

## **Family Services of Western Pennsylvania**

Student Consultants: Tolga Erbay, Madhuri Shah, Diana Chen  
Community Partners: Sue Kerr, Evangeline Holmes, Annette Trunzo

### **Executive Summary**

The following report is the work of three student consultants from Carnegie Mellon University who worked on semester-long projects to help the non-profit organization Family Services of Western Pennsylvania meet their technology needs.

This document contains each consultant's individual Context Analysis and Outcomes reports. The Context Analysis addresses the situation at FSWP prior to the commencement of the consulting engagement. Additionally, it discusses major problems and opportunities and lays down the groundwork for the tasks undertaken during the semester. The Outcomes report addresses the results of the consulting work done and speaks about their sustainability. First is Tolga Erbay's work with Community Partner (CP) Sue Kerr, which starts on the following page. Next is Madhuri Shah's work with CP Evangeline Holmes, which starts on page 15. Third is Diana Chen's work with CP Annette Trunzo, starting on page 25. Following this is the Joint Recommendations Report, which was written by all three consultants. The report discusses several opportunities for future work that can be done at FSWP to enhance their use of technology within the organization in order to better serve their mission. This can be found on page 37. Information about the consultants can be found on page 58. Lastly, the Appendix to the report, which contains much of the actual work produced by the consultants for FSWP, begins on page 59.

## **Family Services of Western Pennsylvania – Context Analysis & Outcomes**

Student Consultant, Tolga Erbay  
Community Partner, Sue Kerr

### **Part I. The Consulting Situation**

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#### **About the Organization**

##### **Organization & Mission**

Family Services of Western Pennsylvania (FSWP) is a non-profit organization based in the greater Pittsburgh area that has served the community for over fifty-five years. They provide a wide array of services and programs for families, children, and adults in need of guidance and help.

FSWP has slightly more than 400 employees who serve over 7,000 people in need throughout the greater Pittsburgh community.

FSWP's mission statement is:

"To foster the capacities and skills in families and individuals to direct their own lives and create a productive, caring community."

Family Services of Western Pennsylvania is accredited by and follows the standards of The Alliance for Children and Families and Family Services of America. Additionally, they have an active partnership with the United Way.

FSWP has an annual budget of approximately \$19 million. Funds come from a variety of sources, with the main contributors being federal, state, and county funding, the United Way, special grants from foundations and private donations. Additionally, FSWP is a non-profit that provides billable services, and funding come from those revenues as well.

##### **Facilities**

FSWP currently operates over thirteen individual offices and works in conjunction with over twenty-five service-providing sites all over the greater Pittsburgh region, in Westmoreland and Allegheny Counties. The administrative offices of the organization are located at 3230 William Pitt Way. The office of Community Partnerships, the Community Partner's (CP) division, is 6401 Penn Avenue, East Liberty, Pittsburgh on the second floor. Both of these offices are best described as typical office space. In addition, the Penn Avenue office provides space for temporary child supervision and care.

##### **Programs**

The programs based at the Community Partner's office include

- Foster Care Services - the organization matches kids in need with appropriate foster parents/guardians for both short and extended periods of time
  
- Loan Programs - the organization provides loans for various basic needs, such as automobiles, in order to get those in need to be self-reliant.

- Employee Assistance Program - the organization provides assessment, counseling and critical incident debriefing to many area companies with which it has contracts.
- Families Outside – the organization provides a program designed to allow low-income individuals and families to visit relatives and loved ones currently in correctional facilities

In addition to all of this, FSWP has several other programs which facilitate its purpose and mission statement located in its other twelve offices and dozens of service locations.

## **Staff**

Family Services of Western Pennsylvania is a large organization with 400-plus regular staff members. The Community Partnership's divisional director is Maurie Heidish. The CP on this project is Sue Kerr, who works in this division and is the Loan Programs Liaison. Evangeline Holmes of Foster Care is also involved in the project, and is the CP for another student in the class. Also, Mary Graczyk will be informally involved in office technology issues.

The Community Partner has a basic understanding of office technology and can comfortably Microsoft Office applications. She has also been a CP in a prior engagement with a CMU student consultant a couple years ago. She has an intermediate knowledge of other computing concepts with regards to the office Local Area Network (LAN), shared printing, etc.

In addition to them, the Community Partnerships division has thirty other employees at the Penn Avenue office. All employees have access to computers and individual e-mail accounts provided by the organization. While technical backgrounds of employees vary greatly, all are able to perform basic functions such as word processing and can send/receive e-mail. However, many are not familiar with more advanced concepts of how to use the office network shared drive space effectively or how to connect their laptop computers to internet connections away from the office (more on this to follow!). FSWP does have a three person MIS staff that works out of the Administrative office. While they are knowledgeable in both hardware and software, they are juggling with competing priorities and keep their scope of work narrow in order to meet their objectives. Their role is further discussed in the Technology Management section. Given that the organization is so large, with approximately 400 staff members, any and all time the MIS department has goes to servicing their needs. As such, they are clearly overburdened in terms of responsibility and availability.

## **Technical Environment**

In general, the technical environment at FSWP is one that is hardware-rich, but software- and usage-poor. Every person at the Penn Avenue office has access to a computer. All are Windows PCs, predominantly using Windows XP. Ninety percent of the computers are less than three years old. Also, there are about 5-10 laptops for field use, which also run Windows XP and are under three years old. All computers have the Microsoft Office suite and the staff uses the Microsoft Exchange e-mail server system. The office splits a T1 internet connection and there is no wireless accessibility. The computers are on a local LAN which is part of the organization's overall network. They are also in the process of eliminating individual-sized printers in favor of more cost-effective network printers/copier/fax hybrids. There are two such machines at the Penn Avenue office.

## **Technology Management**

Technology management is handled by a 3 member Management of Information Systems (MIS) staff who are based out of the office in FSWP's UPARC facility. Of those three, Evelyn Newell is the Manager of Information Services. This group is in charge of ad-hoc repair and maintenance requests that come in from employees all over the organization. They also insure the organization's technology plan commitment to keeping computers at most three years old by procuring and installing replacements. They sit on the existing Technology Planning Committee as well. However, because the organization is in the second phase of implementing a major database and data storage overhaul using the QUALIFACTS software package, they are predominantly busy with that project and unable to meet most other demands in a timely way. The first phase of implementation was completed in October 2003. Beyond the MIS staff, most offices or divisions have informal troubleshooter-type people in the office whose experience ranges from novice to intermediate in solving day-to-day issues.

## **Technology Planning**

Family Services does have a Technology Planning Committee which consists of members of the board of directors, administrative officials and the MIS staff. As it stands now, this committee is "solely for informational purposes" and is used only to share news and information over the status of the organization's information systems and related budget. However, the plan itself is very narrow in scope, simply addressing the costs and implementation of hardware maintenance and renewal, such that the organization does not have computers older than three years old. The plan itself does not physically exist and is only talked of. There is very little content in this "informal" plan beyond what has been mentioned and committee meetings do not serve the purpose of updating or altering the plan in place.

## **Internal and External Communications**

Internal communications consists of individual e-mail accounts for all employees and shared network folders and drives. E-mail is implemented with the Microsoft Exchange server, which is web-accessible. The shared network drives and myriad of folders in it are unorganized and difficult to navigate. See more on this in the following sections. External communication consists primarily of phone and fax calls to field workers, clients, and donors. Use of e-mail is also present but limited as many clients do not have access to computers or e-mail accounts.

## **Information Management**

There are two different relational databases which track client information in various programs. Additionally, clinical surveys are now going to be kept track of using the QUALIFACTS system. The organization is in the long (and difficult) process of converting existing information and training employees on the use of the QUALIFACTS to provide a uniform reporting, tracking, and information system. Because the system has an online user interface, it makes internet connectivity an absolute necessity in many situations. Beyond that, information is shared on the network drives and shared folders. The drive has well-maintained access permissions and rights but the actual content of the drive is hardly managed in any logical way. For example, there are no uniform naming conventions, and no hierarchy structure to facilitate use of shared folders effectively. E-mail is used widely for file-exchange between individuals.

One of the most pressing matters concerning information management is the new Health Information Portability & Accessibility Act (HIPPA). This legislation has strict controls and regulations as to how

health-related information is transported and stored. Any information management task to be performed has to comply to HIPAA standards.

## **Problems & Opportunities**

### **Major Consulting Task 1 - Reorganize Shared Network Resources**

#### **Problem**

There are three basic elements to this problem.

- The shared network drive and the folders it contains are extremely unorganized. There is no visible sense to the hierarchy and locating items is extremely difficult. When the CP tried to find a form related to automobile loans, she had to go in and out of dozens of folders, and the file she wanted were in a directory she did not have access permission to.
- Files and folders share no naming conventions so locating the correct documents or files is next to impossible even when using a search. An example of this is when the CP tried to locate an automobile loan application, and searched for it using the Windows search tool. She was unable to find it because the file she wanted was named "Customer Form".
- The main method of searching for files and folders is the simple "Search" method included with Windows XP. On a network, particularly one as large and unorganized as this one, this is unwieldy and leads to actual thirty-minute file searches for files which may not be named properly in the first place.

Due to all these difficulties, the shared network drive which could be a very important and useful resource, is underutilized and causes more issues than solutions. Employees thus resort to file exchange over e-mail, clogging up network servers, increasing network traffic, and filling up inbox space quotas unnecessarily.

#### **Opportunity**

Essentially, these problems provide the opportunity for a large overhaul of the organizations network drives and usage policies.

#### **Consultant's Approach**

There are essentially three steps in solving the problem at hand.

-The consultant will work with the Community Partner to come up with a logical and useable folder hierarchy in a manner that will not cause employee confusion. This hierarchy will be revised throughout the semester by consulting with other employees, the division director, the student's peers and other related parties.

-The consultant will work with the CP and the MIS staff to come up with a uniform, logical set of file and folder naming conventions which will allow for easy navigation of the drive as well as more reliable searching. The naming policy will be introduced to the staff in a training session and methods for sustainability will be implemented. One such method will be appointing office "file police" who may go through a fellow employee's network files at random and see if the

conventions are being followed, encouraging their use. It is hoped that the incentive for employees will not be this however, and will be the efficiency gained in the third step.

Of course, in this process the consultant will document the hierarchy design and include it in the final report as a basis for implementation.

Also, the naming conventions and policy will also be properly documented such that it may be included in the relevant new-employee training material.

A limiting issue that must be noted concerns which folders can be accessed and changed. There are many agency-wide and Division-specific folders on the shared drive. This effort is limited to the Community Partnerships Division's folder. It is hoped this will set an example for change in other areas of the shared drive as well.

## **Supporting the Mission**

Solving this problem helps the organization to better serve its mission "To foster the capacities and skills in families and individuals to direct their own lives and create a productive, caring community." Because this is an issue of technological usage and efficiency, the correlation between the problem and the mission is somewhat abstract. The solution provides the employees of the organization with more of their most important resource – time. Due to the non-profit, service-based orientation of the organization, there is never a point where a project ends and work stops. The employees constantly have things to do and people to serve in the community and the best way to help that cause is to give them more time. Organizing the shared network, implementing naming conventions, and making searches faster benefit the employees of the organization by allowing them to find what they need quickly, whereas before whole hours have been lost on this somewhat trivial problem.

An example can illustrate this. If finding the proper form for a car loan application used to take thirty minutes and included a manual search of the drive, a windows search, and then a phone call to another employee who then sends an email with the form attached (as is the typical situation), the staff member would be very inefficient. Under the proposed solutions, finding such a form can take at most three minutes, and allow the staff member more time to work on the forms themselves and process more loans for members in the community who are in desperate need, and for whom time is absolutely of the essence. This implementation directly allows employees to increase the amount of direct service they can provide families and individuals in need. This is critical, as the problem can only get worse. Left unchanged, the further accumulation of misnamed and misplaced files will only slow the process down further. In addition to time savings, these measures reduce the load on the organization network, decrease traffic, and unclog mailboxes and mail servers which before had to handle the burden of unnecessary (and often large) attachments. This, in turn, decreases bandwidth costs and maintenance costs for the MIS department, and that money can then be used on more directly serving community members.

This task ultimately expands the capabilities of the organization by allowing different people from various offices and programs to share files and necessary information with ease, making cross-program joint efforts more possible and efficient.

## **Impacts**

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- The impact on the staff is temporarily negative, but it will be very positive in the long term. The process of reorganizing the shared drive will undoubtedly cause some confusion and disruption of “business as usual”. However, once they are being taught the hierarchy, the benefits will be obvious. Also, the act of implementing a file naming convention or policy will encourage staff to adjust to something unfamiliar which they may not see the benefits of at the start. Motivating them to do this will be the most challenging part. However, the benefits in searching and locating speeds and the time saved will positively affect some of their most basic routine functions.
- Internal and external communications will be greatly improved. The entire purpose of undertaking this solution is that the problem lies in the area of file sharing and essentially, an employee’s ability to communicate files to another employee. Also, this reduces the number of e-mails received by the staff.
- Information management is the primary subject of this problem and solution. The arrangement and organization of the shared drive, the sharing of files and folders and its search-ability all fall primarily under the topic of improving information management in the organization.

## **Feasibility**

- It is feasible to believe that the planning of the solutions outlined can be completed in time, probably in the span of just a few weeks. Installing search software on thirty computers can also feasibly be done in a manner of no more than four three-hour engagements. Designing a reorganized folder hierarchy can also be accomplished reasonably in the time allowed. However, due to user and file permissions issues, the ability of MIS to take the design and implement it may not be feasible for the time allowed. The MIS staff members are the only people allowed to make such high-level changes, due to privacy rights and legal concerns. Thus, implementing the design will be on their timetable and it is not known right now if they can accomplish it by May 2005.
- The Community Partner is very motivated and excited to make this improvement on the shared drives. She is committed to helping with staff training and making sure the design is implemented by the MIS staff in a timely manner (if not by May 2005).
- This plan fits the consultant’s skills well because the consultant is very capable in planning, training, strategizing, and creating policy. Technically, the issues here are not very complex.
- The Community Partner also has the skills necessary to carry out the project. The CP has the necessary understanding of the file hierarchies and a sense of what can work for the organization. This makes her capable of helping to guide the process and insure implementation beyond the Consultant’s term at the organization.
- The work is sustainable as long as the naming conventions are followed and enforced and the search software is occasionally updated. The Community Partner will know how to change the naming policy and understand the process of making changes if new drive organization is needed.
- There are some pertinent risks to address:

- If the proposed changes are implemented on a division-wide level, the impact to search speeds and overall organization of the drive may be somewhat limited, as a large percentage of the drive will belong to other divisions, which will not be immediately reorganized under this plan.
- The next risk is that after design, the MIS staff does not implement the recommended reorganization. This will take a commitment from the community partner and even the division director to ensure this happens. Eventually, an organization-wide technology plan could include this and thus ensure it is implemented properly in a timely manner.

## **Major Consulting Task 2 - Increase Staff Laptop Internet Connectivity**

### **Problem**

Staff members who have organization-provided computers are not trained, knowledgeable, and in effect, are not able to connect their laptops to the internet at various service sites, at home, or at any non-office location. This makes it difficult for staff to take advantage of the hardware investment the organization has made in their equipment and prevents them from reaching their potential in the field. When staff cannot connect their laptops to the internet on site, they are not able to fully perform their jobs of helping the community because they do not have access to the QUALIFACTS database system or to their e-mail. The intent of investing in both the laptop hardware and the QUALIFACTS software was to provide an efficient, on-the-fly system with which staff can provide assessments, enter clinical results, and do their job faster and better in the field. Laptop connectivity is critical to this concept.

### **Opportunity**

To fix this problem and enable staff members to use the internet on their laptops in the field and maximize the organization's hardware technology investments.

### **Consultant's Approach**

The basic approach to this issue is as follows.

- First, the consultant and community partner will work together and assess all the different difficulties the staff has in terms of connecting on-site or at home by conducting an informal survey of staff.
- Second, based on the information, the consultant will then formulate a "how-to" guide or "before you leave the office" reference sheet that staff members can use. On it will be instructions on how to identify the type of connection available (T1, cable, DSL, or dial-up modem).
- Third, the instructions will include set-up procedures and configuration specifics for most general situations. These methods will then be tested in the field by some staff for a week or two and revisions will be made. If staff is still unable to connect, training can be help on individual-to-individual basis with Sue Kerr or Mary Graczyk taking the lead.



- Finally, any new service-providing sites will be required to submit information on their internet connectivity when agreements between them and FSWP are made, making the process of learning how to connect at a new site easier.

## **Supporting the Mission**

FSWP's mission statement makes it clear that the goal of the organization to help individual and families in need and make them better members of their community. Many of FSWP's programs are conducted on service sites in the field, away from their offices, and spread out throughout the region. When staff cannot connect their laptops to the internet on site, they are not able to fully perform their jobs of helping the community. Particular examples include the need to enter clinical results of psychological assessments into the organization's new QUALIFACTS system. The entire system's interface is web-based, making it essential that staff can view, update, or change client information on-site, perhaps in the presence of the client. In addition, to facilitate e-mail communication, on-demand file sharing, and host of other issues, internet connectivity is becoming essential to the work style and flow of FSWP staff in the field. Thus, solving this issue is absolutely necessary in meeting the ultimate goal.

Additionally, the organization has invested most of their technology budget in these laptop computers and in the QUALIFACTS system. Thus, any solution which increases productivity of one or both is maximizing that investment and allowing future resources to go to other community programs.

## **Impact**

- The organization will benefit greatly from the proposed solutions. As discussed above, this maximizes hardware and software financial investments as well as facilitates the overall mission of the organization. Extending this solution from the division level to the organization level is trivially simple and easy, should a technology plan call for it.
- The facilities of the service sites that FSWP operates or works with in conjunction with other organizations will benefit from the added internet connectivity and portability of the files that are located there already. Facility staff may also in this process learn how to configure such connections for other organization which use it.
- If successfully implemented, the solution will bring positive benefits to any program whose staff member has a laptop. The programs can only stand to gain from this solution.
- The technical environment is impacted by the solution as well. The environment will be one of increased connectivity, mobility and practical use. Also the online interaction necessary to interface with QUALIFACTS makes the use of that system easier and more functional.
- From a management standpoint, receiving fewer tech support calls from field locations will decrease the time and money MIS staff spends on setting up special connectivity sessions in specific settings. Also, the technology of management is improved whereas managers can be in greater and more immediate contact with field employees through e-mail and can share critical information and files quickly to staff in the field.
- Information management is hugely impacted in a positive way. The ability to interact with online databases and the QUALIFACTS system from the field greatly enhances how information is handled. Also, laptop connectivity allows for files to be transferred in a simpler fashion among employees.

## Feasibility

- The time necessary to complete staff surveys, planning, connectivity guides and staff testing may or may not be in the range of the spring 2005 semester. If it is not, it will only take an additional month or so before a tested, readily-implemented, easy-to-understand solution is fully completed. It is feasible that if it is not completed, that a large majority will be completed and the consultant can do it in a sustainable way in which the work can continue after the end of the semester.
- The Community Partner is very motivated and excited to make this improvement and increase the connectivity capabilities of the staff (including herself!). She is committed to helping with staff training and making sure the staff understands the added benefits of being able to connect in a variety of different out-of-office locations, including their own homes.
- The resources for this solution are readily available. Essentially it comes down to time commitments from the community partner and certain staff members in the division to help with the survey of the situation.
- This solution fits the consultant's skills to the point of creating an implementation plan and writing out a configuration guide. The consultant will, however, need some guidance in various connection configuration specifics, but is confident it can learn them quickly with a little research.
- This solution fits the community partner's skills as she will be responsible for learning her own connectivity configurations and can teach the basic methods to others.
- The work is sustainable to the extent that there is no new connectivity technology (i.e. proposed future technologies of cellular dial-up or broadband-over-power-line (BPL)). Then, it will be up to the MIS staff to add to the current guidelines and instructions, time and budget willing.
- The risks here are that there may be too many various circumstances among the different sites to account for all their specific details in any plan or guide. Also, the simple risk of the staff attempting and failing to follow the instructions or just failing, regardless of the reason to connect can jeopardize the confidence in the solution. This is going to be mitigated by running solutions through a test phase and revisions.

## Part II Outcomes

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### Results of Consulting Work

#### Outcomes for Task 1 – File/Folder Hierarchy Reorganization

##### Prior to the Partnership

Prior to the consulting partnership, staff in the office had only a vague idea of how files and folders are stored on their computers and consequently only used a single folder on their computer and possibly used a folder on the shared drive. Nobody in the office knew the relationship between a file hierarchy's organization and the speed of a search that is run on it. Additionally, there was no standardized file or folder naming conventions in place, which made it difficult to identify necessary files or even describe their location.

##### Observable Outcomes

The CP has learned exactly what a hierarchy is, where it exists on the system and the organization's network, and how it is maintained and updated.

- The CP was able to explain the basic idea of a hierarchy map to her Director in late February and the Director was then able to make suggestions on possible changes to our proposed map. The CP can easily explain to her boss and coworkers the relationship between a logical file hierarchy and the increased efficiency that it will produce in searching for files. This is demonstrated in how the CP described the basic Windows file search algorithm to a co-worker with the use of a hierarchy map, and the co-worker was able to understand and explain how minimizing folder layers made the search faster.

The CP has made a plan to implement the hierarchy we mapped out by taking all necessary steps to make sure it is implemented completely.

- Observable evidence includes appointments or meeting times scheduled with FSWP's Management Information Systems (MIS) staff in the months of April, May and June where the MIS staff will either implement or give permissions to the CP to implement the changes.
- Evidence of naming convention policies include the actual successful implementation of naming policies, which will be inspected periodically by the CP. In addition, a brief guide to naming conventions is a material outcome. One example of this outcome is when the CP was successfully able to describe the naming conventions to a coworker, and their joint use of the model made it easier for them to share information about an upcoming car loan FSWP was about to distribute.

The best observable outcomes are our material outcomes. These outcomes include our file hierarchy diagram and our naming conventions guide. These can be found in **Appendices 1-A** and **1-B**, respectively.

##### Unobservable Outcomes

Unobservable evidence of this outcome includes gauging how many members of the staff actually understand the CP's explanations of file hierarchies and search algorithms. Other than that, because

changing the file hierarchy is the crux of the task, the outcomes of the implementation are readily visible and no other unobservable outcomes remain. As for the adoption of naming conventions, unobservable outcomes of this will be staff retention of knowledge from demonstrations and presentations as well as the staff's willingness to change their current methods and adopt these tools.

Both issues can be remedied by using surveys that can measure staff understanding, however this would only be observed after a certain period of time, and cannot be guessed prior to the training sessions.

### **Increased Capacity to the Organization**

This outcome indicates increased capacity to meet the organization's mission by meeting the goals outlined in the Context Analysis. Specifically, this hierarchy reorganization will benefit the employees of the organization by allowing them to share files easily and search for files quickly, which will reduce the amount of time spent on this by staff. That will in turn, allow the staff to serve the members of the community more efficiently. As mentioned in the Context Analysis, time is the most valuable thing staff members of a non-profit organization possess, so any increase in time available will help increase the organization's capacity.

### **Sustainability & Risks**

This outcome will likely be sustained in the future at least two years because the hierarchy is unlikely to be changed in any significant way after the project is complete. In order to ensure the sustainability, the CP must continue to observe the state of the hierarchy in the future and make recommendations of change as they are appropriate. The risk here is that this outcome will only be sustainable as long as the CP works for the organization. Because part of the outcome is classified as knowledge, and that knowledge has been demonstrated, it can only be not sustained if the CP leaves without passing on the knowledge to another staff member. To mitigate this, the CP should pass on this knowledge to another staff member, who can be left in charge of the hierarchy, prior to leaving the organization. Also, the documentation of this report, as well the hierarchy diagrams and convention found in the appendix will provide the new staff member with the required information. This will contribute to the sustainability of the project overall.

### **New Vision of how Technology Supports the Mission**

This outcome creates a new vision of how technology can fulfill their mission by showing staff members how changing simple elements of their daily computer experience can change the ways in which they share information, work collaboratively, and save time. Simple things such as searching for files, sharing files across a network, and even being able to locate files more easily on your own hard drive are all ways in which this computer experience is enhanced. All of these things allow them to take the most time and make the best decisions for their clients, which consist of the families and individuals in need out in the community.

The CP has seen how the file hierarchy and file availability has positively impacted the division's daily work and now wants to implement a fast desktop search, such as the Google Desktop Search. She believes this will further the work done in this task by extending fast file finding to each staff member's personal computer.

## **Outcomes for Task 2 – Increasing Staff Laptop Internet Connectivity**

### **Prior to the Partnership**

Prior to the consulting partnership, many staff members were unable to connect to the internet with their laptops from anywhere other than their home office. This made it difficult to provide service to clients at client sites on-demand and also tethered staff members to their desks, rather than to the community at large.

### **Observable Outcomes**

The first major outcome is the completion of a “how to” guide that describes to staff the various ways their laptop can connect to the internet in different connection environments, which can be found in **Appendix 1-C**. The second major outcome is the completion of an “Internet Connectivity Information Sheet” where service providers will be able to indicate their connectivity settings so that FSWP staff may use their facilities to connect to the internet more easily. This can be found in **Appendix 1-D**.

An example of the effectiveness of the guide was when the CP distributed the manual to a staff member and the language was clear and simple enough that with the limited information provided in the guide, she was able to go and connect to the internet by phone line/modem, whereas she had never been able to do that before.

### **Unobservable Outcomes**

Unobservable evidence for the “how to” guide might include a lack of willingness to change, or even to attempt the procedures outlined in the guide. As for the “Internet Connectivity Information Sheet,” unobservable outcomes are whether the service providing locations will be able to provide the information required and whether or not they will do it accurately. As of the writing of this report, the Connectivity Information Sheet has not yet been distributed, so figures addressing this concern are not available. An example of this type of problem is when FSWP contacts a new service provider, they will be instructed to have their “IT person” fill it out and return it. However, it can’t be immediately clear if every location’s “IT person” can specify if they have a dial-up connection, cable, or DSL because there may not be anyone there who knows the difference between them, or has any technical knowledge at all.

### **Increased Capacity to the Organization**

These outcomes help the organization meet its mission by allowing the staff to connect to the internet remotely from service locations, which can aid in registering those in need on the spot at the service center, retrieving clinical information rapidly, etc. This is a clear demonstration of increased capacity. Additionally, with the use of FSWP’s new QUALIFACTS system, internet connectivity at the site allows for remote connection to that database, which provides a wide array of services to staff members.

### **Sustainability & Risks**

This outcome will only be sustained if the CP actively encourages the “how to” guide’s use and keeps it updated and maintained. If the guide does not prove effective or staff does not find the added capability as essential as they claim it will be, then the sustainability is at risk. For the information sheet, this is likely to be sustained so long as the CP ensures this sheet is sent out to new service providers and retrieved with complete (and accurate) information. Both guides are likely to be sustainable for the

immediate future of 6 months to 2 years. Beyond that, the internet connectivity the organization has may have changed drastically in nature (such as transitioning to wireless networks). The guides would then need to be changed to meet the new technological and safety realities of that time. The availability of accurate information however, is a risk. If too many service providers give inaccurate connectivity information, it will be difficult for staff members to successfully connect and confidence in the “how to” manual will be adversely affected. This can be mitigated by having the CP try to connect at each new location, given their responses to the information sheet. If she cannot connect, then the information sheet will be updated to reflect that.

### **New Vision of how Technology Supports the Mission**

This outcome does support a new vision of how technology can support FSWP’s mission. In conjunction with the QUALIFACTS database system, remote connectivity will allow staff to conduct much of their work at the service location, which allow them to increase their interactivity with those in need that they serve. This is a direct example of how technology can be used to support a mission because it is clearly visible to all participants, the staff, the service providers, and even the clients. The rapid-response nature of internet connectivity and the availability of e-mail and database information on the site is invaluable in providing FSWP services.

