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IBM BASIC Tachistoscope Program for Classroom Demonstration

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This article describes a BASIC program for the IBM Personal Computer (PC) that simulates a tachistoscope. The program utilizes data files created by the user or sample files created by the authors. The program is useful for classroom demonstration of classic experiments in cognitive psychology.

Investigators in cognitive psychology have frequently used the tachistoscope as a research tool. When computers became more readily available, simulations of tachistoscopes were published. Initially, these programs were designed for minicomputers and mainframes (Green & Schwartz, 1978; Prinzmetal & Banks, 1978; Simpson & Burgess, 1984). More recent tachistoscopic simulations have used microcomputers, such as the Apple (Cameron, Coffee, Hada, & Deni, 1985) and Atari (Ament, 1986). Most microcomputer programs are specialized in that they demonstrate only one research protocol, such as Sperling's (1960) work (Cameron et al., 1985) or Peterson and Peterson's (1959) classic experiment (Simpson & Burgess, 1984).

The program described here is different from other published works in that users can access sample data files simulating Sperling's (1960) or Peterson and Peterson's (1959) procedures, or they may create their own data files. It is a file-driven program written in BASIC for the IBM PC or compatible models with graphics capabilities. The program is flexible and appropriate for a variety of classroom demonstrations.

Students often have difficulty understanding research results obtained from tachistoscopic research because they do not understand the function of a tachistoscope. Moreover, many small psychology departments do not own tachistoscopes and cannot, therefore, demonstrate their function. Verbal descriptions may be useful, but tachistoscopes may be perceived simply as fast slide projectors by many students.

The software described here was developed primarily for classroom demonstration of tachistoscopic methodology. Because most departments have personal computers, this tool allows demonstration of the classic tachistoscopic experiments in cognitive psychology

For example, students occasionally have difficulty understanding the methodology used by Peterson and Peterson (1959) in concluding that short-term memory lasts 18 sec or less. Understanding is enhanced when the methodology is demonstrated in the classroom by having one or two students sit in front of a tachistoscope and attempt to recall trigrams after a time delay. Such demonstrations are possible with an IBM PC and this software. Interrupting program execution to terminate the demonstration is easily done in IBM BASIC.

We have created data files to demonstrate Sperling's (1960) and Peterson and Peterson's (1959) research. These data files are provided on the program diskette. Additional data files can be created by the user. Twenty-four lines of screen display are available for each slide. Therefore, information may be specifically placed on the screen by selecting the appropriate display line and whether the characters are to be centered, left-justified, or right-justified. Creation of a data file requires the use of an editor or word processing program.

The time of display is specified by the user. Programming structure requires that the time of display be in multiples of 4 millisec. Thus, the shortest possible time display is 4 millisec; there is no maximum limit.

Font size is partially controllable. IBM PC displays have two font sizes for text characters. The 40 character/line display has larger characters than the 80 character/line display. Either font size can be selected with the tachistoscope program.

Also included is an option for verification of screen displays. The verification option allows the user to view each slide again after it has initially been flashed on the screen. Users control the appearance of each new slide by pressing any key on the keyboard.

Researchers desiring a sophisticated tachistoscope will not find the flexibility desired in this program because responses and response times are not recorded. However, the time display control, user-defined data files, verification option, variable font size, and sample data files of classic experiments in cognitive psychology make the program ideal for classroom demonstration.

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Notes