



Customer Experience Management The Vividence Approach and Methodology

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Executive Summary

Vividence defines a new category called Customer Experience Management. The Vividence methodology is a window into the total Web experience from the customer's point of view. Vividence customer experience evaluations reveal *why* customers do what they do online. Our evaluations uncover data to inform strategic business decisions; we deliver actionable customer insights into marketing concerns, such as:

- **Web Site Functionality**
 - Make sure users can accomplish crucial tasks easily and accurately
 - Pinpoint where and why users have trouble on the site
- **Customer Conversion and Retention**
 - Convert browsers to buyers
 - Exceed user expectations and maximize satisfaction and loyalty
- **Competitive Positioning**
 - Compare the experience on your site to that of other sites
 - Differentiate from the competition
- **Brand Impact**
 - Convey the site's unique value proposition effectively
 - Ensure consistency between online and offline branding strategies
- **Relationship Marketing**
 - Appeal to specific types of users
 - Identify unique needs among groups of users

Customer Experience Management is Critical

Online businesses that don't provide an engaging, hassle-free customer experience can't convert browsers into buyers -- or first-time buyers into repeat customers. The first step toward improving a Web site's conversion and customer retention rates is to understand what customers actually experience on the site, and which elements most impact overall satisfaction. It is difficult to predict customer experience without reliable, interpretable data from real people interacting with the site.

The Vividence evaluation methodology opens a window into the total customer experience from the customer's point of view, providing insight and direction for business decision-makers. Marketing executives discover how they should allocate resources for maximum impact, while designers learn why particular features and functions don't work as planned and how to best modify them.

A "Blueprint" of the Customer Experience

The Vividence approach combines the best aspects of market research and usability testing techniques in order to build a meaningful blueprint of the customer's point of view, from brand awareness to ease of use to overall satisfaction. This blueprint maps directly to the features, functions, and messages of the site itself, providing insights into how specific elements impact the quality of the experience.

Real People Evaluating Live Web Sites

Vividence evaluates customer experience by collecting detailed qualitative and quantitative data from a large sample of individuals (typically 200 to 800 people) as they attempt a series of real-life tasks on a Web site. Vividence samples users according to target customer profiles from the Vividence Research Panel of more than 160,000 Web users, or directly from a client's private panel of actual customers.

Benefits of evaluating experiences of real users include:

- Accurately capture the experience of real Web users
- Reveal insights into users' subjective thoughts and feelings about a site
- Gather verbatim comments linked to behavioral data (e.g. ClickStreams, page views)
- Intercept live users and have them instantly participate in a Web site evaluation
- Utilize large samples for meaningful data analysis

Intent-based Context

Without knowing what customers are trying to achieve, it is impossible to know whether they are successful. In Vividence evaluations, the user's intentions are known. Using the Vividence Connector, a small download that works with Microsoft Internet Explorer, the user pursues a predefined set of tasks (such as registering or using a shopping cart) in a method known as scenario-based testing.

Benefits of knowing a customer's intent include:

- Users' goals and intentions are clearly understood
- User success rates are understood in context with user goals
- Data can be aggregated and compared across users

Site Evaluations Conducted in "Natural" Setting

Because Vividence's technology enables remote site evaluations, panelists can participate from any location, at any time of day. They use the computer they use every day in their home or office, without having to conform to the constraints of a more artificial testing environment.

Benefits of a natural setting include:

- Evaluation experience more accurately represents users' normal Web use conditions because users participate from their own Internet connections, browsers and computers
- Minimizes interviewer or moderator bias that can arise in a lab or focus group setting
- Flexibility to participate from a variety of locations, such as home, work or school
- Anonymity encourages panelists to express thoughts and feelings with candor
- Greater geographical reach, at no additional expense to the panelist or the client



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Vividence defines a new category called Customer Experience Management. The Vividence methodology is a window into the total Web experience from the customer's point of view. Vividence customer experience evaluations reveal why customers do what they do online. Our evaluations uncover data to inform strategic business decisions. This paper explains in detail what the Vividence methodology is, how it differs from other methods, and how specific methodological concerns are addressed. Topics include the following:

- [Part 1:](#) Why is Customer Experience Management critical?
- [Part 2:](#) The Vividence approach to measuring Customer Experience
- [Part 3:](#) How Vividence differs from other approaches
- [Part 4:](#) The Vividence process for individual evaluations
- [Part 5:](#) Specific methodological issues and concerns
- [Part 6:](#) Comparative Evaluation and comparing multiple Web sites
- [Part 7:](#) The Vividence evaluation development team

Part 1: Why Is Customer Experience Management Critical?