## Family Services of Western Pennsylvania – Context Analysis & Outcomes

Student Consultant, Madhuri Shah  
Community Partner, Maurie Heidish  
Community Partner, Evangeline Holmes

### Part I. The Consulting Situation

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#### About the Organization

Family Services of Western Pennsylvania (FSWP) is a non-profit organization providing a wide variety of programs, services and activities for children, adults and families living in the Western Pennsylvania region. FSWP has been providing services for over 50 years and currently has 35 different types of services in 12 service locations. Although their services are concentrated in Allegheny and Westmoreland counties, the agency also reaches out to individuals and families living throughout the 9 county in Southwest Pennsylvania area. FSWP serves almost 7000 individuals every year. Their mission statement is:

"To foster the capacities and skills in families and individuals to direct their own lives and create a productive, caring community."

FSWP is funded by the federal government, the state government, the county as well as foundations and individual donors. All the programs are allocated budgets depending on their needs and the budget available in a particular year. Figure 1 shows the different divisions of FSWP at a glance. Each division organizes different programs.

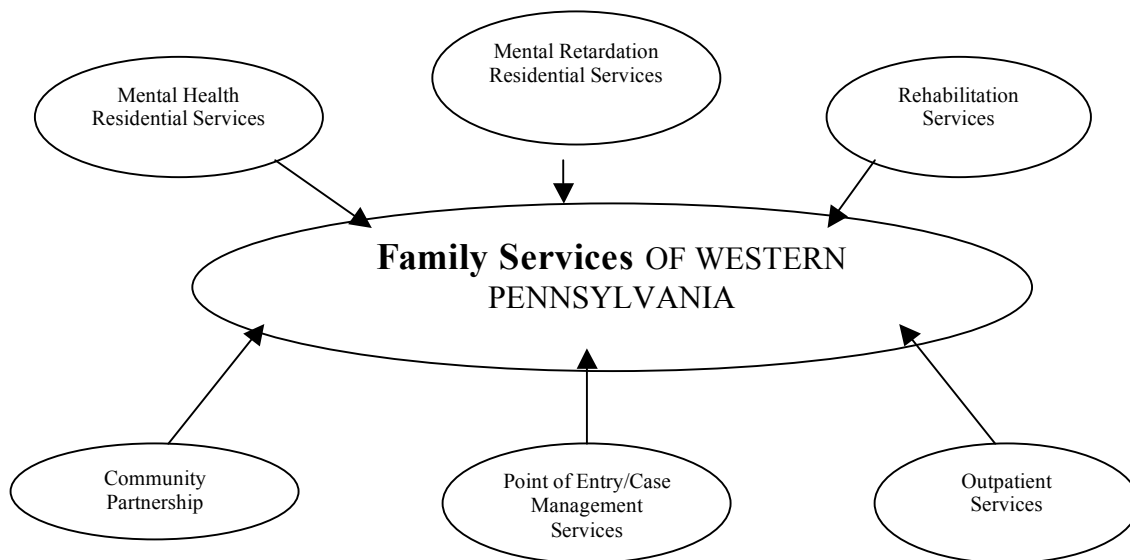


Figure 1: Various Divisions of FSWP

FSWP's administration office is located in University of Pittsburgh Applied Research Center (UPARC), in Harmarville, Allegheny County. The main concentration of this report will be on the Community Partnership Division which is located at East Liberty Station 6401 Penn Avenue, in Pittsburgh. This service site organizes many programs and also carries out evaluation to help them assess the impact of different programs on their client's lives. This is done by analyzing survey data and producing outcome reports on them.

## **Facilities**

The Community Partnership Division is situated on the second floor of a multi story building, right in the heart of the East Liberty Station Mall for easy access to clients. The place is highly secure with intercom required to enter the building and keys to enter the premises of the different programs even though they are on the same floor. The offices are well maintained with proper heating and lighting system and they are very well furnished as well.

FSWP has been using computers for a few years now so they have all the required facilities and they also have a plan in place to upgrade their computers every three years.

## **Programs**

The Community Partnership Division provides a wide range of services such as foster care, loan programs, families outside (a program designed to allow low-income individuals and families to visit relatives in correctional facilities) and also mental health services (providing private and confidential counseling services and supports to people). The services provided aim to maximize the quality of life and the dignity of all their clients, while helping them to be contributing members of the community. Since the consulting work deals mainly with mental health services and counseling, the different programs that fall under this area are described in more detail.

1. **Family Counseling:** This program is aimed at strengthening families through counseling that promotes caring and enables family members to openly communicate and support each other. These confidential counseling services assist clients with various concerns such as handling demands faced as working parents, stressful child/parent relationships, verbal or physical abuse, stress surrounding financial issues, responsibilities of a single-parent home or new members entering the family.
2. **Parent/Child Counseling:** This program helps parents and children work together in developing solutions to their concerns. It provides guidance and counseling on issues related to emotional well-being, discipline, sibling tensions, blended or single parent families, school problems or concerns for children diagnosed with learning disabilities or Attention Deficit Hyperactivity Disorder (ADHD).
3. **Individual Adult Counseling:** This program provides counseling services to individuals experiencing anxiety, depression or stress over concerns of daily life. It helps individuals develop their strengths and determine their needs so that they can achieve their personal goals of well-being.
4. **Substance Addiction Counseling:** This program provides assistance to individuals experiencing problems with addiction or abuse of drugs or alcohol. It provides individualized counseling, referrals to medical, support services within the community and education on prevention measures.



5. **Medical Health Concerns:** This program provides counseling to individuals with disabilities and chronic or terminal illness to help them cope with the special concerns and stresses of such health issues. It also provides counseling to the families of the individuals with health concerns.

For the mental health counseling programs, therapists make use of a survey form called BASIS-24 to monitor the impact of different treatment plans. The cumulative data from this survey is also used by administrators to assess the impacts of various mental health services programs and to produce evaluation reports.

## **Staff**

FSWP is headed by CEO, Donald H. Goughler and COO, Stephen Christian Michaels. The organization also has several directors and managers for the various divisions and programs. There is an MIS department with 3 staff members. The MIS staffs take care of the computing facilities and provide technical and hardware support to all the other employees across all divisions/offices. The MIS staffs also approve and carry out requests made by individual divisions. Although each division has a budget for their technology needs, they need to get the approval of the MIS division before any changes can be implemented. For example, if a particular division needs new printers, they have to get the approval from the MIS division and then the MIS staff will purchase and install the printers using the available budget for that division.

The East Liberty Station office is headed by the director of Community Partnerships Division, Maurice Heidish. The Clinical Manager is Evangeline Holmes and she is responsible for assessing the impact of the mental health services programs as well as producing outcome reports for the funders. Maurice can do the basic tasks such as sending emails, viewing websites, using MS word etc. Evangeline has had some experience with MS Access and Excel. So in addition to doing the basic tasks, Evangeline can also use many of the Intermediate and advanced features in Excel and Access. Maurice and Evangeline make decisions about the hardware and software needs for this division and do the necessary paper work to get the approval from the MIS division.

There are many other employees who carry out day to day functions and also maintain electronic and/or paper based records about clients. Many of the staff members have received training on how to use Excel hence that is the most common way of recording data on computers.

All the administrative staffs have computers and many other employees have computers as well. All employees have access to the internet and have a FSWP email address. The employees who work in the communities or are required to work outside the office also have laptops.

## **Technical Environment**

There are about 400 computers and most of them are Pentium III/IV. Many of the computers have windows XP, MS Office Suite and QUALIFACTS. QUALIFACTS is a web based clinical system for mental health issues. It contains all the clinical records about patients, information about treatment plans and also about the health insurance providers of the clients. QUALIFACTS was a joint effort by 3 non-profits in Pittsburgh and the 3 organizations collectively contracted a consulting company to build the system for their clinical needs. At the moment QUALIFACTS is limited to only clinical records and does not include functionalities for the other programs. However, FSWP does plan to integrate other programs such as Foster Care records and the clinical surveys into QUALIFACTS in the next couple of years.

FSWP has an intranet that connects the various sites located in the Pittsburgh area. All the sites are networked with a T1 LAN connection and there is a shared network drive that allows staff members to store files on the server. Only one site has a dial up connection.

They have an exchange server for their electronic mail system. FSWP also maintains a website to inform their clients about services and to provide general information about the organization to funders and the general public. The website also allows people to make donations online.

## **Technology Management**

There is a team of 3 MIS staff who are responsible for managing the technical environment of all the service locations. They handle everything from maintenance to technical support to hardware and software problems. They are not responsible for any technology planning or development of individual information systems for a particular division. The MIS department is located in the administrative building in UPARC and provide their services from there most of the time.

## **Technology Planning**

There is no technology planning committee per se but there is a technology meeting once every month to discuss direction and share information. This meeting consists of the head of MIS department, managers, supervisors and some of the directors of the different programs/division. Technology related issues or concerns are discussed during the meetings and members exchange information related to each program or division. It is not mandatory for all members to attend the meeting every month. Quite often members only attend the meetings when they have an issue or concern to discuss or share.

The meeting is not action based and no technology improvement plans are made. Hence technological solutions are only considered when there is need for better information systems. For example, two years ago management saw a potential for a web based information system to improve information sharing in the mental health service division, hence consultants were brought in and the QUALIFACTS system was developed.

There are a few informal technology plans in the organization that the consultant is aware of and one of the plans is to upgrade computers every 3 years. This plan was made by the upper management and has been in place for a few years.

Although a formal technology plan and a committee is not critical to the fulfillment of the organization's mission, having such a plan would enable the organization to plan ahead for problems and opportunities in advance. This will make technology planning, decision making and implementation much more efficient and less time consuming.

## **Internal and External Communication**

FSWP has a Microsoft Email exchange server that allows employees to communicate using emails. Files on the network drive can be shared internally but with difficulty because of permission inconsistencies. There is also no proper hierarchy for the files. Security and confidentiality is an integral part of the organization and necessary steps (physical and technical) are used to keep the data private and confidential. All staff members have email addresses and most use them regularly to communicate with each other. Staff members also use phone or fax to communicate with clients outside. FSWP manages the

email and web addresses of its funders, clients, and volunteers. Most of the information is electronic and some are paper based.

FSWP has a website that is maintained well and updated regularly. The website is used as a means of communication to the general public, funders and potential clients.

## **Information Management**

The organization manages confidential client and case management information as well as information about the organization and its funders. Both electronic and paper based systems are used to store information but FSWP is trying to move towards storing most of the information and data about the organization into electronic records system. Currently, the organization uses the QUALIFACTS and the file system on their LAN for information/data storage and retrieval. QUALIFACTS (the clinical database system) only stores clinical records of clients, information about their treatment plans and payment information and is the only centralized information system. There is a back up system that backs up data every ½ an hour into the local storage and also every 24 hrs into the central backup system.

Most of the divisions use some sort of survey to gather information from their clients. The forms are either customer satisfaction survey forms or forms for a particular service provided by the division. At the moment, QUALIFACTS does not have the capacity to store survey data hence survey data is usually stored locally on the computers by each division/program. Most programs use basic excel spreadsheet to maintain an electronic form of data. A few of the programs have built their own Access databases to store the information.

The counseling programs use a clinical survey form called BASIS-24 for treatment purpose. Therapists use the results from BASIS-24 to see the impact of different treatment plans on their clients. The clinical managers use the results from the survey to assess the impact of the different counseling programs on the clients and create reports to show it to the funders.

At the moment, each counseling program maintains its own paper based data as well as excel spreadsheets to store the results from the survey. In the past, an old command based system known as CMHC existed for the old clinical form called the BASIS-32. This system had the capability to generate several types of reports for the therapists and the administrators. However, since the BASIS-32 is replaced by the BASIS-24, the system has become obsolete and is no longer used.

In the absence of any information system, the therapists and the administrators were forced to use Microsoft excel file to store the information obtained from BASIS-24.

Survey data is collected by the therapists when they meet with the clients during treatment sessions. Clients fill out the same BASIS-24 form for each treatment session which may occur every 2-4 weeks. Once the data has been collected, the therapists give the forms to the data entry person. The data entry person manually entered the scores into an excel file. All the data was stored into one big excel file.

Once the data was entered into the system, the therapists had to open the file and copy the scores for the clients they were interested in. Periodically, the clinical managers used the data from the spreadsheet to create summary reports by analyzing the data. It was very difficult for the clinical managers to produce the reports because it required a lot of copying and pasting of data to extract only the information that he/she was interested in. A quote from one of the administrators said "I spend hours, days, and weeks organizing and analyzing data, and creating and writing the outcome reports".

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This task was also made difficult by the large size of the excel file and was prone to errors. For example, if any of the names of the clients were exchanged, the scores would be wrong and the whole file became useless. With the excel files, there was a risk of introducing errors every time the file was opened (either to add data by the data entry staff or to extract data from it by the therapists or the administrator).

## **PROBLEMS/OPPORTUNITIES**

### **Major Consulting Task**

#### **Built a database using Microsoft Access to automate the survey process**

##### **Description**

The mental health programs carry out surveys to assess client needs and to evaluate programs. A standardized form called BASIS-24 is used for the survey. Clients take the same test every 2- 4 weeks and the scores are computed using a weight system. The therapists are interested in the scores to evaluate the treatment plans and the progress of the clients. The administrators are also interested in the scores to know the outcomes of their programs. They evaluate the scores and provide outcome reports to their funders who demand to know how their money is being spent.

The problem was that all the scores from the surveys were stored on one big excel file which made it very difficult to extract any useful information to make conclusion about the treatment plans or the program. The system was also prone to errors because anytime any of the users opened the file, errors could be introduced accidentally. There was a need for organizing data in a manner such that important outcomes and trends could be determined efficiently and quickly.

With an Access database system, the data entry person would not need to come in direct contact with any of the data. All they would need to do is to enter the individual raw scores directly into the Access forms and the database would store all the data internally and no users would need to see the actual raw data.

It would also make the administrators job much easier and less time consuming. The administrators would be able to create the queries and reports only once, and run it every time they need to use them. The queries and reports would not need to be changed even with the addition of new records. The administrators would not have to copy paste data each time they wanted to create reports. The system would be less prone to errors and there would be no risk of data getting mixed up once entered into the system.

##### **Approach**

- Carried out a detailed analysis of the survey (BASIS-24) form used.
- Worked with the CP to identify all the important data that needed to be captured
- Designed the dataflow diagram and the entity relationship diagram and verified for correctness with the CP.
- Worked with the CP to create tables (to give her a better idea of how the development process).  
Created the appropriate forms to enter data.

- Created queries and explained to the CP how the querying process works and how it can be done in the future.
- Created appropriate reports and also showed the CP how this is done. Entered sample data into the system and tested for accuracy of data and reports.
- Documented the whole process so that the CP as well as any other person can learn to use the system.
- Allowed the CP to review the documentation for at least two weeks before the end of the consulting period.

## **Supporting the Mission**

This organization's mission is to foster the capacities and skills in families and individuals to direct their own lives and create a productive, caring community. Solving this problem would help the organization serve its mission better in many ways.

- First of all, it would save valuable employee time that is spent analyzing scores of data. This time could then be used to serve more people to create a caring community. For example, many foster children come to the office, and many of the employees spend time with these children. So the employees could spend some quality time with these children to show them they are being cared for.
- Second it would save the time of the therapists who need summary of the survey data to make decisions about different treatment plans for mental health services. If they have more time they could again spend that time serving more people in the community who need counseling services hence helping individuals direct their own lives.
- Thirdly, it would help the CP or the administrators to produce important outcome reports about the mental health services program to show it to the funders who will then continue to donate to the organization and hence the organization will not lose funding. Funding is important to enable more people in need to be served. The outcome reports would also help the program managers to make improvements to their programs. For example, if the analysis of the survey data showed that one of the programs is not having much impact on their clients, the administrators would be able to investigate to find out exactly why the program is not working.
- Finally, the new system would reduce the number of errors in the data which would result in more statistically accurate outcome reports. More accurate reports help the organization evaluate and improve the treatment programs which will eventually benefit the clients being served.

## **Impacts**

There would mostly be positive impact on the organization, programs and staff. The project would increase the efficiency of all of the staff and hence the programs they are working on and to some extent, it would also improve the efficiency of the organization.

There would be no impact on the facilities, technical environment and other aspects of the organization. One concern that may arise from this project is that, employees who have never used Access before may need a little training before they can use the system.

## Part II Outcomes

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### Results of Consulting Work

#### Microsoft Access Database to Automate the Survey Process

The Access Database system provides a quicker and simpler way to enter and view data from the clinical survey that is done using the BASIS-24 form. Before the database was created, the data entry part and the report generation tasks were cumbersome, time consuming and prone to errors. It required the therapists to manually copy and paste client scores from one big excel spread sheet to analyze client data for treatment purpose. Extracting data to generate outcome reports from the spreadsheet took even longer and often caused frustration to the person using the system.

With the database, several outcomes were achieved.

- A new database system was created that can store BASIS-24 survey data and allows data to be queried by users who are the therapists and the administrators.

The new database has five tables, one main form consisting of three sub-forms and several queries and reports. **Appendix 2-C** shows some of the screenshots of the tables, forms and queries from the database.

- The CP gained a better understanding on the design and creation of database systems and she can develop similar systems in the future.

Evangeline was involved in the entire process of the development of the database system. She created tables, forms, queries and reports and even tested the system by using test data. Evangeline created the tables and forms on her computer with almost no assistance from the consultant. However, when dealing with complex queries, the consultant had to explain each step to the CP. The CP was then able to write a few queries with a little assistance from the consultant. In future, there may not be any need to write complex queries but if there is a need, the CP may need to consult a book or get some assistance from the MIS staff to write the queries. Step 3 of **Appendix 2-A** lists a few resources that the CP can use for creating queries in the future.

- The system has reduced risks of errors.

The new system has reduced the sources of errors into the data. In the old spreadsheet; there was a risk of introducing errors into the data whenever someone opened the file. For example if someone opened the file and accidentally deleted some of the scores or exchanged the scores for the different questions or even clients. The database system has forms for entering data and report/query wizard for reports and queries hence no one needs to interact with the raw data. With the new database, the only source of error is when the data entry person actually enters a wrong value into the system.

The total number of error reduction was not observed just with a few tests of the system but it should be noticeable with more frequent use of the system.

- The administrators can produce and view reports in a matter of minutes.

The CP clicked the query and reports icon to produce several reports that she was interested in. This took just a few minutes compared to at least five to six hours it used to take using the excel

spreadsheet. In the old system, the user had to cut, paste and sort data from the excel spreadsheets just to produce one report. With the new system, the queries and reports can be created once and the same queries can be run even after new data has been entered into the system to produce reports with the latest changes from new data. In addition to this, the administrators do not have to worry about mixing the data or introducing error into the system.

- The administrators can generate several types of reports to support funding.

The new system allows the CP and other administrative staff to generate reports in terms of summary data about the clients as well as different results pattered in a graph form. The CP and the consultant worked together to enable the database system to generate special reports in graphical format. The different types of reports can be included in the outcome reports of various programs which are shown to the funders. For example, reports can be produced to show whether clients have improved in each of the six domains (depression, self harm, substance abuse etc) that the survey form measures. **Appendix 2-C** shows an example of a report in a chart form showing client's results in each of the domains.

### **Increased Capacity to Meet Organization's Mission**

Technology has helped the organization achieve greater efficiency level because now the therapists and administrators are spending less time sorting and analyzing data as well as generating outcome reports for the survey to present to the funders. As a result, the employees have more free time to go out and serve people in the community who need help. For example, the therapists can spend more time serving other patients who need counseling service. Other employees can use some of that time to spend informally with the foster parents and foster children who visit the center to show that they are cared for. This ties in with their mission because their mission is to help individuals and families in need to create a productive and caring community.

In the past, the therapists and the administrators had to spend a lot of time entering data and generating reports. However, now that the new system is in place, they can use the system to do all the sorting for them and also use the system to generate reports very quickly. Thus, in this respect, their capacity has expanded because they are able to use the technologically advanced tools and software to achieve the same result with less work.

In addition, the queries and reports produced by the database will be useful when it comes to applying for funding, donations, etc in the future. The reports will also show to the donors, government agencies, etc that the organization is reliable as it is able to provide accurate and good statistics. This will help the organization get more funding from various sources.

### **Sustainability**

The outcomes can definitely be sustained, mainly because the CP was involved in the whole design and implementation process of the system and also because the system will enable the organization to produce important outcome reports easily which need to be shown to the funders. In addition, the consultant created a simple manual on the whole design process (**Appendix 2-A**) for anyone who is interested in the system. This manual consists of step by step instructions on how a database system is designed. It has several screen shots for easier understanding of the whole process. This manual will also be useful in designing similar systems in the future and will ensure that the skills the CP has learned will be sustained.

Evangeline will be the main person who will maintain and update the database as she is the only person who was involved in its development and is most familiar with it. For the next 6 to 18 months, there should be no problem in maintaining and updating the system. However, she might need the help of the MIS staff members if there is a major change in the BASIS-24 form and the tables in the database need to be changed. Another risk is that if Evangeline leaves the organization, other people may not be interested in maintaining or using the system. Therefore the consultant recommends that Evangeline train and give the responsibility of maintaining the system to another staff member before leaving the organization.

The consultant created a user manual (**Appendix 2-B**), which has step by step instructions on how to enter data into the system and how to run queries as well as view reports. To further ensure that the outcomes will be sustainable, all staff members involved in data entry and report generation should be made aware of this document, so that they can reference it whenever they need to. Similarly, to further ensure sustainability, the consultant recommends having a hard copy of the manual printed out so that it is available for quick reference. In addition to this, the consultant would also recommend getting the Microsoft Office Access 2003 series by Lisa Friedrichsen. It will help the CP with the complicated queries and will also be very helpful in developing similar systems in the future. Step 3 in **Appendix 2-A** has more information about the book.

### **New Vision**

The design and implementation of the database system has definitely brought a new vision to the organization about how technology can support their mission. The CP has seen the benefits and how much time it can save for the organization.

The CP talked about how this system can be shared with the other mental health divisions where the same BASIS-24 form is used to make their work easier as well.

Also, during the development of the database system, Evangeline and Maurie were talking about automating another survey form that is used in the Foster Care department. Evangeline learnt how to develop this system and using that knowledge, she will develop a similar system for the Foster Care survey program.



## **Family Services of Western Pennsylvania – Context Analysis & Outcomes**

Student Consultant, Diana Chen  
Community Partner, Annette Trunzo

### **Part I. The Consulting Situation**

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#### **About the Organization**

##### **Organization**

Family Services of Western Pennsylvania (FSWP) has been providing many different programs for people of all age groups living in the Western Pennsylvania region since 1885. Their mission is: "To foster the capacities and skills in families and individuals to direct their own lives and create a productive, caring community." The organization's headquarters is University of Pittsburgh Applied Research Center (UPARC) located in Harmarville, Pittsburgh, PA and it has many other offices located throughout Allegheny County and Westmoreland County. The largest program at Family Services of Western Pennsylvania currently is its mental health program.

##### **Facilities**

Offices are located throughout Western Pennsylvania in towns such as Tarentum, New Kensington, Pittsburgh, and Greensburg.

The department I worked with is the Department of Research and Program Evaluation. It is located at the second floor of building A-3 at UPARC. UPARC contains many other buildings with offices of many other private and public, profit and non-profit organizations.

The building is located beside the parking lot and the security building. The whole second floor of building A-3 is rented by FSWP and contains mostly of administration offices for the organization. There is one printer for all of the staff at this location.

##### **Programs**

Currently, there are thirty-three programs within FSWP. Day Treatment Services, Facility Based Vocational Training, Foster Care Services, Community Services, Case management Services and Family Based Services, and Respite Services are examples of the programs that Family Services of Western Pennsylvania currently have. As mentioned above, currently, the largest program is the mental health program.

The Department of Research and Program Evaluation is located at the administration office in UPARC within Harmarville. This department is a fairly new department and is responsible for collecting customer satisfaction surveys and analyzing the data to give each program feedback on performance and recommendations (internal use) and for agencies such as licensing, government, and payment agencies (external use). They are also in charge of conducting experiments and interviews to attain information on how to improve each program and the agency in general.

This department is currently working with University of Pittsburgh in doing research on how to satisfy customers better. The focus of my project was to help with data management of the customer satisfaction surveys. Though they are getting the results and information they need through the current Excel database, analysis, searches, and queries are not done in the most efficient way possible. Employee work time spent on this task can be reduced and spent on other responsibilities.

## **Staff**

FSWP has a total of 298 staff members, three executive staff members, and a number of directors. The three executive staff members are the chief executive officer, the chief financial officer, and the chief operating officer. The directors head different departments such as the human resource department, the research department, the community partnerships division, and the communications and development department. The administration office has thirty staff members, while the Department of Research and Program Evaluation consists of five employees.

Annette Trunzo, who is the Research Director, is also the head of the department that I worked with and my community partner. I also worked with Michaela Kennedy, Research Assistant, and Maha Hussein, Data Entry Staff. Michaela and Annette work together to make up the customer satisfaction surveys, conduct the surveys in interview form if required, analyze the results, and give individual programs feedback and suggestions to improve their services. They are also in charge of other research programs such as the research program done in conjunction with University of Pittsburgh mentioned in the "Programs" section, and the Treatment Initiation Follow Through Study (TIFT). TIFT is a study on customer's first impressions, how customers perceive FSWP, and how to increase the return rate of customers that are still in need of help. Maha is in charge of inputting all data from research and data from the paper surveys that come into this office into spreadsheets and databases on the computer.

Most of the staff at the administration office and the Department of Research and Program Evaluation has limited technical knowledge which consists mainly of knowledge of Microsoft Office programs such as Word and Excel. Annette, Maha, and Michaela all possess knowledge of Excel. Annette and Michaela analyze the data through using functions provided in Excel. They had limited knowledge on Microsoft Access though, because this software program was not previously used by the staff of this department before the consulting relationship.

## **Technical Environment**

FSWP is very up to date and has a great technical environment. They have around 400 Pentium III or Pentium IV computers that are no older than three years old with Microsoft Windows XP installed. Every computer is also connected to a LAN so they have a local network and shared drive where files can be easily shared and kept. Each person has different access rights to each file and folder on the shared drive depending on their job responsibilities. In addition, all computers are connected to the Internet through T1 connection and each staff member has their own email address provided by the organization. They have a website which is updated frequently that has general information on the organization and services it provides. The website also accepts online donations. They have hired QUALIFACTS to build them a web based clinical system for mental health services provided by the organization.

Annette, Maha, and Michaela also have the same specs as the rest of the organization. They currently have Microsoft Access 2000 installed on their desktops.

## **Technical Management**

The Management Information System (MIS) staff is located at the UPARC office and consists of three staff. They fix hardware problems and also do some information systems work for all FSWP locations. They built an Access database in the past for the organization to monitor the locations of patient charts but the database ran into problems and they resorted back to Excel.

Data is not backed up on a regular basis and virus definitions are also not updated on a regular basis.

## **Technology Planning**

The technology committee consists of the director of each division. The committee meets once a month to share information. There is a computer upgrade plan which requires all computers to be upgraded every three years so there are no computers older than three year old. However, there isn't a concrete technology plan for other technical areas of the organization and the committee is more information based than action based.

## **Internal and External Communications**

Even though all computers are connected by the LAN, employees seem to share files through email more frequently than through the shared drive on the local network. However, all employees are efficient in using email and phone as a way of communicating with people outside of the organization. Forms that are needed by doctors and receptionists are all located on the shared drive and can be accessed when needed. In addition, doctors login to QUALIFACTS when they are treating patients and they would fill out information on forms accessible through the QUALIFACTS site. Other employees can access QUALIFACTS to see what each staff has scheduled for the day at certain locations and also other information about daily operations. FSWP has a website that is frequently updated with general information. It also allows people to donate money online.

## **Information Management**

QUALIFACTS tends to be used most frequently by the organization's staff in general, followed by paper documents, then Window applications (Word, Excel).

Within the Department of Research and Program Evaluation (DRPE), information tends to be either on paper, Excel spreadsheets, or Word documents. Excel databases in creation and analysis tend to be passed around through email instead of shared through the shared folders on the shared drive. Only the final document is saved on the shared drive. It is available for everyone to view, but only for Annette, Michaela, and Maha to modify. Databases created at the DRPE tend to be more for reference purposes after they are created and analyzed and are not modified further. They spend a great amount of time on entering data of the customer satisfaction survey and also analyzing the data inputted. The general layout of the survey and the analysis changes from year to year but not significantly. They also have other surveys to deal with, interviews to conduct at the customer's homes, and research projects done with University of Pittsburgh. If time could be saved on the customer satisfaction survey, Annette, Maha, and Michaela can spend more time on their other responsibilities.

