1. Introduction
A number of important research projects using Blaise have been conducted as collaborations of investigators. Some are structured group enterprises from the outset. Others arise when the original researcher’s work is identified as valuable and applicable in other settings, and is then applied elsewhere. Both models extend the reach of the research method in important ways.

This paper looks at six of these research projects primarily in terms of the research scope and application, how the collaboration was structured, and any special Blaise aspects of the work. Our goal is primarily to make the members of the Blaise community aware of the broad range of collaborative research using Blaise.

2. World Mental Health-Composite International Diagnostic Interview
The WMH-CIDI is the most widely used Blaise application in collaborative research. The survey is designed “to obtain valid information about the prevalence and correlates of mental disorders in the general population, unmet need for treatment of mental disorders, treatment adequacy among patients in treatment for mental disorders, and the societal burden of mental disorders.” (Kessler & Üstün, 2004)

The CIDI survey instrument is made up of a screening module and 40 sections covering diagnoses, functioning, treatment, risk factors, socio-demographic correlates and methodological factors. Kessler & Üstün (2004) describe in depth the instrument’s background, components, validity assessments, methodological research, diagnostic sections and assessments of risk factors, consequences and treatment.

A central issue with psychiatric diagnostic survey instruments conducted by interviewers who are not clinicians is the validity of the diagnostic assessments. Kessler & Üstün describe the major methodological problems--question comprehension, task comprehension, motivation, and the ability to answer accurately--and adaptations of the survey instrument and interviewer training to address them.

The large-scale, cross-national implementation of CIDI was directed by the WMH Survey Initiative centered at the University of Michigan’s Institute of Social Research. A key challenge was how to reconcile “research traditions of individual countries, which vary widely in methodological rigor” and a “one-size-fits-all methodology that naively imposes the same procedures and protocols across all countries and cultures” (Pennell et al., 2008).

Pennell and colleagues describe the WMH-CIDI collaboration based on the experience of the 17 countries that had finished data collection and processing by early 2007. They discuss design and methodological considerations, development of the CAPI and PAPI versions, pre-testing, interviewer recruitment and training, field structure and implementation, interviewer effects and interview privacy, field supervision and quality control, and data preparation.

There were four major revisions of the baseline English interview schedule from 1999 to 2007, necessitating the implementation of a “comprehensive set of version control procedures to allow for comparisons across countries” (Pennell et al., 2008 p. 37). Each country adapted the English version to add country-specific content.

The core Blaise CIDI instrument was developed by Karl Dinkelman of ISR. A few years ago, Dr. Ronald Kessler, the lead investigator of the overall CIDI research enterprise, moved from Michigan to Harvard.
Medical School, and the responsibility for maintenance and development of the ongoing Blaise CIDI work also shifted from ISR to Harvard (Chardoul & Pennell, 2010).

Alison Hoffnagle (2010) manages the CIDI’s continuing development and maintenance at Harvard Medical School. Hoffnagle said version control and monitoring changes and modifications of the baseline English CIDE are key activities. Among the changes is greater modularization to allow investigators who are interested in certain elements to select and implement only those sections. As well, changes are underway to CIDI to include the latest DSM and ISM disease and related health problem diagnoses. Harvard also developed a household listing application for laptop case management for a study in China and now provides it to all CIDI users.

CIDI training centers have been funded in Netherlands and Spain, and those groups update the Dutch and Spanish versions of the current standard CIDI. Older versions of CIDI in a number of other languages are still available from Harvard and Michigan. Also, arrangements can be made with Harvard to support translation and application of CIDE in other languages and countries. Two such efforts are currently going on in Poland and Saudi Arabia. The Saudi version involves extensive modifications of the core instrument. Harvard is designing and programming the English version while a team in Saudi focuses on the Arabic translation (Hoffnagle, 2010).

Michigan's CIDI Training and Reference Center offers a summer CIDI training course for principal investigators, study managers, and data analysts, and at other times a three-day CAPI training course is offered (Chardoul & Pennell, 2010). The number of follow-on CIDI research projects is approximately 40 in North America.

3. PRISM

PRISM, the Psychiatric Research Interview for Substance and Mental Disorders, is also a psychiatric epidemiology survey. It is focused on psychiatric diagnosis when subjects/patients drink heavily or use drugs. The PRISM assesses DSM-IV disorders and differentiates primary disorders, substance-induced disorders and the expected effects of intoxication and withdrawal (PRISM, 2010).