On the Web, customers can wield their purchase power with a simple mouse click, jumping from one online business to another effortlessly. Given such low consumer switching costs, the onus is on Web marketers not only to attract site visitors, but also to retain them by offering an engaging, hassle-free experience. Online businesses that fail to do so will be unable to convert browsers into buyers, and first-time buyers into repeat customers. Even when the goal is not an online purchase, customer experience is a decisive factor in whether people will use the website to research purchases, answer customer support questions, or find out more about employment opportunities or investor relations information. Employees themselves are "customers" of a company's intranet, and ensuring a smooth, error-free experience can pay rich rewards in terms of reduced employee frustration and time wasted on administrative tasks.

Companies are realizing that click-through data and log file metrics do not provide the information required to make strategic business decisions. As the focus for research shifts from site information to customer information,¹ better methods are required to understand the customer's point of view. The first step in addressing a Web site's conversion and customer retention rates is to measure what the customer actually experiences on the site, and which elements most impact overall satisfaction.

Measuring Customer Experience

Customer experience on the Web is difficult to predict without reliable, interpretable data. Customer experience is composed of a complex interaction between the Web site itself and the thoughts, feelings, behaviors, habits, expectations, and social references that the customer brings to the situation.² It is not the objective reality of the Web site that needs to be analyzed, but the subjective reality of the customer – the customer's perception and interpretation of the site.³ To add to this complexity, each individual visiting a site has his or her personal history, creating many different subjective realities for the Web marketer or researcher to understand.

Analyzing non-obtrusive observational data such as sales figures and server logs does not uncover such information. For example, with server log data, it is difficult to determine whether a customer is lingering on a site because of interest or because of confusion. The most reliable method to capture the actual customer experience is to have many customers try the live site, while simultaneously gathering both behavioral and subjective data from each individual.

A “Blueprint” of the Customer Experience

Vividence evaluation methodology is designed to provide a window into the total customer experience, reducing uncertainty for decision-makers. The Vividence approach combines the best aspects of market research and usability testing techniques in order to build a blueprint of the customer’s point of view, from brand awareness to ease of use to overall satisfaction. This blueprint maps directly to the features, functions and messages of the site itself, providing insights into how specific elements impact the overall quality of the experience and users’ subsequent likelihood to return to the site. Thus, marketing executives discover how they should allocate resources for maximum impact, while designers gain insight into why particular features and functions are not working as planned and how to best modify them.

Close-up and Wide-angle Views of the Customer Experience

Vividence’s technology is intentionally flexible to enable clients to address a variety of research questions. For an in-depth perspective, Vividence evaluations can provide a deep understanding of specific aspects of the customer experience, such as what URLs individuals followed and why. Vividence evaluations can also reveal a broad picture of the customer experience, such as how the overall experience changed after a site redesign. Other uses of Vividence’s technology include: examining what sites individuals visit when asked to research and buy a particular item, comparing the customer experience on different sites to pinpoint competitors’ strengths and weaknesses, assessing design changes by evaluating the site before and after changes, and evaluating hypotheses with true experiments to develop causal theories for customer experience outcomes.

Data to Inform Decisions

Vividence evaluations provide clients with data to inform a variety of business and design decisions. Below are some of the common concerns that Vividence’s methodology and technology can address.

Business Strategy Issues:

- Do users understand the site’s value proposition? Does their perception of the value proposition change after site usage?
- How does user experience on the site compare with competitors’ sites?
- After interacting with the site, are users likely to come back? Why or why not?
- Is the actual customer experience consistent with brand positioning? Is it consistent with the offline brand?
- What features are users expecting to see on the site?
- Are particular types of users (e.g. novice users, power users) reacting differently to the site? What special needs do particular groups have?

Design Issues:

- Can users accomplish critical tasks, such as searching and registering? If not, why?
- What paths do users take in accomplishing critical tasks? What dead-ends do they encounter? Where do they get lost?
- At what point in the process of pursuing specific tasks do users fail or give up? Why?
- Do users notice and make use of particular features on the site?
- How much time and effort does it take to accomplish critical tasks? How can this best be reduced?
- Do users read and make use of information provided? Do users have enough information?