# **Consulting Task 1: Create a Microsoft Access Database to Keep Track of the Results of the Customer Satisfaction Survey**

## **Description of Problem/Opportunity**

Currently all information is kept in Excel spreadsheets. They have been doing this since this survey started five years ago. However, in Excel, multiple users cannot update the database at the same time. This restricts multiple people to work on the database and make changes at the same time.

Data entry and searches also cannot be done very efficiently in Excel. Every time Michaela wants to search up entries, she has to go through the whole process of several clicks, each time redone manually. In addition, Excel requires some parts of the data to be hand coded/translated into numbers in order for the data to be analyzed. Most of the question answers are in words, but in order for that data to be analyzed and an average to be taken, Maha has to translate each answer into a number value. This process is prone to error because she has to manually translate and input the number value of the answer.

In addition, the research department at University of Pittsburgh that DRPE is currently working with keeps all data in Access. Information sharing will be easier between the two organizations if they used the same file formats. It also disposes of the time required to translate data from one file format to other.

## **How the Problem Supports the Mission**

Through building this database together with the staff, they will be able to build their own Access databases in the future of other topics. This will allow more efficient data sharing with University of Pittsburgh, and also more proficient data entry and analysis. Time saved can be spent on doing other tasks that the employee needs to attend to or to further analyze the data for higher level information and results. Staff members have other responsibilities such as collection and analysis of other surveys, research projects with University of Pittsburgh, and also conduction of interviews at customers' homes.

## **Description of Approach**

- Find out who is doing what (i.e. building databases in the future in Access, conducting analysis in the future, supporting the databases)
- Look for underlying data structure in the new customer satisfaction survey
- Describe and discuss the database design with Maha who will be actually creating the database and inputting data
- Design entity relationship diagram that represents the customer satisfaction database
- Explain to the staff the concepts behind the ER diagram and concepts of a relational database
- Have weekly exercises that will go through basic functions of Access that will make sure that the staff understands the concepts and can conduct action on their own
- The weekly tasks will be asking the staff to create parts of the final database, therefore applying the newly learned skill in context of their situation, which will make a deeper impression
- Create a technology manual for Annette, Micheala, and Maha because they are the only three people that will work with this database on a day to day basis. This manual is for them to refer to when they are maintaining the database or creating other databases on their own in the future

## **Potential Impacts**

### **Information Management**

- Future data will be kept in Access instead of Excel
- Multiple users can access the data simultaneously

### **Staff**

- Annette, Micheala, and Maha will be able to maneuver in Access and create future databases in Access through understanding of the concept behind the creation of the database, of the database itself, and of ER diagrams
- Annette, Maha, and Michaela will be able to make changes, maintain, and analyze data in Access

### **Department**

- Less time spent on data entry and data coding through utilizing Access
- The time saved can be spent on other responsibilities of the staff

## **Consulting Task 2: Revisit Current Analysis of Customer Satisfaction Data and Improve Analysis and Efficiency with Microsoft Access**

### **Description of Problem/Opportunity**

The customer satisfaction survey tends to serve two purposes: to obtain information for external usage as in to show to board members and donators for funding purposes, but mainly for each individual program to see how they are doing. Because there are thirty-three programs and all are unique in nature, it is difficult to compare them and evaluate them on the same basis and evaluate the organization as a whole.

The department cannot let each program have their own surveys because there would be a lot of data which makes it difficult and less efficient to analyze. Mainly the problem is that there will be a lot of similar data from different programs but asked in different ways. Repetitive data makes data input take longer and also slows down the analysis process. Cutting down on the repetitive data can reduce employ work hours that they have to spend inputting and analyzing the data because there is less data to work with. Having a different survey for each program also disables the ability to evaluate the organization as a whole.

Though currently they are obtaining the information they need through Excel, with the new Access database, they will be able to obtain that information in a more efficient way. Through creation of forms, Maha will not have to hand code the answers into numbers, but can have Access look up the number value of the answer that she inputs. She can also create combo boxes so she chooses from a list of choices, instead of retyping the same answers over and over again. This not only saves time, but lessens the number of errors in each entry. Through the creation of queries in Access, Michaela can now conduct searches with one click after she sets up the query. She can also create report templates that will summarize the analysis results for her, so she does not have to do it manually every time when needed. There is a great potential to obtain above and beyond results and analysis of the data with the added functionality of Microsoft Access.

## **How the Task Supports the Mission**

By using Access, the staff will be able to conduct data entry and analysis more efficiently and with fewer errors, thus saving time. With the extra time, staff will be able to focus more on their other responsibilities. This part of the task focuses on showing Annette, Michaela, and Maha the capabilities of Access and how to trouble shoot in Access. Through seeing the capabilities of Microsoft Access, they will have the capacity to think outside of the box and come up with alternative ways of data analysis that they are interested in but could not do in Excel. In addition, they will also be able to manipulate the data in a way that will allow them to come up with even better recommendations and feedback for each individual program because more detailed analysis can be done easily. Each program will then be able to service its customer better through feedback that they get from the DRPE.

## **Description of Approach**

- Look at past surveys and analysis
- Look at current survey and discuss analysis to be used
- Show staff a finished Access database and discuss possibilities with Access
- Discuss other analysis desired that wasn't possible in Excel
- Discuss and come up with analysis that would provide useful data but not currently used
- Discuss creation of forms, queries, and reports and how they can be used to make the current task at hand take less time
- Weekly exercises and are based on the customer satisfaction survey that are to be done when the consultant is not present. This makes the staff apply skills learned and apply to familiar context. Exercises will ask staff to create parts of the final customer satisfaction survey database
- Show staff how to use Microsoft Access troubleshooting and also other online help pages
- Document troubleshooting process and online help pages
- Document new analysis and the information it provides for future reference

## **Potential Impacts**

### **Information Management**

- Future data will be kept in Access format

### **Staff**

- Staff will be able to think outside of the box with Access' added functionality compared to Excel, thus being able to manipulate and analysis data as they wish in future databases
- Through the added functionalities of Access, staff will be able to perform tasks more efficiently, and they will have more time to attend to their other responsibilities

### **Department**

- DRPE will be able to conduct more efficient analysis with future data in Access and provide above and beyond feedback and results
- 

### **Organization**

- Better information, feedback, and suggestions can be delivered to each program
- Each program can improve services and serve more customers better with information obtained

- Better information can be provided to the board and potential donors
- Board and donors will have better idea of the statistics of the organization and where and how the money is spent, and if FSWP is achieving its mission
- FSWP will receive more funding
- Programs can improve services and serve more people with increased funding

## **Part II Outcomes**

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### **Results of Consulting Work**

#### **Consulting Task 1 Outcomes: Create a Microsoft Access Database to Keep Track of the Results of the Customer Satisfaction Survey**

##### **Concrete evidence of outcomes**

The staff was very thrilled about Access after seeing the potential of it, and was eager to get started on learning how to use Access. Maha started experimenting with Access on her own in between the weekly meetings and would show the consultant what she has tried during the week and bring up problems she ran into during the meetings.

A run through of how to draw an entity relation(ER) diagram and of database terminology was done with the staff. (**Appendix 3-A**) The staff was also asked to draw their own ER diagrams after the run through to make sure they understood the concepts and could draw the diagram on their own. Annette, Maha, Michaela, and the consultant then created an ER diagram of a part of the customer survey together. (**Appendix 3-B**) We also outlined the structure and schema of the customer satisfaction Access database and discussed the attributes of the different types of tables. (**Appendix 3-C**) It is difficult to draw out the whole ER diagram because the customer satisfaction is still undergoing changes.

The staff knows how to maneuver in Access: how to create tables, queries, and forms. The basic structure of the survey database has been created but data has not been inputted into the tables yet. Relationships between the tables has been discussed and agreed on. (**Appendix 3-D**) Part A of the customer satisfaction survey has been created in the database and almost all of the part B surveys have also been created.

Weekly Access exercises were done with the staff and tasks were given out at the end of each session. The staff applied what they learned through the exercises to complete the tasks on their own in between the sessions. Tasks were based on parts of the customer satisfaction survey. (See **Appendix 3-E** for table creation, **Appendix 3-F** for relationship creation, **Appendix 3-G** and **3-H** for form creation) Now, the staff can create tables, queries, and forms easily. The staff created everything that they have on their system right now and the consultant has only answered questions that the staff brought up during the meetings.

##### **State before the consulting partnership began**

The customer satisfaction survey data used to be managed and analyzed in Excel, but is now moving towards an Access format.

Maha used to hand code the number survey results in Excel before and it would take up to a day to set up an Excel database and enter ten survey's data into the Excel file. Now in Access, Maha can set up a database based on an ER diagram and enter thirty surveys in a day.

##### **Evidence of capacity “yet to be reached”**

Surveys other than the customer satisfaction survey are still kept in Excel format and those surveys will probably not be converted into Access format. This shows that the staff is not 100% comfortable with



Microsoft Access yet. Though future data may be kept in Access, data already entered into the system are probably going to be kept in Excel even if the data may be better managed in Access. With more practice and experience with the current customer satisfaction survey database however, the staff should become more comfortable with using Access for other purposes in the future. In the future, they will create files in Access or Excel based on the criteria of the data instead of their comfort level for the software program. Depending on their comfort level with Access, they might even convert some of the Excel files into Access format if they see the need.

### **Increased capacity**

Michaela realized that they can utilize Access so that each year, the database can be reused to input new survey data. This not only saves time because now only minor tweaking has to be done to set up the new database instead of creating from scratch, this also makes it easier for Michaela to compare the results from year to year. This makes it easier for Michaela to analyze all the data, which makes it easier and quicker to come up with useful feedback for individual programs on how they can better serve their customers.

Access can check the data in each cell for the user. Maha has set up the tables so when invalid data is inputted by the user, Access will notify the user that an invalid value has been inputted and ask the user to double check his or her input. With less error on the inputted data, more accurate feedback and recommendations can be formulated and given to the individual programs to help them improve in areas that need improvement.

In addition, Microsoft Access is designed for multiple users to update and access the database at once. This is an added functionality of Access in the software that Excel did not have. Multiple staff members can be simultaneously working on the same database with no version conflicts. Access automatically locks tables when a user is using it so if another user tries to access the same table, he will be denied access to prevent editing on the same table. However, the second user can modify other tables at the same time. This makes the creation and analysis of a database take less time than in Excel format because two people can be working on the same file at the same time.

### **Sustainability**

The database is not fully implemented and tested. This is a sophisticated database and required more time than a semester to finish implementing it and test the whole database. This is also because the customer satisfaction survey is still changing and the final format has not been decided on. There is a chance that all the work done so far might go to waste because it might become too overwhelming for the staff to finish and test the database on their own without a technology expert. However, the main skeleton of the database has been created and the staff just has to follow the current model to finish the rest of the database.

Questions are brought up and solved together (staff and student consultant) at the weekly meeting if there are any. Therefore the staff has the capability to perform all required tasks to finish the database. However, if another student consultant was to come back to this department over the summer or next fall and help assist the completion of this database, the chances of this database being finished in the near future is higher.

Maha can also explain table creation concepts to Michaela when Michaela gets confused. Maha is specialized in data entry while Michaela is focused on data analysis.

Though Michaela does not need an extensive knowledge of things such as table creations, Maha fully understands the concepts and how to do things and can explain concepts to Michaela when she gets curious about them.

When encountered with problem when doing the weekly tasks, the staff first resorted to the Microsoft Access help page to look for possible solutions. After that, they looked at the online pages provided for further help. They searched for help online at [www.google.com](http://www.google.com) when they were not able to find help on those online sites for the problems they had. The student consultant has also compiled a list of online sites for Access help that the staff uses when encountered with problems. (Appendix 3-I) Questions were brought up at the following session if still not solved. There were ten questions asked after the first task, and only three asked after the last task. The staff, instead of resorting to find help at the next session right away, was able to take the matter into their own hands and help each other and search for help online on solving their problems. This shows that they can solve their own problems even after the consultant leaves.

In order for the staff to continue using this database and using Microsoft Access for their other databases, the staff has to become very comfortable with Access. In order for this to happen, they will need to work more and experiment more with Access. The book "Microsoft Office Access 2000" by Lisa Friedrichsen is something they are considering getting for future reference on how to maneuver in Access. The book has very detailed, step-by-step instructions and pictures of how to perform tasks in Access. The glossary of this book is very straightforward and easy to reference to when wanting to find help quickly.

### **New vision**

Before seeing the capabilities of Access, the staff considered just creating each program's survey into its own database. After understanding the concept behind relational databases, they realized that it would not only be more efficient, but also more useful to them and easier to manage if the database contained all the programs' survey data. They also realized how they could use Access to build other databases for other research projects and survey results to make it easier to manage and analyze the data. This could be a step towards moving other information into Access format.

## **Consulting Task 2 Outcomes: Revisit Current Analysis of Customer Satisfaction Data and Improve Analysis and Efficiency with Microsoft Access**

### **Concrete evidence of outcomes**

Michaela came up with alternative ways of analyzing the data through the added functionalities of Microsoft Access. For example, she can now easily get the average of a field through one click. (Appendix 3-J) Through the creation of reports, Michaela can now easily print out easy to read copies of the analysis results of the data once she sets up the reports. (Appendix 3-K) These analysis of the data provided better information that allowed Michaela to be able to provide better feedback for each individual program.

Maha can also enter data efficiently into the Access database with fewer errors than before through the creation of forms. Because forms are created in a user friendly interface, it is easier to input data into forms than into tables. Question answers are coded once before inputting data into the table instead of hand coded every time like in Excel. Access forms are set up for the number value so that the answer are

looked up and stored in the corresponding fields after Maha selects the answer from a combo box. The combo box also saves typing time and reduces the number of errors in inputting questions answers. (Appendix 3-G and 3-H)

### **State before the consulting partnership began**

Michaela used to take five minutes each time to set up the analysis that she wanted to conduct on a survey. When she wanted to conduct the same analysis on another survey, she would have to spend another five minutes setting it up. Now with Access, she realized that she just has to set it up once, and from then on, she only needs to do one click to conduct the analysis and see the results. (Appendix 3-J) She can also easily modify current existing queries to do the same analysis on new data.

Maha used to hand code the number survey results in Excel before and it would take up to a day to set up an Excel database and enter ten survey's data into the Excel file. Now in Access, Maha can set up a database based on an ER diagram and create a form and enter thirty surveys into a table in a day. Access also can check the validity of the data inputted into the cells so the total number of errors has also decreased from before.

### **Evidence of capacity “yet to be reached”**

Maha seems to still be more comfortable with inputting data into tables directly than creating forms and inputting data into forms. This is because she worked with Excel in the past and forms were something that didn't exist in Excel. However, through the forms exercises and other hands on experience throughout the past couple of months, Maha is more comfortable with forms than when she first started. Through working more with forms, Maha should be able to make the transition from tables to forms smoothly.

Queries and reports is still a relatively new concept to Michaela and she is slight intimidated by the new concept. However, through the weekly tasks, she realized that queries and reports have a lot to offer and would make life easier. After the past few weeks of practicing, she is more comfortable than when she started but is still overwhelmed by complex queries.

### **Increased capacity**

Maha can now create a database and set up error checking within the database tables. This decreases the number of errors on the database. Maha also created user friendly forms which make data entry easier and faster. (Appendix 3-G and 3-H)

She also realizes that when the individual cells are linked correctly, information will only need to be inputted once and changed in one location for it to affect other linked cells. This saves time and lessens the rate of errors on data input. This also lessens the amount of data because there aren't any redundant data in the database anymore.

Michaela listed many analyses that she would always need when analyzing the survey results: averages, percentages and so on and so forth. She knows how to set up simple queries quickly because it was set as one of the weekly tasks and she performed it on her own. (Appendix 3-J) This again, saves time and allows Michaela to spend more time to formulate good feedback and recommendations for the individual programs.

She also knows how to create reports which makes analyzing the data easier and also makes looking at the analysis results easier than in the Excel table format. (Appendix 3-K) This saves her time on formulating her recommendations to the programs and allows her to spend more time on other responsibilities such as conducting surveys at customers' homes.

## **Sustainability**

The staff has to define what they want to do, then find ways to accomplish their goals in Access. Excel is less powerful in the database and information management sense and up until now, the staff has let their "imagination" be constricted by Excel. However, Access is a lot more powerful and the staff can accomplish a lot more through the usage of Access. They have to think of what would make life easiest for them, and then look through online resources or ask their MIS staff for help if they cannot find a solution themselves.

They currently have basic knowledge of Access and are comfortable with using basic functionalities. However, when they have to conduct more advance tasks, they are still new to Access so therefore sometime overwhelmed by the difference between Excel and Access.

One of the risks is that the staff might become comfortable and not look for functionalities of Access that would make their life easier when performing their tasks and just stick with the basic knowledge of Access that they have now. Online help sites have been given to the staff (Appendix 3-I) and staff can easily access these sites to look for help and new functionalities if they desire to help lessen this risk.

## **New vision**

Instead of only conducting analyses that are within Excel's capabilities, Michaela created queries and analyses that would be useful to her when analyzing the data. Access with its higher capabilities, allows her to manipulate the data in ways that would make it easiest for her to use, instead of for the software program. Now she can analyze the data at a higher level more quickly than before. Maha was introduced to the concept of tables being linked and also the concept of forms. They are realizing that Excel and Access are good for management of different types of data. In the future, they will be storing files in either Excel or Access because of the type of data at hand and not because they are more comfortable with Excel. Annette also sees storing data in Access format helping her data analysis in SPSS become more efficient because data can be more easily manipulated and extracted in Access.

## **Family Services of Western Pennsylvania – Joint Recommendations Report**

Student Consultants: Tolga Erbay, Madhuri Shah, Diana Chen  
Community Partners: Sue Kerr, Evangeline Holmes, Annette Trunzo

### **Vision of Technology for the Organization**

Family Services of Western Pennsylvania's overall vision for technology in their organization must be looked upon from two perspectives. First, to sustain current technology by predicting IT problems before they arise or become mission-critical. Second, the vision must include ways that the organization can innovate with new technologies, in order to allow them to accomplish several things. Innovation for the organization comes from the following goals: Increasing the capacity of each individual employee so they can pursue their work more efficiently can be done by giving staff in-house training (Goal #5 below) and providing a resource center (Goal #6) that they can refer to. A proposed centralized database (Goal #4) for surveys can act as a way in which staff can communicate together and across divisional boundaries, with uniform processes. Sustainability for the organization comes from having a technology plan, together with a committee and technology Director (Goals #1-3) that focus FSWP on an organization-wide level towards IT sustainability and innovation by directing these efforts and providing for them in a timely and organized manner.

### **Goal 1 – Develop a Comprehensive Technology Plan (Tolga Erbay)**

A comprehensive technology plan for the entire FSWP organization is absolutely necessary when looking into the organization's technology issues in the long term (1-3 years and beyond). Simply stated, the main goal of this recommendation is to create and develop a workable technology plan that has sustainable goals, implementation procedures, and funding guidelines.

FSWP is a very large organization and often its divisions work semi-independently of each other. While this form of independence provides some efficiency, it does not work well for information technology issues. In the past, FSWP divisions have leaned on certain knowledgeable employees to work on IT problems on the side, or have used Carnegie Mellon student consultants to solve localized problems. While this practice has been successful, it has not addressed the main problem, which is a lack of IT vision. This has also prevented FSWP from anticipating IT problems before they became critical or urgent. The current MIS staff is not equipped with the funding or the mandate to create large-scale IT solutions. Part of the reason is that they have no plan with which they can look forward and take steps to use technology to enhance the organization's services. A technology plan will have an immediate and clear beneficial impact on the organization by identifying current IT issues and providing the basis for solving them. It can also be used as a solid document to which MIS staff can refer to when requesting funds for these projects. For example, when requesting funds for a common online resource center (described in goal #6 below), having the technology plan specify cost approximations and implementation timelines will allow the Directors to see exactly how, where, and when their money will be used and this makes it easier for them to "buy in" to the concept.

Ultimately, the scope of the plan itself is at the organization-wide level. The actionable items it contains may have a more limited scope, pertaining to certain divisions or even certain programs. Ultimately this plan should address issues both large and small so that the organization always knows the current status of their technological environment, and how it is being used to further their vision and mission statement.

## Approach

The following is an outline of the steps that can be taken to create a technology plan. These steps are taken from online resources at [www.techsoup.org](http://www.techsoup.org):

1. **Assess Resources:** This can be completed in the first three months. The main idea here is to assess what technology the organization has. After creating a definitive list of resources, draft a summary that includes what technologies are working well and what technologies are not and need to be improved.
2. **Define your needs:** This can be completed in months 3-6. As techsoup puts it, “The trick to defining your needs is to describe what you want to do with technology, not what you think you need to buy. Consider the problems you might run into in your organization ... Then consider all the potential tools, including technology tools, which you might use to solve these problems.” This will involve meeting staff from all over the organization and conducting several brainstorming sessions, possibly also including an outside consultant, such as a Carnegie Mellon student.
3. **Explore Solutions:** This part requires the most technical knowledge and thus should span from approximately months 6-12. In this phase, the needs expressed in the previous phase are transformed into solutions. After the needs are identified, it is time to identify technological ways to solve them by means of coming up with a physical implementation plan. This requires the most technical knowledge, as a wide range of technology solutions exist for any given problem and knowledge of each method is needed to assess which one fits best with the organization. Either the MIS staff should allocate special time for this or an outside consultant who better understands the proposed technical solutions should be brought in to help identifying solutions. Online resources such as [www.techsoup.org](http://www.techsoup.org) have a number of resources on this issue.
4. **Finalize the written plan:** This happens in months 12-18. Also, once it is completed, consistently repeating this process and keeping the plan up to date is something that should be done regularly at least once a year. The plan will address the needs of the organization and have a scope of about 3 years. The budgets will be outlined and the benefits will be detailed in the write-up of the technology plan.
5. **Implement the Plan:** Carry out the actionable items listed in the plan, and keep the plan updated, adding new tasks as they present themselves. If certain items are completed before finalization of the total plan, those items can enter implementation before this period (if funding allows).
6. **Evaluation:** This can happen for the first time after 24 months and then continue once annually. The idea here is to see if the technology plan is working, if implementations are effective, and to decide what updates to goals and tasks for the plan are necessary. A set of measures can analyze the outcomes that stem from this goal and can be used to improve the plan in the future.

## Timeline

0- 3 Months: Assess resources

3- 6 Months: Define your needs

6-12 Months: Explore solutions

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12-18 Months: Write the plan  
18 Months and beyond: Implement and revise the plan  
24 Months: First evaluation period

## Outcomes

The creation of a technology plan will create many positive outcomes for the organization. These outcomes can be seen in two ways:

- the outcomes from creating an organized plan
- the outcomes of the actionable items in the plan

The outcomes of the actionable items in the plan will be addressed in the other recommendations. The outcomes of having an organized plan itself are addressed below in the other Goals stated in this report. For the organization, the creation of a technology plan will impact the entire organization. A guaranteed plan will unify the organization's IT efforts, thus saving time and money for the employees by eliminating redundancies and confusion on various IT tasks. For example, in the current situation, multiple divisions have different versions of the same survey forms. Having a clear technology plan that acknowledges clear form standards will put every division on the same page, and eliminate the confusion that different forms can create. The staff will be impacted by this in that they will be able to secure funds more easily by having IT tasks outlined and prepared ahead of the implementation. Also, the staff will be able to follow a solid work plan outlined in the technology plan for each item. The technical environment will be improved as an outlined plan will allow staff to look forward towards IT improvements and enhancements, rather than simply to fix what they have, or solve problems as they come up. The environment will be enhanced by all of the tasks outlined in the plan. Technology management is the essential purpose of creating a technology plan. Before a plan is created, FSWP's technology management will stay in its current state, where essentially each division tries to solve its own IT related problems, and the organization's MIS staff only work to repair current systems, without looking forward to enhance capability. A plan will enable FSWP to look forward and enhance their IT capabilities.

The outcomes of this recommendation are ultimately very observable. The physical creation of a technology plan is the most observable outcome. This outcome means there is a plan that is outlined on paper and approved by the appropriate directors in the organization. The next observable outcome would be the actual undertaking of the implementations lined out in the plan. A measure that can be used to see if the plan is being created properly is simply comparing the real-world actions taken to create it and compare them to the implementation times outlined above.

## Resources

**Internal resources:** The best internal resources FSWP has at this point are the Community Partners who have worked with Carnegie Mellon student consultants in the past. These CPs have the knowledge and capability to make implementations happen. As they have been able to see a sustainable IT solution from start to end, they have the experience to outline new solutions in the model of those past ones. This is the key for writing a technology plan. As for facilities and resources the first step of the plan is to build a comprehensive list of resources. Also of use will be the resource center that is listed as another recommendation in this document can be useful, if it is implemented prior to the creation of the plan.

**External resources:** The best external resource for creating a technology plan is the Technology Planning section of the [www.techsoup.com](http://www.techsoup.com) website located at <http://www.techsoup.com/howto/articles.cfm?topicid=11&topic=Technology%20Planning>. This section

has over 20 articles describing every step of the process outlined above, as well as links to external resources and guides online. It also includes worksheets for hardware assessment and a number of other processes that are keys to creating a technology plan.

It is highly recommended that an outside consultant be brought in to help with this process. As FSWP has a history with Carnegie Mellon of using student consultants, this would be a natural extension of that practice. The student consultant's role would be to identify the technology issues, help guide the creation of the plan, and explain the best solutions to the CP in step 3 outlined above. Other outside consultants can be contracting from any of the other universities or colleges in Pittsburgh, or from other non-profit organizations who have completed a similar plan-creation task. Lastly, other external web resources may include the following:

The National Center for Technology Planning – <http://www.nctp.com>  
Technology Strategies for Non-Profit Leaders Guide - [http://www.npower.org/tools/ts\\_workbook.zip](http://www.npower.org/tools/ts_workbook.zip)

Contact information for Carnegie Mellon student consultants:

Joe Mertz	e-mail: <a href="mailto:JoeMertz@cmu.edu">JoeMertz@cmu.edu</a>
Assoc. Teaching Professor	Phone: (412) 268-2540
Carnegie Mellon University	
Hamburg Hall, Room 3022	
4800 Forbes Avenue	
Pittsburgh, PA 15289	

**Budget:** The costs of creating a technology plan are somewhat minimal. The main costs, however, come from the items listed in the plan and an estimate of each of those would be necessary to evaluate the total cost of everything included in the document. As for the costs of creating the plan itself, the main issue is staff availability and outside contractors, such as student consultants. As student consultants work on a volunteer basis, the only cost to the organization is that of the time the CP spends with them. The creation of a plan, from start to finish, can be expected to take one CP about 4 hours a week each, for about 40 weeks a year, for a year and half. Thus the total cost is roughly 240 hours at the hourly paid rate of the CP.

## References

*Do I need help with my technology plan?*  
<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=93&topicid=11>

Techsoup.org's Technology Planning Section  
<http://www.techsoup.org/howto/articles.cfm?topicid=11&topic=Technology%20Planning&cg=nav&sg=tchplan>

The National Center for Technology Planning <http://www.nctp.com>

*Non profits needs survey* Virginia Piedmont Technology Council.  
[http://www.stratpartners.com/VPTC/Needs\\_Survey\\_Overview\\_1-2a.pdf](http://www.stratpartners.com/VPTC/Needs_Survey_Overview_1-2a.pdf)



## Goal 2 – Restructure the Technology Committee (Diana Chen)

Restructure the technology committee with people from different background (technical and non-technical) and at least one representative from each department. The committee would talk about technology issues and create action-based plans during their meetings. They would also be responsible for the creation of a technology plan and also re-evaluation of the technology plan periodically. As of now, FSWP has a technology committee; however, they seem to focus more on recap and review. The restructured technology committee would be able to better represent the organization and be able to make better technical decisions because there are people with technical backgrounds on the committee and from each division. Because they would be able to make better technology decisions and since they have a wider knowledge base, the technology plan made by this committee will take more issues into consideration and be a more complete plan.

