questions, a feature of value to the researcher who plans to create many surveys and wishes to cut and paste items from previous surveys. Finally, most packages accept input in popular word processing formats such as Word and Word Perfect.

Survey Hosting Services

Most packages will format and administer Web-based surveys on their Web sites, while others support the creation of Web pages and scipts that can be run on your own server. Unless you are engaged in continuous survey development, the ease, convenience, and access to advanced services make running your survey on someone else's server a compelling reason to hosted option. The task of installing the nec-essary scripts and permissions to administer a Web-based survey system on your own system is becoming easier. However, you will certainly need special permission and likely the assistance of the server's administrator to install your own Web-based survey.

Many Question Types

Most packages support a variety of item types, including multiple choice, fill in the blank, essay, matching, allocation (must total to a certain number), and ranking. Check to insure that the survey package you choose supports all the types of questions that you plan use.

Question Validation

As discussed earlier, Web-based surveys can be validated to reduce intentional or acci-dental error. This can take place at the server after the parts of or the entire survey are completed and submitted. Alternatively, a more effective and convenient method

is to have the respondent's computer verify each field as it is entered. Net-based comput-ing languages such as Java script or Active X are specifically designed for this type of Net-based processing and so are the languages of choice for this application.

Different packages provide a variety a of validation functions, such as required answers to certain questions, forcing a different answer for each question for ranking items, specifying minimum or maximum values, specifying minimum or maximum number of words in essay answers, electing a minimum or maximum number of choices, and validating the format of specific content fields, such as those for email or Web sddresses. Researchers should investigate the types of error checking provided by the service and note the type and configuration of client software needed to use the error-checking service.

Data Analysis Tools

Some survey developers are bundling a variety of analysis tools into the services they provide. This creates a one-stop service that will probably be adequate for calculation and display of results, using the common descriptive statistics. Researchers wishing to do more complex statics will likely wish to import their results into dedicated statis-tics packages that run on their own machines.

Consulting Services

As a final step in providing a full service, some suppliers of Net-based survey systems will also provide advice, programming, or even formatting of your survey. Although these services may be useful, e-researchers will find that most expertise of these con-sultants is related to market and consumer analysis, and not orientated to the require-ments of educational or social research.

WINNING COMMERCIAL e-SURVEY PRODUCTS

In its January 2001 review of survey products *PC Computing* (see *http* : *//www.zdnet.com/products/stories/review*
looked at twenty-five differ-ent products and extensively reviewed six. We will neither attempt to evaluate nor will we print a list of these products, but we will highlight a few of the winners in this last review to illustrate the variety of packages available.

Many Question Types

- EZSurvey from Raosoft (*www.raosoft.com/raosoft*) is a stand-alone product that creates and serves surveys from your Web site or through a fairly extensive man-agement of email lists.

- InsightExpress (*http* : *//www.insightexpress.com/*) uses a custom template system to rapidly (estimated ten to thirty minutes) create a simple survey. InsighExpress also sells lists of email addresses based on qualifications requested by the researcher. This automated service guarantees that the survey will be online within fours of being submitted (during office hours), and final results of the survey are emailed twelve to seventy-two hours after the site goes live. Insight-Express offers twenty-four-hour live help chat service and typical costs are $1,000 per survey project.

- Perseus's Survey Solutions for the Web (*http* : *//www.perseusdevelopment.com*) was the Editor's choice in the January 2001 *PC Computer* review. It scored particularly well on ease of use. Perseus also provides a useful tutorial on particular Web survey products at *http* : *//www.perseusdevelopment.com/customersupp/ssftw*$_v$20$_m$*anual/index.htm*.

- Web Surveyor (*http* : *//www.websurveyor.com/*) offers both hosted and customer server installations of its software suite.In the hosted version, a free client pro-gram is distributed to the researcher to support survey creation and the resulting survey can be hosted for about three months for around $200.

- Net Creations (*www.postmasterdirect.com*) does not provide software; rather, it provides lists of qualified email addresses that can be used in a variety of e-research projects. These mailing lists are organized in a variety of that can be rented for one time or multiple use. Net Creations Opt-In system guarantees that every name on its lists belong to an Internet user who has come to its network of more than 350 partner sites and signed up to receive commercial email mes-sages about topics of interest (Net Creations Web site December 13, 2000). The costs for use of these commercial lists range from $0.15-0.30 a name. Their

education options contain over 3,000,000 names divided into thirty-eight subgroups with specific groups such as "home schooling," "distance education," and "special education." Net Creations also handles the actual mailing of your email to client groups that you have rented–a useful service to you that also keeps con-trol of the list names securely in the hands of the owners of the address list.

- Finally, we were impressed with the free trial services offered by Zoomerang ($http://www.zoomerang.com$) that allow any user to develop a survey (maximum of twenty questions) and have it mounted on Zoomerang servers for up to fifty responses. More serious users can upgrade to the pro version for $599 per year that allows more "branding" (or customization, to highlight or identify the form or source of the survey) of larger-sized surveys and more respondents. Both the pro and free survey versions can be created from scratch or by modifying one of over 100 templates designed for a variety of applications including educational use.

SUMMARY

We believe that the convenience and reduced cost of the e-survey, coupled with the increasing ubiquity and acceptance of email and Web access, will result in the contin-ued growth in the number of tasks and populations for which e-surveys are the most effective data collection device. Further, the development of low-cost Internet appli-ances and the incorporation of Net access into television and mobile devices will make it easier to reach ever-expanding populations.

However, it is likely that the of completely free access to the Net are lim-ited.Jupiter Communications's research (2001) predicted that advertisers will send 268 billion email message in 2005–twenty-two times the number of promotional mar-keting emails sent in 2000. This will result in more end-user resistance to unsolicited email and a growing sophistication of filtering devices that may automatically reject your survey invitation before it is even read by the potential respondent. Further, Jupiter predicts that routers will deliver mail differentially based on the priority paid for delivery by the sender. Thus, e-researchers may have to pay for instant delivery to private mailboxes.

If they do not to pay this premium, then their survey may wait with other lower-tier mail to be sent if and when bandwidth becomes available to the sender's system. Despite these challenges. the advantages of email and Web-based surveys, in combination with increased resistance to telephone surveys and the increased cost of door-to-door surveying, hold promise for continued expansion of this efficient means to gather relevant data.

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