party	38	53	42	51		80	52	199	0.04	2.97	0.60
Watch TV	39	54	39	47		78	50	461	0.01	1.25	0.83
Entertain/visit	29	40	30	36		59	38	139	0.03	3.14	0.58
Dress	26	36	21	25		47	30	151	0.02	2.30	0.69
Clean	29	40	14	17	3.25	43	28	263	0.01	1.21	0.84
Drink	12	17	3	36	-2.72	42	27	266	0.00	1.17	0.84
Talk on phone	28	39	12	14	3.47	40	26	291	0.00	1.02	0.86
Read	17	24	21	25		38	25	573	-0.03	0.49	0.93
Play games	14	19	15	18		29	19	247	-0.00	0.87	0.88
Relax/lounge	11	15	18	22		29	19	178	0.00	1.20	0.84
Talk	14	19	12	14		26	17	751	-0.06	0.26	0.97
Do hair (comb, dry, style)	22	31	0	0	5.44	22	14	112	0.01	1.45	0.80
Exercise/dance	11	15	7	8		18	12	105	0.00	1.27	0.83
Put on makeup	18	25	0	0	4.85	18	12	18	0.01	7.39	0.00
Write	15	21	3	4		18	12	250	-0.01	0.53	0.93
Smoke	7	10	6	7		13	08	45	0.01	2.14	0.71
Take drugs	3	4	9	11	-2.88	12	08	17	0.01	5.22	0.29
Argue	7	10	2	2		9	06	14	0.01	4.75	0.36
Cook	7	10	2	2		9	06	116	-0.01	0.57	0.92
Undress	5	7	3	4		8	05	26	0.00	2.27	0.69
Fight	5	7	2	2		7	05	7	0.00	7.39	0.00
Change clothes	5	7	0	0		5	03	17	0.00	2.17	0.71
Decorate	1	1	3	4		4	03	4	0.00	7.39	0.00
Live	0	0	4	5		4	03	4	0.00	7.39	0.00
Type	4	6	0	0		4	03	60	-0.00	0.49	0.93
Sum	638		587			1,225					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 5
Bedroom Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Sleep	70	97	79	95		149	96	628	0.08	2.22	0.76
Romantic/sexual behavior	60	83	74	80		134	86	480	0.09	2.61	0.72
Study/do homework	47	65	41	49	1.99	88	57	700	0.01	1.17	0.87
Dress	39	54	40	48		79	51	151	0.06	4.88	0.48
Listen to music	32	44	40	48		72	46	396	0.03	1.70	0.82
Watch TV	34	47	33	40		67	43	461	0.02	1.36	0.85
Read	28	39	33	40		61	39	573	-0.00	0.99	0.89
Rest/relax	16	22	32	39	2.19	48	31	178	0.03	2.52	0.73
Talk	21	29	19	23		40	26	751	-0.04	0.50	0.95
Talk on phone	22	31	12	14	2.42	34	22	291	0.00	1.09	0.88
Clean/straighten up	18	25	15	18		33	21	263	0.00	1.17	0.87
Eat	16	22	16	19		32	21	705	-0.04	0.42	0.95
Think/be alone	14	19	16	19		30	19	128	0.02	2.19	0.77
Groom	19	26	3	4	4.39	22	14	26	0.02	7.90	0.15
Exercise/dance	5	7	13	16		18	12	105	0.01	1.60	0.83
Play	10	14	4	5		14	09	30	0.01	4.36	0.53
Undress	5	7	8	10		13	08	26	0.01	4.67	0.50
Change clothes	10	14	2	2	2.69	12	08	17	0.01	6.59	0.29
Drink	0	0	10	12	3.05	10	06	266	-0.02	0.35	0.96
Write	4	6	6	7		10	06	250	-0.02	0.37	0.96
Smoke	0	0	4	5		4	03	45	-0.00	0.83	0.91
Sum	470		500			970					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 6
Kitchen Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Eat	65	90	76	92		141	91	705	0.09	2.21	0.80
Cook/bake	58	81	49	59	2.89	106	68	116	0.12	10.09	0.09
Wash dishes	48	67	42	51	2.02	90	58	90	0.10	11.04	0.00
Talk	37	51	30	36		67	43	751	-0.00	0.99	0.91
Clean	32	44	33	40		65	42	263	0.05	2.73	0.75
Prepare food	18	25	43	52	-3.41	61	39	67	0.07	10.05	0.09
Talk on phone	35	49	19	23	3.35	54	35	291	0.03	2.05	0.81
Drink	13	18	33	40	-2.95	46	30	266	0.03	1.91	0.83
Study/do homework	18	25	15	18		33	21	700	-0.04	0.52	0.95
Watch TV	11	15	10	12		21	14	461	-0.03	0.50	0.95
Play games	7	10	10	12		17	11	247	-0.01	0.76	0.93
Listen to music	10	14	8	10		18	12	396	-0.02	0.50	0.95