### Approach

1. Choosing people to serve on the technology committee to insure that technology issues from every facet of the organization will be fully addressed and also be carried out

The make up of the committee is very important. People who have the technical skills and knowledge should definitely be on the committee, however, people who understand the vision of the organization, the different programs, and the operations of the organization and its programs should also be included in the committee. It is also important to include people from different experience levels and attitudes; in addition, having people on the team that have power to influence the plan's implementation and acceptance by the organization and its stakeholders is important as well. Though you want different perspectives, having too many people on the team will make the team hard to manage and slow down processes.

The key is to find a good mix of people who can define a vision together, form strategy and complete tasks.

Some positions that are often in technology committees of other organizations are the following:

- Executive Director – authority to ensure that plans are carried out
- Board Members – authority to set policy for the organization, source of funding
- Department heads – knowledge of their department and what issues they have
- Fiscal Advisor/Officer/Staff – awareness of available funding, control of funding and budget
- Program Managers and Staff – knowledge of the program and what issues they have
  - technical skill set: knowledge of what software programs are currently used in their program and how to use the software program
- Management of Information Systems staff – technical knowledge
  - technical skill set: knowledge of all Microsoft Office programs
  - knowledge of QUALIFACTS
  - knowledge of other software programs frequently used by employees
  - hardware knowledge: printer set up, computer configuration
  - networks knowledge
  - knowledge of potential software programs out in the market that the organization might be interested in using in the future

The best people to pick the new committee members are the current technology committee because they know what pitfalls to avoid and what worked well and what did not. The committee of course can include members from the previous technology committee. However, because the current committee seems to be less action based and more discussion based, the composition of the committee needs to be changed and the logistics of the committee also need to be changed for the committee to be more action based.

## 2. Regular monthly meetings

The team should meet regularly, form clear agendas, assignments, and timelines. Board members and executive directors are suggested to join the meeting every three to six months so they are updated by the committee members and can bring up concerns. It is important to have a facilitator who can keep everyone on task (see goal 3), and also a secretary who will take minutes during meetings. One of the main goals of the technology committee is to create the technology plan (refer to goal 1 for details).

Here are some of the topics that could be discussed at the monthly meetings:

- Technology plan
- Security
- Computer update plan
- Employee training (to use software and technical knowledge)
- Creation of centralized databases (i.e. customer information, satisfaction survey)
- Adding new features to QUALIFACTS
- Integration of centralized databases and QUALIFACTS
- Issues and problems are to be addressed and discussed

The following is quoted from an Executive Director of a Massachusetts based community action agency about the responsibilities of his technology committee:

*In addition to providing information and feedback, our Tech Team has several important responsibilities:*

- influencing the culture of the organization regarding the use of technology*
- understanding and sharing the values and the responsibility for technology*
- developing (and sharing with others) the complexities of using/maintaining technology*
- continuing as advisors to administration regarding our progress, needs and successes with technology.*

## 3. Bi-annual re-evaluation

The team should re-examine its progress quarterly to make sure that they are focused and on task. They should also re-evaluate its members and add and removes members as necessary to make the team more efficient and more effective. The evaluation can be integrated into FSWP's annual employee evaluations process.

Checkpoints could be set for plans and projects. For example, "part A of the database implementation plan has to be finished by May 31, 2005." Plans and projects in progress should also be reviewed every three months. When creating the plan, a timeline is created and during the review period, the plan will be evaluated based on if all deadlines are met and if not met, why they are not met, then take appropriate action if the deadlines were not met. In addition, during

each review, the timeline of the project should also be updated because there will be more information to base more accurate projections on.

## **Timeline**

The committee should be formed within the first three months. Monthly meetings will be held at a set time and all members are required to attend. Board members and executive directors are required to attend meetings quarterly to be updated on recent decisions and progress of previous plans. The committee will evaluate itself whenever FSWP does its employee evaluations to make sure that they are not off course. Plans in progress should be re-evaluated every three months.

## **Outcomes**

With a technology committee properly set up and functioning, FSWP will be able to spot technical problems before they occur and solve and prepare for the crisis while it is still minor. This will save money for the organization and time of many employees.

FSWP will have a better technology structure and will not be doing things out of necessity, but out of foresight that the organization will benefit from the ideas implemented. The organization will be more prepared and be organized as a whole. For example, there are currently two student consultants working on creation of Microsoft Access databases for two programs within FSWP. If the new technology committee was in place, a centralized database could be suggested and implemented, thus allowing all programs of the organization to benefit from this addition, and not just two programs.

In addition, since the technology committee represents different points of views and knowledge, the technology plan produced by this committee will be more complete and cover more potential issues. With some members on the committee as influential members in the organization, plans decided by the committee will have more chance of being implemented than if the committee just consisting of department heads or of the MIS department alone. People with different points of view will make the committee consider more issues and come up with more complete implementation plans and more diverse ideas because everyone's view will have to be addressed during the meetings.

Because the committee will be deciding on how to allocate the funding for all projects, funds will be assigned in an organized way and there won't be confusion and allocation of funds will be decided while taking the whole organization into account, instead of just program by program.

## **Resources**

### **Internal resources:**

- Members of the committee within the organization (i.e. exec. board members, IT staff)
- Meeting rooms
- Members of the previous technology committee

### **External resources:**

- Members of the committee outside of the organization if there is any (i.e. stakeholders and consultants)
- Technology assessment sites (i.e. [http://www.summitcollaborative.com/strategic\\_technology.html](http://www.summitcollaborative.com/strategic_technology.html))

## Budget

Though the meeting will not cost additional funding, it will cost the organization work hours. Each monthly meeting may take an average of three hours from each of the committee member's work hours each month for the actual meeting. Fifty four weeks in a year, three hours per meeting would equal to 162 hours per year from each of the employees on the committee.

## References

*Your Technology Team*

<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=270&cg=searchterms&sg=how%20AND%20to%20AND%20create%20AND%20a%20AND%20technology%20AND%20committee>

*Recruit and Organize your Technology Team*

<http://www.rmcdenver.com/eetnet/team.htm>

*Developing Management Buy-In*

<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=47&topicid=11>

## Goal 3 – Expand the Role of the MIS Manager (Tolga Erbay)

The student consultants recommend that in order to implement long-term information technology solutions, FSWP should expand the role of the current MIS Manager. Currently, wide-scale implementations and on-the-fly planning begins with the Chief Operating Officer, Steven Christian Michaels. In the past, Mr. Michaels has been active in seeking out how FSWP can better use their technology. However, because this is not his primary role, and because he is not directly involved in any implementation issues, there is a gap between vision and implementation. Whereas in the past, the MIS Manager's role has been primarily based in maintenance and select implementations, the manager's primary role will now be to oversee and direct the organization's vision for technology solutions. The manager will see that the technology plan is regularly updated, that the items outlined in it are being completed and that all the solutions are being sustained. Also, they will sit in on meetings with the Board of Directors and help acquire the funds necessary for IT projects while describing how they will benefit the organization and enhance their ability to meet FSWP's mission.

The goal here is to “develop” this wider managerial position over the next few years. The recommendation is to allow the current MIS manager to take on these responsibilities, however it may be anyone who meets the qualifications listed below. This person ideally will work on the development of the technology plan and work with future student consultants in order to obtain the necessary technical background. This will insure the manager has a breadth of knowledge in both the technical and organizational issues necessary to do his/her new job.

## Approach

The steps to creating this position are outlined as followed:

1. Appoint a possible future manager who will work on development of technology plan: This can happen as soon as there is a decision to begin the development of the plan. The manager should be someone who is comfortable working with various people from across the divisions of the organization. The person should have an in-depth knowledge of

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Student Consultants: Diana Chen, Tolga Erbay, Madhuri Shah

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the technical environment at FSWP and should be aware, if not well-informed, of the various ways in which organizations implement technology solutions. Lastly, the person needs to be able to communicate technical ideas to non-technical people, in an attempt to secure funding for IT projects.

2. Allow the new manager to work with outside consultants to obtain the technical knowledge needed: this should happen in the period of 1-18 months. A contracted student consultant could work with the manager to begin laying out the skeleton of plan. Concurrently, they should be looking ahead with the student as to what the likely tasks outlined in the plan will be. Once those are identified, the manager should work with the student to gain the minimal technical knowledge necessary to follow through on the task and the potential implementations.
3. Gain permission to expand the role of the MIS Manager: This will happen in conjunction with FSWP Directors and the Chief Operating Officer. This should happen in months 18-30. The purpose here is to lay the groundwork for the actual creation of the position. This will involve convincing Directors and the COO that this is a necessary and viable position which will empower FSWP to meet their mission by having a forward-looking technology vision.
4. Along with gaining permission to expand the role of the MIS manager, it will be necessary to expand the regular MIS staff and add a new staff member, so that the manager can focus on his/her new responsibilities. Currently, the MIS team is too busy with maintenance issues and Qualifacts implementation and cannot address long-term vision goals. In order to allow the manager a chance to do this, FSWP must hire an additional MIS staff member.
5. Finally appoint a person to that job. This can happen immediately after step 3. The ideal appointment for this job would be the current manager who has worked on outlining an initial technology plan. Alternatively, someone may be brought in from outside, provided they have the necessary experience, education, and technical knowledge.

## **Timeline**

0 - 1 Months: Appoint a possible future manager

1 - 18 Months: manager gains necessary technical knowledge

18 - 30 Months: Create expanded manager position, hire new MIS staff member

30 Months and on: Appoint the new manager

## **Outcomes**

The creation of a new, expanded manager position provides many positive impacts to the organization. Primarily, this position goes together with the creation of a technology plan. It can either happen concurrently or act as an actionable item within the plan. Ideally, the future manager would play a key role in the development of the plan, however. The main observable outcome here is the actual creation of the position and the appointment of that manager. Having a these new responsibilities attributed to a person will empower the organization to organize their technology efforts in a way that is very similar to the creation of a technology plan. The manager serves as a spokesperson to the organization's technology vision. When the staff have a technology issue, or feel like they see a need for improvement in an IT

service, they can come to the manager and propose a change. A manager is also a representative for IT at the top levels of the organization, regularly interacting with the Executive Director and/or the Chief Operating Officer. It is critical in selling the implementation solutions to those who are in charge of IT funding. The manager will be able to articulate the IT situation and the proposed tasks in the plan to these people and secure the funding and organizational support necessary to move forward in the process. This severely limits the scope of the IT work that is done, and the new manager will be able to broaden this scope.

## Resources

**Internal resources:** The obvious internal resource here is the person who will become the manager. While this may be someone who comes in externally, it is recommended that the future director is the current MIS Manager. This person will best be able to fill the role within the organization. Another internal resource is the Chief Operating Officer, Steven Christian Michaels, who has been primarily responsible for the technology vision of the organization up to this point and can provide useful input throughout this process.

**External resources:** External resources here include an outside consultant who can work the potential/future manager in outlining the roles and responsibilities for the position. This can be done concurrently with the creation of a technology plan. Because implementing the position, and advocating its existence is a critical hurdle that may be difficult, several articles address how to change the IT culture to make this more reasonable:

*Nurturing the IT Culture: the Leadership Challenge.* Anderson, Dr. Larry S., National Center for Technology Planning. <http://www.nctp.com/articles/nurture.pdf>

Also, various articles at the following sites can be used to follow the steps outlined above, and overcome hurdles in creating IT positions within non-IT organizations:

<http://www.techsoup.com>

<http://www.nctp.com>

## Budget (Cost Estimate)

Primarily, the main cost of creating this new position is the personnel cost. The salary for the expanded manager position needs to be set at an amount that is reasonable to the organization, while being fair to the manager's skills and experience. For a non-profit organization in Pittsburgh, this can be anywhere in the range of \$35,000-\$75,000 annually according to estimates from [www.salary.com](http://www.salary.com). Also, since the manager is likely to be someone from within the organization, it will probably be a raise in that person's salary due to the increased responsibilities and executive visibility the position dictates. The development of this position involves the staff time necessary for the current manager to work with a student consultant in the development of the position. Additionally, in order to allow the new MIS Manager to concentrate on future implementation and the technology plan, it is recommended FSWP bring on another MIS staff person. This person's starting salary needs to be taken into account as well.

## References

*Do I need help with my technology plan?*

<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=93&topicid=11>

Techsoup.org's Technology Planning Section

<http://www.techsoup.org/howto/articles.cfm?topicid=11&topic=Technology%20Planning&cg=nav&sg=tchplan>

The National Center for Technology Planning <http://www.nctp.com>

*Non profits needs survey* Virginia Piedmont Technology Council.

[http://www.stratpartners.com/VPTC/Needs\\_Survey\\_Overview\\_1-2a.pdf](http://www.stratpartners.com/VPTC/Needs_Survey_Overview_1-2a.pdf)

## **Goal 4 – Develop a Centralized Database for the surveys (Madhuri Shah)**

Coordinate the establishment of a common, centralized organization wide database which can be readily accessed by the users in various divisions and improve the quality of the survey reports which can then be used as a resource to get more funding. The system will keep track of the various surveys that take place in the organization. This could be kept separate or included into the existing QUALIFACTS web based system.

Even if the system is developed separate from the QUALIFACTS, it will be a good idea to design the system in such a way that future integration with QUALIFACTS is easy since FSWP does plan to integrate the surveys into QUALIFACTS in the future.

### **Rationale**

Time and money is going to waste. The number of hours staff members lose every week trying to maintain paper based survey forms increases exponentially as the number of surveys increase. The number of survey is going to increase with the number of clients. The cost to the organization of this wasted time is significant. For example, if 5 administrative staffs spend four hours per week trying to sort the forms and extract data to produce outcome reports, it costs the organization \$400 per week (at an estimated value of \$20 an hour). Instead if they used the centralized database to produce reports, they would spend only one hour per week, or \$100 worth of time doing the same work while producing a better quality work.

### **Approach**

There are two of approaches that can be considered in implementing the centralized database.

One option which would involve minimal participation in system development by the organization would be to hire a consultant to deliver a system, including hardware, software and a comprehensive database. This would be a similar approach that was taken to build QUALIFACTS. Contracting the company who built QUALIFACTS will be a good idea since they are already familiar with the organization and the business processes in the organization. However, the costs could be significantly higher than developing the database system in-house.

The second option will be to develop the system primarily by FSWP personnel rather than exclusively by contractors. One way is to pair an outside database expert with a knowledgeable FSWP staff person as the design team. The staff person can help identify needs and write the specifications while the developer can speed the creation using his/her practiced techniques. In addition, the staff person can use the development process to learn how to use the new tool.<sup>[2]</sup> This would lead to an in-house database system

development and would also lead to a better understanding of what is involved in maintaining such a system. FSWP can even get some assistance from the CMU consultants in the planning and development of the system. This approach would require the staff involved to carry out the following stages.

- **Requirements Analysis:** Gathering information about the existing systems and also the functional and non functional requirements of the new systems. The overall goal and scope of the system should be determined at this stage. For example, a study could be done on the existing system and how much of the existing systems can be used and how much of the system need to be rebuilt.
- **Design:** The second stage of any product development involves the basic design layout of the application by the design unit. This stage will involve identifying the entities, their attributes and the relationships between the various entities. It may involve normalization of the tables as well. The design should include all the individual surveys for each of the division as well as how all the surveys will be integrated. Interface design should also be carried out at this stage. The product designers should record the information regarding the design of the system.
- **System Development:** This stage involves implementation of the design of the system including the backend database as well as the user interface. The main part of development would involve creating the actual tables on a database server such as Oracle or Microsoft Access, creating data integrity rules, queries and the required reports. The final step will be unit testing. Once unit testing is done, all the individual survey databases for all the division can be integrated which will lead the systems testing.
- **System Testing:** At this stage, all the individual units or database for each of the divisions are integrated and the system is tested as a whole. It may also involve testing of the user interface. At this stage some quality assurance measures can be taken to ensure that the quality of the information put into the database is good so that the required reports come out correctly.
- **Product Documentation:** This stage involves documenting the whole process. This is an ongoing process and will be part of each of the stages mentioned above.
- **System Evaluation:** In this step, the whole system is evaluated against the goals to see how well the system is performing.

In order for this to be effective, however, there would have to be a strong commitment on the part of the administrators as well as the users (managers and data entry staff) across all the divisions. Full participation from all the users of the database system would be needed to develop a system that meets the needs of all the staffs across all the divisions in FSWP.

## Timeline

0- 3 Months: Project planning, estimation and learning & documentation  
3- 6 Months: Design, development & documentation  
6- 9 Months: Generating final test plans & documentation  
9- 12 Months: Quality Assurance & Technical documentation  
12-24 Months: Use and evaluation of system performance  
24-30 Months & onwards: Maintenance and addition of new surveys/tables

## Outcomes

A successful implementation of these recommendations will support the use of a single database or linked databases, containing quality and standardized survey data collected by the various divisions and programs. This database(s) will be accessed easily through Web technology by all users and provide past



and present data necessary for use in multiple and customized user interfaces to support the data analysis needs of various program activities. In specific the following outcomes will be achieved:

- Staff involved in the creation of the system will know the entire system development process hence will be able to maintain the system better.
- Staff across all the divisions will be able to generate reports more easily and in less time. Different administrators in the various divisions can share and compare outcome reports and performance of various programs more easily. This will make it easier to find out which programs are beneficial and which need improvement in the organization.
- The organization will be able to show better and more accurate statistical data to the funders and upper management.

## Resources

### Internal resources:

People: MIS Staff

Other staff members to gather survey information

Computers: To connect to the internet to gather information for the plan.

To document the whole plan electronically.

### External resources:

Organization:

#### **Bayer Center for Nonprofit Management**

Address: 718 Fifth Avenue, 4th Floor

Pittsburgh, PA 15219 United States,

Phone: 412-227-6814

Description: The Bayer Center for Nonprofit Management is a full-service management support organization for nonprofits. They offer assistance with strategic and business planning, collaboration and financial analysis. The Bayer Center's Technology Initiative offers consulting, training and research for nonprofits

Website: <http://www.rmu.edu/bcnm>

## Budget

This project if implemented in-house will require at least 2 technical staff to work in the development of the system. One staff member from FSWP will have to dedicate most of his/her time for the first year in developing the database system. The database consultant could be hired for 3 months at an estimated cost of \$30/hour (market rate). In addition to this, the organization may require to purchase an Oracle server or may choose to use MS Access in which case no purchase needs to be made. Therefore the overall costs will include the salary for the staff person, salary of the database expert and any money spent on the software. The total amount can be estimated to be around \$55 000 to \$65 000 for 1 year (\$40 000 + \$15 000 + cost for software).

On the other hand, if the FSWP decides to use contractors and other outside sources in the development of the system, the exact cost will depend the company contracted. The contracted company could charge anywhere from \$100 000 to \$150 000 for the development of the whole system.

## References

1. Battin T, "Should Non-profits Build or Buy a Database", [www.techsoup.org](http://www.techsoup.org)

## Goal 5 – In-House Technology Training (Madhuri Shah)

Create a plan to organize in-house technology trainings on technology issues such as Internet and software usage such as QUALIFACTS, Outlook, Google search etc.

### Rationale

Designing and implementing a strategic technical training initiative is much more effective than training in an incidental and random way. A few reasons why staff training is important for FSWP

(Source: [www.techsoup.com](http://www.techsoup.com))

- **Training is essential to using technology effectively.** New and old technology alike goes to waste when staff does not know how to use them.
- **Time and Money is going to waste.** The number of hours staff members lose every week trying to figure things out and making unnecessary mistakes adds up. The cost to the organization of this wasted time is huge. For example, if 10 staff member spend four hours per week trying to figure out how excel or word works, it costs the organization \$800 per week (at an estimated rate of \$20 an hour). Instead if they took a Microsoft Office class and learnt how to use the common functionalities for their day to day needs, they would spend only one hour per week, or \$200 worth of time doing the same work plus the one time training costs (which is \$0 if done in-house).
- **70% of technology spending should go to training and support.** Many people think that technology spending should go primarily to concrete technology products like new computers and programs. That kind of spending, however, will not lead to an effective use of technology. The accepted rule of thumb is that only 30% of technology spending should go to hardware and software, and a full 70% should go to training and support.
- **Training is necessary for staff to do their jobs.** For example, staff members may need to learn Excel in order to organize their data from a research project so that they can write the report for the funder.

Creating a formal in-house training program will greatly enhance the capabilities of the staff in using technology efficiently. It will make the employees more empowered, more comfortable with their computers hence improving morale. In addition, the MIS staff will have fewer requests for technical support.<sup>[2]</sup> Even technology news letters recommend the use of in-house training to spending loads of cash for external expertise.<sup>[6]</sup>

In addition to the reasons mentioned above, the in-house training approach has several benefits:

- Save money in the long run by spending less on training outside the organization.
- Quite often budget constraints prevent organizations from getting their staff members the training they need. This in-house training approach will reduce financial constraints for training needs since people from within the organization will be involved in giving the training. The only resource that will be required is staff time, including technology (IT/MIS) staff time.

**Description of current situation:**

The consultants have observed that quite a few of the employees who use computer systems for their job are not very comfortable using technology and use them only when they have to. For example most staff members only use Internet for Emails. Also most of the existing training initiatives are not formalized and many of them involve training through outside experts.

**Approach**

This will involve creating a planning committee and the committee is more effective if it includes a member who can make decisions about money and resources in the organization. The committee should also involve staff responsible for developing the budget, human resources, and technical staff. This could be the same committee responsible for technology planning mentioned in Goal 2.

Once the committee is established, the actual steps will include taking a through look at the existing training programs and creating training programs to focus on the actual or important tasks that employees want. The training programs should maximize the use of internal resources to reduce costs and to make the programs more feasible. The steps are described in detail below and are taken from [www.techsoup.org](http://www.techsoup.org).<sup>[2]</sup>

1. **Technology Assessment :** Carry out a through study of the hardware and software usage in the organization and get user input on what tasks are more important as well as the technologies they are interested in learning. This can be done through staff surveys by using questionnaires or by conducting informal interviews. An example of a questionnaire can be found in **Appendix 4-A**.
2. **Set Objectives:** Once the training needs have been identified, the next step will be to set the goals or objective of what the organization hopes to achieve through this training plan. For example the objective can be “having the most efficient staff amongst all the non-profits in the city”. A standard can also be established for the different skills.
3. **Develop a Training Plan and Policy:** The plan should have written guidelines about software standards, expectations and policies. The plan should also include the budget and the time that employees will be spending on training sessions. Prior arrangements have to be made with supervisors of the staff receiving training. A mixed approach can be used for the training style. A combination of the various styles described in the table <sup>[2]</sup> below can be used and the best combination to use can again be determined by asking the staff themselves by using surveys similar to the one in **Appendix 4-A**.

<b>Ideas for training plan</b>
<p><i>Group trainings:</i> In a survey of non-profits in Virginia, 47% of the respondents said that group training is clearly the most valuable type of external assistance in improving the effectiveness of technology use in local nonprofit organizations. One of the best ways to organize group trainings is by holding seminars.<sup>[1]</sup></p> <p>Such classes are best used for intermediate or advanced skills, for the introduction of a new technology, or for specialized software applications. These are more intense one- or two-day training classes that can be led by a knowledgeable technical staff person, but may be best taught by an outside professional.</p>

<p><i>Seminars:</i> Seminars are great ways to organize trainings. Majority of the respondents (78%) in a survey of non-profit organization said they would utilize educational seminars occasionally or regularly. <sup>[1]</sup></p>
<p><i>Workshops:</i></p> <p>Short (15-minute to one-hour) workshops that review or teach new skills that are commonly used in the organization; these workshops may cover office systems, standard applications, other technologies such as phones or Internet applications, or document management. These can be planned and led by in-house technical staff or a knowledgeable staff person. The organization can also make use of free or subsidized workshops organized by other organizations. For example University of Pittsburgh and Bayer Center for Nonprofit Management at Robert Morris university organize training programs for non-profits.</p>
<p><i>Peer Learning:</i> This is possibly the cheapest form of training. This is when staff members help each other with software and hardware questions. Staff members can be encouraged to share "tricks and tips" and "cool solutions" with their peers.</p>
<p><i>Coaching:</i> This can refer to assisting a user with a one-time issue, or a planned process teaming one staff person with another at a higher skill level. This can be an extremely effective way of developing a culture of learning. Every opportunity to teach is an opportunity to learn.</p>

4. **Implementation:** Assign one person with technical knowledge in charge of implementing the plan. This should be one of the main duties of the person responsible for implementing the plan. The staff can use web resources and books to learn more about the planning and implementation process.
5. **Evaluation:** It is very important to evaluate the training programs periodically to ensure that the staff members are happy and that the training goals are achieved and sustainable. This part should include a section on annual performance review on technology training options used in the past year; evaluation of its effectiveness; and training goals or needs for the coming year; this information helps everyone create an individual training plan.  
 Also each year staff members should be asked to comment on the long-term effectiveness of any technology training they completed in the past year. In addition, the IT staff should periodically evaluate the training offered, assesses staff needs, and develop or refine the training formats or course topics. In the event that expectations are not met, the committee can investigate (by interviewing the participants) on why the training programs are not working as expected and then take necessary action to solve the problem.

## Timeline

The timeline can be divided in the following way:

0-6 Months: Technology Assessment

6-9 Months: Set Objectives and Develop a Training Plan and Policy

9-12 Months: Implementation

12- 18 Months: Training followed by evaluation

18 – 24 Months: Training followed by evaluation

24 -36 Months: Training and major evaluation of the effectiveness of the training plan.

## Outcomes

Devoting resources to training will enhance FSWP's ability to fulfill its mission and ensure that it can thrive in the information age. By investing in a comprehensive technology training plan, FSWP can produce the following results: <sup>[2]</sup>

- Better internal and external communication through the use of email and other software such as Microsoft Outlook and GroupWise ( a software for email archiving with anti-span, anti-virus and mobile messaging options)
- Employees will be better able to use computers and hence will complete computer related work much faster.
- The MIS staff will spend less time on technical support and more time on planning for future technology issues.
- As staff members become more familiar with the use of technology, they can do more research on the Internet and capitalize on new opportunities through better communications. For example they can get more research data from the internet to present to the funders to get more funding for the organization. The employees will also be able to store important files safely and retrieve it quickly whenever they need them.
- On the long run there will be less financial constraints on training programs and if properly planned, it will reduce the overall costs of training.

## Resources

### Internal resources:

People: MIS Staff

Other staff members to gather survey information

Computers: To connect to the internet to gather information for the plan.

To document the whole plan electronically

### External resources:

Organizations:

#### 1. Bayer Center for Nonprofit Management

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Phone: 412-227-6814

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Website: <http://www.rmu.edu/bcnm>

Related Articles:

1. TechSoup Article, "Types of training",  
<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=103&topicid=9>

Description: An article that describes the types of technology training that are there for nonprofits.

2. Anna Mills, "Training classes",  
<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=99&topicid=9>

Description: A report describing various training classes that are available in various parts of the country.

## Budget

Costs can vary depending on the type of training selected. It can range from no costs (for example by getting free training online) or may cost hundreds of dollars for hiring outside trainers/experts. Assume that one third of the staff who require training need to be trained externally before in-house training can begin. Also assume that it costs \$75 per employee. Out of the 400 staff, if 300 need training, the organization would need to spend 7500 (100 \* \$75) dollars on 100 staff. Once these employees are trained, they can then participate in the in-house training to help train the rest of the employees.