Customer Experience Evaluation Produces Actionable Insights

Site improvements from traditional usability testing are well documented. Reported improvements range from 75 percent to over 200 percent in the usability metrics of a site.⁴ Vividence evaluations expand upon this method by providing strategic information not found in traditional usability testing, without additional costs. The Vividence approach evaluates Web usability issues within the larger perspective of brand positioning, competitive intelligence, likelihood of return visits and overall user satisfaction. This type of market research information is critical in reducing uncertainty and avoiding losses that might result from poor decision-making.⁵

Part 2: The Vividence approach to measuring Customer Experience

Vividence evaluates customer experience by inviting large samples of individuals (from 200 to 800 people) to interact with a live Web site. Panelists log on where they normally access the Web and use a small downloadable companion to Microsoft's Internet Explorer called the Vividence Connector. Users then pursue a predefined set of tasks, such as registering or using a site's shopping cart feature. Vividence's technology records user behavior (e.g. the URL's they follow, time spent on each page, and number of page views) and provides question prompts and opportunities for making open-ended comments. Users typically begin by answering brand positioning questions before interacting with a site and end with satisfaction questions. Vividence automatically compiles this data and presents it via a Web-based interface for easy analysis of top-level concerns. The software provides the opportunity to "drill down" from behavioral data to verbatim comments from users, making the data easily interpretable to inform decisions.

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Research Expertise

A team of professionals with backgrounds in experimental psychology, market research, quantitative management consulting, mathematical modeling, Web usability and technology publishing develop and refine the innovative Vividence approach. The approach has been applied to a wide variety of Web sites, producing results consistent with other sources of customer experience data while providing more actionable insights.

The logic and benefits of the Vividence approach can be best understood in comparison to the current alternative methods, described in the next section.

Part 3: How Vividence differs from other approaches

Vividence takes a unique approach to evaluating customer experience, combining the most critical elements of traditional market research and usability methods. Contrasting Vividence with some of these methods highlights Vividence's innovative approach.⁶

Consultant Review (Heuristic Evaluation)

In this method, experts review Web sites against a checklist of normative standards and general best practices. While this method may uncover problems and act as a starting point in assessing design issues, its effectiveness depends on the level of expertise of the evaluator and the quality of the information on which the checklist was constructed.

In contrast to the normative approach outlined above, Vividence provides empirical evidence. Consultants or clients can use Vividence evaluations to test hypotheses derived from a normative analysis and to substantiate expert opinions with actual data. This collaboration is especially fruitful with regard to testing and corroborating best practices.

Usability Tests and Focus Groups

Traditional usability tests and focus groups can provide rich qualitative data and insights throughout the design process. Yet they can test only small samples, providing insufficient data points for making critical business decisions. In addition, the qualitative data depends on interpretations by the moderator and may result from idiosyncratic test participants. Raw data from these methods is usually in the form of session videotapes that are difficult to analyze beyond the moderator's report. Usability tests typically require users to test a site in an unfamiliar setting and often with unrealistically superior computer equipment – conditions that may lead to inaccurate assessments of a site's performance. These tests also require highly skilled moderators, special labs and complicated logistics for participants, making them expensive and time-consuming. A typical usability study can cost \$40,000 and take as long as six weeks.⁷

By contrast, Vividence can employ large samples (typically from 200 to 800 individuals) in distant geographic locales. Panelists evaluate the site using their own computer equipment, in their

natural settings. Both quantitative and qualitative data is easily accessible for further analysis via online reports. Vividence keeps an archive of all evaluation materials, data and reports, making repeated testing highly efficient. The remote evaluating capabilities of Vividence's technology make the cost for this large sample less expensive than traditional usability testing, and the entire process only takes about seven business days.

Behavior-Tracking Tools and Log Files

Behavior-tracking tools, such as Web server logs, may reveal *what* users did on a site, but not *why* they did it. For instance, analysis of log file data alone does not reveal whether a user is abandoning a full shopping cart because she changed her mind after seeing the shipping prices, or whether she did not feel comfortable giving her credit card number. Without knowing a user's goals, it is impossible to interpret whether or not he or she is successfully achieving them.

Vividence's methodology addresses the need to understand user intent by employing a scenario-based testing approach. This method, common in traditional usability lab settings, establishes a uniform set of goals (called "objectives") that all users pursue. Because user intent is a known variable, Vividence can operationally define and measure success rates for particular tasks. The results of these objectives can then be linked to qualitative comments and user satisfaction ratings. It is also possible to intentionally design open-ended objectives to allow for user-driven exploration of the site.