The PRISM method was developed by Dr. Deborah Hasin of Columbia University and the New York State Psychiatric Institute. Chistina Aivadyan has been responsible for Blaise development and related activities of PRISM. Aivadyan said that originally PRISM was a paper instrument with an average interview time of about two hours. Interviewers had difficulty executing the challenging instrument in PAPI without significant errors (Aivadyan, 2010).

Dr. Hasin used Blaise successfully for a study in Israel conducted in Hebrew and Russian—“Alcohol in Israel: Genetic and Environmental Effects”. This lead to the decision to use Blaise to computerize PRISM. Several years were spent programming and testing the PRISM-CV (computerized version). In the last year, a certified version has been released, training has been conducted, and the PRISM has been distributed to users—to US and international medical and academic research centers. Many of these organizations had been using the PAPI PRISM.

The gains from using computer-assisted interviewing and Blaise are the familiar ones—complex branching, modularity, error minimization and correction, more standard interviewing techniques, and superior data quality. Average interviewing time dropped to 70 minutes compared to PAPI (Aivadyan, 2010).

The ability to modularize the survey has enabled clinical researcher to apply just key sections related to diagnostic measures for screening purposes.
PRISM-CV is in English. Versions in Spanish (Castilian) and Norwegian are being developed by groups in Spain and Norway.

Dr. Hasin’s team at New York State Psychiatric Institute has developed the supporting materials and processes to enable other research teams to apply PRISM. These include a Users Guide, Training Manual, training course, and certification process.

Development is continuing in a number of areas: integration of DSM-5 changes as they come out, and a number of significant measurement and methodological studies of PRISM and other research approaches to substance abuse and psychiatric disorders (Aivadyan, 2010).

4. **Collaborative Study of the Genetics of Alcoholism (COGA)**

COGA is a national collaborative study addressing the familial transmission of alcoholism and identifying susceptibility genes using genetic linkage. COGA includes nine different centers where data collection, analysis, and storage take place. The study has been supported since 1989 by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA).

The COGA web site describes the study: “The COGA investigators, in the course of carrying out their own genetic linkage studies of alcoholism, have assembled a collection of >300 extended families densely affected by alcoholism, consisting collectively of >3000 individuals. They have collected extensive clinical, neuropsychological, electrophysiological, biochemical, and genetic data, and established a repository of immortalized cell lines from these individuals, to serve as a permanent source of DNA for genetic studies. In order to promote the most rapid possible progress in identifying genes influencing vulnerability to alcoholism, NIAAA is supporting COGA's distribution of these data and biomaterials to qualified investigators in the broader scientific community.” (NIAAA, 2010)

Interviewing and testing of COGA families is conducted at six university centers: SUNY Downstate Medical Center in Brooklyn NY, University of Connecticut, Indiana University, University of Iowa, University of California in San Diego, and Washington University in St. Louis. The scope and scale of COGA necessitates a complex data management system. Washington University is the overall data management and repository coordinating center (Washington University St Louis, 2010).

Nan Rochberg (2010) has done virtually all Blaise programming for the COGA project, as well as converting the Blaise interviews into SAS datasets, and publishing and maintaining the compiled datasets. She developed the diagnostic algorithms for the interviews and is responsible for many coordinating data issues. Rochberg is currently in the process of modifying one of the COGA interviews for use by a group at the University California, San Diego (Rochberg, 2010).

Blaise was chosen when it was time to move the interviewing to CAI more than ten years ago because the university had already used it successfully in a similar study of the genetics of nicotine dependence.

Data collection takes place in clinical and research settings. As a family study, people are first ascertained for eligibility in a clinical setting, then interviewed in a research space. It starts with someone in a hospital or other treatment facility for alcoholism. There are a clear set of rules on enrollment, particular family structure and the number of siblings in a family. As a prospective study, it looks at children and adolescents up to age 25 and asks questions about many other psychological disorders.

The Blaise instruments include an adult interview, two versions of the child interview with many as five children, and a family history. There are 3500 to 4000 variables per case.

