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New Opportunities in Student Research:
Going Beyond the Conversion of Paper Survey Forms to Web Surveys

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The greatest challenge facing those who would use the Internet as a survey administration tool is to realize that this communication medium is capable of supporting fundamental changes in the way surveys are created, administered, analyzed, and reported. When student affairs researchers experience the immediate advantages of Web surveys, they are quick to embrace the technology and too soon to be satisfied by putting a digitized face on an old friendly form. This paper goads the researcher to explore and experiment in the use of this new powerful tool for university surveys of student populations.

A.   Are Web surveys as effective as paper equivalents?

At the 2000 California Association for Institutional Research Conference, research was presented that directly compared Web and traditional paper surveys conducted across California universities and concluded that Web surveys produced equivalent information more efficiently.[1] And while results have occasionally shown differences between e-mail/Web surveys and postal/paper surveys,[2] it is increasingly clear that e-mail contact and Web surveys are displacing paper-based methods for studies of on-campus populations. Nagging doubts that evaluators and researchers have about the introduction of systematic error sources, especially coverage and nonresponse, tend to be assuaged by decreased administration costs, comparable response rates, more efficient data management, and greatly reduced collection time. For these reasons and more, institutional researchers and nationally prominent higher education research offices[3] are converting paper questionnaires to Web forms and dramatically increasing the number of new surveys delivered by the Web. The rationalization is something along the lines that the sampling and nonsampling errors of email contact and Web survey administration are no worse than those of paper surveys administered via

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[1] Daly, B., Thomson, G., & Cross, J. (2000). Web vs. paper surveys: Lessons from a direct large-scale comparison. Paper presented at the Annual Meeting of California AIR.

[2] Mailloux, M. R., & Howes, C. M. (2001). Comparing two survey research approaches: Email and web-based technology versus traditional mail. Paper presented at the Annual Forum of the Association for Institutional Research, Long Beach.

[3] Sax, L. J., Bryant, A. N., & Gilmartin, S. (2001). The advantages and challenges of web survey administration on college campuses. Paper presented at the Annual Forum of the Association for Institutional Research, Long Beach.

traditional postal distribution and that other comparative factors clearly favor Web surveys.

So, what is wrong with performing much more efficiently – obtaining equally useful information faster and at less cost? What is wrong is that institutional researchers are too quickly migrating traditional paper forms to Web versions and are too readily developing new Web survey forms that look much like traditional paper forms. They seem to be blind to new possibilities and are instead assimilating new capabilities into the same old regular processes. Perhaps a more dramatic change in process is prohibited by higher education's recent history of working well behind the leading edge. After all and with rare and notable exceptions[4], institutional researchers have largely ignored major advances in using new technologies, especially computer adaptive telephone interviews.

Institutional researchers are not alone in assimilating this tool into the same old toolbox and using it to build information resources in pretty much the same old way. This assimilation of Web technology to standard survey processes is illustrated in Dillman's *Mail and Internet Surveys*[5] in chapter 11, "Internet and Interactive Voice Response Surveys," where Dillman extends TDM principles to the new medium. Dillman does recognize some modest new capabilities for Web surveys in item and form design and administration: better managed branching, pop-up instructions, floating windows for directions, drop-down boxes for long lists, screening questions to produce a tailored survey on the fly (more sophisticated branching), animation, video and audio; but is less helpful regarding significantly different new possibilities in administration, analysis and reporting.

Remember the joke about the Aggie, convinced by the salesman to buy a chain saw because of the huge productivity increase possible, who attempted to return the chainsaw for full refund because he was sawing less wood than before? Well, the salesman could not imagine why that might be the case. He checked the fluids, wiggled the spark plug wire and gave the cord a good pull. The saw sputtered and came to life causing the Aggie to exclaim, "What's that noise?"