Robotic Agents

Vividence evaluations collect subjective, qualitative data along with behavioral data, both of which are important for a complete understanding of the customer experience. Products that use robotic agents are able to assess a Web site in relation to predefined goals, but can only measure the mechanical aspects of the site, and are accurate only to the extent that the robot faithfully simulates human behavior. These robotic inspections cannot assess the subjective aspects of a site or provide insight into a customer's perspective, preferences, satisfaction or comprehension – all critical elements needed to understand the entire customer experience.

Online Surveys

Surveys poll users via traditional market research studies delivered online or via e-mail. Surveys gather feedback and opinions from large samples of users by asking a series of closed- and open-ended questions. The principal shortcoming of surveys is their inability to capture behavioral information, which makes it difficult to assess how people actually interact with a site and whether users complete tasks successfully. Self-reported behavior is an unreliable measure of success. For this reason, you cannot rely on surveys to identify problem spots on your Web site. Vividence, on the other hand, captures extensive behavioral data while users interact with a site, including all pages visited, ClickStreams, time spent on tasks, task success rates and spontaneous qualitative feedback.

The table below summarizes Vividence's capabilities compared with other approaches. Our methodology incorporates the critical aspects of each approach. Vividence provides the intent-based context (scenario approach) of traditional usability testing, large samples associated with surveys and traffic analysis tools, the qualitative data and verbatim reactions of focus groups and usability labs, the behavioral analysis (clickstreams, page views, time intervals) of usability labs and traffic analyses, a realistic setting (with users' normal internet connections) that are only associated with traffic analyses. In addition, Vividence's analysis tools make it easy to see how the quantitative and qualitative data relate to each other and come together to form rich customer insights.

	User Intent Known	Large Samples	Qualitative Data	Behavior Data	Natural Setting	Analysis & Reporting Tools
Focus Groups			★			
Usability Labs	★		★	★		
Surveys		★	★			★
Traffic Analysis		★		★	★	★
Robotic Agents						★
 Vividence	★	★	★	★	★	★

Part 4: The Vividence process for individual evaluations

This section details the Vividence process for developing a specific evaluation. Based on proven market research and usability methods,⁸ the Vividence evaluation development process consists of the following four phases:

1 Formulate Evaluation Strategy

- Identify areas of concern
 - Identify appropriate target market
 - Determine best evaluation design
- Define the concerns. Gather questions and concerns regarding design issues (e.g. site look and feel, navigation, registration, purchasing) and marketing issues (brand awareness, positioning, feature requests).
 - Decide what data are needed. What is already known? What more needs to be known for the next set of important decisions?
 - Decide on the primary purpose of the evaluation. Is the study exploratory? Are there specific hypotheses to test? What comparisons would render the results most meaningful?
 - Decide on evaluation design. Which design would best address the concerns (e.g. single-site, Comparative Evaluation, before-after, multiple conditions of the same site)? For evaluations with comparisons, decide whether a within-subjects or between-subjects design is more appropriate.
 - Decide on the best user profile to achieve aims of the study. Develop a profile of this target market with respect to demographics (e.g. age, gender, income), and "webographics" (Web usage patterns, such as novice users versus power users).

② Develop evaluation protocol –

- Develop set of tasks for panelists that address objectives of the study
- Choose supporting questions
- Following the aims of the study defined above, choose objectives (typically 3 to 6) and supporting questions that will provide data to inform the relevant design and marketing decisions (e.g. evaluation success of registration process and ask users whether they found it frustrating). What specific tasks will reveal problems of interest? For example, to determine how easy it was to search for goods on an e-tailing site, the specific task given to the panelists might be “find a men’s red cashmere sweater.” The Vividence template library is a valuable source for finding typical objectives and related questions developed from previous evaluations.
- Anticipate how behavioral measures (e.g. clickstreams, time intervals, page views) will provide insight into key concerns. Behavioral measures--what customers actually do--versus their opinions and self-reports of behavior are generally viewed as the most reliable and predictive measures.
- Decide on attitudinal measures that address key concerns. What attitude ratings and open-ended comments would be most helpful in understanding why people are succeeding or failing at a task?
- Select questions that further define market segments, such as, “How frequently do you purchase clothes online?”
- Add conditional questions. Conditional questions are questions that are asked only if a prior condition has been met. For example, if a panelist says they are giving up on an objective, ask the open-ended question “Why are you giving up?”
- Anticipate users’ answers. If it can be anticipated that everyone will fail (floor effect) or that everyone will agree (ceiling effect), then a different specific task or question will probably yield more interesting (i.e. surprising) information. Generally, tasks of moderate difficulty reveal the most because there is a wide variability in users’ ability to accomplish the task.
- There are typically three phases of a Vividence evaluation: the introduction, the objectives and associated questions, and wrap-up questions.
- Pre-test and review. Pre-testing is critical to make sure users understand and interpret questions as intended. Are any questions confusing? Can users get through the protocol in a reasonable amount of time? What are the expected results?
- Quality-assurance. Evaluation-scripts go through the Vividence quality assurance review to catch technical errors.

