

USING LAPTOPS TO ANSWER BAR EXAM QUESTIONS: WHO DOES IT AND DOES IT MATTER?

Stephen P. Klein, Ph.D. and Roger Bolus, Ph.D.
March 28, 2003

California's General Bar Exam (GBX) has two parts. One part is the Multistate Bar Exam (MBE). This is a 200-question multiple-choice test. The other part is a written test that consists of six essay and two performance test (PT) questions. Candidates mark their MBE answers on a machine scored form. They typically write their answers to the eight open-ended questions in blue books. However, they also can elect to type them or prepare them on a laptop computer using a special software program that prevents them from having access to their hard drives. The candidates using these response modes on the written (essay + PT) part of the exam are respectively referred to as writers, typists, and laptopers. There were separate examination rooms for each group. Typists and laptopers brought their own machines to their respective test centers.

This report examines the characteristics of the candidates that used each response mode, the extent to which bar exam scores are related to response mode after holding certain demographic and other factors constant, and the effect of changing response modes. We also examine whether most of the laptopers are coming from those who would have otherwise written or typed their answers.

Sample

Analyses were conducted with the candidates who took the July 2001, February 2002, and July 2002 exams. Table 1 shows the number of candidates that used each response mode on each exam. About two-thirds of the July candidates are first timers whereas about two-thirds of the February takers are repeaters. Data were not analyzed for the candidates who received special accommodations or did not complete the exam.

Table 1
Number of Candidates Using Each Response Mode

Response Mode	July 2001	February 2002	July 2002
Write	5989	2979	5192
Laptop	863	628	1731
Type	390	171	233
Total	7242	3313	7156

Candidate Characteristics Related to Response Mode

The candidate characteristics studied were gender, racial/ethnic group, law school type, and repeater status. Table 2 shows the percentage of candidates using each mode on each exam as a function of these characteristics. These data (and those in Table 5) indicate that the laptop option is rapidly increasing in popularity. It also is evident that most of those electing to use a laptop are coming from those who would have otherwise write their answers. For example, between July 2001 and July 2002, there has been a ten percentage point decrease in the percent electing to write and a 12 percentage point increase in the percent using a laptop.

Table 2
Percentage of Candidates Using Each Mode on Each Exam

Characteristic	Writers			Laptops			Typists		
	7/01	2/02	7/02	7/01	2/02	7/02	7/01	2/02	7/02
Gender									
Female	83	78	72	12	18	25	5	4	3
Male	83	79	73	12	16	24	6	5	4
Race & Ethnicity									
Asian	79	80	71	16	17	27	5	3	3
Hispanic	85	82	75	10	14	21	6	5	4
Black	91	86	83	5	9	13	4	4	4
White	82	76	71	12	19	26	5	6	3
All Others	83	83	78	11	15	19	6	3	3
Law School Type									
ABA Approved	82	77	69	14	20	29	4	3	2
CA Accredited	81	81	79	7	11	12	12	9	9
CA Unaccredited	88	85	81	4	6	10	8	9	8
Others	89	82	84	5	14	11	5	5	5
Repeater Status									
First Timers	82	76	69	14	21	28	5	4	3
Repeaters	85	80	80	8	15	15	7	5	4
Pass/Fail Status									
Pass	80	75	68	15	21	30	5	4	2
Fail	87	81	78	7	14	18	6	5	4
All Takers	83	79	73	12	17	24	5	5	3

Males and females had nearly identical rates of using each response mode. That was not true for other groups. Asians, first timers, and graduates of ABA law schools were more likely to use laptops than were other groups. On the July 2001 exam, graduates of California Accredited law schools were much more likely to type than use a laptop. That is no longer the case. The percent using a laptop has increased in all racial/ethnic groups.

Relationship of Response Mode to Scores

A regression analysis was used to examine how response mode was related to total bar exam scale scores after controlling for the candidates' MBE scores, gender, racial/ethnic group, repeater status, and law school type. Table 3 shows the results of this analysis in terms of the increase (or decrease) in total scale score that was associated with using a laptop or typewriter relative to handwriting. For example, on the July 2001 exam, the average laptop user had a 16-point higher score than a *similarly situated* hand writer (i.e., in terms of MBE score, gender, and the other control variables noted above). However, that apparent advantage disappeared on the next two exams.¹ In contrast, the typists had lower than expected scores on all three exams. As benchmarks for these values, the last two rows show the effect of graduating from an ABA school and being a repeater.²

Table 3
Change in Total Scale Score as a Function of Various Factors

Variable	July 2001	February 2002	July 2002
Using a Laptop	16	- 1	2
Typing	-17	-24	-27
Being an ABA Grad	31	29	34
Being a Repeater	-33	-29	-35

Changing Response Mode

We investigated what happens when initially unsuccessful candidates elect to change response modes for their next exam. The sample for this analysis consisted of the 1887 applicants who failed the July 2001 exam and then sat for the February 2002 exam. About 12 percent of these applicants changed response modes between these two exams. Table 4 shows the results of this investigation.

¹ An analysis of July 2002 data in a neighboring state also found no relationship between response mode—handwriting versus laptop—and written scores after controlling on MBE score and gender.

² Standard deviations of total scale scores on the three exams were 136, 125, and 137, respectively.