This paper offers a more radical viewpoint than Dillman by suggesting this: within the university environment where institutional research surveys are most frequently self-administered paper forms with optically-scanned response sheets mailed to a random sample or distributed in classrooms, very nearly every aspect of the development, information collection, analysis, and reporting processes can be accomplished more effectively using digital exchanges. The observations made are apropos to universities or other closed systems where Web access is ubiquitous and the email population frame is inclusive. This paper asserts that conversion of paper surveys to Web-surveys is movement in an off direction – that instead, it is time to rethink information collection

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[4] Student Affairs Research, Information, and Systems (SARIS) at the University of Massachusetts, Gary Malaney, Director.
[5] Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. John Wiley & Sons, Inc.. New York.

processes and question each traditional practice. It is, in fact, arguably true that traditional paper forms and survey methodologies in university environments will soon be anachronisms. After all, survey research is a type of social communication and Web administration is the new medium. The possibilities are far reaching.

The ideas presented in this paper are offered to encourage creative applications and applied empirical work. Some of the ideas are in use at universities today, others may not be practical for a few years or until significant support is available. For an excellent description of current Web survey types and practices, the reader is referred to Mick Couper's *Public Opinion Quarterly* article[6] but do not expect current applications to be state of the art in this medium any more than you expect this year's hot new Web authoring tool to remain the standard for long.

1. Development of Form and Planning Process

<u>New Item-Types</u>

Some of the new item presentation types now available to university researchers were mentioned earlier in the paper:[7] drop-down boxes for long lists, animation, video and audio; but these ideas can be expanded upon in both simple and more complex ways. Item design is clearly an area where the university researcher is limited more by imagination and resources than by technological capabilities. Other simple extensions of old ideas to a new medium include use of sliding indicators to allow respondents to more precisely locate response along continuums and the ability to absolutely locate response in two dimensions as is now done categorically during analysis of "ecosystem" responses (i.e., importance of and progress made toward items). However, the researcher need not stop with these.

Imagine items where the respondent can select mode of preferred presentation (text, audio, video clip), can elect to respond as they choose (i.e., selection among fixed alternatives, open-ended text, spoken comment), always have immediate access to pertinent supporting materials (i.e., a description of the project, item definition and context, Human Subjects Review Board materials), and can offer clarification if they believe it to be necessary. Imagine further that the survey supports multiple languages and that handicapped students can use their digital aids to be part of the research process. Would analysis of results from these variations be more difficult and possibly require new statistical treatment? Yes. Would responses be more useful? Maybe. Let's experiment and learn.

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[6] Couper, Mick P. (2000). Web Surveys: A Review of Issues and Approaches. *Public Opinion Quarterly* (*64*) 464-404).
[7] Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. John Wiley & Sons, Inc.. New York.

New Possibilities for Item Linking

Researchers were quick to recognize that the digital media controls can manage conditional branching better than paper forms but researchers may not as quickly imagine the extent to which condition-based options can be employed. When accustomed to the use of connecting lines drawn between items or short phrases to direct responders to the next step, it is tempting to be easily satisfied with the precision with which this is managed in a Web survey, but do not stop there. On a traditional paper form, anything more than rudimentary conditional relationships quickly creates a potentially damaging level of confusion and source of error. In contrast, routing options under the control of computer coding can be accurately managed whether the branching is from one item option to a subsequent item or set of items, or from a set of responses to several items to a tailored survey administration, a routing survey within a survey. It should also be clear that respondent characteristics known from university operating systems can be used to control questionnaire administration unobtrusively.