③ Data Collection

- Launch evaluation and collect data
- Panelists meeting sampling criteria are sent email invitations to participate in a study.
- To prevent response biases, Vividence does not disclose any information about the Web site users will be evaluating in the evaluation invitation.
- Panelists receive invitation. They follow the URL associated with the site and begin the evaluation using the Vividence Connector, a small downloadable companion to Microsoft Internet Explorer.
- As sampling quotas are met, the evaluation invitations stop.

④ Analysis and Delivery of Results

- Interpret results and develop recommendations
- Analyze evaluation results. Data are automatically compiled into CustomerScope™, an online interface for examining data in easy-to-read charts, graphs and other data aggregation tools. Data can also be exported to a flat file for additional statistical analyses using statistical software. Qualitative data can be searched using keywords or by common theme

and are also organized by group, such as by whether users succeeded, failed or gave up at a task.

- Examine key measures and previously held hypotheses. Are hypotheses confirmed or disconfirmed?
- Based on data, develop theory for why users behaved and felt as they did.
- Check qualitative data for supporting and disconfirming evidence of this theory.
- Explore data for unanticipated insights.
- Develop action agenda based upon findings.

Part 5: Specific methodological issues and concerns

The success of the Vividence approach depends on the quality of the questions, the sampling procedures, and the validity of the evaluation methods. The following section details specific elements of the Vividence approach and strategies for overcoming common methodological concerns.

User Objectives and Questions

Vividence maintains a library of evaluation scripts with particular objectives and supporting questions that are common to most Web sites (e.g. registration, searching, understanding the core value proposition of the business, estimating user satisfaction). The Vividence research team conducts internal analyses to determine which questions are most likely to provide insights into the customer experience. In this way, clients gain the benefit from Vividence's collective experience with previous evaluations.

Vividence Research Panel

Vividence has its own growing research panel, the Vividence Research Panel (VRP), which currently contains over 160,000 Web users with thousands of individuals joining each month. The panel is managed to provide the full spectrum of Internet users and to meet high-demand categories such as high-income shoppers or business decision-makers.

To combat sampling biases associated with self-selection, Vividence recruits panelists through a broad range of sources including word-of-mouth, e-marketing campaigns, affiliate programs, and invitations on portal sites. Vividence also proactively recruits under-represented groups. The Vividence research team runs internal evaluations periodically to ensure that data from the Vividence Research Panel are similar to data that would be obtained from a true probability sample.

The possibility of unknown biases associated with non-random samples is typically of greater concern to the scientific purist than to the business decision-maker, but there may be some practical implications. For example, panelists who join the VRP are likely to be more Web-savvy than the general population, and be more open-minded to exploring new Web businesses. As is true of all market research sampling, sample results must be interpreted with the caveat that statistical estimation assumes a true random sample from the population of interest.

Samples for Specific Evaluations

Vividence can construct samples from the VRP to model the on-line population or particular target markets by using quotas on particular attributes. For example, if the Web population were 56 percent men and 44 percent women, a 200-person sample would contain quota targets of 112 men and 88 women. Vividence would then randomly sample men and women from the Vividence Research Panel until these quotas are filled.

Although most clients utilize the Vividence Research Panel for their sampling needs, clients who choose to do so may also recruit participants directly from their own Web sites, customer lists, or

RDD (random digit dialing) samples. In all cases, Vividence works with each client to generate a sample that approximates the client's target customer profile.

Sample size and Statistical Significance

Vividence employs larger samples (typically from 200 to 800 individuals) than traditional usability tests, which tend to use five to eight people. Vividence evaluations employ the large sample sizes required for the insights into brand positioning and a comprehensive picture of customer experience that businesses require to make strategic decisions. These large samples comprise a variety of users, ensuring the representation of many perspectives and the ability to estimate the magnitude of problems by the percentage of users who encounter them.