## References

1. Source: 2001 Virginia Piedmont Technology Council. *Non profits needs survey*  
[http://www.stratpartners.com/VPTC/Needs\\_Survey\\_Overview\\_1-2a.pdf](http://www.stratpartners.com/VPTC/Needs_Survey_Overview_1-2a.pdf)
2. Wayne Glynn, *In-House Technology Training*,  
<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=424&topicid=9>
3. Gartner, *Gartner Measurement's Information Technology Customer Satisfaction Example End-user Questionnaire*  
<http://gartner18.gartnerweb.com/servlet/webitcs.SurveyServlet?Name=Gartner&pwd=ITCS>
4. QuestionPro.com <http://www.questionpro.com/akira/showSurveyLibrary.do?surveyID=7602&mode=1>
5. COIS projects Spring 2003, <http://cois.vcbf.berkeley.edu/news/ProjectsSpring2003.html>
6. Matthew Osborn, *Train your team to gain long-term benefits*,  
<http://insight.zdnet.co.uk/business/management/0,39020490,2130793,00.htm>
7. TechSoup article (2000), *Advocate for Training (Staff)*,  
<http://www.techsoup.org/howto/articlepage.cfm?ArticleId=98&topicid=9>

## Goal 6 – Create an Online Resource Center (Diana Chen)

Collect technical resources and create an online resource which FSWP employees can access from anywhere to find help and information on technology issues when needed. Staff will be able to conduct their work more efficiently and save MIS staff time to do other stuff because now they will be able to solve more of their problems on their own.

## Approach

1. Determine the software programs that FSWP employees use frequently and what kind of problems they run into.

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The technology committee can either appoint a group of people to do this or the MIS staff could do this as part of their responsibilities. Programs that might be of interest are Microsoft Word, Access, Excel, and QUALIFACTS. They can send out surveys that ask employee what programs they use and help that they would like. See Appendix B for a sample survey.

## 2. Collect information

Information should be collected on how to use software programs that FSWP employees use frequently and any other information of those programs that employees stated would be useful from the surveys sent out. The MIS team should also log questions and requests as they come in either through phone, person, or email.

List of potential resources to collect:

- Tutorials on Microsoft programs such as Word, Excel, Access, or Outlook
- QUALIFACTS tutorial
- Reports from past student consultants
- Windows troubleshooting
- How to efficiently use the Internet to search up information needed

Information can be either collected online through tutorial and help sites, or can be collected from employee training sessions. Another possible resource is reports from past student consultants that have worked with FSWP and other organizations.

Lastly, the MIS staff could compile a FAQ list of the questions that employees have asked in the past. Again, questions and requests that come from different sources have to be constantly updated and kept in a log. They could be sorted through topic(hardware/software), software(QUALIFACTS, Microsoft Word), or department and program source.

## 3. Create webpage and share the resources online

Though a physical library is a possible solution, I would not suggest this because FSWP is a big organization and has many locations and programs. It would not be very efficient if employees had to drive 30 minutes to get a book when they run into a problem. In addition, multiple employees would not be able to access the resource at the same time because there would be limited copies of the resources.

FSWP can outsource the website, add it as a part of QUALIFACTS, or do it in-house. The main idea here is to make it easy to access for all the employees of FSWP.

The cost of outsourcing a simple website usually run somewhere between \$2000 and \$5000. However, if outsourced, they would also have to pay a periodic fee to the contractor for maintenance fees. FSWP could also ask QUALIFACTS, their current contractor for other purposes, to add it on to the QUALIFACTS website. The pitfall of this choice is that because QUALIFACTS is currently implementing a universal page for three non-profit organizations including FSWP, they might not take the offer because this page is not for FSWP only. Even if QUALIFACTS accepts the offer, a cost higher than outsourcing the website will be required just for adding this functionality onto the QUALIFACTS page.

If FSWP decided to create the website in-house, the maintenance fee would be lower and it would be tailored to FSWP's needs. The flip side is that there might not be someone with the expertise currently at

FSWP or if there is (i.e. the MIS staff), they might be too swamped by other work to get around to implementation of the webpage.

The website would be very basic so it will be straightforward and easy for employees to use and quickly find what they need. It will contain links to different resources sorted by categories (i.e. Microsoft Excel help, computer troubleshooting), a search box for employees to type in what they need, and a forum for employees to post questions that could be answered by other employees or by the MIS staff three times a day at least.

Other options to consider are Window's SharePoint or open source systems available online (i.e. cmsmatrix.org). However, making this resource site web-based would make it easier to integrate with QUALIFACTS in the future if the need comes up. Integration with QUALIFACTS would be a step towards centralization of resources and data for FSWP's employees.

## **Timeline**

Information should be rigorously collected the first six months. After information has been collected, the webpage can then be implemented. The webpage will have to be updated on a weekly basis, if not daily and continuous basis to keep the resources center updated with the newest information. Questions on the forum should be answered three times a day by the MIS staff so employees get quick replies to their questions. Since other employees are also allowed to answer the questions on the forum, the forum will be constantly updated.

## **Outcomes**

After receiving training, employees will be more capable of solving their own technical problems and have more knowledge of how to use software programs available to them. The online resources center is for employees when they want to do something they learned at the training sessions and forgot how to do perform the task. It serves as a quick reference so they can accomplish their tasks more efficiently, without having to waste time to ask the MIS staff. This saves time of both the employee looking for help and the MIS staff so they could attend to other responsibilities.

This online resources center also serves as a help and tutorial page when employees are finding out how to use new programs or how to use new functionalities of programs they currently know how to use. Instead of having to hold training for a couple of employees, employees could look for tutorials on the online resources center and learn how to use the program on their own convenience instead of at a predetermined inconvenient time. They could learn on their own pace and they will know where to refer to when looking for specific things. Through this, each employee will be more technically capable, and be able to perform their tasks more efficiently. The organization will be able to save money on training because each employee is more capable now, employee work hours because each employee will be more efficient with performing their tasks, and again, MIS staff will have more time to address other more complicated problems.

This move can also lead to future sharing of other types of information and content within and outside of the organization. It will be the first step to shifting some of the workload from the local area network onto the Internet and to a centralized location.



## Resources

### Internal resources:

- All staff – anyone with information for answer
- MIS staff
- SharePoint (if SharePoint is used)

### External resources:

- Past consultants' reports
- Various online help pages (i.e. [www.microsoft.com](http://www.microsoft.com))
- Information from employee training
- Outside consulting agencies and contractors, such as QUALIFACTS
- Open source systems available online (i.e. [cmsmatrix.org](http://cmsmatrix.org))

## Budget

This goal should not require much additional funding for the collection of data, if any. However, collection of all the data and resources would take a great number of work hours. The goal is to target resources that are free or already within FSWP's possession and collect and organize them in a way that would be easy for employees to browse through and find what they want quickly. If FSWP chose to support the resources website on its own, the website would cost man hours of the employee that will implement the site. Hosting the data could be free of money cost too if it is stored on FSWP's local area network space. If FSWP decide to outsource the implementation and maintenance of the page, it would cost roughly \$2000 to \$10,000 for a simple website that hosts information, depending of who the contractor is, but saves on staff work hours.

## **About the consultants**

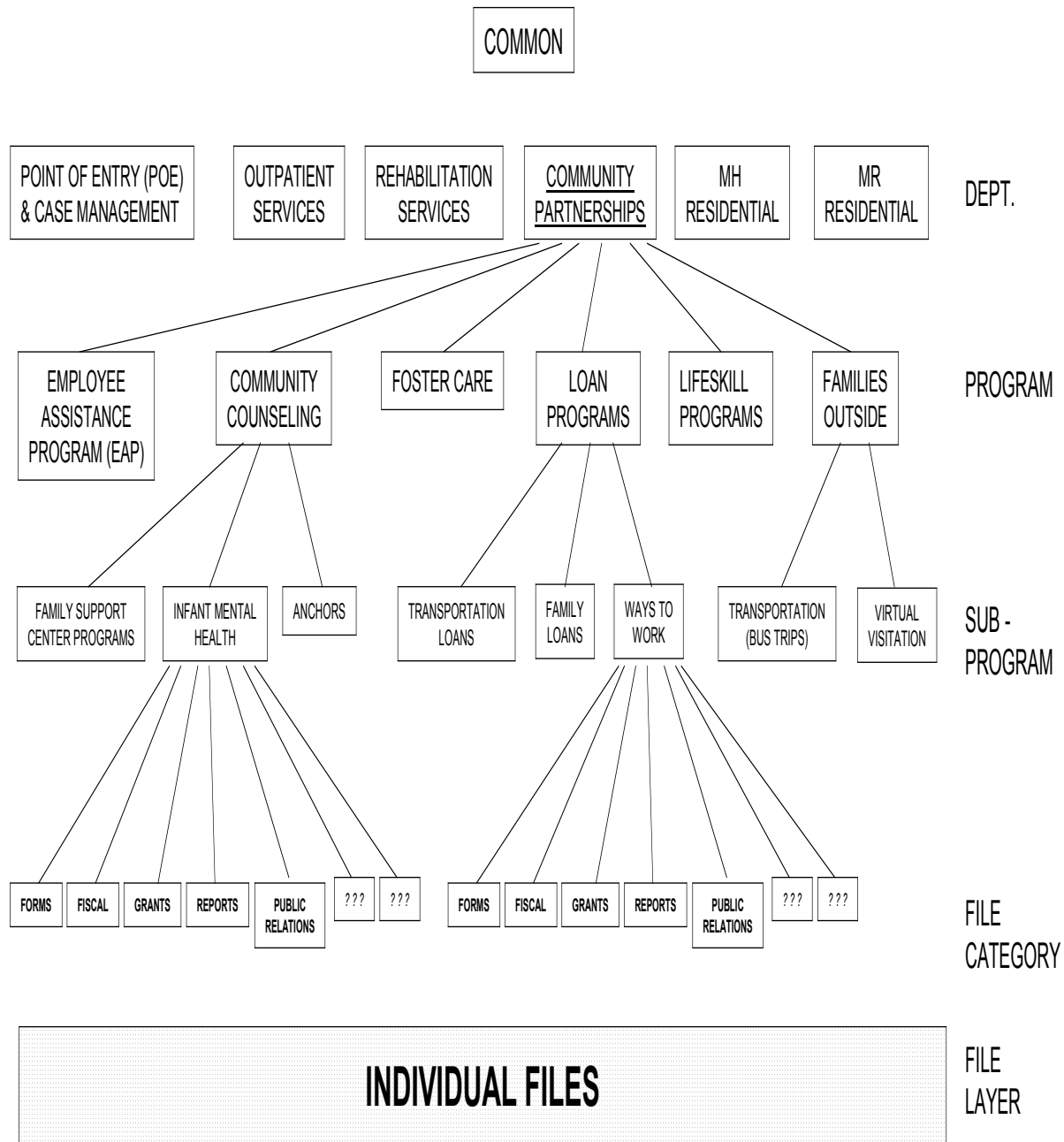
Tolga Erbay is a student in Carnegie Mellon University's Accelerated Masters Program (AMP) pursuing a Master of Information Systems Management (M.I.S.M.) degree which will be completed in December 2005. He holds a B.S. in Applied & Computational Mathematics as well as a B.S. in History & Policy from Carnegie Mellon as well. He was born and raised in the San Francisco Bay Area and is beginning a career this summer working for Ernst & Young L.L.P.'s Technology & Security Risk Services practice in San Jose, California.

Madhuri Shah is a graduate student in the Masters in Information Systems Program. She has an undergraduate degree in Computer Science. She has a strong interest in business analysis and planning, and plans to pursue her career in a financial or an IT firm.

Diana Chen is currently an accelerated masters student at Carnegie Mellon University. Her undergraduate work is in Computer Science and her Master's degree is in Information Systems Management. She hopes to go into consulting after she graduates from Carnegie Mellon this winter.

# APPENDICES

## Appendix 1A – File Hierarchy



\*\*File categories in **bold** will appear in every program or sub-program's folder. The "???" boxes are program or sub-program specific folders. Please indicate which specific folders would be useful for your program, as well as whatever else you think is missing from this diagram.

last revised 3/22/05

## Appendix 1B – Naming Conventions

### Community Partnerships - Naming Protocols

The goal of storing documents and files on the LAN is to make it easy for anyone to find the information. Here is the basic format for naming a file

Specific function <space> Date      EXAMPLE: Outcomes Report April 2005

Specific Function <space> Qualifacts ID Number    EXAMPLE: Home Study 7693543

### Basic Dos and Don'ts

1. The location of the file already contains information such as the program for which file is used. There is no need to put the program name in the file name itself.

For example, Ways to Work has a form to verify employment. It would be located under the Forms subfolder in the Ways to Work folder like this:

**DO: Employment Verification Form**

**DON'T:** Ways to Work Employment Verification Form

Here is how it will look to someone searching on the LAN for that information

Community Partnerships Folder > Loan Programs Folder > Ways to Work Folder > Forms Folder > Employment Verification Form

Another example: Families Outside has a monthly newsletter. It would be located under the Marketing and PR subfolder in the Families Outside folder like this:

Community Partnerships > Families Outside > Marketing and PR > Newsletter February 2005

2. File names should tell a user what specific function the file fulfills.

**DON'T:** FORM is generic.

**DO:** ASSESSMENT, INQUIRY, EMPLOYMENT VERIFICATION are specific.

**DON'T:** LETTER is generic

**DO:** DENIAL LETTER and WELCOME LETTER are specific

3. Dates should always be in alpha- numeric form and come at the end of the file name

Always use the full month name, a two digit day and four digit year.

DO: Outcomes March 2005  
DO: Outcomes FY 2004-2005  
DON'T: March Outcomes 2005  
DON'T: Outcomes 3-05

Thus, an outcomes report should be listed

Community Partnerships > Foster Care > Reports > Outcomes March 2005

or

Community Partnerships > Foster Care > Reports > Outcomes FY 2004-2005

4. Do not use a staff name in the file name.

If Ann Smith has a list of referral agencies, it should NOT be called “Ann’s Referrals”

DON'T: Community Partnerships > EAP > Ann’s Referrals

DO: Community Partnerships > EAP > Referral List

5. Consumers should be identified by Qualifacts ID Number OR First Name and Last Initial. This is done in order to be HIPPA compliant. Do NOT use a consumer’s last name or other personal identifying information.

DON'T: Visitation Schedule Mike Johnson

DO: Visitation Schedule MikeJ

DO: Visitation Schedule ECR 99999\*

\*ECR stands for Electronic Case Record and is a Qualifacts term instead of Case or Client.

## Appendix 1C – “How To” Connectivity Guide

### Connecting Your Laptop to the Internet: A Practical “How To” Guide

#### At an FSWP Office

Your FSWP-issued laptop can connect to the Internet at any FSWP office by simply plugging a network cable into your laptop. Everything is automatically set-up. The only thing you have to do is wait for (at most) 60 seconds and you should be connected.

#### At a Community Partner location

When the Clinical Manager gives out a location assignment, she will mention what types of Internet connection you can use at the site.

1. They have a LAN connection (with DHCP): This means they have a high speed connection (such as DSL or Cable). You can go to the site and connect your laptop in the exact same manner as you do at an FSWP office. This connection allows you access to the Internet, but won't let you on FSWP's LAN. Use FSWP's web e-mail client located at: <http://exchange.fswp.org> instead of Outlook. Be sure to carry a network cable with you.
2. They have a free phone line for dial-up: This means they have a phone line and a phone cable that is available for your use. In order to connect to the Internet, use the “Dial-Up Instructions”.
3. They have Internet connections for their systems, but FSWP cannot use it: This means that while they may be able to connect to the Internet, for whatever reason, you cannot borrow their connection. There are a number of reasons for this such as HIPAA information security, configuration issues, etc. In this case, you will not be able to connect at the site. However, they may offer use of their computers for your work. This is fine so long as you limit your use to e-mail and Qualifacts work only.
4. They do not have a way for you to connect: This means there is just way that you can connect to the Internet from a site.

#### At Home or Any Other Location

If you want to use your FSWP-issued laptop at home or at any other location, you must do so by using FSWP-provided free dial-up Internet. If you have a high-speed connection at home or any location (such as DSL or Cable), those methods are not FSWP-approved for your company laptop. You will have to use a phone line and a dial-up connection at this time. Please see the dial-up instructions below.

The MIS staff does not approve of any other connection methods for your laptops other than the ones discussed in the sections above.

#### Using a Dial-up Connection to the Internet

Whether you are at a site that offers a dial-up phone line for your use, or you are at your home or any other location, the simplest way to connect to the Internet is using FSWP's dial-up Internet service. This

guide gives instructions that describe how to set up your laptop so that you can successfully make the connection.

#### How To: Create a Dial-up Connection

1. Verify that you have permission to use FSWP's dial-up service. Dial-up permission is given to Directors, those who travel out of the area frequently, and certain group homes. If you do not have permission, and need it contact your Director and ask them to fill out an MIS service request form.
2. Double-click on "My Network Places", located on your desktop. Then, click on "View Network Connections", located on the left-side of your window. Finally, click on "Create a New Connection".
3. A welcome window appears, so just click "Next". Then, pick "Connect to the network at my workplace" and click "Next".
4. Choose "Dial-up connection" and "Next". For company name, just enter "fswp" and click "Next". It then prompts you for a phone number. If you are in the local Pittsburgh area, enter "14128202066" and do not include dashes. If you are traveling out of the area, put "18888679010". Then click "Next".
5. At the completion window, click "Add shortcut to this connection on my desktop" and then click "Finish".
6. You have on successfully set up a dial-up connection on your computer. After it has been creating, it can be used by simply entering your FSWP username and password and click "Connect".

#### How To: Use a Dial-up Connection

1. After the dial-up connection has been created, it is easy to access and connect to the Internet. First, **make sure to plug in a telephone line into the side of your laptop.** Also, check to see whether you need to dial an "8" or "9" to get a line out of the location. Then, double-click the "fswp" icon on your desktop. The icon looks like two computers and a modem.
2. You should see a prompt for your username and password. Just use your FSWP-issued username and password for this. Below, you will see a box that says "Dial". If you are in the local Pittsburgh area, enter "14128202066" and do not include dashes. If you are traveling out of the area, put "18888679010". **Note:** If you need to dial "8" or "9" to get an outside line, put that prefix before the first digit in the number you are going to dial.
3. Just click the "Dial" button at the bottom of the window and wait while your modem makes the connection.

#### **If it doesn't work:**

If something goes wrong in the above steps, make of note of any error that has occurred. Common errors include mistyping the dial-up phone number, not actually having a phone line plugged into your

computer, and forgetting a necessary prefix number. To fix those, just repeat the instructions again. For any other problems, contact the MIS staff help desk at 412-820-2050 or FSWP ext. 453.

## Appendix 1D – Internet Connectivity Information Sheet

### Family Services of Western Pennsylvania Community Partner Internet Connection Information

The purpose of this form is give Family Services of Western Pennsylvania (FSWP) information as to how their staff may or may not be able to connect to the Internet from your service location. Connecting to the Internet is very useful for FSWP staff, as it lets them do their job and serve your consumers in a faster, more efficient, and convenient manner. Please give this form to the person in your office who is responsible for maintaining your office technology. Please fax this form to (412) 665-8730. Thank you.

#### Basic Connection Method

What types of Internet connection(s) are available at your site?

- |                                                                                                                    |                                     |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <input type="checkbox"/> LAN i.e. DSL, Cable<br>Is DHCP enabled? Yes No                                            | <input type="checkbox"/> Wireless   |
| <input type="checkbox"/> Dial-up (your provider)                                                                   | <input type="checkbox"/> None       |
| <input type="checkbox"/> Dial-up (an available <i>dial-out</i><br>line that FSWP can use with<br>our own provider) | <input type="checkbox"/> Don't know |

#### Availability

Are there time restrictions related to the methods mentioned above? (such as a certain amount of minutes or a certain time of day the phone line can be used by our staff)

FSWP staff wishes to use their own laptops with your connection method. If this is not possible, can FSWP use the Community Partner's computers that may have an Internet connection?

Yes       No

#### Contact Information

Please provide us with the following contact information so that we may contact you with any questions or problems regarding connecting to the Internet at your site.

Name \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_ E-mail \_\_\_\_\_



## Appendix 2A

### Steps in Designing Database System

#### 1. Step 1: Describe the problem.

A survey form called BASIS-24 is used to carry out clinical surveys. This form has 24 questions and each question falls under one of the 6 domains. A client may take the same survey many times during treatment sessions. Information about the client is entered only once during the first survey and for every session, the scores and the session date need to be recorded.

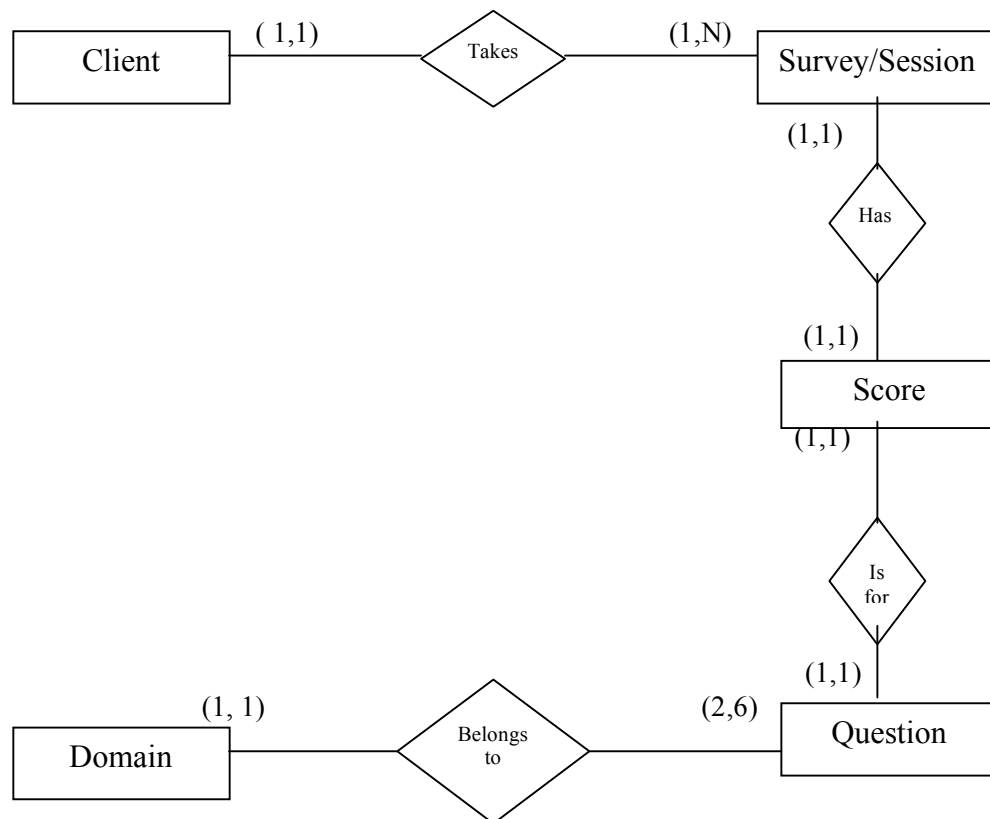
Information about the client include the client ID and the client name. Information about the domain include the domain ID and the domain name. Each question has weights associated with it. There is a domain weight used to calculate the domain total and there is the overall weight which is used to calculate the overall total. The score is a number ranging from 0-4 and this score is used with the question weight to calculate the domain or the overall score for clients for each session. Each session has a session ID and session date.

#### 2. Step 2: Create the ER diagram

Use the following steps as a guideline.

##### 2.1 Draw the entity relationship diagram

**Entity Relationship Diagram for BASIS-24**

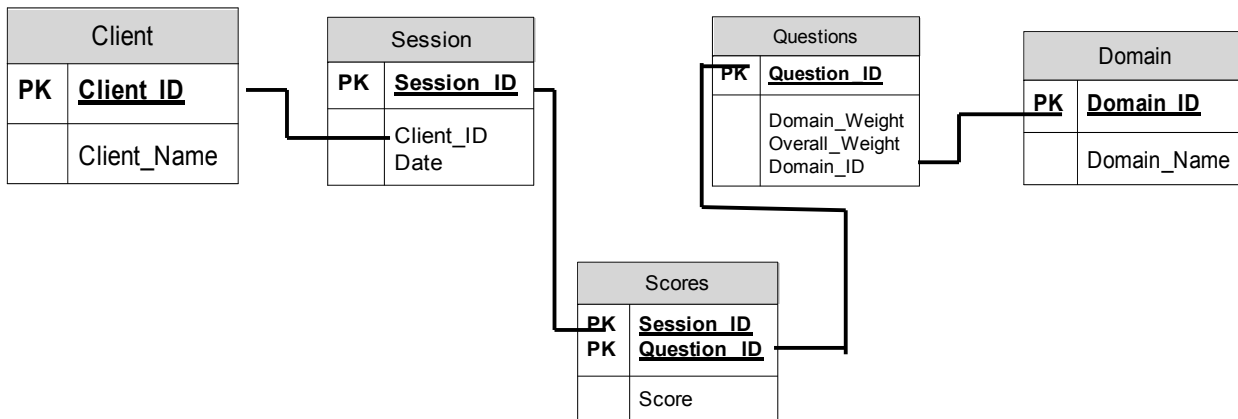


2.2. For each Entity identify the primary key and the attributes from the problem description. Underline the primary keys. Primary keys can be made up of more than one attribute.

- Client (Client ID, Client Name)
- Session (Session ID, Session\_Date)
- Score (Session ID, Question ID, score)
- Questions (Question ID, Domain\_weight, overall\_weight)
- Domains (Domain ID, Domain\_name)

2.3 Draw out a rough sketch of the tables and how the tables are related

### Tables and their relationships



### 3 Step 3: Create the required tables.

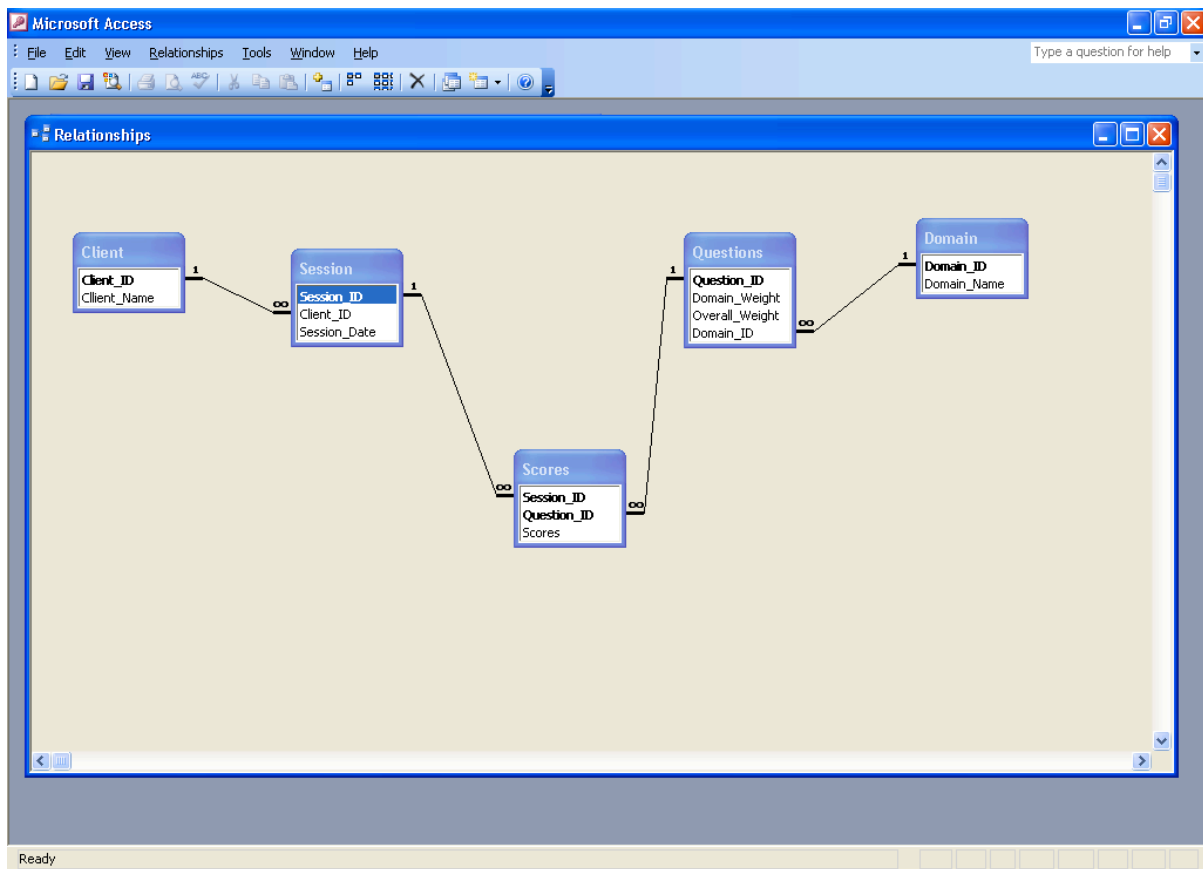
A few good resource to use are MS Office Access 2003 series by Lisa Friedrichsen. This has the basic, intermediate and advanced series and illustrates how to use from basic to advanced features in MS Access. More information can be found at [www.course.com](http://www.course.com).