The COGA project website lists more than 225 scientific publications based on the study.
5. Automated Multiple-Pass Method

The Automated Multiple-Pass Method (AMPM) was developed by the USDA Food Surveys Research Group for their dietary survey. It collects 24-hour dietary recalls for the US National Health and Nutrition Examination Survey. During the interview, individuals recall the foods and beverages that were consumed the day before the interview. Details about each food and beverage are collected along with a description of the amount consumed, the time of day the food was eaten, the name of the eating occasion, and where the food was obtained.

The structure of the AMPM system is described by Anderson and Steinfeldt (2004). From the AMPM Blaise database, the intake data are extracted, reorganized, automatically coded, and reformatted by the Post Interview Processing System (PIPS) to be used by the computer-assisted food coding and dietary data processing system (Survey Net). Trained food coders use Survey Net to search the Food and Nutrient Database for Dietary Studies (FNDDS) to code foods and amounts reported during the AMPM dietary recall interview. Government agencies and other researchers use the final data to examine nutrition and food safety issues affecting the US population.

Figure 1. AMPM Data System

The Blaise instrument has more than 2,500 questions and more than 21,000 responses. “The capability of the AMPM Blaise instrument to ask only pertinent questions and collect all the necessary details for a particular food is a critical feature for implementing automated coding.”

With its proven ability to collect, organize and code dietary information, the AMPM application and the supporting food coding database and PIPS and Survey Net system have attracted significant interest from other researchers.

Alanna J. Moshfegh (2010), research leader of the USDA Food Surveys Research Group, said the system was developed for internal use and when others began requesting access to it “we took the philosophy driven by limited resources that if others could use it as it was, we would be happy to enter into appropriate agreements for that. But we would not program or adjust it in any way for that kind of use. With that said, it has been used by other organizations.”

Moshfegh said they try to be clear to those inquiring about the system that it’s not something you can simply download by email or run on a thumb-drive. Rather, significant investment is required to realistically implement the system—an IT specialist, at least 100 interviewers, three to four days of training at the USDA, and a signed agreement. A number of outside organizations have conducted research using AMPM, as shown below.
Table 1. Research by external organizations conducted using AMPM

<table>
<thead>
<tr>
<th>Collaborators</th>
<th>Project/Study</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics Canada</td>
<td>Canadian Community Health Survey</td>
<td>Completed</td>
</tr>
<tr>
<td>National Center for Health Statistics, Westat</td>
<td>National Health and Nutrition Examination Survey (NHANES)</td>
<td>Ongoing</td>
</tr>
<tr>
<td>National Institute on Aging, National Institutes of Health</td>
<td>Healthy Aging in Neighborhoods of Diversity Across the Life Span (HANDLS); 20 years duration</td>
<td>Ongoing, Longitudinal study</td>
</tr>
<tr>
<td>University of Maryland School of Medicine, Johns Hopkins University Bloomberg School of Public Health</td>
<td>Mothers in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Program in Baltimore, Maryland</td>
<td>Completed</td>
</tr>
<tr>
<td>Food and Nutrition Service, USDA</td>
<td>School Nutrition Dietary Assessment Study-III (SNDA III)</td>
<td>Completed</td>
</tr>
<tr>
<td>National Cancer Institute, Westat</td>
<td>Food Attitudes and Behaviors Survey</td>
<td>Completed</td>
</tr>
<tr>
<td>National Cancer Institute, National Institutes of Health</td>
<td>Automated Self-Administered 24-Hour Recall (ASA24) adapted AMPM format and design for use of ASA24</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pennington Biomedical Research Center</td>
<td>Preventing Obesity Using Novel Dietary Strategies (POUNDS LOST) intervention study</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Protection Agency, Colville Confederated Tribes, Westat</td>
<td>Upper Columbia River Tribal Use and Consumption Survey</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Research Triangle Institute International</td>
<td>Healthy Eating and Active Living in TRICARE Households (HEALTH) Intervention Study for the Department of Defense</td>
<td>Completed</td>
</tr>
<tr>
<td>University of Maryland School of Medicine</td>
<td>Toddlers Overweight Prevention Study (TOPS). Conducted with WIC participants</td>
<td>Completed</td>
</tr>
<tr>
<td>University of Vermont</td>
<td>Relationship between television viewing and eating</td>
<td>Completed</td>
</tr>
</tbody>
</table>

6. Pathways to Desistance

Pathways to Desistance is a longitudinal study of serious adolescent offenders as they transition from adolescence into early adulthood. Beginning in 2000 1,354 adjudicated youths from the juvenile and adult court systems in Maricopa County (Phoenix), Arizona and Philadelphia County, Pennsylvania were enrolled. The 14- to 18-year-old youths were predominantly found guilty of felonies, along with some non-felony sexual assault or weapons offenses.