Large samples can be analyzed with statistical tests to more accurately interpret comparisons. Larger samples make statistical tests more sensitive for detecting possible differences among groups, or between observed and expected results. Typically, with a sample size of 200, statistics such as chi-squared, t-tests and regression will detect statistically significant differences with a confidence level of 95 percent. In addition, a sample size of 200 is large enough for a statistically meaningful analysis of sub-samples (e.g. types of Web users).

What does “statistically different” mean? Sometimes differences arise simply because of sampling errors, rather than true differences between populations. A confidence level of 95 percent means that it is highly unlikely that a particular difference between distributions arose from sampling error alone, rather than true underlying differences between the distributions.

Response rate

All market research surveys, usability tests, and customer ratings are affected by response rates, that is, the percentage of invited members of the tester pool who respond within the specified data collection period. The response rate is important, because those who respond may be different from those who did not, rendering the sample less representative. For example, those who choose to participate in an evaluation may be people who are more enthusiastic than usual, and thus the results from this group may not fully represent the entire population. Response rates for Vividence evaluations are similar to industry averages for email-related surveys. Response rates are monitored and regulated to ensure that impact on the representativeness of the sample is minimized.

Panelist Variables

Vividence collects demographic data from each member of the Vividence Research Panel at the time of registration. Vividence then surveys panelists several times per year to update their profiles and obtain more specific data on their purchasing behaviors and interests. Panelists must be at least 13 years of age to participate (18 if the panelist resides in the European Union). In obtaining, storing, and sharing panelist data, Vividence complies with guidelines established by the World Association of Opinion and Marketing Research Professionals (ESOMAR) and TRUSTe.⁹

Panelist Incentives

Vividence offers panelists a token of appreciation for completing an evaluation, such as a gift certificate or opportunity to donate to charity. Vividence panelists sometimes receive incentives to participate in periodic surveys, such as an entry into a cash sweepstakes. However, many Vividence panelists report that curiosity and a desire to improve customer experience motivate them more than the evaluation incentives do. To discourage “professional” panelists, Vividence prevents individuals from participating in an evaluation more than once a month and more than eight times in a 12-month period.

Fraud Checks

Vividence screens all panelist registrations for possible fraud before admission to the Vividence Research Panel, eliminating panelists who sign up more than once under different names or provide obviously false information (e.g. name listed as Santa Claus). The completion rate is the

percentage of invited respondents who complete the evaluation and make a good faith effort to complete the objectives. Vividence routinely excludes panelists that do not meet this “reasonable effort” criterion from the final sample. Of those who respond, the percentage of panelists completing the evaluation with usable data is very high, minimally impacting representativeness of the sample.

Scenario-based testing

Like traditional usability tests, Vividence employs scenario-based techniques, where panelists are asked to pursue a structured set of objectives. This approach has the advantage of making both aggregate and individual behavior interpretable. Because users who are provided goals may behave differently from users who have their own goals, Vividence stresses using scenarios and objectives that are similar to what a real customer would encounter. Findings from Vividence evaluations employing scenario-based procedures are highly consistent with findings from log analyses of actual customers, providing confidence that scenario-based testing biases are minimal.

Part 6: Comparative Evaluations and Comparing Multiple Web sites

Comparing multiple Web sites presents special methodological concerns. This section explains how Vividence addresses these issues.

Comparative Evaluation

In Vividence's Comparative Evaluation solution, panelists evaluate more than one Web site and attempt the same set of tasks on each site. Each participant thus serves as his or her own control, completing the same objectives on both the client site and competitors' sites (this is called a “within-subjects” design, as opposed to a “between-subjects” design, where each site is evaluated with a different group of panelists). This within-subjects design allows for a direct comparison of users' experiences on the two sites and more power for statistical comparisons. The different sites provide an immediate comparison for all statistics. For example, a Web site may have a registration failure rate of 20 percent, which might seem adequate by industry standards. However, a Comparative Evaluation may reveal that the same group of people showed a failure rate of only 2 percent on a competing site, revealing an important need for improvement.

Learning Effects and Counterbalancing

Vividence's Comparative Evaluation solution eliminates learning effects by counterbalancing the order in which the panelists evaluate the Web sites. Learning effects, also known as order bias, occur when panelists learn to do tasks better on the second Web site and thus do not accurately portray the usability of the second Web site. In order to eliminate potential learning effects, Vividence reverses the order of the sites for half of the panelists. Thus, Vividence can attribute any differences in customer experience to differences between the sites and not to the order in which panelists evaluated the sites.