Examples of routing control come from a UC Davis summer session survey administered in 2000-01, a housing survey under development, and a single-item "poll". The first three items of the summer session survey asked about prior experience with summer session, whether the student was planning to stay in Davis this summer, and whether they planned to take UC Davis classes over summer. If they were not planning to enroll in summer sessions, they were asked whether financial aid, at current level awarded, would make the difference. If they had prior experience, they were asked to list that experience. If they were planning to enroll in summer sessions, they were asked about the level of student services they wanted to receive. The branching paths were simple but as the conditions were not mutually exclusive, it would have been difficult to manage to direct the desired branching on paper. A second example comes from a residence survey under development. For students who changed residence in the past year, the survey presents a list of attributes by which they rate their residence this year and last. For each attribute where their current residence is more highly rated, they are asked how important the difference was in their decision to move. A third example also comes from the residence survey. Students are asked how much they expect to spend for rent and whether they expect to have a private bedroom. Based on these two variables, students see a series of at least three of nine apartment floorplans and are asked to choose their preference and explain why. The selections will be used by the UCD Greenhouses Project Design Committee guide development of a housing project to be constructed by 2005.

Using the Web and Email to Create a More Inclusive Development Process

The same attributes that favor email and Web delivery of information generally (e.g., fast, wide access, structured, changing/dynamic) can be effectively used in the survey development and planning process to keep those involved with or interested in the development process up to date regarding suggestions and changes and to greatly expand the number of people involved. During development, the Web can be used to display item formatting options, present draft items for comment, offer a proposed

description of the research methodology and logic, give access to recorded committee discussions, and for many other applications. In addition, the Website URL can be shared in email communication to principals representing campus constituencies who can, in turn, forward the address to others. Using this dendritic distribution strategy can quickly involve large numbers of faculty, staff and administrators, all of who need only reply to the originating author to share comments. In addition, changes can then be made to the research plan and to items so that the development process more accurately reflects a dynamic exchange and incorporation of comments.

A more focused appeal can also be directed to the campus community by local constituent purview or to remotely located colleagues. An example of limited local constituent inclusion for a larger survey including a few campus climate items would be to direct the attention of those with special interests or responsibilities in diversity and campus climate to the pertinent survey items when asking for comment and suggestion. By doing so, their expertise can more easily improve the survey process without the need for additional committees or their inclusion on a much larger, survey-wide, committee. The researcher can also invite comment by a much wider professional audience by sending the email appeal to colleagues with absolutely no concern about distance or location. Colleagues at sister campuses whose experience might be pertinent should obviously be included but so to can the opinions of remote colleagues. Yes, it is true that all this can be done using paper forms, but it is much more difficult and demands far more resources. Should the survey project director ever meet face-to-face with campus constituents? Of course, but those meetings can probably be much smaller, more focused, less frequent, and more productive.

Pilot Test and Empirical Item Development

Pilot testing, we know that it's good for us, so why do we do it so seldom? Is it because it is so much work, because access to respondents is difficult, or because we just don't have time? Whatever the reason, pilot testing remains good practice and with Web surveys and email, it is easier and faster to accomplish. Because response to email appeals occurs quickly if at all, a pilot-test can be done in as little as three or four days. In addition, there are other means by which to test items. For example, many campuses have some type of polling application that can be enlisted as can be various types of volunteer email panels, or email sent to randomly selected students with survey items attached or presented with at a linked URL.

An extension of these ideas is planned by the University of California SERU21 (Student Experience at a Research University in the 21st Century) project team.[8] As part of the development process, several electronically supported discussion forums (chat rooms, bulletin boards, mailing lists, and campus polls) will be used to share possible items with target group representatives. Once again, the uncoupling of time and place from communication will support inclusion of students from across the system and could as

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[8] Thomson, G. & Flacks, R. (co-principal investigators) (2001). University of California Student Experiences in a Research University in the 21st Century. Center for Studies in Higher Education, Berkeley.

easily expand across the country. Actually, once the researcher leaves the linear sequence of events model, it is easy to see that the process can be more dynamic generally – that early survey results can be treated as a pilot test and can be used to fix, improve, or redirect the project even if collection is underway. It is analogous to being able to reach out and change paper survey forms while they are in the mail or sitting on a desk waiting to be completed. An example will be offered under the Administration heading.