Each was followed for a period of seven years past enrollment, with a baseline interview plus followup interviews every six months for three years and annually thru the seventh year. The study provides a
comprehensive picture of life changes in a wide array of areas over the course of this time. The study was designed to:

- Identify distinct initial pathways out of juvenile justice system involvement and the characteristics of the adolescents who progress along each of these pathways.
- Describe the role of social context and developmental changes in promoting desistance or continuation of antisocial behavior.
- Compare the effects of sanctions and selected interventions in altering progression along the pathways out of juvenile justice system involvement (University of Pittsburgh Medical Center, 2010).

The University of Pittsburgh is the project coordinating center. Blaise instruments were developed there and distributed to the collaborating organizations—Temple University in Philadelphia and Arizona State University in Phoenix. Data collection ended in April of this year and analysis and interpretation of the research is now underway. A total of 20,000 interviews were completed, including 19,000 subject interviews. The study has been described as the “largest longitudinal study of serious adolescent offenders ever done” (University of Pittsburgh Medical Center, 2010).

Carol Schubert, the study coordinator, said important findings from the study have already been published, with more to come based on the entire body of data. The sponsors and researchers believe “it should have a fairly significant impact on the field” (Schubert, 2010).

7. SHARE - Survey of Health, Ageing and Retirement in Europe

The Survey of Health, Ageing and Retirement in Europe (SHARE) is a multidisciplinary and cross-national panel database of microdata on health, socio-economic status and social and family networks of more than 45,000 individuals aged 50 or over. SHARE is designed to “deliver truly comparable data, so we can reliably study how differences in cultures, living conditions and policy approaches shape the quality of life of Europeans just before and after retirement.” (Börsch-Supan and Jürges, 2005). Data collected include variables on health, bio-markers, psychology, economics, and social support. Twelve countries participated in Wave 1 (2004). Others countries were added in 2006/7 and 2008/9.

Coordinated centrally at the Mannheim Research Institute for the Economics of Aging (MEA), SHARE is harmonized with the U.S. Health and Retirement Study (HRS) and the English Longitudinal Study of Ageing (ELSA). CentERdata of Tilburg in the Netherlands partnered in day-to-day management of the project as well as having primary responsibility for the development of the Blaise survey instrument and a number of related systems, most importantly the Language Management Utility and the Case Management System.

The LMU language translation system provides a comprehensive platform to support the translation of the generic English-language Blaise instrument into other languages. As well, the system generates the new language version of the Blaise survey application. A full discussion of the system was presented at the 2009 Blaise Users Conference (Martens et al, 2009).

Also at the 2009 conference, Alek Amin et al. (2009) and colleagues described the use and extension of the LMU system to translate and generate a single Blaise questionnaire in 10 languages (English, Arabic, Bengali, Cantonese, Gujarati, Punjabi (Gurmukhi script), Punjabi (Urdu script), Somali. Urdu, and Welsh) for the UK Household Longitudinal Study.
In a recent discussion, Maurice Martens (2010) described developments with LMU since the last conference. The multi-Blaise generator process has been further refined and used in other settings, including the SHARE Wave 4 multi-language instruments for Latvia, Luxemburg, and Switzerland. “We have some structures that set some boundaries on how you should break up your questionnaire, and use some special identifiers to define questions and know where answer types are etc. But if you keep to those rules then the multi-Blaise generator will work.” Martens said.

8. Conclusion
This review highlights the broad range of significant collaborative research supported by Blaise. These six studies vary widely in terms of content, design, research approach, and institutional and organizational framework. But all successfully accomplish challenging and important research, and the Blaise software system is at the core of the survey data collection effort for each of them.

Key aspects of Blaise including its object-oriented block structure, the rules engine, support of cross-sectional and longitudinal designs, multiple languages, and integration into the overall survey process are central elements of the Blaise system that enabled the development, maintenance, and implementation of these surveys that have been so successful.

9. References