Romantic/sexual behavior	0	0	16	19	-3.93	16	10	480	-0.03	0.37	0.97
Feed pets	9	13	6	7		15	10	22	0.02	7.53	0.32
Put away groceries	9	13	5	6		14	09	14	0.02	11.04	0.00
Read	6	8	7	8		13	08	573	-0.05	0.25	0.98
Sit	7	10	4	5		11	07	79	0.00	1.54	0.86
Put dishes away	3	4	5	6		8	05	8	0.01	11.04	0.00
Look in refrigerator	0	0	5	6		5	03	5	0.01	11.04	0.00
Party	2	3	3	4		5	03	199	-0.02	0.28	0.97
Set table	3	4	2	2		5	03	17	0.00	3.25	0.71
Throw away trash	1	1	4	5		5	03	5	0.01	11.04	0.00
Take out trash	0	0	4	5		4	03	4	0.00	11.04	0.00
Sum	392		428			820					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 7
Dining Room Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Eat	72	100	83	100		155	100	705	0.18	3.29	0.78
Talk	55	76	43	52	2.65	98	63	751	0.08	1.95	0.87
Study/do homework	34	47	27	33		61	39	700	0.02	1.30	0.91
Play games	30	42	30	36		60	39	247	0.07	3.63	0.76
Drink	13	18	27	33	-2.05	40	26	266	0.04	2.25	0.85
Clear off table after meals	18	25	9	11	2.32	27	17	27	0.04	14.94	0.00
Read	14	19	12	14		26	17	573	-0.02	0.68	0.95
Romantic/sexual behavior	2	3	18	22	-3.50	20	13	480	-0.02	0.62	0.96
Clean (dust, vacuum)	10	14	9	11		19	12	263	0.00	1.08	0.93
Talk on phone	8	11	6	7		14	09	291	-0.01	0.72	0.95
Rest/relax	4	6	8	10		12	08	178	0.00	1.01	0.93
Set table	9	13	3	4	2.06	12	08	20	0.02	8.93	0.40
Watch TV	3	4	9	11		12	08	461	-0.03	0.39	0.97
Listen to music	5	7	6	7		11	07	396	-0.03	0.42	0.97
Party	5	7	6	7		11	07	199	-0.00	0.83	0.94
Entertain/visit	0	0	6	7		6	04	139	-0.01	0.65	0.96
Prepare food	6	8	0	2.68		6	04	67	0.00	1.34	0.91
Sit	4	6	2	2		6	04	79	0.00	1.13	0.92
Smoke	1	1	4	5		5	03	45	0.00	1.66	0.89
Sew	4	6	0	0		4	03	4	0.01	14.94	0.00
Sleep	0	0	4	5		4	03	628	-0.06	0.10	0.99
Sum	297		312			609					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 8
Living Room Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Watch TV/VCR	62	86	76	92		138	89	461	0.09	2.82	0.70
Read	44	61	42	51		86	55	573	0.03	1.42	0.85
Eat	42	58	41	49		83	54	705	0.01	1.11	0.88
Talk	33	46	40	48		73	47	751	-0.01	0.92	0.90
Sleep	30	42	40	48		70	45	628	0.00	1.05	0.89
Listen to music	36	50	33	40		69	45	396	0.03	1.64	0.83
Romantic/sexual behavior	24	33	42	51	-2.17	66	43	480	0.02	1.30	0.86
Study/do homework	33	46	23	28	2.34	56	36	700	-0.02	0.75	0.92
Rest/relax	16	22	29	35		45	29	178	0.03	2.38	0.75
Entertain/visit	25	35	17	20		42	27	139	0.03	2.85	0.70
Play games/do puzzles	25	35	14	17	2.55	39	25	247	0.01	1.49	0.84
Talk on phone	18	25	11	13		29	19	291	-0.00	0.94	0.90
Clean	17	24	11	13		28	18	263	0.00	1.00	0.89
Party	10	14	13	16		23	15	199	0.00	1.09	0.88
Drink	5	7	17	20	-2.41	22	14	266	-0.01	0.78	0.92
Sit	9	13	11	13		20	13	79	0.01	2.39	0.75
Exercise/dance	12	17	5	6	2.11	17	11	105	0.01	1.53	0.84
Nap	7	10	8	10		15	10	15	0.01	9.43	0.00
Play musical instrument	7	10	4	5		11	07	17	0.01	6.10	0.35
Play with pet	6	8	2	2		8	05	21	0.01	3.59	0.62
Smoke	2	3	4	5		6	04	45	0.00	1.26	0.87
Argue	3	4	2	2		5	03	14	0.00	3.37	0.64
Christmas activities	3	4	2	2		5	03	5	0.00	9.43	0.00
Look out window	3	4	1	1		4	03	4	0.00	9.43	0.00
Sum	472		488			960					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 9
Library Behavior