2. Administration

<u>Experimentation</u>

The most significant advantages to university institutional researchers of digital administration can be summarized in three words: research, research, and research. It has never been easier to systematically vary survey processes and assess the consequences of having done so. Is pre-notice email helpful? What about enticements mailed with pre-notice or promised rewards sent in pre-notice? Does the subject line matter and if so, should it be formal, funny, or challenging? What about the name and title of person sending the mail? What about use of personalized salutation in a digital administration? OK, so knowing the answer to these questions for your campus will not lead to a Nobel Prize. The answers are, however, important and the opportunity exists to rise above parochial practice, local anecdotes, and opinion. In past years, the researcher might be forgiven for electing not to perform the work required to inform these decisions due to the difficulty and expense of doing so using traditional tools. No more. It is far too easy to randomly assign cases to treatments and evaluate results in digital survey work.

An example comes from the Davis Quality of Educational Experiences Questionnaire (Davis QE2Q) undergraduate census administration in spring 2000. The following example describes an "experiment" conducted on the fourth e-mail contact. Six subject lines were randomly assigned to non-responders with each subject line going to 1,600 or more non-responders. The six subject lines were:

1. We know who you are but ….
2. Don't let others speak for you.
3. UCD students have received over $1,500 in CASH and $1,000 more will be awarded in the next 2 weeks.
4. Join the 7,000+ students who have invested 10 minutes to improve UC Davis
5. Who cares what you think anyway? ;^)
6. What do we have to do to get you to respond?

The message's body text of the six variations was identical and all students were contacted on the same day. Response rates to the six were 8.5%, 9.1%, 8.9%, 6.9%, 9.8%, and 17.2%. Results show that the 6th subject line was nearly twice as effective in

encouraging response. Something about the directness of wording and the many ways in which a reader can interpret the prompt proved very useful. The other five were similarly effective, or ineffective if you prefer. Appeals to humor, reward, independence, and veiled suggestion of accountability were not as useful and the appeal to peer behavior, "Join the 7,000 …" elicited the fewest replies. The sixth subject line was used with the fifth and final mailing sent to non-responders who had received one of the other five versions where it again proved instrumental in the survey reaching a 53% unadjusted response rate. In fact, the fifth appeal was more effective than the fourth.

Inexpensive to Ridiculously Cheap

Incremental costs of increasing sample size in digital administrations are so low that researchers in university environments will increasingly use very large samples or census administrations. They will also use ombudsman instruments with large item pools distributed over several parallel forms to serve a variety of interests while collecting sufficient detail to report at low levels of aggregation. Whether administered to a sample of 100 or 1,000 or to a population of 10,000, there are only two clearly potential negative consequences to the researcher of greatly increased sample sizes. First, the increase in number of remarks to open-ended comments is directly proportional, and unless cut-off or limited by open-ended items going to a smaller subset, the volume of material becomes overwhelming. The second potential negative is an obligation that researchers accept when the decision is made to greatly expand the number sampled. That obligation is to justify the intrusion and collective expenditure of time and effort by respondents. If that justification is that you will provide results at lower levels of aggregation then you must fulfill the promise.

Mass Media and Cultural Campaigns

A byproduct of very large administrations is the possibility to encourage response through a coordinated campaign for participation. As the sample becomes increasingly inclusive, it becomes reasonable to use commonly directed mass appeals. As an example from Davis QE2Q, a census survey of the undergraduate population, public appeals included a campus newspaper story published just before the start of collection and weekly paid advertisement in the same paper announcing time remaining, the winner of last week's drawing for $500, and the winners from earlier weeks. Other appeals included posted signs, table-top advertisements at the student union building, staff presence at a table near the most popular on-campus lunch facility, and, in future administrations, will include notice at the campus Web-portal interface. In addition to mass appeals, email communications were directed to associate deans for undergraduate education and to area and ethnic study offices asking that they use local email mailing lists to encourage students to participate. Other affiliated groups whose support can be sought are student organizations and academic or social clubs.

