Usability News

RSVP in Review: A Comparison of Programs for the PC and Handheld Devices

By Mark C. Russell and Shannon Riley

In previous issues of Usability News, we reported on our research involving Rapid Serial Visual Presentation (RSVP) RSVP is a method of displaying text one word (or sentence) at a time in the same area of a screen. RSVP has been used as a method of teaching reading, speed reading, as well as assessing reading speed and comprehension in students and adults. At SURL, we have been interested in the use of RSVP with small-screen interfaces, such as those used on handheld devices (i.e., PDAs, cell phones, and pagers). In our studies, we presented RSVP text via software applications on a desktop PC (Bernard, Chaparro & Russell, 2001) and on a Palm Pilot^{TM} (Russell and Chaparro, 2002; Russell and Chaparro, 2001) and found that users were able to read and comprehend RSVP-presented text as accurately as text presented one screen at a time. Subjective data, however, showed that first-time RSVP users did not enjoy reading with this method and sometimes found it to be more fatiguing than traditional reading.

The software applications used in our research were AceReader Pro^{TM} for the PC and a beta version of that application designed for the Palm^{TM} OS, both developed by StepWare, Inc. Recently, more RSVP applications have been developed for use on Palm and Pocket PC devices. We began surveying these applications and identified a multitude of features that we believe may impact performance and satisfaction when reading with RSVP. For example, some programs now offer several font types, sizes, and display options so that users can better customize to their individual reading preferences.

In this article, we report the results of a review of several currently available RSVP applications, describing both their standard and unique features. In addition, we include a list of general recommendations based on our experiences with these programs for the benefit of software designers working on RSVP applications. We hope this review will be useful to not only potential RSVP users but also researchers who are interested in studying the use of RSVP presented text for small-screen interfaces.

RSVP Applications

Table 1 lists the applications we reviewed, their requisite platform, web source, and current cost. Further information about each specific program is listed at the end of the article. Follow the embedded links to visit the sites where we obtained the applications.

Table 1. RSVP Applications Reviewed

Application Name	Platform	Cost

Ace Reader Pro	PC {OS: Windows 95/98/ME/NT/2000/XP}	$49.95 {free demo avail.}
FastReader	Pocket PC	Free
RapidReader	Windows PC, Palm, EPOC 5, or Nokia 9210/ mobile phone	$39.95/49.95 {free demo avail.}
Reading Acceleration Machine (RAM)	PC {Windows 9x and NT 4.0}	Free
SpeedReader Plus (& Inbox Speed Reader}	Pocket PC, Smart Phone	$29.99/19.99 {free demo avail.}

Advantages/Challenges

AceReader Pro—(PC) by StepWare, Inc., is marketed as (1) an educational/self-improvement tool, and (2) a productivity enhancer for reading on the (desktop) computer. The beta version for use with the Palm[TM] OS, which we previously used for research, is not yet commercially available. From a research standpoint, this application is very useful; it not only has an extensive library of sample reading passages and a reading comprehension testing capability, but also gives a great deal of control over font appearance and the number of words/lines presented in the RSVP window. In addition, users may benefit from the testing options and the program's capability to track user progress at learning to read faster.

Fastreader—(Pocket PC) developed by EtalonSoft and available through BrainClone, is intended as a tool of convenience for people who read on-the-go. Usersmay appreciate the Windows-like "Help" feature as well as the ability to bookmark passages. Also, the interface buttons are well-labeled and easy to find for the mostpart. Researchers will be glad to know that the font types are at least listed byname, although there are only two, and there are multiple font sizes. Word presentation time delays are programmable by punctuation type and word length, though the punctuation pauses are set by a slider bar that does not give any numerical values.


RapidReader—(PC and Palm[TM] OS) by SoftOlogy IdeaWorks, is the only applicationofthose reviewed that is available both for the PC and handheld devices. Theversions are very similar, and generally users will find the program easy to control. It has the capabilities of taking notes and attaching them to the document, as well as a "go-to" function for moving to the beginning, end, or a specific

page number in the document. However, researchers may become frustrated with the lack of information about the font type and size. Also, the interface, in the demo version at least, appears to be a field of stars upon which text is presented, which forces reading in an inverted white-on-black format. In the full version, other options for this interface "skin" are apparently available.