Sample Size for Comparative Evaluation

Comparative Evaluations employ a within-subjects design such that each panelist evaluates both sites, which eliminates error variance due to individual differences. Although reduced error variance means that even a small sample size is likely to detect statistically significant differences between the sites, Vividence recommends a sample size of 200. The sample size is necessary for meaningful descriptive statistics of market research data to inform strategic business concerns, and to do between-subjects analyses on the first-site data when there are order effects.

Previous Exposure Effects

Previous exposure effects are similar to learning effects. Panelists who have had previous experience with a Web site in their personal history may evaluate a site differently from someone who is less familiar with it. For example, it would not be surprising that success rates show a

leading site as more usable than a less established site, even if the lesser-known site were more user-friendly. Web users may be more experienced with the leading site's procedures and find them easier to accomplish. Panelists can be asked to report their familiarity with the site to determine whether previous exposure may be a factor in their site preferences. Controlling for previous exposure in constructing samples (e.g. selecting panelists who have equal levels of experience with all the sites evaluated) must be weighed against the need to realistically measure brand awareness among competing sites.

Comparing Versions of the Same Web Site

Clients can use Vividence evaluations to compare different versions of the same Web site, creating a true experiment with random assignment to alternative design solutions. For example, a client may want to compare two registration processes. Vividence can send a sample of panelists to different versions of the same site with the different registration processes. This method leads to definitive answers as to which design is most effective. Alternatively, Web sites can be compared before and after design changes to ensure that design changes produced the intended improvements in customer experience.

Summary of Vividence Methodology

The Vividence methodology takes a new approach to customer experience testing by combining the critical elements of traditional usability testing, market survey research, and log analyses into a single evaluation in a fast, cost-effective manner. Large samples of users evaluating the site remotely provide more reliable, more representative data than traditional usability testing. The intent-based context allows for meaningful interpretation and aggregation of users' behavior, as recorded in log files. The approach has the unique advantage of relating the different aspects of customer experience, including brand positioning and expectations, users' behavior, and subjective experience of the site itself, into one analysis. In these ways, Vividence is able to provide accurate, reliable data and insight for a window into the Web user's experience and how that experience might best be improved. Thus, marketing executives discover how they should allocate resources for maximum impact, while designers obtain insight into why particular features and functions are not working as planned and how to best modify them. A team of research scientists (see biographies below) defines and refines the methodology, to ensure it provides the most accurate, useful data and insight possible.

For additional questions, please contact one of Vividence's research scientists by sending e-mail to bonnyb@vividence.com. The research team biographies are listed below.

Part 7: The Vividence Evaluation Development Team

Vividence evaluation methodology is developed and refined by consultants, who work directly with clients, and a team of research experts, who conduct internal evaluations.

Vividence Consultants

Vividence supplements its core offering through the work of its Professional Services division, which includes a team of in-house consultants. Vividence consultants add value to client projects by guiding evaluation strategy and design, assisting in the interpretation of results, and making recommendations based upon those findings. Consultants have training in both market research and usability methods, as well as in advanced Vividence evaluation practices. Each consultant has extensive experience developing evaluations for a variety of clients. Their collective experience informs the research team, to allow a continual fine-tuning of the methods and cataloguing of best practices and benchmarks.

Vividence Research

The Vividence research team defines and refines the methodology, conducts primary research on best practices and compiles industry benchmarks. A team of professionals with backgrounds in experimental psychology, market research, quantitative management consulting, mathematical modeling, Web usability and technology publishing lead Vividence's research efforts. This team conducts internal research and stays abreast of scientific developments in measuring customer experience to continually refine the Vividence methodology. In addition, the research team analyzes aggregate results across evaluations to identify best practices and establish benchmarks for comparison with particular evaluation results.

Vividence Research Team:

Dr. Anthony Bastardi is Senior Research Scientist overseeing quantitative analytics. He is an experimental psychologist with over 10 years of experience conducting theoretical and applied research in cognitive and social psychology, specializing in statistics. His work has been published in leading academic journals and includes research on behavioral decision-making, attitude and belief formation, information pursuit and use, and strategic behavior. He has served as Research Associate in the Woodrow Wilson School of Public and International Affairs at Princeton University where he conducted research exploring motivational influences on the interpretation and evaluation of web-based information relevant to social issues. He received a M.S. in Statistics and a PhD in Experimental Psychology from Stanford University where he worked with Dr. Lee Ross and Dr. Amos Tversky.