Targeting the Campaign During Collection

Reiterating an earlier theme, the survey process need not be linear sequential with the researcher following a long series of predetermined steps. Instead, the process can be more spiral shaped. For example, the composition of respondents after the second or third contact can be used to tailor other tries. If males are underrepresented or if minority students are disproportionately underrepresented among respondents, then future appeals can be directed at subpopulations.

One extreme example comes from the Davis QE2Q project. Results from the first week of data collection identified an extreme anomaly. There were no first-time student respondents. That observation led to discovery of a programming error, creation of a supplemental file, and distribution of a mailing directed at first-year students – all accomplished within 24 hours from discovery of the error. By the third mailing, a single contact schedule was used for both groups because response rates by student class level had equalized. Imagine discovering that error during data cleaning of optically scanned forms months later and after students had left for summer.

Nested Items and Follow-Up Possibilities

Another way in which analysis of early results can be used to improve the survey process is by allowing the researcher to seek clarification even when the need for clarification was not anticipated before the survey was distributed. If early responses are ambiguous or if the results are unclear because of weak item design, it is possible to email a subset of the population to ask for clarification or elaboration and to modify the survey by replacing or supplementing existing items. While UC Davis has not used this strategy on a large-scale survey administration, it has been part of a volunteer panel survey process. In sum, it should be clear that the distinctions between pilot-testing, administration, and follow-up will become increasingly blurred.

Advantages of Email

Email offers communication advantages at many different levels: less costly, easier to produce, faster from development to collection, easily forwarded, supports inclusion of Website link, et cetera. It is also time-stamped and many mail distribution programs support personalization and maintain a tracking record. These advantages all fall on the side of the survey administrator. There are also potential benefits for the respondent, most of who are very familiar and comfortable with email exchanges because they can more easily ask for help, clarification, or other assistance. It may be standard practice to include a contact person with survey appeals (name, address, phone number), but locally it has been very rare for the contact person to receive inquiries with standard mail contact. The informality of email seems to encourage dialogue and results in a few exchanges with respondents.

For example, each of the Davis QE2Q appeals included the project director's email address and phone number and while there was never an onslaught, there was a constant trickle. On days when thousands of email messages were sent, a dozen students would take advantage of the easy access. Most of these contacts were either requests for help or to be removed from the mailing list, but others were very interesting inquiries or opportunities for students to share strongly held opinions. Frankly, it was a chance for some students to vent anger and frustration.

Given the modest volume it was not difficult to answer each and every inquiry personally: to direct some students to other services, to invite students having problems to come by the office and help us fix the bug, and at least some non-respondents became participants as a result. A fun example was the student who responded to the appeal, "What do we have to do to get you to respond to this survey?" with the answer, "Pay me." To which SARI replied by asking, "How much?" and a couple of emails later found the student promising to complete the survey without special compensation. While statistically inconsequential, this exchange and others were clearly helpful and often fun for the student and project director. In other cases, the communication was more significant. There were a few students who encountered problems gaining access due a programming limitation. Because of the ease of communication, we soon learned of and were able to fix this problem. Those who contacted SARI were invited to come by the office where they were shown appreciation and received a $10 gift certificate for bringing the problem to SARI's attention.

Packaging

There are several practical options available to the researcher regarding composition of the survey form and the size and number of samples. Some of these include the use of single-item formats (polling), short forms (both stand-alone and intercept surveys), single purpose versions (matriculation, alumni evaluation), and composite forms, including ombudsman survey compilations. Each of these can be single or multiple forms. The possibilities are numerous and are available using traditional materials, but are much more easily managed with digital survey processes. To summarize, a single long Web survey form can, with very little effort, be presented as a series of individual items, a collection of short survey forms, or even just one part of a much larger collection effort. This was done on the Davis QE2Q survey where respondents received one of five forms. The five forms shared an academic component and university service, campus climate, and satisfaction items were randomly distributed except that similar measures, satisfaction with amount of financial aid and satisfaction with financial aid services for example, always appeared together.

