Wharton Behavioral Laboratory¹
Annual Report for Calendar Year 2007

Summary

The Wharton Behavioral Laboratory (WBL) in its current form began in Fall 2004 and received official funding from Wharton in Spring 2005. The initial proposal estimated that the research volume of the lab would range between 5,000 and 14,000 participant hours annually (with the lower number being the volume at that time from various subject pools). In the first year, actual volume exceeded those estimates and a SHDH location was added to the JMHH location. In 2007, the volume was 14,996 participant hours for student samples (which is approximately the same as 2006) and 530 participant hours for non-student samples (which is slightly lower than for 2006). The lab was used by 55 faculty, visitors, and graduate students (27, 3, and 25, respectively). Marketing was the heaviest user (14 faculty, 1 visitor, 10 graduate students, and 73% of student-sample lab time). Management (3 faculty, 2 visitors, 4 graduate students, and 11% of student-sample lab time) and OPIM (7 faculty, 5 graduate students, and 9% of student-sample lab time) used the lab about equally. There was also a small amount of usage as a courtesy to other Penn departments (psychology and medicine) and various guests (e.g., former graduate students)². Our per-participant costs of operation remained about the same as 2006 (discussed below and see Exhibit 2).

This year we compiled a cumulative list of papers and projects to assess contribution to research productivity. The numbers are impressive. Since its inception, the WBL has contributed data to at least 96 research projects. Twenty-two published papers have used data collected in the WBL (8 in 2006, 7 in 2007, and 7 are forthcoming in 2008). Additionally, 39 current working papers have used data collected in the WBL, and there are another 35 research projects that are ongoing or are in the process of being written up. Exhibit 3 provides the complete list.

Goals for 2008

1. Maintain the current high levels of productivity in the student sample labs.
2. Expand ability to deliver non-student samples (e.g., specific consumer samples, non-US samples, APEX, etc.).
3. Increase the number of faculty and graduate students using the WBL.
4. Obtain new sources of financial support for the WBL (e.g., grants and possibly the establishment of an endowment).
5. Increase WBL programming support and use it efficiently and equitably.
6. Implement quality control procedures and expand the participant characteristics database.

¹ Prepared by Professor Wes Hutchinson, Faculty Director. Background information about the WBL is provided in Exhibit 1, including definitions of terms used in this report.
² Typically, courtesy users pay entirely for participant costs, but are not charged for operational costs.
7. Increase experimenter and WBL expertise in online methods (e.g., multi-person, interactive paradigms such as are used in experimental economics, decreased use of paper-and-pencil tasks, etc.).

8. Explore the value of allowing teaching-related use of the WBL, especially non-student samples for project courses.

9. Conduct publishable research on methodological issues uniquely related to our panel structure (e.g., effects of participation rate on data quality, cross-experimental effects, different incentives, comparisons of student and non-student samples).

Student Samples

Data from student samples are collected in JMHH and SHDH. The total volume for 2007 was 14,996 participant hours. Payments per participant hour averaged $10.41 and operating expenses per participant hour averaged $12.39. Thus, the fully loaded cost per participant hour was $22.80. This is a small increase over 2006 ($19.49) due primarily to the need to increase the use staff RAs rather than student RAs. However, this cost compares well with benchmarks in the marketing research industry. Session sample sizes and average completion times are given in Exhibit 4. The number of sessions participated in per panel member and average session completion times are given in Exhibit 5. The number of “heavy participation members” decreased considerably in 2007 compared to 2006. The number of members participating in more than 30 sessions was 8 and the number participating in more than 20 was 89. Those numbers for 2006 were 131 and 245, respectively. This reduction is probably due the increase in panel size and the larger number of members who are disqualified for a given session because they participated in a previous version of one of the studies. The fact that there has been a trend toward more short studies in each session increases the disqualification rate. Average completion times also increased to 34 minutes from 31 minutes in 2006. Exhibit 5 shows that there is a noticeable “speed-up” over the first 5 to 10 sessions and then it levels off. This type of learning effect is observed for almost all types of learning tasks and probably reflects a type of learning that improves data quality by reducing error due to confusion about lab procedures. Also, there is no evidence that the heavy participants become “speed demons” who rush through their tasks. We had hoped to implement more direct quality controls and expand our participant characteristics database this year. However, this process is not yet implemented due to insufficient programming resources (see Programming Support section).

Finally, our WBL staff, headed by Daniela Lejtneker, has provided consistently outstanding service to both experimenters and participants. This is reflected in all experimenter comments that have come my way and the lack of complaints and high satisfaction ratings from participants. I meet with the staff on a weekly basis and am continually impressed at the knowledge that they have gained about research goals and procedures and how to maintain quality control in the lab. Morale is high in the group and the lab runs like a “smooth machine” because of their effort. It is hard to overestimate the value of the staff to the WBL.