Open a new MS Access Database and create these tables. Also create the appropriate relationships between the tables by clicking on the relationship icon. Below is a screen shot of how it would look in an Access:

### Icon for relationship:

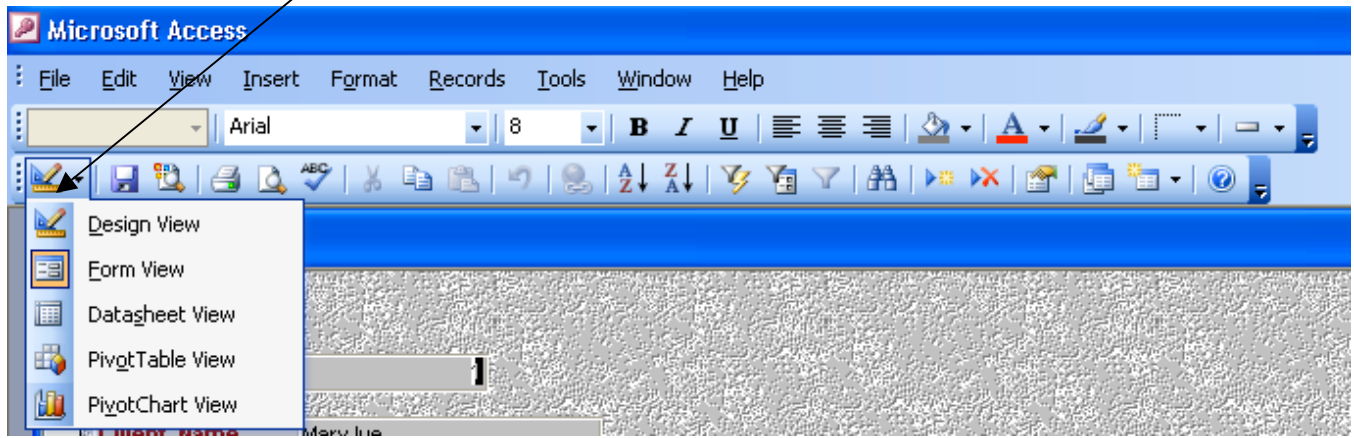


### Window after Creating Relationships



**4 Step 4:** Create the appropriate form using the wizard. Play around with the form in design view until you are satisfied with the layout of the label buttons and the text buttons. To switch between the different views use the icon shown below:

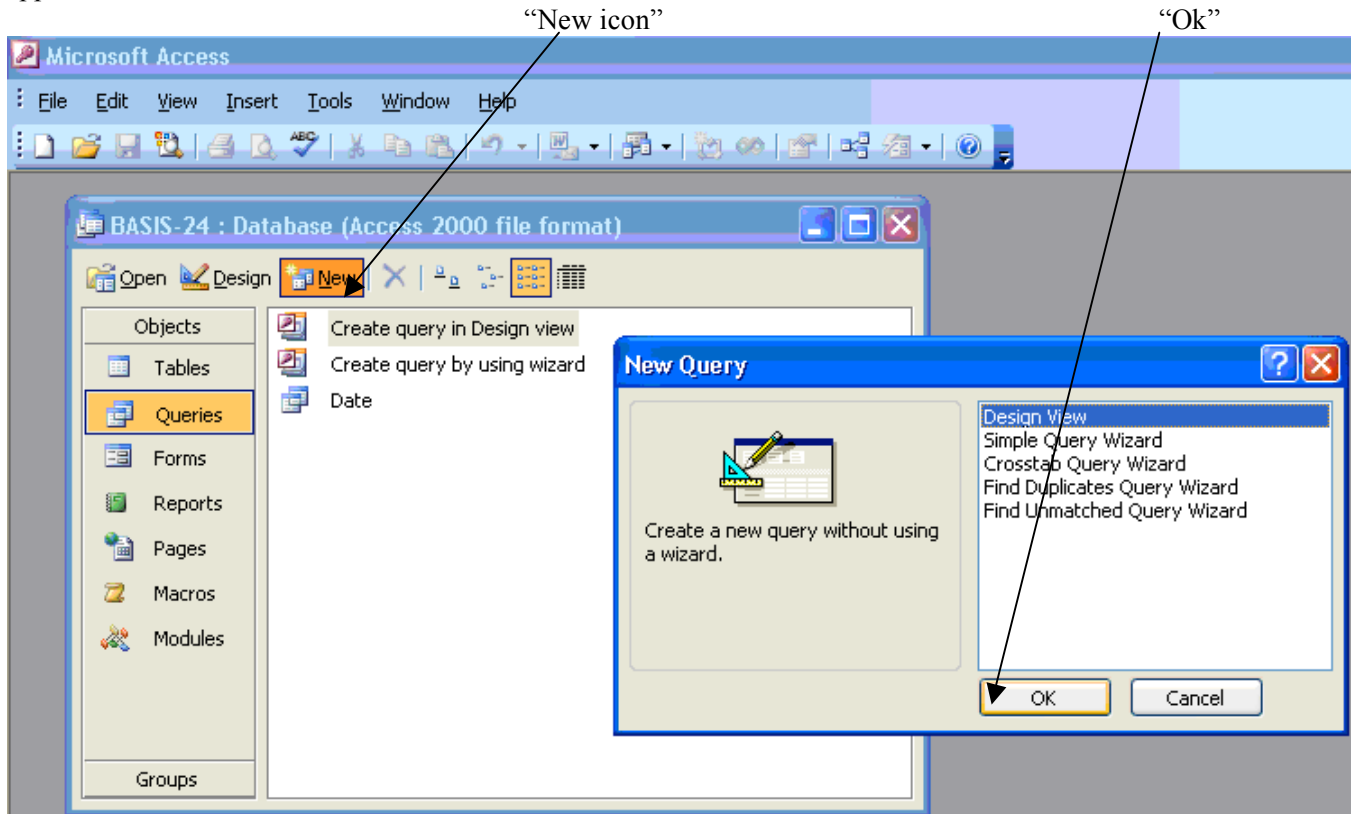
Choosing Different views



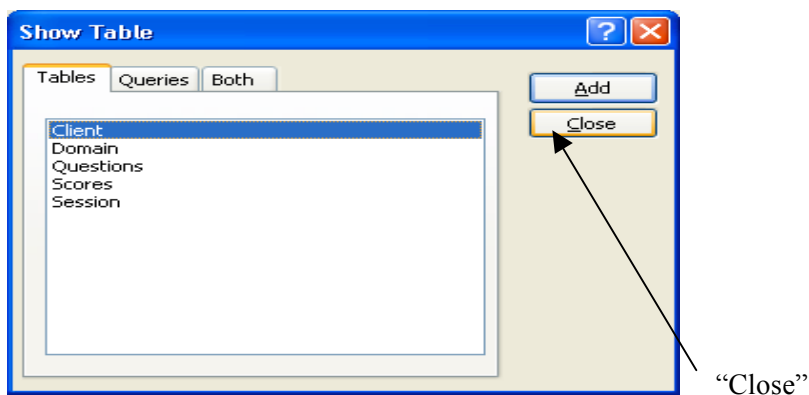
### 5 Step 5: Create Queries

Create all the queries that you may need to use. Some of the queries can be created using the wizard. For complex queries, first write out the queries on paper and then follow the instructions below to test the queries:

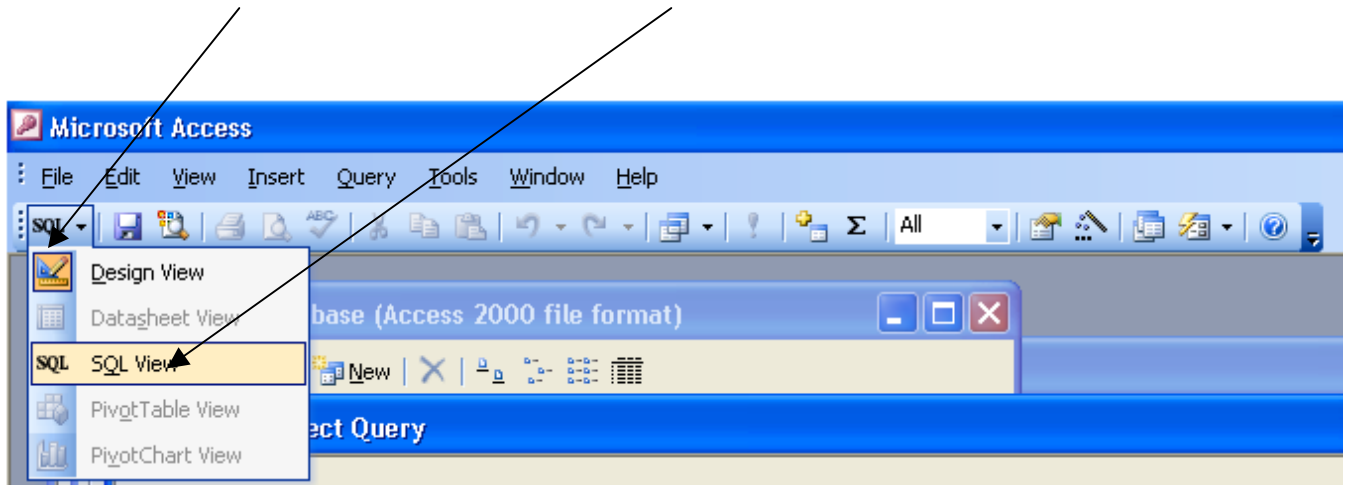
5.1 Select “Create query in Design view”. Click on New and then Ok. The following screen will appear.



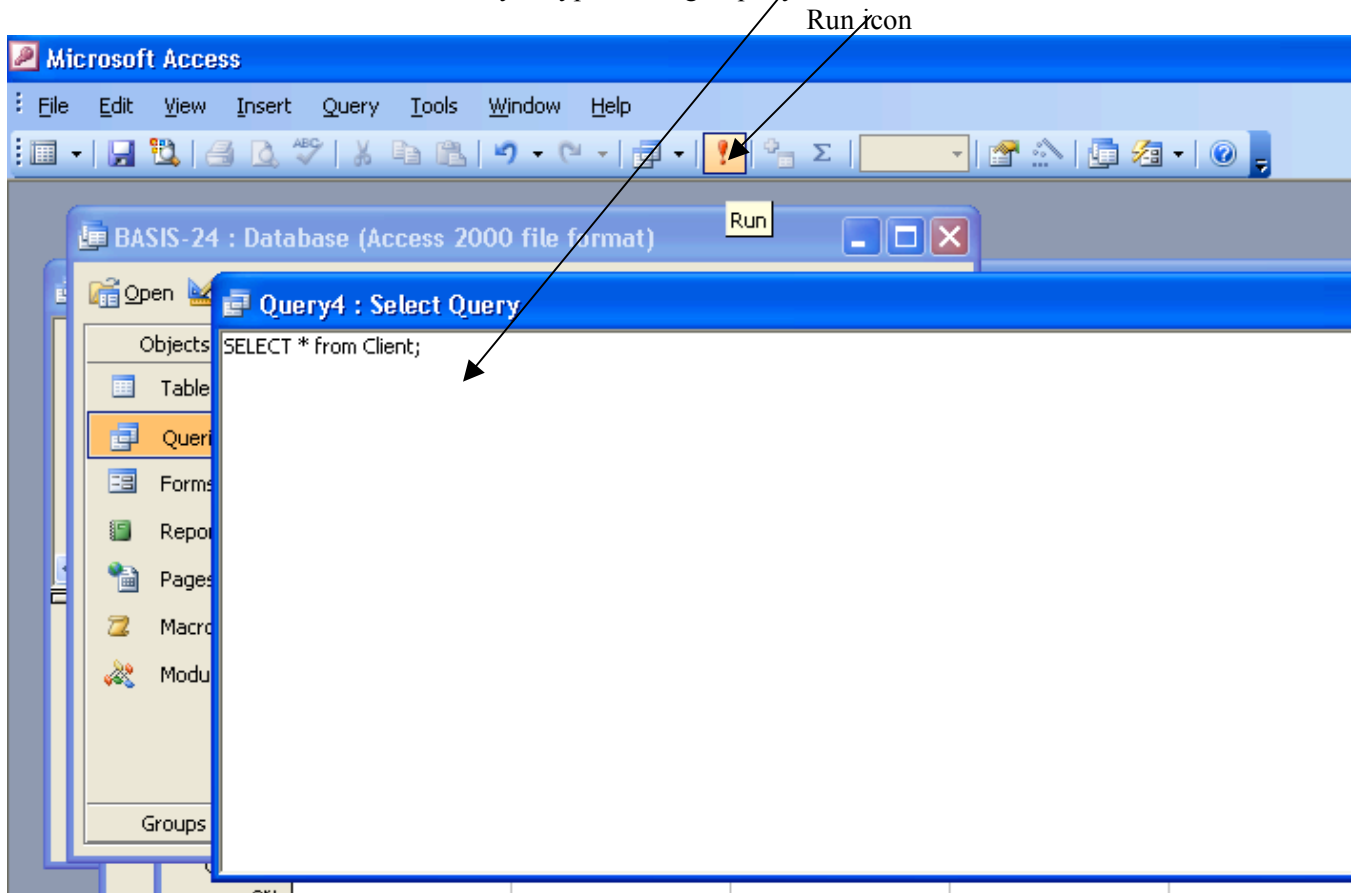
5.2 When you click “Ok”, the following screen will appear. Click on the close button.



5.3 Click on “SQL” icon on the menu bar and “SQL view”. The screen will look like this:



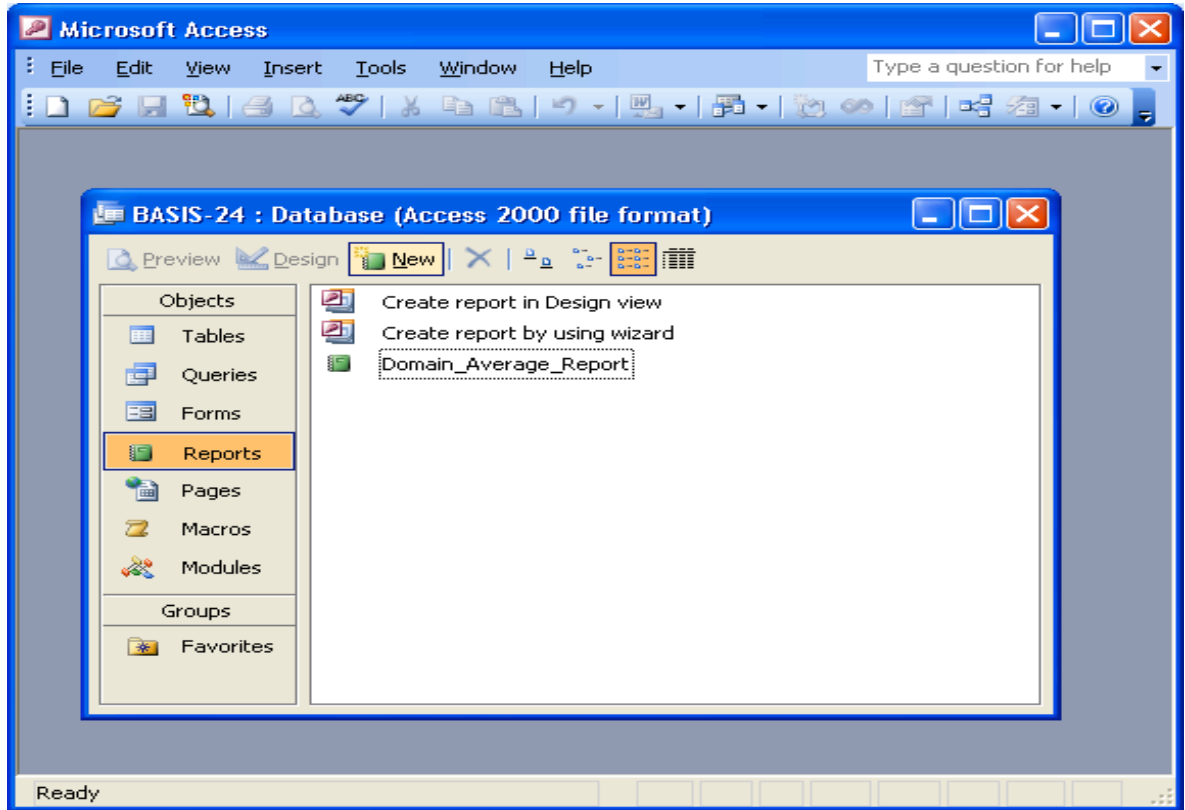
5.4 The following text box will appear. You can then type your SQL query here and click on the “Run” icon. Check the result to see if you typed the right query.



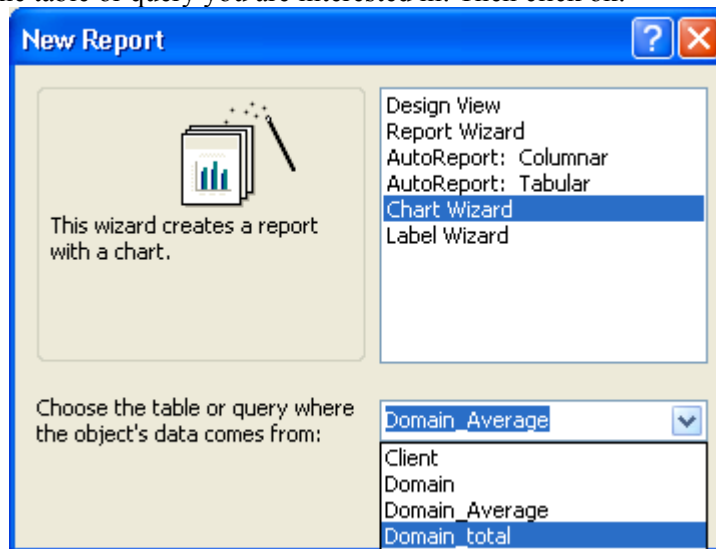
## 6. Step 6: Create the Reports

Create the ordinary reports by using the wizard. To add charts in the report use the following steps:

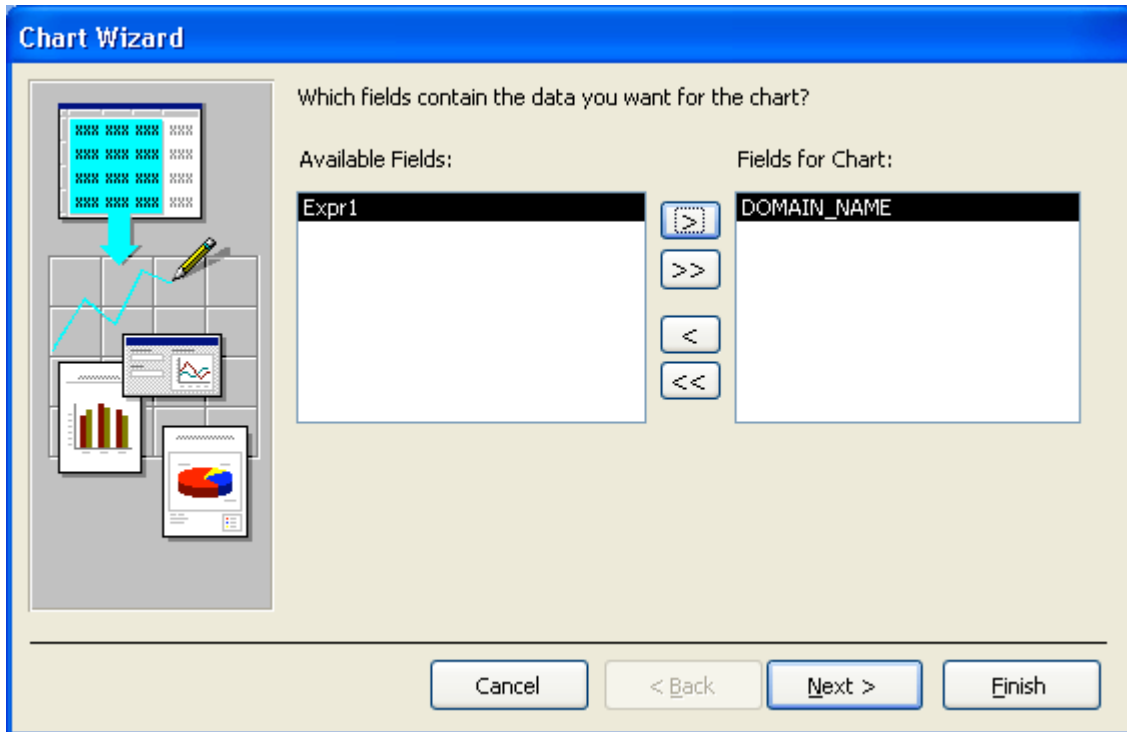
- 6.1 Click on Reports; click the New button on the database window toolbar. The screen below shows where each button is located.



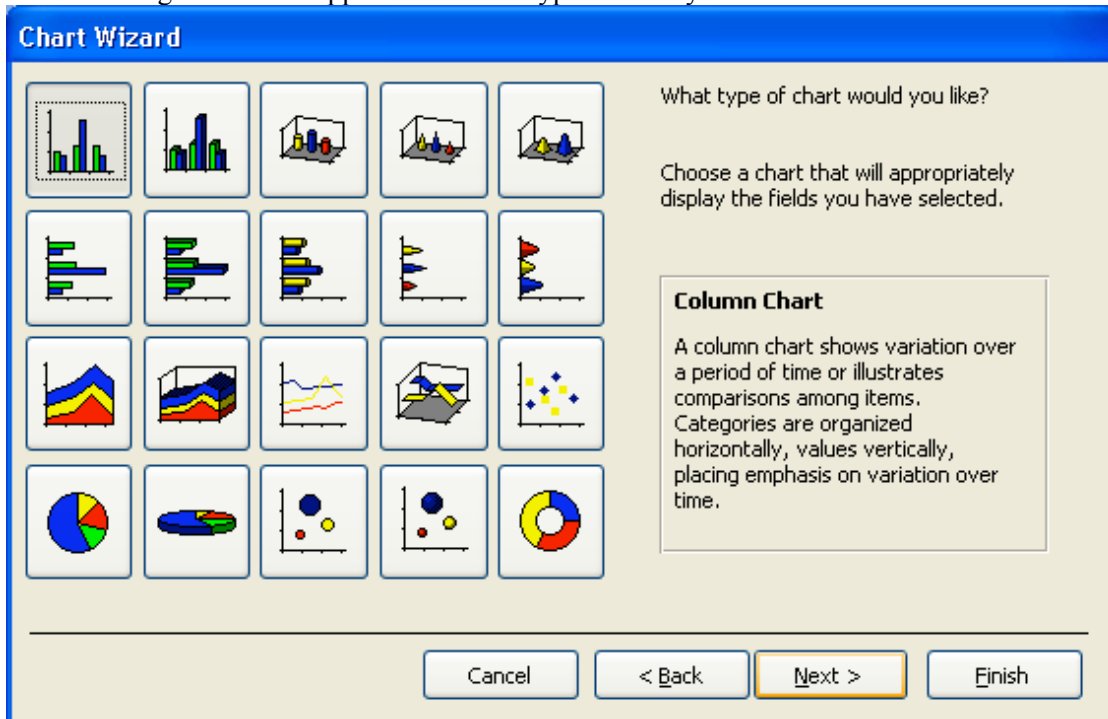
- 6.2 Click Chart Wizard, click the Choose the table or query where the object's data comes from list arrow, and click the table or query you are interested in. Then click ok.



6.2 Select the fields that you want to see on your report by clicking the > or >> buttons. Click next.

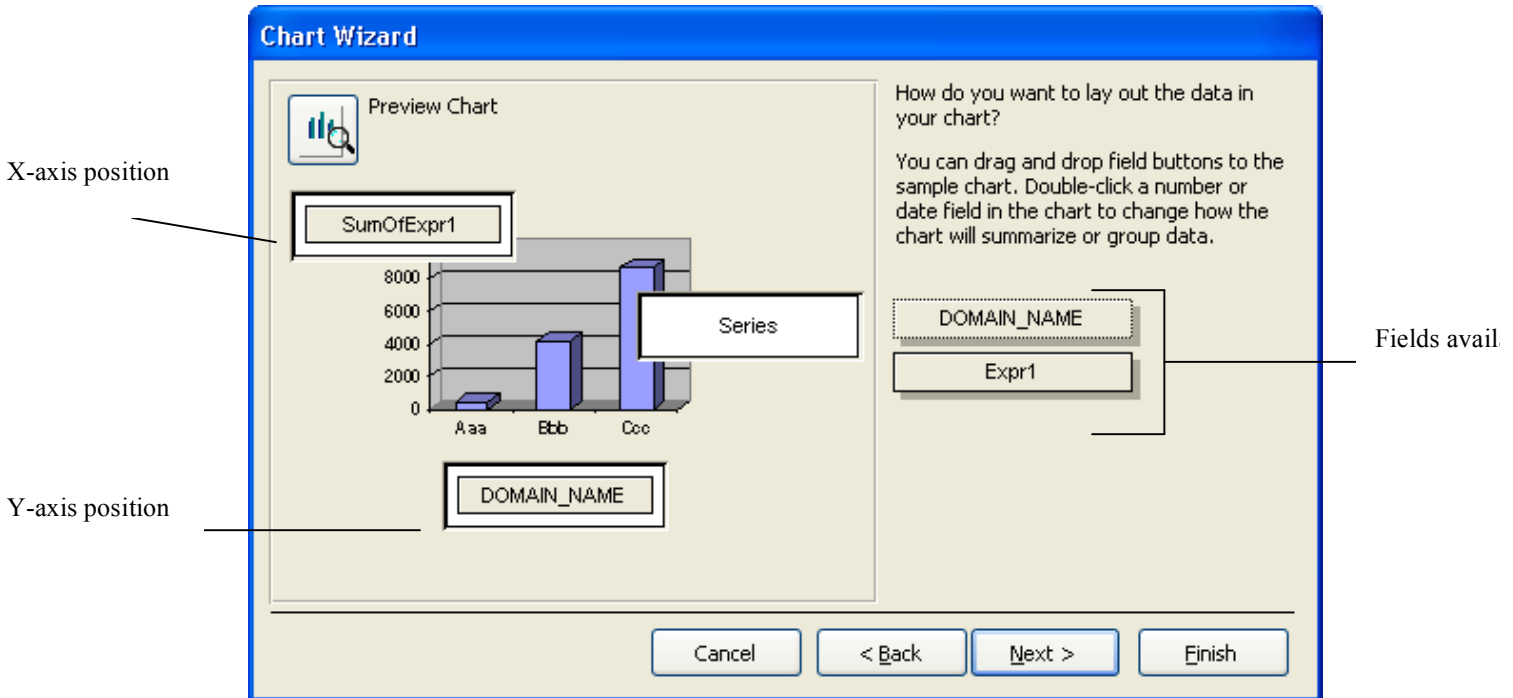


6.3 The following screen will appear. Select the type of chart you are interested in then click next.

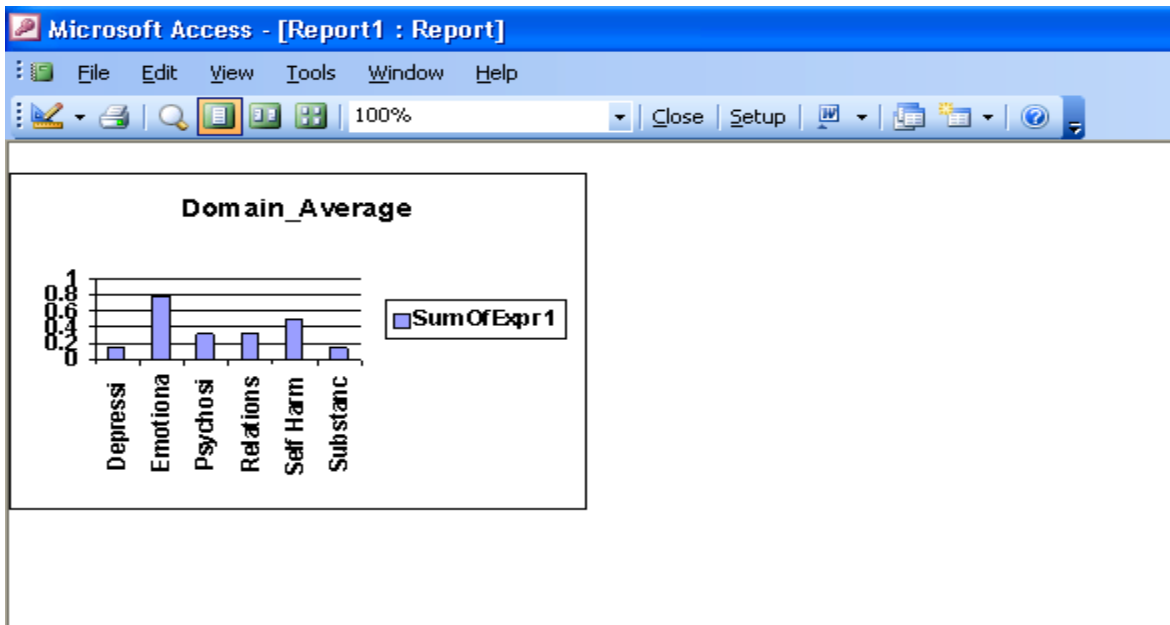




- 6.4 The next dialog box determines which fields will be used for the x-axis, data and series (legend) areas of the chart as shown below. Drag and drop the fields available into either the x-axis or y-axis depending on your preference. Click on the preview button to get a rough idea of what the final chart will look like.