Regardless of the packaging selected, there are decisions to be made about the joint relationship of sample and items. Should items be randomly distributed over students? Should several student samples be taken, each presented with part of a larger number of items? Should all students be asked all items? Obviously, the answer is that it depends, as it should, on the purpose of the project. It should not depend on the format of the survey and one approach is not always best. Administration in a digital format

facilitates use of a wide variety of possibilities for experimentation. A residence survey under development illustrates how respondent selection can serve multiple purposes and help establish the importance of commonly held notions about randomization.

The Greenhouses Design Committee elected to use a random sample of 1,000 sophomores, juniors and seniors. However, they also decided to open participation to all students and to offer a few significant prizes. Will the characteristics and responses of volunteer participants be different from those of randomly selected, representative, students? We will soon know. The important point for consideration here is that we can now determine the impact of respondent initiated participation. The use of a highly visible Web site address and a modest security gate permits openly broadcasted appeals for those interested in the topic or the prizes.

Controlling Design Error

The digital medium greatly facilitates randomization and its use in experimental or quasi-experimental designs. Items can be randomly sequenced to prevent order effects, items can be randomly assigned to respondents or respondents to items, and randomization can extend to those factors being systematically varied as mentioned earlier (e.g., pre-notice variations, enticements, etc.). One capability that holds special promise for future applications is control of measurement precision, or more accurately, item administration until the required level of precision is obtained. Standard error of measurement is a function of sample size and variance. If an acceptable level of precision can be predetermined, then there is no obvious reason to present the item to participants once that level is attained. Inversely, there is ample reason to continue to administer an item where the required standard error of measurement has not been reached. If SEM were established for demographic or other levels of analysis, then it is also possible to selectively administer the item to that subpopulation where additional data are required. In other words, every reasonable effort should be made to respect the time and effort asked of the target population and this can be best accomplished by established acceptable precision by item by respondent group of interest. This is in contrast to standard practices assuming maximum variance for all items.

3. Publication Advantages of Web Reporting

Some of the more interesting possibilities for Web survey work are in presentation of results where previously unavailable detail and statistical support is possible. A Web interface to the Davis QE2Q survey results will be used as an example. The Davis QE2Q was a census survey of the undergraduate population that managed a 53% response rate. The survey was designed to assess a variety of issues but especially to support the presentation of academic and instructional information at the level of the academic major. While on one hand, this level of detail should be more effective in influencing the behavior of faculty and academic administrators, the other hand can not be seen because it is buried under a mountain of data tables. The cross-tabulation of items by majors by demographic variables of interest (e.g., sex, class level,

race/ethnicity) produces several hundred thousand figures – a prohibitive amount for paper reporting to be widely distributed, but less of a problem for an interactive Web tool. Stated more precisely, the cross-tabulations could be printed on paper but distributing the voluminous results to the campus community would be prohibitive and wasteful. A Web interactive tool is well suited to perform the task and the first version of this report generator is now running as an analytical tool at www.sariweb.ucdavis.edu\DavisQE2Q.

This example of the Davis QE2Q analytical tool is only a first step and breaks no new delivery ground – others have used Web variable selection to take users to a particular set of results. The difference is more along conceptual lines because the information is being generated on the fly from the original data set, but that is only a start. Among interesting applications that a more innovative presentation system might include are:

- statistical tests and selected comparisons on demand and on the fly,
- user choice of presentation modes (i.e., graphic, tabular, descriptive),
- access to respondent clarifying remarks,
- attached comments by concerned institutional parities (i.e., department chairperson reactions),
- participant access to their own entries with comparison to group results,
- better use of epistemological principles and visual interest by forced choice interaction (prediction followed by observation), slow display graphics (watch bars grow, points plotted, or a central tendency indicator move along scale and wonder where it will stop), and
- an interface constructed to support user entry of ID sets to view aggregate results for that group (e.g., campus recreation, peer counseling, fraternities, academic organizations, and others).