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Study/do homework	64	88	75	90		139	90	700	0.08	2.07	0.80
Meet/talk with friends	71	99	67	81	3.55	138	89	751	0.08	1.91	0.82
Read	53	74	63	76		116	75	573	0.07	2.11	0.80
Do research	33	46	39	47		72	46	72	0.07	10.41	0.00
Sleep	23	32	38	46		61	39	628	0.00	1.01	0.90
Write	28	39	20	24	1.99	48	31	250	0.03	2.00	0.81
Check out books	18	25	19	23		37	24	37	0.04	10.41	0.00
Watch people	11	15	15	18		26	17	54	0.02	5.01	0.52
Make copies	17	24	8	10	2.36	25	16	30	0.03	8.67	0.17
Look at audio/visual materials	12	17	12	14		24	15	24	0.02	10.41	0.00
Look for books	15	21	7	8	2.21	22	14	22	0.02	10.41	0.00
Listen to music	9	13	13	16		22	14	396	-0.02	0.58	0.94
Get drink	5	7	16	19	2.24	21	14	266	-0.01	0.82	0.92
Eat	9	13	11	13		20	13	705	-0.05	0.30	0.97
Walk	9	13	7	8		16	10	24	0.02	6.94	0.33
Ride elevators	10	14	3	4	2.30	13	08	13	0.01	10.41	0.00
Romantic/sexual behavior	2	3	9	11		11	07	480	-0.04	0.24	0.98
Pick up girls	0	0	11	13	-3.20	11	07	11	0.01	10.41	0.00
Daydream	0	0	8	10	-2.71	8	05	8	0.01	10.41	0.00
Hang out	0	0	8	10	-2.71	8	05	8	0.01	10.41	0.00
Smoke	3	4	4	5		7	05	45	0.00	1.62	0.84
Think	2	3	5	6		7	05	128	-0.01	0.57	0.95
Look around	0	0	6	7	-2.33	6	04	19	0.00	3.29	0.68
Draw	2	3	2	2		4	03	16	0.00	2.60	0.75
Pick things up	4	6	0	0	2.18	4	03	12	0.00	3.47	0.67
Relax	4	6	0	0	2.18	4	03	178	-0.02	0.23	0.98
Sum	404		466			870					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 10
Family Room Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Watch TV	64	89	67	81		131	85	461	0.08	2.54	0.72
Eat	42	58	48	58		90	58	705	0.01	1.14	0.87
Play games	38	53	47	57		85	55	247	0.06	3.07	0.66
Study/do homework	48	67	34	41	3.20	82	53	700	0.00	1.05	0.88
Read	44	61	31	37	2.95	75	48	573	0.01	1.17	0.87
Sleep	36	50	37	45		73	47	628	0.00	1.04	0.88
Listen to music	40	56	32	39	2.12	72	46	396	0.03	1.62	0.82
Party	19	26	39	47	-2.64	58	37	199	0.04	2.60	0.71
Talk	27	38	30	36		57	37	751	-0.03	0.68	0.92
Romantic/sexual behavior	21	29	35	42		56	36	480	0.00	1.04	0.88
Entertain/visit	19	26	13	16		32	21	139	0.02	2.05	0.77
Talk on phone	23	32	8	10	3.46	31	20	291	-0.00	0.95	0.89
Exercise/dance	17	24	12	14		29	19	105	0.02	2.46	0.72
Rest/relax	0	0	23	28	-4.84	23	15	178	0.00	1.15	0.87
Drink	19	26	0	0	5.00	19	12	266	-0.01	0.64	0.93
Clean	7	10	8	10		15	10	263	-0.01	0.51	0.94
Play with animals	8	11	5	6		13	08	21	0.01	5.52	0.38
Play with kids	8	11	5	6		13	08	13	0.01	8.92	0.00
Use computer	2	3	9	11		11	07	155	-0.01	0.63	0.93
Sit	5	7	3	4		8	05	79	-0.00	0.90	0.90
Watch fire	0	0	7	8		7	05	7	0.01	8.92	0.00
Think	4	6	3	4		7	05	128	-0.01	0.49	0.95
Smoke	3	4	3	4		6	04	45	0.00	1.19	0.87
Write	6	8	0	0	2.68	6	04	250	-0.02	0.21	0.98
Play musical instrument	2	3	4	5		6	04	17	0.00	3.15	0.65
Pay bills	5	7	0	0	2.44	5	03	5	0.00	8.92	0.00
Take drugs	1	1	4	5		5	03	17	0.00	2.62	0.71
Sum	508		507			1,015					