- 6.5 Click Next, type the name of the report to save it, click finish. The screen below shows an example of a report.

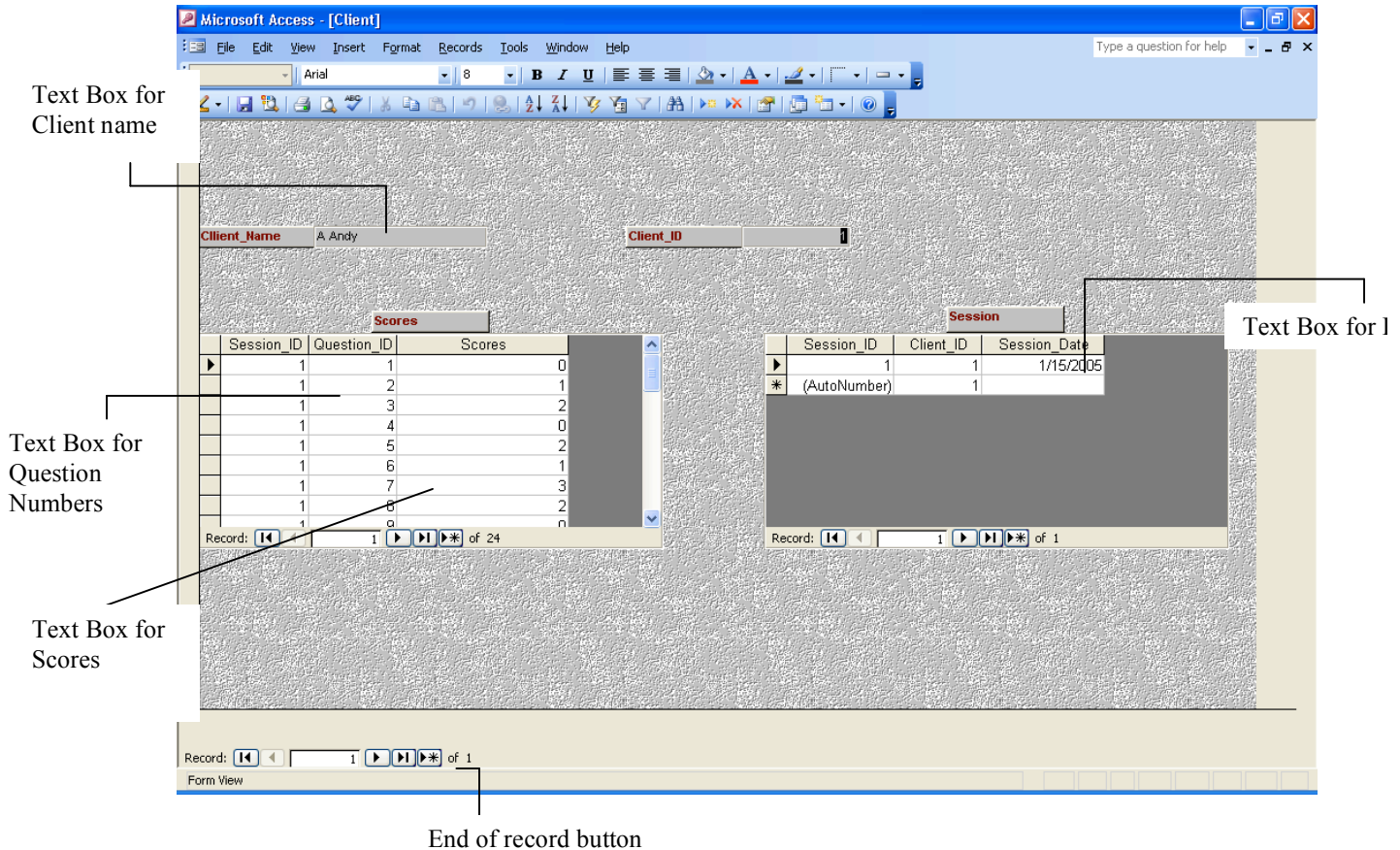


## Appendix 2B

### User Manual for the BASIS-24 Access Database System.

#### 1. Entering data into the system

1.1 Open the BASIS-24 database system, click on Forms, double Click on Client. The following screen will appear:



1.2 To Enter a new client, move to the end of the record by clicking on the end of record button. Then type the name of the client on the Client Name text box.

1.3 To add another session to an existing client, click on the next record button until you see the name of the client on the "Client\_Name" text box.

1.4 To add the session date, first empty text box for Date on the right hand corner. Type the date in MM DD YY format and press the enter button. The values for Session\_ID and Client\_ID will appear automatically.

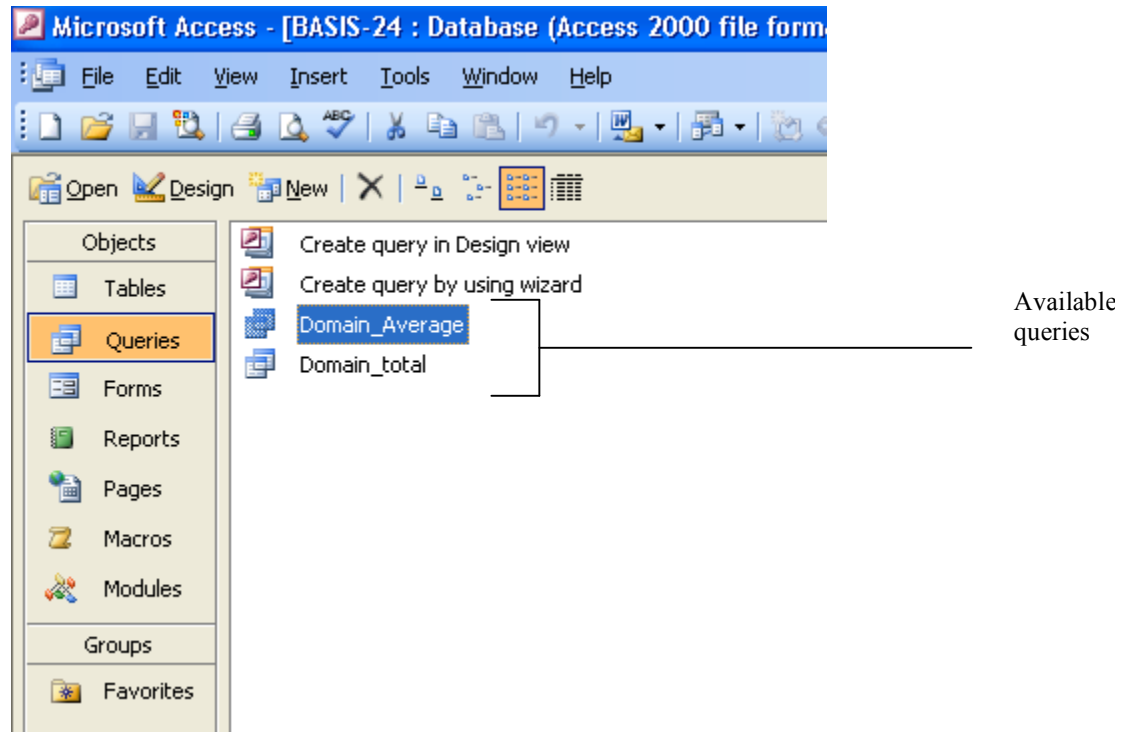
1.5 To enter the survey scores, first click on the session date for which the score is. Then click on the text box for question numbers. Type in the question number then click on the text box for the scores and type in the score. Repeat this step for all of the 24 questions. The box for the Session\_ID should contain a value as soon as you type the question number. If there is no value on the session\_ID, the system will not allow you to proceed. To ensure that there is a value on the session\_ID, always click on the date of the survey before clicking on the text box for the question\_ID

1.6 Repeat this step for each new session.

## 2. Running queries

2.1 To create new queries please follow the steps outlined in Appendix A.

2.2 To view queries already created, click on Queries and double click on the query you are interested in viewing.



2.3 A screen with the query results will appear. The results will differ depending on the query you select. The following screen shows an example of the query results.

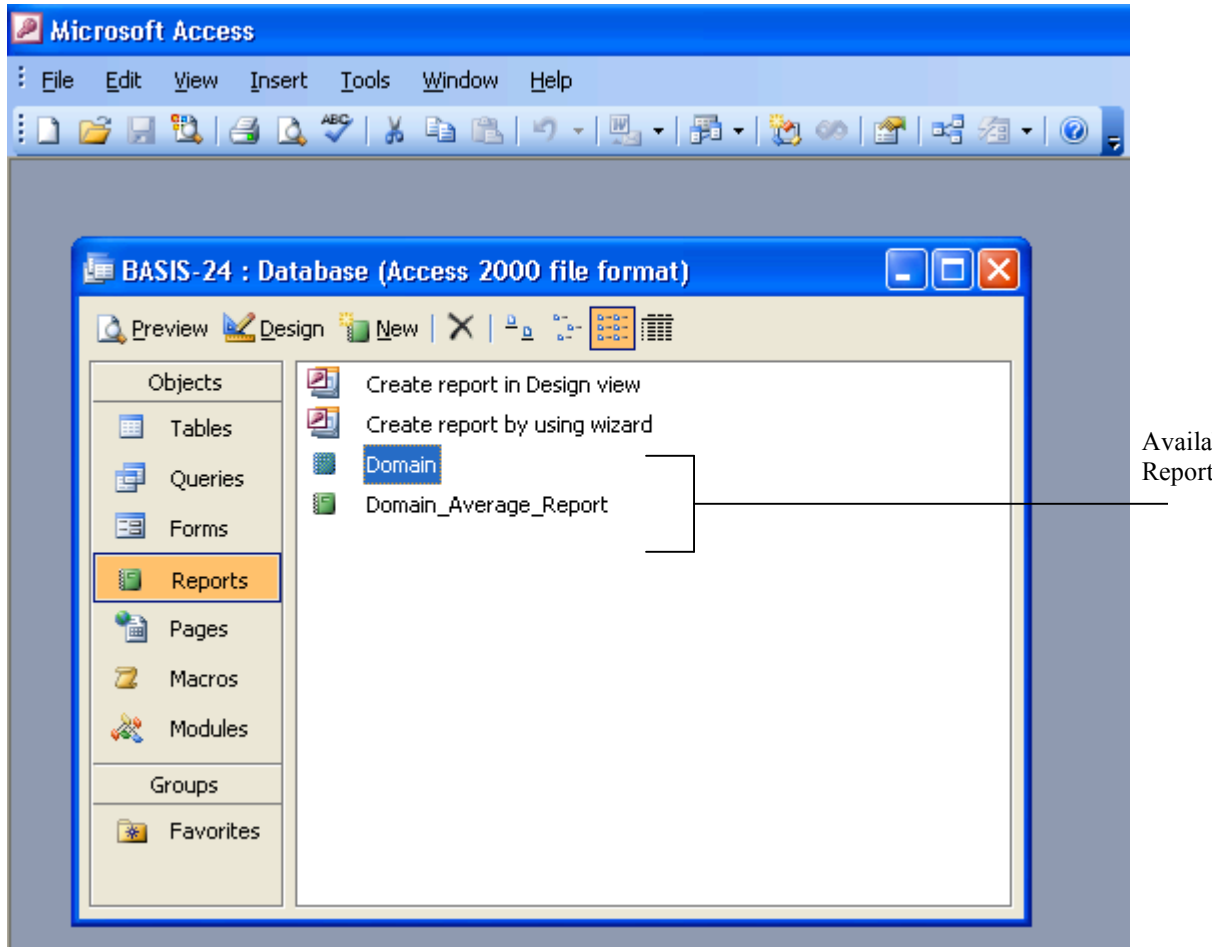
The screenshot shows the Microsoft Access interface for the 'Domain\_Average : Select Query'. The menu bar includes File, Edit, View, Insert, Format, Records, Tools, Window, and Help. The toolbar contains various icons for data manipulation and navigation. The main area displays a table with the following data:

DOMAIN_NAME	Expr1
Depression/Functi	0.15033183333
Relationships	0.3088122
Self Harm	0.5
Emotional Lability	0.79757166667
Psychosis	0.3102195
Substance Abuse	0.136283

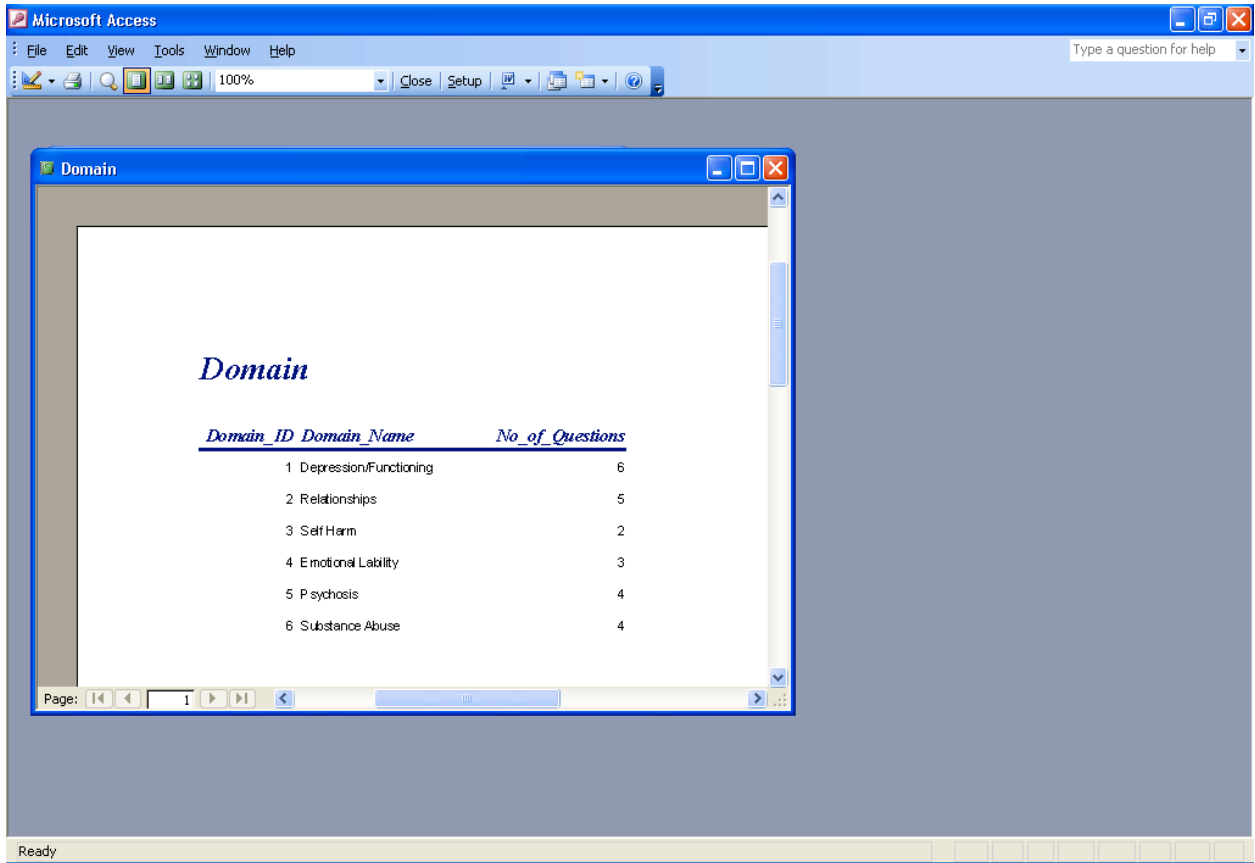
### 3. Viewing Reports

3.1 To create new reports please refer to the guidelines outlined in Appendix A.

3.2 To view existing reports, click on Reports and double click on the report you are interested in viewing.



3.3 A screen with the report page will appear. The report will differ depending on the what report type you select. The following screen shows an example of a report.



## Appendix 2C

### Screen Shots of the BASIS-24 Database System

#### 1. The main form:

The screenshot shows the Microsoft Access interface for the 'Client' form. The form is titled 'Client' and features the logo for 'Family Services OF WESTERN PENNSYLVANIA'. It contains the following fields and tables:

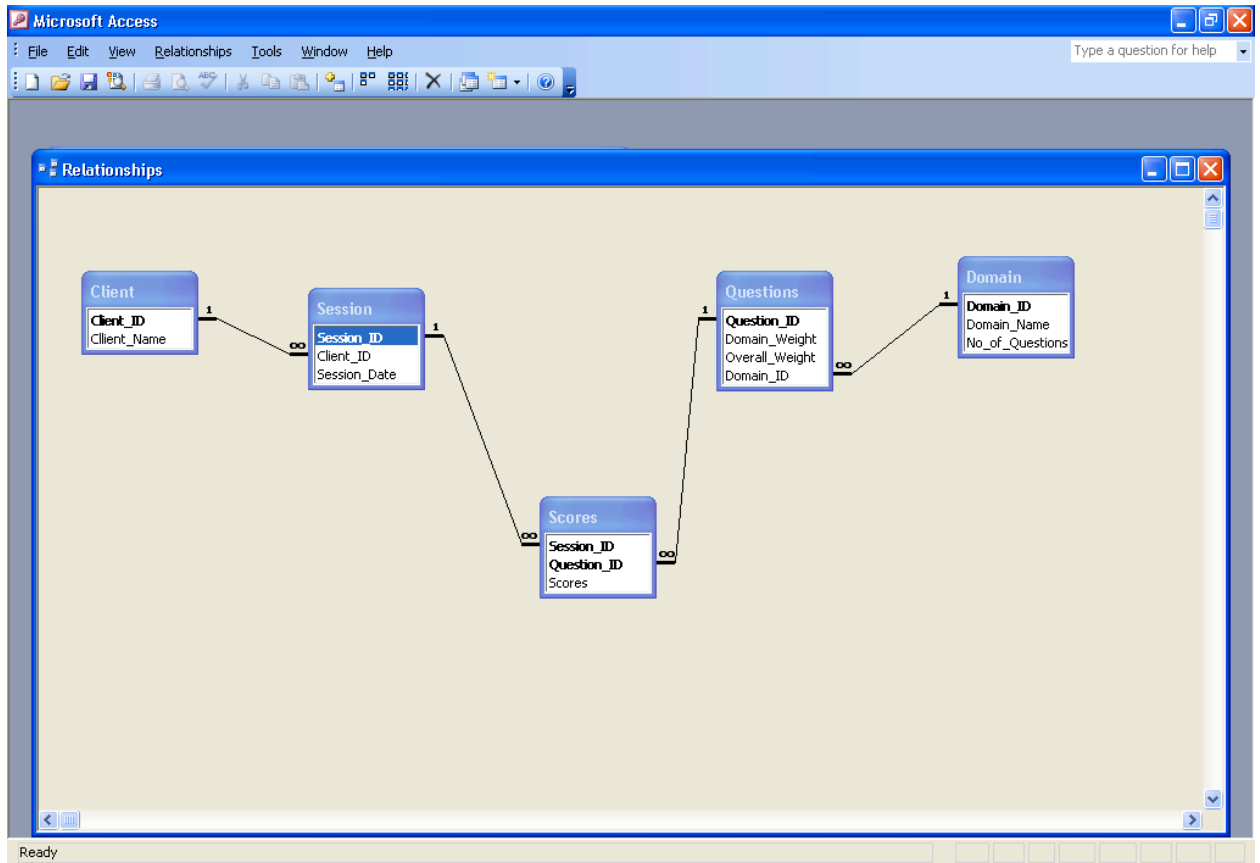
- Client Name**: A text input field.
- Client ID**: An AutoNumber input field.
- Scores Table**:

Session_ID	Question_ID	Scores
	0	0
- Session Table**:

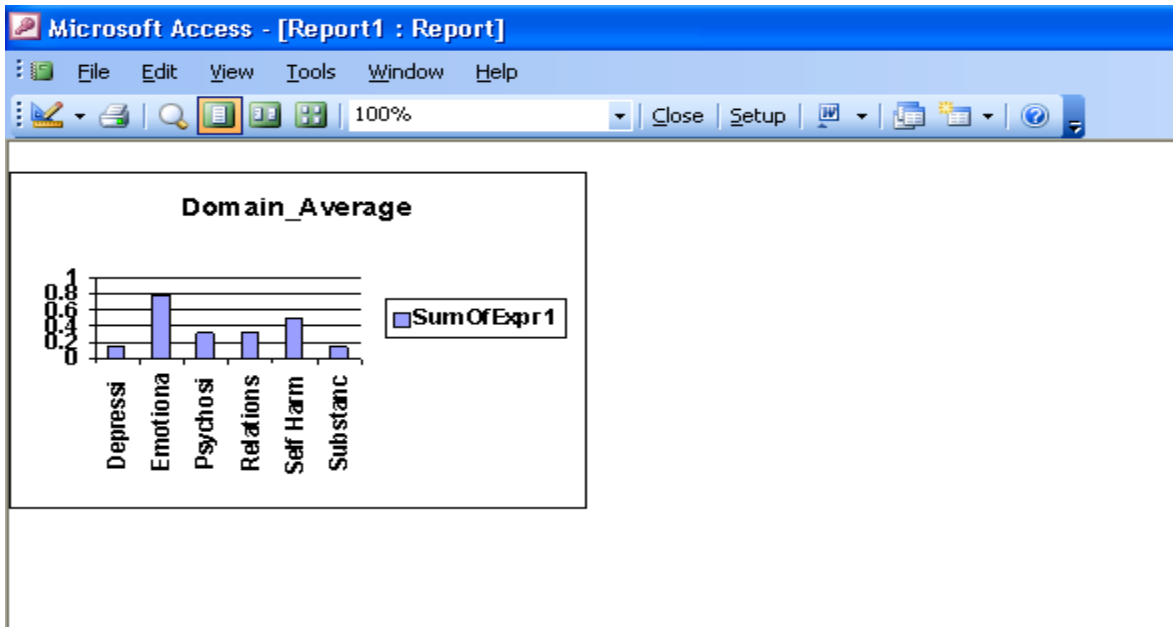
Session_ID	Client_ID	Session_Date
(AutoNumber)		

At the bottom of the form, there are record navigation controls for both tables, showing 'Record: 1 of 1'.

## 2. The Various tables and their relationships:



3. A Report in a graph form:





## Appendix 3A

### Benefits of a Microsoft Access database:

1. Duplicate data is minimized
2. Information is more accurate
3. Data entry is faster and easier
4. Information can be viewed and sorted in multiple ways
5. Information is more secure
6. Information can be share among several users
7. Information retrieval is faster and easier

Resource: Microsoft Office Access 2003 by Lisa Friedrichsen, Getting Started with Access 2003, A-2

### Database terminology

Example of a table

Student ID	First Name	Last Name	Year
1	Jon	Walker	Freshman
2	Jack	McKinsey	Senior
3	Shaun	Black	Senior

Example of a field: consists of a specific category of data

Student ID	First Name	Last Name	Year
1	Jon	Walker	Freshman
2	Jack	McKinsey	Senior
3	Shaun	Black	Senior

Example of a record: a row of a table

Student ID	First Name	Last Name	Year
1	Jon	Walker	Freshman
2	Jack	McKinsey	Senior
3	Shaun	Black	Senior

Example of a key field: unique for each record

Student ID	First Name	Last Name	Year
1	Jon	Walker	Freshman
2	Jack	McKinsey	Senior
3	Shaun	Black	Senior

Database: collection of tables associated with a general topic

Example of a relational database: two or more tables are linked by a common field

Student ID	First Name	Last Name	Year
1	Jon	Walker	Freshman
2	Jack	McKinsey	Senior
3	Shaun	Black	Senior

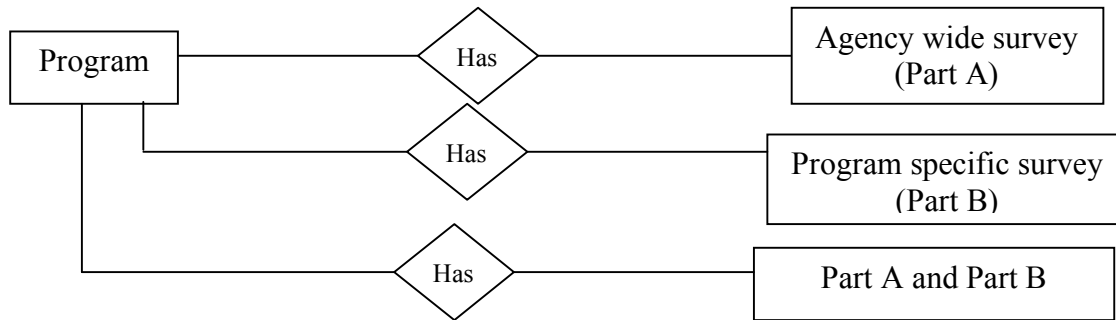
High School ID	Student ID	Location
1	3	New Jersey
2	1	Pennsylvania
3	2	California

### **Main functions of Microsoft Access**

1. **Table:** contains all of the raw data within the dataset in a spreadsheet-like view; tables are linked with a common field to minimize data redundancy
  2. **Queries:** provides a spreadsheet-like view of the data similar to tables, but allows the user to select a subset of fields or records from one or more tables; queries are created when a user has a question about the data in the database
  3. **Form:** provides an easy-to-use data entry screen which often shows only one record at a time
  4. **Report:** provides a professional printout of data that may contain enhancements such as headers, footers, graphics, and calculations on groups of records
  5. **Page:** creates dynamic Web pages that interact with an Access database; also called Data Access Page
  6. **Macro:** stores a set of keystrokes or commands, such as the commands to display a particular toolbar when a form opens
  7. **Modules:** stores Visual Basic for Applications programming code that extends the functions and automated processes of Access
- Resource: Microsoft Office Access 2003 by Lisa Friedrichsen, Getting Started with Access 2003, A-4

## Appendix 3B

### Entity Relational Diagram of the Customer Satisfaction Survey



Each program has either 1) Part A 2) Part B or 3) Part A and Part B as their survey. There are many different templates of Part B but only one Part A.

## Appendix 3C

### Identify the primary key and attributes of each entity

Program (Program ID, Program name, Department Name, Location, Service, Part A, Part B)

Part A (Survey A ID, Program ID, question fields...)