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3 For example, the per respondent price for multi-client online surveys is $1 - $2 per question, and eye-tracking studies cost $35 per 10 minute interview, including a $10 incentive, and are priced higher to clients.
Non-Student Samples

Growth in the use of non-student samples was not as high as expected in 2007. The use of standard samples (online and local populations) was down slightly. Progress was made in developing a sample of business executives (i.e., the Wharton Advisory Panel of Executives, APEX; see Exhibit 1). A website was professionally designed and is now close to being fully operational. Also, 9 faculty have committed to developing surveys for the panel. However, this process was greatly slowed by insufficient programming support (see Programming Support section). Susan McMullen has done an outstanding job of working with faculty to obtain non-student samples, and Professor Lisa Bolton has contributed mightily to the APEX initiative. Although demand was light for parts of 2007, it has increased in the first part of 2008. Online panels will be an important resource in the future. In addition to the Australian panel provided by PureProfile (which has been used by several faculty), a U.S. panel is available through Qualtrics and through Professor Jon Baron in Psychology.

Other Initiatives

In addition to the previously discussed executive panel, there were several significant initiative in 2007. First, a relationship with the online research firm, Qualtrics, has been established in which all Wharton faculty, staff, and students have access to their state-of-the-art survey construction and data collection web-based tools. This provides a very user-friendly method of creating an online survey. Second, the WBL staff conducted focus group interviews with panel members to better understand their needs and behaviors. For the past two summers, the WBL has employed a few high school students as RAs. This provides needed lab coverage as well as a nice learning experience for the student. Third, the lab continues to acquire equipment on an as-needed basis. Web cams for each computer were purchased to support data collection in studies measuring the emotional responses of students. Also, 10 laptop computers were purchased to provide the ability to "supersize" a single location, rather than using both locations, for interactive experimental paradigms that require more than 13 simultaneous participants. Finally, the WBL received a mini-grant to help the Indian School of Business develop a behavioral lab and to explore mutual research arrangements.

Staffing Needs

We propose a modest increase in our budget that will increase our current non-student and IT staff from one 50% time person in each role to one full time person in each role. Our student sample staff will also be reorganized to convert two current part time positions into one full time position. We believe the IT position is the key. The problem this year has been that programming projects designed to improve the web-based infrastructure of the WBL were continually deferred in order to address more immediate needs to support specific experiments (and other IT needs). Basically, when experimental programs are not ready or develop problems on the first day of a session, they must be fixed or the session time is lost. Young Lee has done a great job of making sure that lab programs run, but it has come at the expense of infrastructure projects. Doubling his time available to the WBL should help. We desperately need to improve the web-based infrastructure of the WBL and this goal, which benefits all experimenters, needs to be the highest priority. The second priority is training graduate students to program their own experiments. This is both efficient and essential for our students to maintain continuity in their research after they graduate. The third priority is program development projects for specific
experimenters. An equitable policy of for using WBL resources to supplement experimenter resources needs to be developed. Experimenters should consider applying for grants, and it may be useful for WBL staff to develop skills in facilitating these applications. Also, there is the possibility of building an endowment. We should actively explore these options in 2008.
Exhibit 1
Wharton Behavioral Laboratory Background Information

The Wharton Behavioral Laboratory (WBL) provides a variety of services that support data collection for behavioral research on business-related topics. The primary goal is to enhance the research productivity of Wharton faculty by minimizing the operational costs, both time and money, of conducting research. The primary services provided are maintaining and updating facilities, participant pools, and staffing for a state-of-the-art experimental research laboratory that will be a shared asset for all faculty and students doing behavioral research. It contributes to Wharton’s reputation for excellence in academic research and enhances our ability to attract and retain the very best faculty and students. The WBL operates two lab locations, and members of the WBL panel are mainly Penn students, but also include staff and members of the community. Each session lasts 30 to 60 minutes. During a session panel members may complete questionnaires, participate in online experiments, or interact in groups. Payment for each session is usually $10, but may exceed that amount for studies in which payment depends on performance in some way. Members report that most of the studies are interesting. Each lab begins a new session every week. The lab manager coordinates with faculty to schedule the experiments in each session, to estimate needed time, to understand the experimental procedures used. Typically, on the first day of each session the lab manager and experimenters are present in the lab to train the staff and student RAs, to observe the procedures, and to correct any problems that arise. On subsequent days, the labs are run by the RAs.