Dr. Bonny Brown is Director of Research. She is an experimental social psychologist with more than 10 years of experience in both qualitative and quantitative research in psychology and human computer interaction. She is co-founder and president of the Bay Area chapter of the Usability Professionals Association (UPA) and has conducted primary research on usability and marketing research methodologies. Before joining Vividence, Dr. Brown studied how Web sites could be designed to best support goal-directed behavior and also led an effort to design a Web-based self-motivation coach. Working for the American Institutes for Research's Cognitive Labs and Center for Community Research, Dr. Brown conducted cognitive lab and usability tests for the Voluntary National Test (VNT), the National Assessment Educational Program (NAEP), and program evaluations for the Department of Education for the State of California. She received both her M.A. and Ph.D. from Stanford University, where she worked with Drs. Mark Lepper and Robert Zajonc.

Dr. Steven Ketchpel is the Director of Analytics at Vividence. In this role, he is actively involved in developing future generations of the Vividence products. His background in databases and statistical approaches to artificial intelligence help to shape the analysis tools incorporated into CustomerScope. He is also a co-founder of Vividence. He received Ph.D. and M.S. degrees in computer science from Stanford University, with a second masters in Engineering Management. He has authored 16 articles in the areas of electronic commerce, digital libraries and distributed artificial intelligence.

Scott Sonenshein, is Vividence's Senior Panel Manager. His background includes panel management, marketing research and consumer/b2b marketing. Previously, he worked at e-Panels, where he helped create the company's online panel strategy. At Vividence, Scott is responsible for building and managing the company's 150,000 member Vividence Research Panel. He also works closely with Vividence's consultants to build custom panels for clients. In addition to his panel management background, Scott is well published in the management sciences field, having authored articles about the social effects of technology and the development of social criticism in organizations. He received his MPhil in management theory from the University of Cambridge and his BA degree in business ethics from the University of Virginia.

¹ Primary Knowledge, Inc. (1999). The state of ebusiness ROI 2.0: Opportunities and obstacles to maximizing internet marketing return today. <http://www.primaryknowledge.com>.

² For a good discussion of the “customer’s experience” see Schmitt, B. H. (1999). *Experiential Marketing: How to get customer to sense, feel, think, act and relate to your company and brands*. New York: Simon & Schuster.

For a review of the degree to which emotions affect choices and behavior, see Goldman, D. (1995). *Emotional Intelligence*. New York: Bantam.

³ For a theoretical treatment of humans’ perception of the world and of messages is heavily constructed, see:

Schank, R. C., & Abelson R. P. (1977). *Scripts, plans, goals, and understanding*. Hillsdale, NJ: Erlbaum Associates.

Gibson, J. J. (1977). The theory of affordances. In R. E. Shaw & J. Bransford (Eds.), *Perceiving, acting, and knowing*. Hillsdale, NJ: Erlbaum Associates.

⁴ Nielsen, J. (2000). *Designing web usability: The practice of simplicity*. US: New Riders Publishing.

See also, Spool, J., et al. (1998). *Web site usability: A designer’s guide*. US: Morgan Kaufman Publishers.

⁵ Duboff, R. & Spaeth, J. (2000). *Why market research matters: Tools and techniques for aligning your business*. New York: Wiley.

⁶ For a description of current general approaches, see:

Blankenship, A. B., Breen G., & Dutka, A. (1998). *State of the art marketing research*. American Marketing Association NTC Business Books/.

Kent, R. (1999). *Market Research: Measurement, method and application*. London: Thomson.

Norman, D. A. & Draper, S. W. (Eds.) (1986). *User centered system design: New perspectives on human computer interaction*. Hillsdale, NJ: Erlbaum Associates.

Quee, Wong Toon (1999). *Marketing Research*. Marketing Institute of Singapore. Oxford: Butterworth Heinemann.

Underhill, P. (1999). *Why we buy: the science of shopping*. New York: Simon & Schuster.

⁷ Quotes vary greatly depending on the specific designs, recruitment requirements, and number of participants.

⁸ For review of recommended survey development practices: Churchill, G. A. ((1999). *Marketing Research: Methodological foundations*. New York: Dryden Press, Harcourt Brace College Publishers.

For a review of recommended usability test development process: Dumas, J. S. Redish, J. C. (2000). *A practical guide to usability testing*. Portland, OR: Intellect.

⁹ For the full text of these documents, see: http://www.esomar.nl/codes_and_guidelines.html, http://www.truste.org/webpublishers/pub_resourceguide.html,