One other possibility will be mentioned because it illustrates that more accurate presentation of results is possible using dynamic displays. Most researchers are familiar with rank-ordered lists and the undue importance assigned rank position as if relative position could be established absolutely. A more accurate presentation would incorporate random variation and error of measurement associated with the ranking value to produce figures for each record. The records could then be rank ordered by the predicted value. The resulting rank-ordered list could differ for each viewer – more accurately reflecting the lack of difference between nearby entities. For example, if overall satisfaction with instruction for academic divisions A and B were not significantly different, but A had a slightly higher mean than B, then most people would see A appearing before B in rank-ordered lists but nearly as many would see B before A. In this way, differences that are not statistically discernable can be displayed in a way that helped to prevent undue importance being assigned to relative position. Just as moving a paper survey to a digital format can be movement in the wrong direction, so too can be simple publication of static material in a digital format capable of much more.

4. The Future is in Banking

Where might survey research be headed? One possible answer is toward item banking and automated presentation of a type analogous to developments in computerized adaptive testing (CAT) developed 20 years ago and commonly used today. Oversimplified, CAT uses item characteristics and an individual's prior responses to select the next item among those remaining that provides the most information about an individual's ability and continues the process of selecting, administering, and scoring until an estimate of ability can be determined with an acceptable level of precision. It is an efficient and effective approach that suggests analogous survey strategies.

In survey administration, the common process is typically one of deriving sample-level parameters with which to predict population characteristics and the banking analogy would be to administer an item when and where needed until acceptable population parameter precision is attained. The core item, its "form", might reside in HTML with required ASP or ColdFusion code to support the full complement of associated steps from selection by the developer, to administration, to reporting.

Imagine the researcher selecting among alternative items stored in a bank. The selection might be based on content, prior performance, and the availability of appropriate norms. The researcher might then specify administration parameters (target population or populations, acceptable SEM precision, collection interval, and delivery mode). The resulting set of items and design parameters become the form and administration plan. Items would be administered according to specification until the preset acceptable level of precision was reached. The design and collection phases would be over. Analysis and reporting would come next.

Much of the quantification would have been ongoing and automated, and the final results would be accessible through a user interface and would also contribute to the historical record for that item. In this model, construction, administration, analysis and reporting are linked to the central item bank. Information stored with each item would likely include content area, delivery mode, links to other items through scale membership or parent/child relationships for conditional structures, history of use, HSRB approval, comparative norms, and results by date (including clarifications) along commonly used reporting categories.

Summary

There is increasing evidence that Web surveys can produce results comparable to traditional paper instruments and that they can do so faster, more cheaply, and with fewer coding errors. These are good reasons to switch from paper to Web forms, but the question of how to put a paper survey on the Web might be the wrong one to ask. Better questions to ask about the use of this medium include those that follow.

Can we use this medium to learn more and different information from our students?

Can we be more responsive to subject preferences and better support elaboration?

Can we better control design and survey administration effects?

Can we improve information delivery and increase the likelihood that results will
be used
correctly and effectively?

Affirmative answers to these questions suggest that survey research can and should enter a new phase.

This paper has shared some ideas, guesses if you rather, about future survey engagement and analytical processes in this new arena. A few of the more simple applications were illustrated using a variety of results from a recent completely electronic census survey (exclusively email and Web-entry) of a large undergraduate population, a pre-recruited panel, a polling application, and others will be used in the SERU21 project. However, none of the material presented absolves the researcher of the obligation to produce good instruments that appropriately cover the material of interest, to sample according to intended use, to struggle to control sampling and nonsampling errors through proper survey administration, and to then communicate those results through good analysis. Additionally, the techniques and strategies suggested by this paper are only appropriate to populations with near universal access to email and the Internet – universities today and the general population tomorrow. It is an exciting time in which to do university survey work.