The Wharton Advisory Panel of Executives (APEX) is a new initiative. The primary goal of APEX is to provide an ongoing, accurate, up-to-date description of executive opinions and facts about the current business environment using a survey method that creates a sense of “dialogue” between participants and Wharton faculty (and the larger business community). Initially, the panel will be a group of 500-1000 business executives who are surveyed online regularly about a wide variety of business issues. Each survey will take 5-10 minutes to complete, and the typical panel member will participate in 1 or 2 surveys each month. Although not a probability sample, members will be representative of the industries and organizational structures of the global business community, and rigorous survey methods will be employed to maintain a high level of data quality. The survey topics will include best practices, “hot topics,” and focused research problems. The results of this research will be summarized by Wharton faculty and made available to panel members online (e.g., on web pages, PDF download, podcasts, etc.) in advance of their being reported in academic journals or business media. Survey questions will address issues of general interest to executives, of specific relevance to courses taught at Wharton, and of value to research projects being conducted by Wharton faculty. In addition to contributing to important business research, panel members will have early, exclusive access to the results of the studies. APEX members provide a critical industry perspective on important business problems. The knowledge derived from APEX research will ultimately be disseminated through academic and business journals and in the popular press, giving APEX members an opportunity to influence important business issues. Additionally, APEX members earn points for their participation in research studies. Similar to how airlines, hotels and credit card companies reward their best customers, APEX members can redeem their points for valuable rewards, from Wharton merchandise and books to participation in Wharton Executive Education Programs.
WBL Terminology:

A *session* is a group of experiments that are (were) run at the same time in the same location. It is also the series of time slots allocated to those experiments. Each session has a unique ID in all databases (e.g., 062305).

An *experiment* is a self-contained data collection event. Each experiment has a unique ID in all databases (e.g., 062305E1).

A *time slot* (or *slot*) is a specific time period during which a specific subject can (did) participate in a session. Each slot has a unique ID in all databases (e.g., 062305-01).

An *experimenter* is the person (usually faculty or graduate student) who is primarily responsible for an experiment. Each experimenter has a unique ID in all databases (which is the same as the Wharton ID, e.g., jwhutch).

A *subject* or *participant* is a person who participates in one or more sessions. In most cases, a subject will participate in all experiments in a given session; however, there can be exceptions to this (e.g., subjects may qualify for some, but not all, experiments, or the session structure dictates that subjects participate in only 2 of 3 experiments in the session). Each participant has a unique ID in all databases (which will be an integer number assigned when the person registers).

A *panel* or *participant pool* is a group of participants that have registered with WBL and may qualify participation in experiments. People may be dropped from the panel by their own request or because of unsatisfactory performance in lab sessions.

*Participant characteristics* are variables attached to each subject as single values. These may change or time, but the database has only one observation for each subject.

*Experiment characteristics* are variables attached to each as single values. These may change or time, but the database has only one observation for each experiment.

Participants *qualify* for experiments (and sessions) based on rules defined in terms of subject and experiment characteristics.
Exhibit 2

Cost Analysis

(Confidential; not available in this document)
Exhibit 3
Cumulative List of Papers and Research Projects

Published Papers:

2008


Verona, Edelyn, Naomi Sadeh, Steve Case, Americus Reed II and Amit Bhattacharjee (2008), “Self-Reported Use of Different Forms of Aggression in Adolescence and Young Adulthood: Validation and Correlates.” Forthcoming in *Assessment*.

2007


Ramanathan, Suresh and Patti Williams (2007), “Immediate and Delayed Emotional


2006


**Working Papers:**

Barsade, S., Ramarajan, L. and Allred, K. (2005). "Cynicism or Benevolence?: The role of positive and negative acts on our workplace attributions."

Berger, Jonah and Winter Mason (2008), "How Culture Spreads: Identity-Signaling, Social Networks, and the Diffusion of Culture"


Huang, Yanliu and J. Wesley Hutchinson (2008), "There is More to Planned Purchases than Knowing What You Want: Dynamic Planning and Learning in Consumers' Store Choice Behavior," Working paper.


Hui, Sam, Yanliu Huang, and Edward George (December 2007), "Model-based Analysis of Concept Maps in Marketing," Under Review at Bayesian Analysis.


Lee, Michelle, Barbara Kahn and Susheel a Varghese: "Retrospective Preference for Variety: An Ease of Retrieval Perspective"


Melwani, S. & Barsade, S. (2008), Held in contempt: The interpersonal effects of contempt in a work setting.


Passyn, Kirsten , Mary Frances Luce and Barbara Kahn, "Effectiveness of Regret-Based Persuasive Appeals for Motivating Adaptive Coping Behavior" at Journal of Consumer Research.