Reading Acceleration Machine (*RAM*)—(PC) by Claude Pavur of St.Louis University, is primarily designed to help foreign-language learners practice texts. It is a free application and has some interesting options for word presentation. Users may have difficulty figuring out the controls for this application, as well as trying to import a document, and the only file format supported is ".txt" and all words and/or passages must be followed by hard returns to indicate the amount of text to be shown in RSVP. From a researcher's point of view, however, the ability to hide the controls below the reading window is useful. Similar to AceReader, the pauses between words can be specifically programmed.
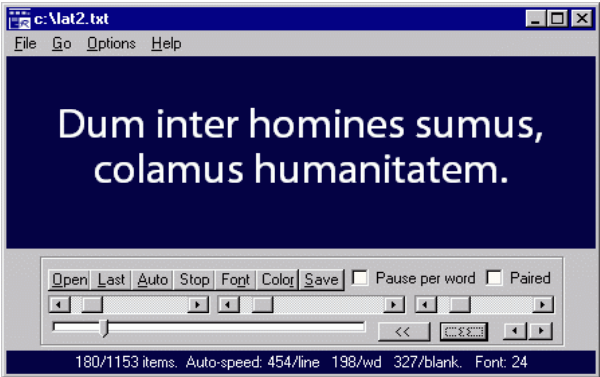
SpeedReader Plus—(Pocket PC) by MobileDynamo has several color-related options, both for font and background. Users may find the full-text window beneath the RSVP window very useful in providing context for a word - common complaint from previous users/participants. This aspect is further enhanced by the highlighting of the word in the full text window that is currently displayed in the RSVP window (shown in blue at the right). However, as with RapidReader, researchers may be frustrated by the availability of only two unidentified font types. According to the "help" file, more font choices can be downloaded, though no specifics are provided.

The tables that follow provide separate lists of common and interesting features for the PC applications (Tables 2 and 3) and handheld applications (Tables 4 and 5).

RSVP Applications for the PC

Table 2. Common Features

	Ace Reader	Reading Acceleration Machine (RAM)	RapidReader
User-Controlled Presentation Speed	X	X	X
User-Controlled Punctuation Pauses	X		
Font Size Options	X	X	X
Font Type Options	X	X	X
Font Color Options	X	X	
Background Color Options	X	X	
Supports Word format			X
Supports .txt format	X	X	X

Displays more than one word	X	X

Table 3. Enhanced Features

APPLICATION	ENHANCED FEATURES
Ace Reader	- Tests reading comprehension level - High degree of control over speed - Ability to hide controls while reading - Can display multiple lines of text - Reading sessions can be timed - Tracks improvement in speed-reading
Reading Acceleration Machine (RAM)	- Control speed/pauses in milliseconds - Can display multiple lines of text
RapidReader	- Ability to import interface "skins" - View full text before starting RSVP - Note-taking capabilities - Word and page "go-to" functions

RSVP Applications for Palm and PocketPC

Table 4. Common Features

	FastReader	RapidReader	SpeedReader
OS	PocketPC	Palm	PocketPC
User-Controlled Presentation Speed	X	X	X*
User-Controlled Punctuation Pauses	X		X
Font Size Options	X	X	X
Font Type Options	X		X**
Font Color Options	X		X
Background Color Options	X		X
Import documents w/conversion program	X	X	X

* The speed is set with a slider bar, but the projected wpm is not displayed. When reading is finished (or in progress) the actual wpm is displayed.

** The font type is supposed to be changeable with a slider bar, but only two options are available on our demo. This may not be the case with the full version.

Table 5. Enhanced Features

APPLICATION	ENHANCED FEATURES
FastReader	- Programmable delays for long words - Ability to bookmark passages - Ability to set number of words to repeat/jump
RapidReader	- Ability to import interface "skins" - View full text before starting RSVP - Note-taking capabilities - Word and page "go-to" functions
SpeedReader Plus	"Color bar" indicates progress relative to end of sentence - View full text in second window - Option to track progress with highlighted words in second window

RECOMMENDATIONS & CONCLUSIONS

As researchers interested in the use of RSVP and especially its application to the inherent problems faced when reading on small-screen interfaces, we have found it fascinating to discover new RSVP programs as they become available. As we have pointed out, however, each program comes with its own advantages and challenges to both the user and the researcher. The following is a list of recommendations for software designers based on those features we believe to be the most important to overall usability and acceptance of RSVP applications:

1. *Interface labels should be simple and intuitive.* There is no reason to try to come up with an original word for "Play" or "Begin." Labels such as "Auto" and "Resume" are much less clear, and this should be one of the simplest functions.

2. *Fonts should be identified and have several format options.* Only a few programs identified the font type choices and several used only size options of "small" and "large." Researchers, in particular, would benefit from a selection of font types and sizes that are clearly defined.

3. *Loading and opening a document should be easy to do.* Researchers will have far more patience than typical users when it comes to accommodating difficulties with reformatting or converting files to be read. If the program does not accommodate most common text formats, it will not be used.

4. *The reader should control presentation rate and delays.* Most of the applications we reviewed gave some control over presentation rate and punctuation delays. Since users like to have as much control as possible, these customizations should be easy and accompanied by adequate feedback with numerical values.

5. *Distractions should be removed from the screen during reading.* Distractions can seriously impact performance when reading in RSVP; one glance away and two or three words may be missed. Users should be given the option to remove potential distractions - such as moving or flashing controls/displays elsewhere on the interface - as well as the ability to easily repeat what they may have missed.

Currently, we are investigating how some of these features impact RSVP reading performance and satisfaction. We appreciate any feedback from RSVP application users, researchers, and programmers.

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