Note—Columns labeled "Combined" represent the summative frequency and percentage of males and females for each behavior. The column labeled "Spaces" indicates the overall frequency with which each behavior was cited across all spaces.

Table 11
Office Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Talk	41	57	56	64		97	63	751	0.05	1.57	0.87
Write/do paperwork	62	86	32	39	6.04	94	61	250	0.10	4.56	0.62
Talk on phone	49	68	30	36	3.96	79	51	291	0.07	3.30	0.73
Type	38	53	18	22	4.02	56	36	60	0.07	11.33	0.07
Work	0	0	46	55	-7.53	46	30	67	0.05	8.33	0.31
Drink	21	29	23	28		44	28	266	0.03	2.01	0.83
Eat	21	29	23	28		44	28	705	-0.02	0.76	0.94
Read	18	25	22	27		40	26	573	-0.01	0.85	0.93
Sleep	13	18	16	19		29	19	628	-0.03	0.56	0.95
Romantic/sexual behavior	4	6	25	30	-3.91	29	19	480	-0.01	0.73	0.94
File	21	29	0	0	5.29	21	14	21	0.03	12.14	0.00
Listen to music	6	8	13	16		19	12	396	-0.02	0.58	0.95
Have meetings	5	7	13	16		18	12	18	0.02	12.14	0.00
Relax	2	3	15	18	-3.04	17	11	178	0.00	1.16	0.90
Watch TV	1	1	13	16	-3.09	14	09	461	-0.03	0.37	0.97
Sit	7	10	5	6		12	08	79	0.01	1.84	0.85
Study/do homework	6	8	4	5		10	06	700	-0.06	0.17	0.99
Wait	6	8	4	5		10	06	10	0.01	12.14	0.00
Help others	9	13	0	0	3.32	9	06	9	0.01	12.14	0.00
Use computers	9	13	0	0	3.32	9	06	155	-0.01	0.70	0.94
Pick things up	8	11	0	0	3.12	8	05	12	0.01	8.09	0.33
Have parties	4	6	2	2		6	04	199	-0.01	0.37	0.97
Think	1	1	4	5		5	03	128	-0.01	0.47	0.96
Take money	5	7	0	0	2.44	5	03	5	0.01	12.14	0.00
Make copies	4	6	1	1		5	03	30	0.00	2.02	0.83

Table 11 (Continued)