Table 4
 Percent Passing as a Function of July 2001 and February 2002 Response Modes for Those Applicants Who Took Both of These Exams

July 2001 Mode	Feb 2002 Mode	Number of Takers	Number Passing	Percent Passing
Laptop	Laptop	132	49	37
Laptop	Type	3	1	33
Laptop	Write	22	7	32
Type	Laptop	23	4	17
Type	Type	64	11	17
Type	Write	24	8	33
Write	Laptop	136	62	46
Write	Type	16	4	25
Write	Write	1467	397	27
All switches to Laptop		159	66	42
All switches to Typing		19	5	26
All switches to Writing		46	15	33
All repeaters		1887	543	29

The data in Table 4 show that as a group, those who switched from writing to using laptops had the most success on the February 2002 exam. Hence, unsuccessful applicants who wrote in the past might consider switching to a laptop if they felt comfortable with the required software and using a laptops. However, there were not enough candidates switching modes to reach any definitive conclusions about which one is generally best let alone would be best for a given applicant. That would have to be determined by having applicants take practice exams with each mode.

Increasing Preference for Laptop Mode

Prior to the July 2000 exam, applicants could write their answers, type them, or (with permission) prepare them under special accommodations, such as receiving extra time. The laptop mode was piloted for the first time in California on the July 2000 exam. Since then, the number of laptoppers has increased steadily as has the percentage of applicants selecting this option.

Table 5 shows the percentage of applicants using each mode during the five years before laptops were offered and on each exam since then. The last row indicates the percentage of candidates that received special accommodations. The data in this table suggest that with the possible exception of the July 2000 exam, most of the laptoppers were applicants who would have written their answers were they not offered the laptop option. In absolute numbers, only a few laptoppers appear to have come from those who otherwise would have typed although this still represents about a 50 percent reduction in the number of typists.

Table 5
Percentage of All Applicants Using Each Mode on the Last 16 Exams*

Response Mode	2/1995 to 2/2000	7/2000	2/2001	7/2001	2/2002	7/2002
Write	87	87	82	79	74	70
Type	8	6	5	5	4	3
Laptop	0	2	7	11	16	23
Special	5	4	6	5	6	4

*Column totals may not sum to 100% due to rounding. Percentages include applicants who took just the Attorney's exam (i.e., the 6 essay questions and 2 PT problems). The pre-July 2002 data were provided by John Rodriguez.

Summary and Conclusions

Analyses of the July 2001, February 2002, and July 2002 California bar exams found that the decision to use a given response mode was related to a candidate's racial/ethnic group, law school type, and repeater status. It was not related to gender. Specifically, men and women are equally likely to use a given mode, Asians and whites are more likely to use laptops than others, and graduates of ABA law schools are several times more likely to use laptops than are graduates of unaccredited schools. First timers also are more likely to use them than repeaters.

Most but not all of the difference in average bar exam scores between laptoppers and others appears to stem from differences in their legal knowledge and analysis skills as reflected by the relative sizes of their mean MBE scores. However, after adjusting for these differences and certain background characteristics (namely gender, law school type, racial/ethnic group, and repeater status), the July 2001 laptoppers still had a 16-point higher average total score than the writers and a 33-point higher average score than the typists.

Nevertheless, the laptop advantage over writers disappeared on the next two exams. It also was not found in an analysis of July 2002 bar exam scores in another jurisdiction. Thus, there does not now appear to be any advantage or disadvantage to using a laptop relative to writing. We do not know why the significant laptop effect evaporated after the July 2001 exam. It did not appear to be due to any systematic change in the demographic and other background characteristics of the applicants using each mode (see Table 2).

The typing effect did not disappear. On all three exams studied, the candidates who typed did not do as well as what would be expected on the basis of the case mix variables enumerated above. The negative typing effect is comparable to that of being a repeater. This effect cannot be attributed to handwriting clarity because the laptop users and typists produce type printed answers (although the ones created on the laptop are much neater). In addition, answers from all three modes are intermixed in each batch of answers a reader grades. We could not determine the source of the typing effect from the available data. For example, it may be related to how typists allocate their testing time.

It is not clear what would happen if applicants were required to use a different response mode than the one they actually used. For instance, the typists may have done even worse if they had to write their answers and the writers may not have done as well as they did if they were required to use a laptop but lacked the necessary word processing skills and familiarity with laptops and the test-taking software.

Nevertheless, it is interesting to see what happens when applicants choose to change modes on their own. We investigated this matter by analyzing the data of the 1887 unsuccessful July 2001 applicants who took the February 2002 exam. This analysis found that the writers who switched to laptops had the most success on the February 2002 exam. However, only 12 percent of the repeaters changed modes. Thus, there were not enough of them to reach a definitive conclusion regarding the effects of a self-selected mode change.

Finally, the percentage of candidates who type is declining. It is now half of what it was before laptops were first offered. In contrast, the popularity of the laptop mode has doubled in just one year. This rapid increase in popularity could continue as more applicants use this mode to take their law school exams and become aware of its speed and ability to facilitate editing and revising text. The decreasing cost of laptops also may contribute to the popularity of this mode. In addition, a number of major states including New York and Illinois are also allowing applicants to use laptops.