Verrochi, Nicole M. (2008), "Fit Theory: Towards an Understanding of Judgments and Evaluations of Fit"

Verrochi, Nicole M. and Americus Reed, II (2008), "Brand Alliances: When Do Consumers (Not) Fit?" in preparation


**Current Projects:**

Bhargave, R. (2008), "The Role of Stimulus Novelty in Expectations for and Evaluations of Consumption Experiences"


Bhargave, Rajesh, Stephanie Finnel, Nicole M. Verrochi, Neela Saldanha and Deborah A. Small (2008), "Sweating the Small Stuff"

Bhattacharjee, Amit, and Jonah Berger, “When Costliest is Best: Identity and Costly Signaling Theory.” (data collection in progress)

Deng, Xiaoyan and Barbara E. Kahn (2008), "Associative and Rule-Based Processing of Product Image Location on Package Façade"

Deng, Xiaoyan and J. Wesley Hutchinson (2008), "From Self-Design to Co-Design: The Value of Consumer Collaboration"

Deng, Xiaoyan and Barbara E. Kahn (2008), "Consumer Responses to Visual Packaging Cues: A Strategic Framework"

Deng, Xiaoyan, Sam Hui and J. Wesley Hutchinson (2008), "Balancing Consumer Self-Design with Automated Expert Guidance"


Finnel, Stephanie, Dan Ariely and Gal Zauberman (2008), "Exploring the Boundaries of Self-Deception: An Assessment of the Situational Variables that Enable People to Believe What They Want to Believe," Data collected in February 2008.


Finnel, Stephanie, Eric Bradlow and Americus Reed II (2008), "Rationalization of Behaviors that Hurt Others," Data collected in 2007.


Mueller, J. S. Lebel, D. (2008), Does asking for help aid or hinder network tie formation?


Rick, Scott, Deborah Small, and Eli Finkel (2008), "When Tightwads and Spendthrifts Attract"

Saldanha, Neela, Nicole M. Verrochi and Deborah A. Small (2008), "Disgust and the Brand: When Extensions are Revolting"

Saldanha, Neela and Patti Williams (2008), "Mixed Indulgences - Consumer Perceptions, Evaluations and Choice."

Verrochi, Nicole M. and Americus Reed, II (2008), "Self Expression and Need for Reinforcement (SENSOR): A Dynamic Process of Relationship Fit"

Verrochi, Nicole M., Americus Reed, II, and Jennifer Tong (2008), "Moral Identity and Attritions of Corporate Social Responsibility"

Verrochi, Nicole M., Deborah A. Small, Amy J. C. Cuddy and Michael I. Norton (2008), "Cross-Race Emotional Contagion"

Williams, Patti “Emotional Contagion in Word of Mouth,” (2008), (with Andrea Morales and Loraine Lau- Gesk), *Data Collection in Progress*

Williams, Patti, and Kyu Kim (2008), “Consumer Responses to Feelings of Loneliness,”*Data Collection in Progress*

Williams, Patti, Gavan Fitzsimons and Eugenia Wu (2008), “Coping with Mixed Emotions,”*Data collection in progress*


Williams, Patti, Gavan Fitzsimons and Nicole Verrochi (2008), “Emotional Responses to Stock-outs,”*Data Collection in progress*

Williams, Patti, Neela Saldanha and Lauren Block (2008), “Consumer Responses to Removing Sin from Hedonic Products,”*Data Collection in Progress*

Williams, Patti, with Joe Redden and Gavan Fitzsimons (2008), “Price Partitioning: No One Likes Surprises,” *Manuscript in Preparation*

Zauberman, Gal and John G. Lynch (2008), Perceived Slack and Intertemporal Preferences. [Data collection and analysis in progress.]

Zauberman, Gal, Kyu Kim (2008), Subjective Time Perception and Prospective Evaluations. [Data collection and analysis in progress.]

Zauberman, Gal, Kyu Kim and Rebecca Ratner (2008), Preserving Memories through Choice. [Data collection and analysis in progress.]

Zauberman, Gal, Kyu Kim and Selin Malkoc (2008), The Role of Mental Representation in Intertemporal Preferences. [Data collection and analysis in progress.]
Exhibit 4

Session Sample Sizes and Average Minutes per Participant

![Graph showing session sample sizes and average minutes per participant.](image)
Exhibit 5

Number of Sessions per Panel Member and Average Session Completion Times
Exhibit 6

Lab Usage by Experimenter

Note: Faculty with zero minutes are advisors of graduate students involved in joint research.