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Make deals	0	0	4	5		4	03	4	0.00	12.14	0.00
Observe others	0	0	4	5		4	03	54	-0.00	0.90	0.93
Smoke	0	0	4	5		4	03	45	0.00	1.08	0.91
Be silent	0	0	4	5		4	03	4	0.00	12.14	0.00
Walk	2	3	2	2		4	03	24	0.00	2.02	0.83
Sum	363		383			746					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 12
Garage Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Work on car	29	40	52	63	-2.78	81	52	81	0.14	16.44	0.00
Park car	35	49	36	43		71	46	71	0.12	16.44	0.00
Store things	23	32	25	30		48	31	48	0.08	16.44	0.00
Clean garage	26	36	18	22		44	28	263	0.05	2.75	0.83
Build things	19	26	21	25		40	26	40	0.07	16.44	0.00
Wash/wax car	17	24	8	10	2.36	25	16	25	0.04	16.44	0.00
Exercise	8	11	15	18		23	15	105	0.03	3.60	0.78
Fix things	11	15	12	14		23	15	23	0.04	16.44	0.00
Work on bike	4	5	18	22	-3.05	22	14	22	0.04	16.44	0.00
Work	2	3	19	23	-4.33	21	14	67	0.03	5.15	0.69
Play games	8	9	9	11		17	11	247	0.00	1.13	0.93
Party	4	5	12	14		16	10	199	0.01	1.32	0.92
Get food from freezer	9	13	6	7		15	10	15	0.03	16.44	0.00
Romantic/sexual behavior	1	1	10	12	2.58	11	07	480	-0.03	0.38	0.98
Do laundry	7	10	3	4		10	06	14	0.02	11.74	0.29
Work on cycles	0	0	10	12	3.05	10	06	10	0.02	16.44	0.00
Paint	4	5	5	6		9	06	9	0.02	16.44	0.00
Take trash to	4	5	5	6		9	06	9	0.02	16.44	0.00
Do hobbies	2	3	6	7		8	05	8	0.01	16.44	0.00
Get tools	7	10	0	0	2.91	7	05	7	0.01	16.44	0.00
Feed pets	5	7	2	2		7	05	22	0.01	5.23	0.68
Listen to music	4	5	3	4		7	05	396	-0.03	0.29	0.98
Use tools	2	3	4	5		6	04	6	0.01	16.44	0.00
Talk	5	7	1	1		6	04	751	-0.07	0.13	0.99
Play	2	3	3	4		5	03	30	0.01	2.74	0.83
Put tools away	5	7	0	0	2.44	5	03	5	0.01	16.44	0.00
Have garage sale	4	5	1	1	2.18	5	03	5	0.01	16.44	0.00
Sum	247		304			551					

Note—Columns labeled “Combined” represent the summative frequency and percentage of males and females for each behavior. The column labeled “Spaces” indicates the overall frequency with which each behavior was cited across all spaces.

Table 13
Computer Work Room Behaviors

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Use computer	70	97	65	78	3.50	135	87	155	0.36	22.28	0.13
Talk	24	33	22	27		46	30	751	0.05	1.57	0.94
Write	16	22	7	8	2.41	23	15	250	0.04	2.35	0.91
Read	12	17	9	11		21	14	573	-0.00	0.94	0.96
Make printouts	11	15	9	11		20	13	20	0.05	25.58	0.00
Study	12	17	6	7		18	12	700	-0.03	0.66	0.97
Think	7	10	7	8		14	09	128	0.03	2.80	0.89
Sleep	5	7	8	10		13	08	628	-0.03	0.53	0.98
Take tests	8	11	2	2	2.20	10	06	68	0.02	3.76	0.85

Table 13 (Continued)

Behavior	Females		Males		Significant Gender Diff. (Z)	Combined		Spaces Freq.	$p(B/S) - p(B)$	$p(B/S)/p(B)$	$p(B \text{ in other spaces}/B)$
	Freq.	%	Freq.	%		Freq.	%				
Get help	3	4	6	7		9	06	9	0.02	25.58	0.00
Sit	6	8	2	2		8	05	79	0.01	2.59	0.90
Eat	0	0	8	10	-2.71	8	05	705	-0.06	0.29	0.99
Look at people	2	3	4	5		6	04	54	0.01	2.84	0.89
Goof off	2	3	4	5		6	04	6	0.02	25.58	0.00
Drink	0	0	5	6	-2.12	5	03	266	-0.02	0.48	0.98
Romantic/sexual behavior	1	1	3	4		4	03	480	-0.04	0.21	0.99
Listen	3	4	1	1		4	03	107	-0.00	0.96	0.96
Walk	3	4	1	1		4	03	24	0.01	4.26	0.83
Sum	185		169			354					

Note—Columns labeled "Combined" represent the summative frequency and percentage of males and females for each behavior. The column labeled "Spaces" indicates the overall frequency with which each behavior was cited across all spaces.

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NOTES

1. Although Gronlund and Shiffrin (1986) showed that cumulative recall curves do not approach asymptote for several minutes, our pilot studies suggested that many students wrote very little after 60 sec. Note that 60 sec is twice the recall period used by Battig and Montague (1969).
2. It was considered appropriate to ask subjects what they "would do" in the settings, for two reasons. First, we hoped that the inclusion of this question in the instructions would buffer any reticence to list embarrassing or private types of activities. Second, because we were interested in very familiar activities, we hoped that this instruction would encourage subjects to include activities that they had observed others frequently performing in the settings.

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