There are 29 different types of part Bs. There are two types of part Bs: 1) Part B is the program's only survey or 2) The program uses part A and also a version of part B.

Each template of part B will get its own table.

Part B independent (Survey B ID, Program ID, question fields...)

Part B dependent (Survey A ID, Program ID, question fields...)

Part B independent: program only has a version of part B as its survey

Part B dependent: program has both part A and a version of part B as its survey

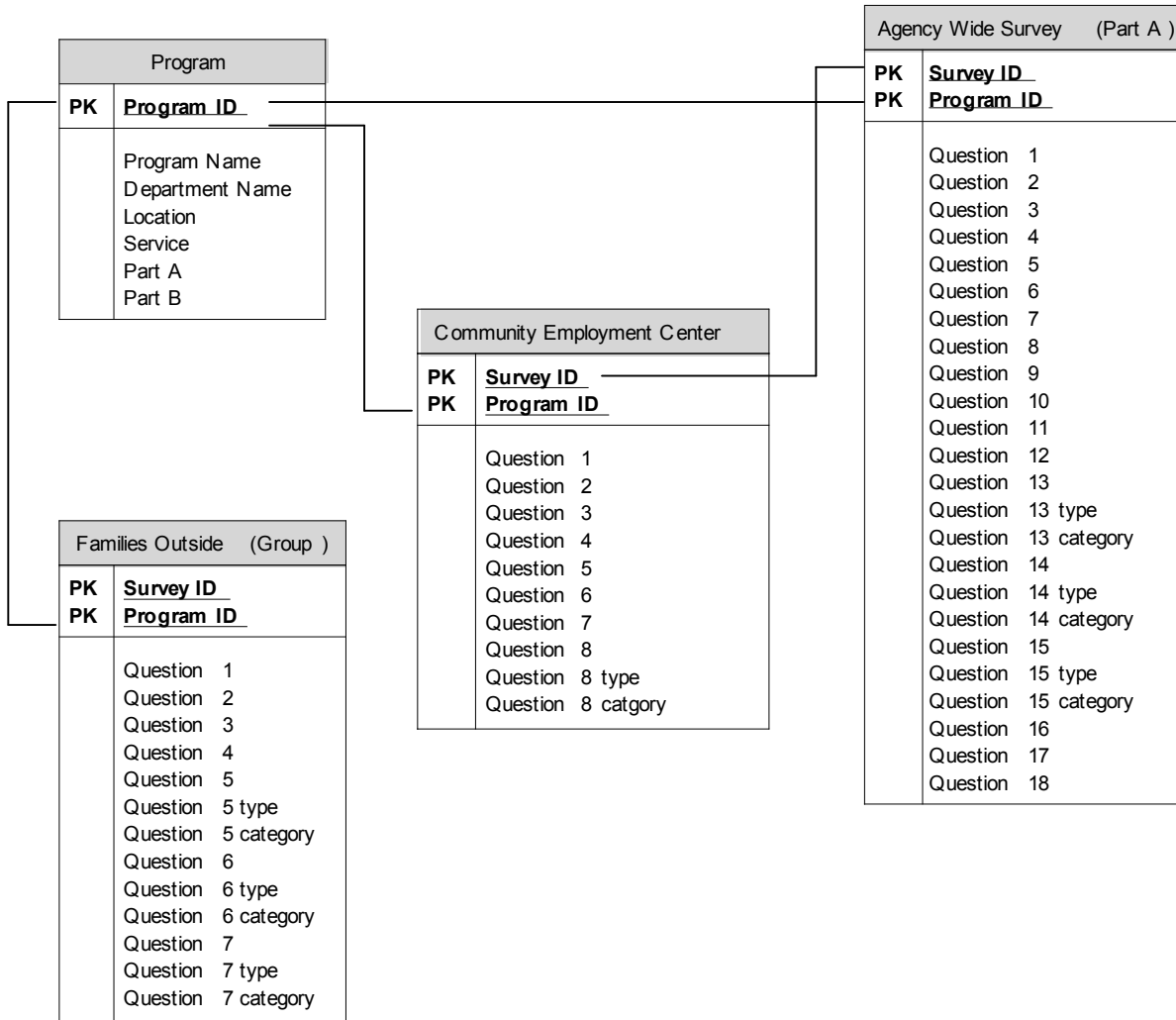
## Appendix 3D

### Tables and their relationships

Below, only program table, part A table, one of the “part B dependent” table, and one of the “part B independent” table is drawn out.

Families Outside (group) survey is taken as the part B independent survey example.

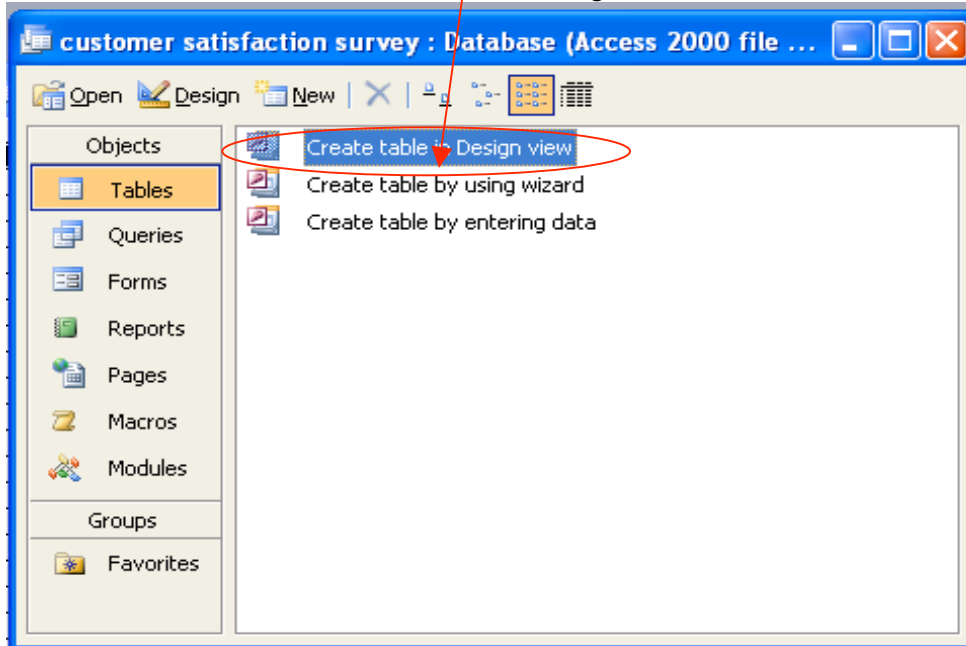
Community Employment Center survey is taken as the part B dependent survey example.



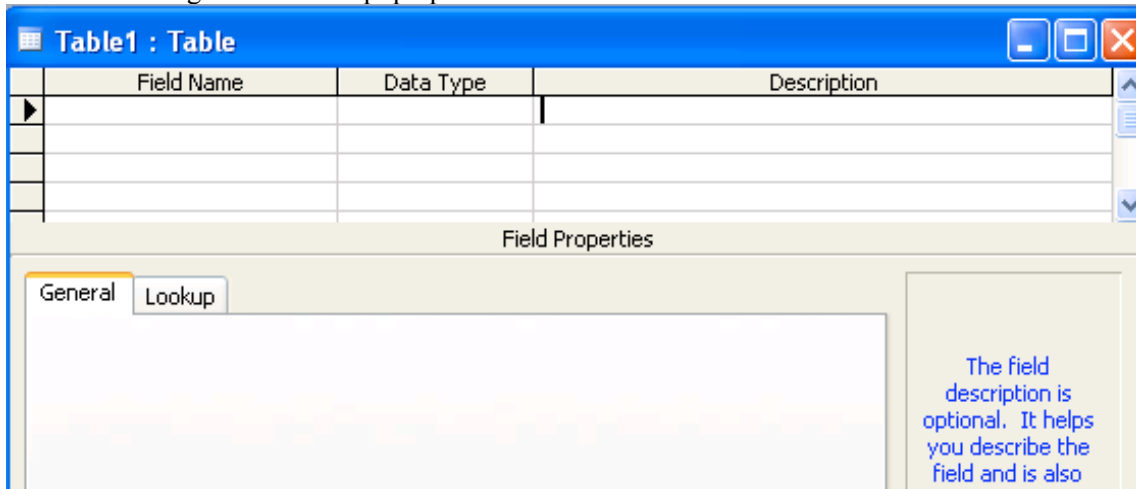
## Appendix 3E

### Database and table creation

1. To create a database, open Microsoft Access.
2. Click on “File”, “new” and select to create a new database. Let’s call it “Customer Satisfaction Survey”.
3. To create a table, click on “Create table in Design view”.



4. The following window will pop up.

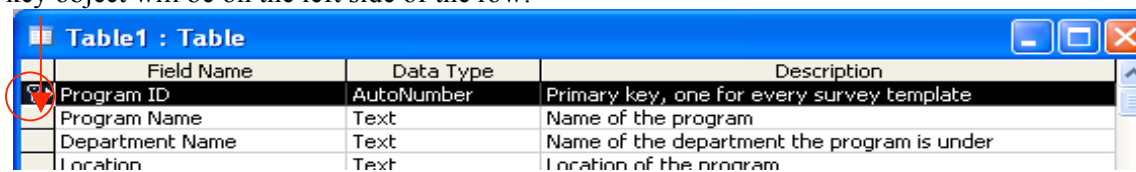


5. Let's create the Programs table. Enter into "Field Name" the names of the attribute of the Programs table and in "Data Type", select the appropriate type.

6. This is a screen shot of the Programs table with all attributes entered.

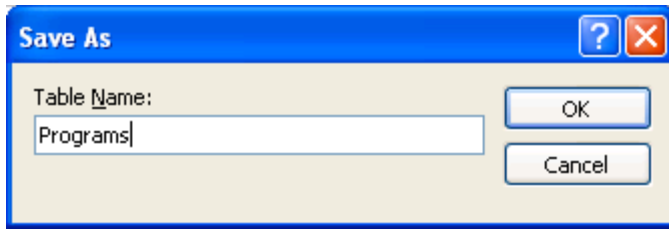
Field Name	Data Type	Description
Program ID	AutoNumber	Primary key, one for every survey template
Program Name	Text	Name of the program
Department Name	Text	Name of the department the program is under
Location	Text	Location of the program
Service	Text	Type of service
Agency wide survey (part A)	Yes/No	If this program has part A
Program specific survey (part B)	Yes/No	If this program has part B
Part B version	Text	If yes, what's the version of part B?

7. We want to set the "Program ID" field as the primary key for the Programs table. Highlight the "Program ID" row and right click. A list of options will appear, click on "Primary key". A key object will be on the left side of the row.

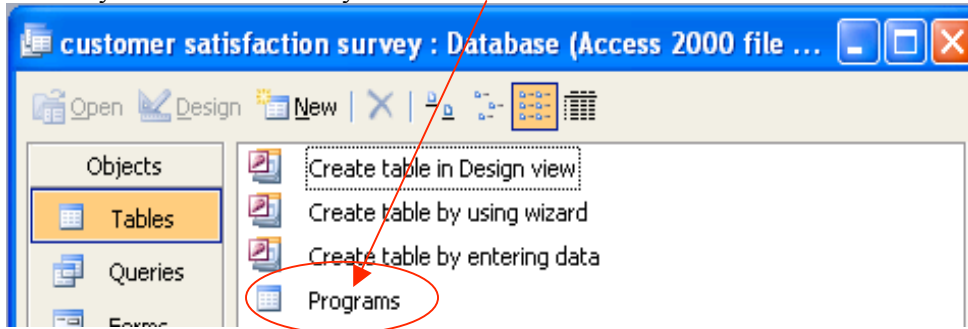


To make multiple attributes into primary keys, you have to highlight them all at once and right click and select "Primary key" from the menu that pops up.

8. Click on "File" → "Save" and the following window will pop up. Type "Programs" into the "Table Name:" field and click "OK".



9. Now you have successfully created a table!

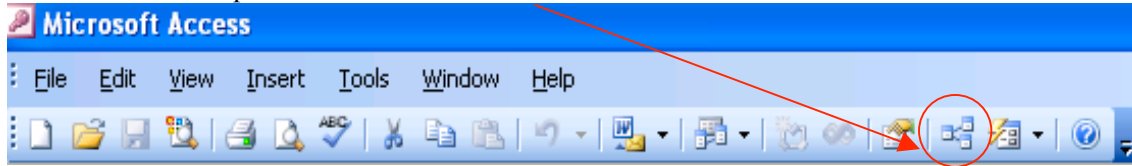




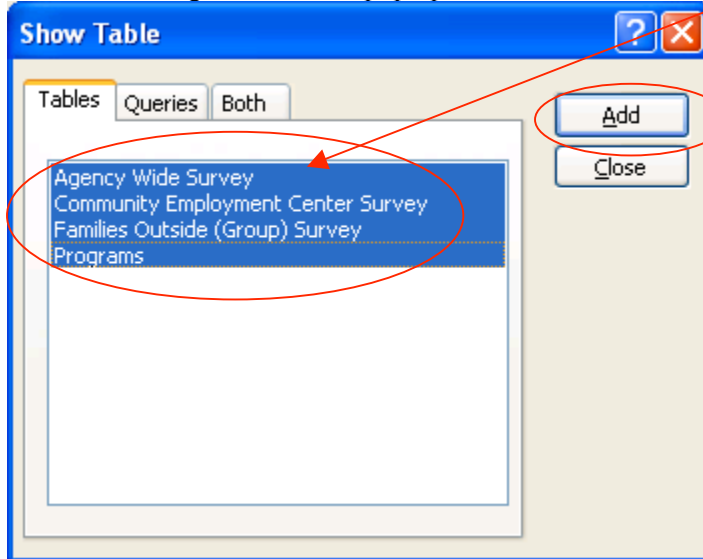
## Appendix 3F

### Creating relationships between the tables

1. After creating all the tables, we can then define the relationship between the tables and its fields. Click on the “Relationship” button

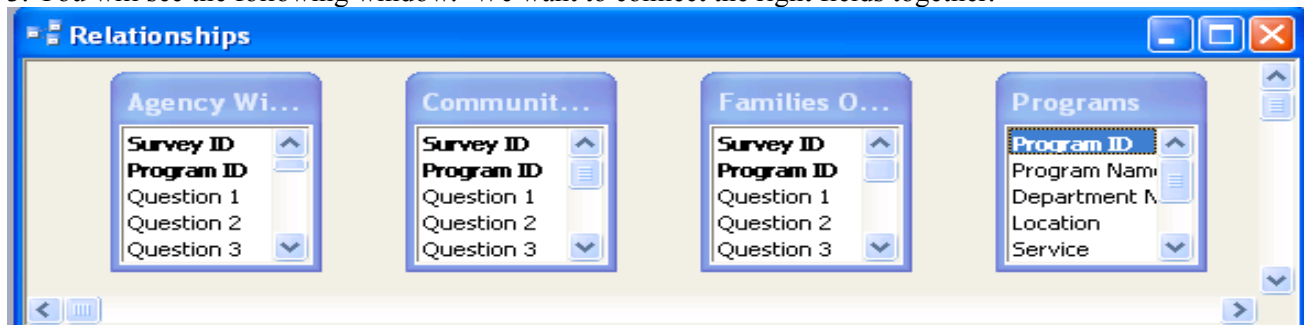


2. The following window will pop up. We want to select all the tables and click “Add”.

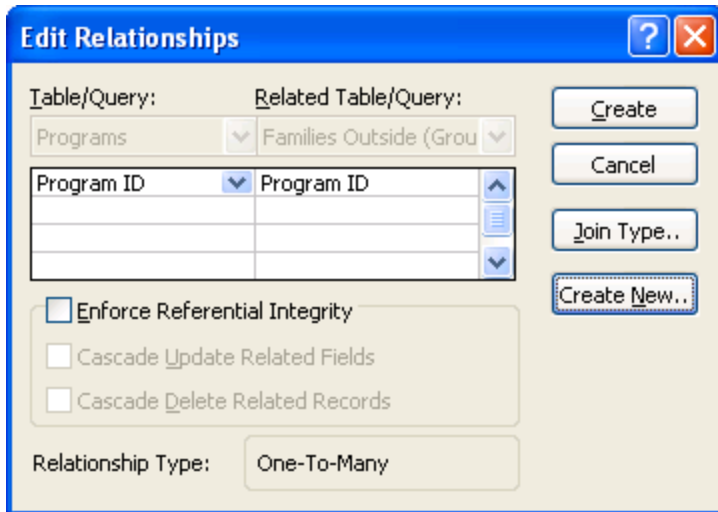


Then click “Close” to close the “Show Table” window.

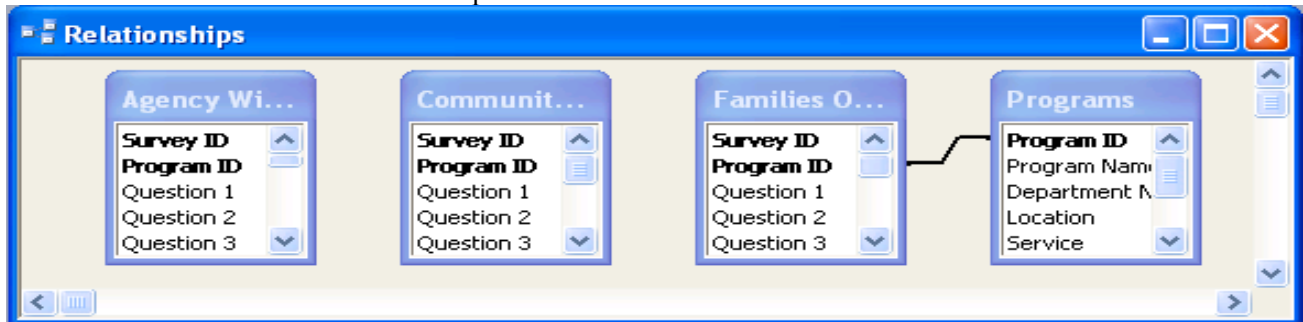
3. You will see the following window. We want to connect the right fields together.



4. Click on the “Program ID” field in the Programs table and keep your mouse button down. Drag it onto the “Program ID” field in the Families Outside table. You will see the following window pop up. Click “Create”.



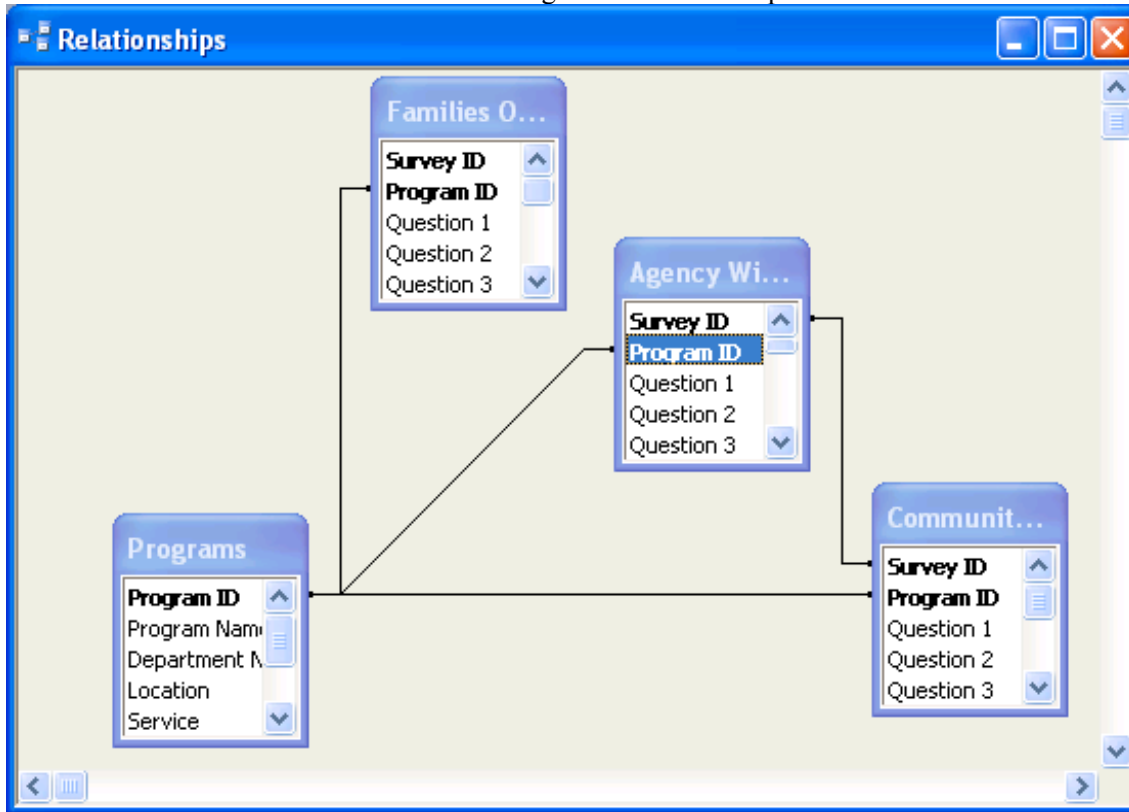
5. Now we have defined one relationship.



Do the same thing with:

- "Program ID" field from Programs table and "Program ID" field from Agency Wide Survey table
- "Program ID" field from Programs table and "Program ID" field from Community Employment Survey table
- "Survey ID" field from Agency Wide Survey table and "Survey ID" field from Community Employment Survey

This is how the window will look after making all the relationships.

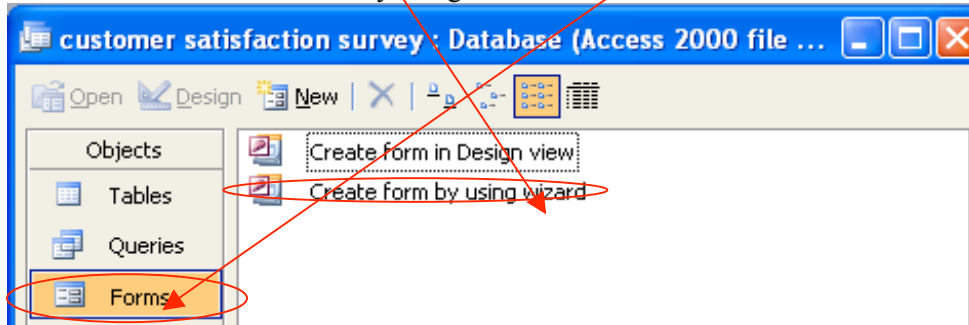


6. Save the relationships.

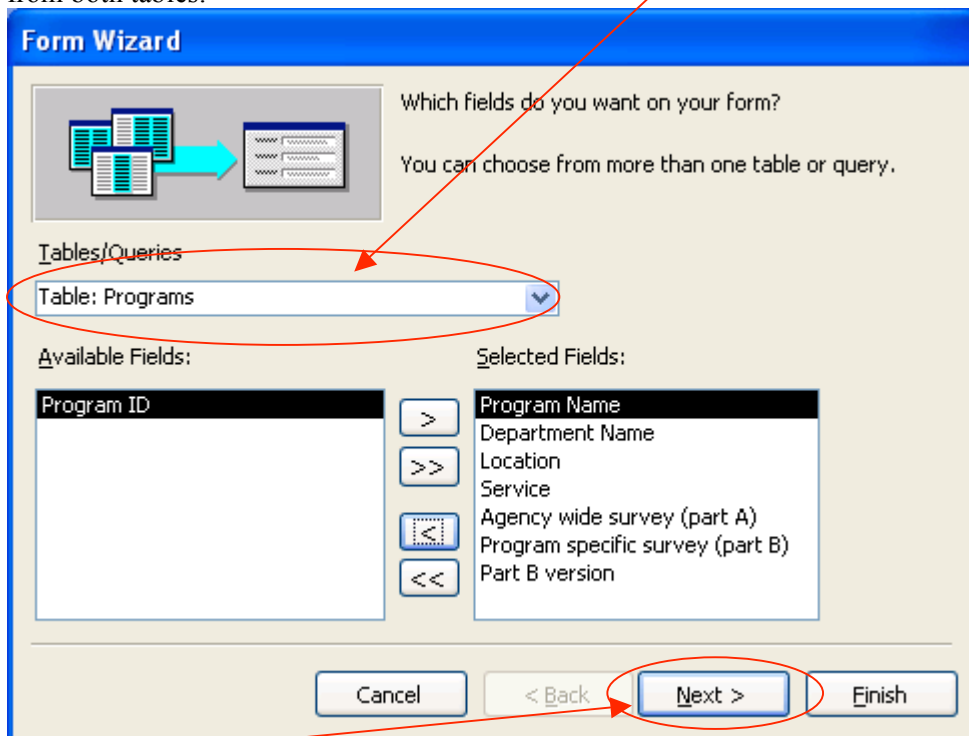
## Appendix 3G

### Simple Form Creation

1. Let's create a form for Programs. Click on the "Forms" button on the left to change functionalities. Double click on "Create form by using wizard".



2. Now we want to select all the fields that we need to manually enter data into and add it to the form. Remember, the Community Employment Survey consists of the agency wide survey and also a version of the program specific survey. We want to include all fields except for "Program ID" and "Survey ID" from both tables.



Click "Next".

3. Select "Columnar" and click "Next". Select "Standard". Click "Next".

4. Enter the name of the form (Programs) and click “Finish”.

Form Wizard

What title do you want for your form?

Program

That's all the information the wizard needs to create your form.

Do you want to open the form or modify the form's design?

Open the form to view or enter information.

Modify the form's design.

Display Help on working with the form?

Cancel < Back Next > Finish

5. Now let's open the form we created in Design View. We can then change the sizes and text of objects, and also add and delete objects. The finished “Programs” forum.

Programs

Family Services Western Pennsylvania

Program Name

Department Name

Location

Service

Agency wide survey

Program specific survey

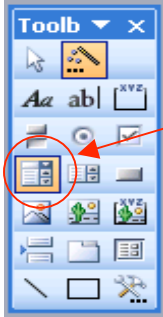
Part B version

Record: 1 of 1

## Appendix 3H

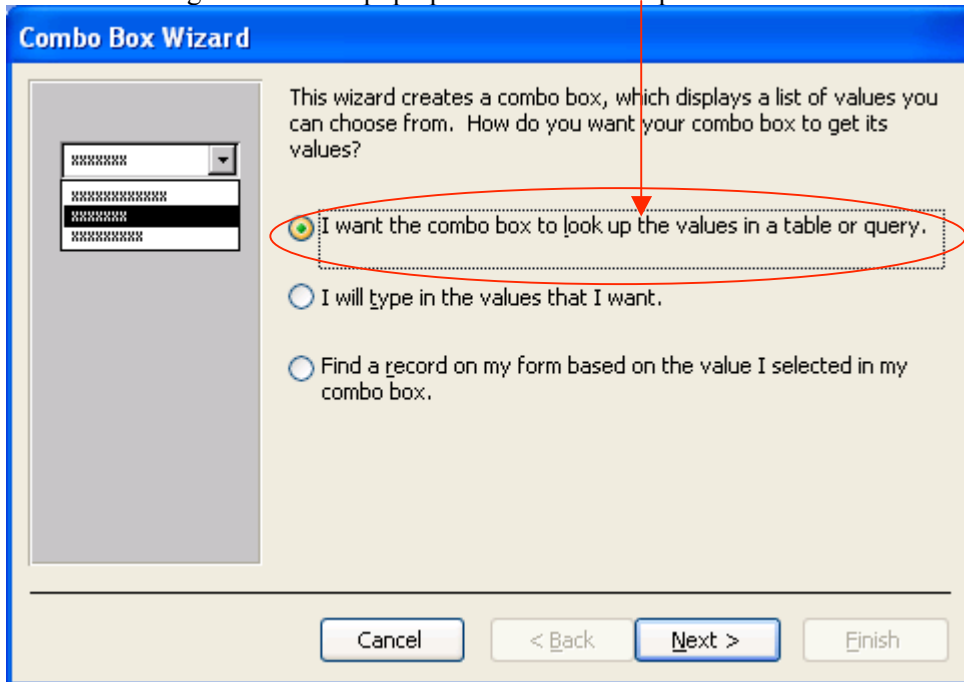
### Advanced Forum Creation – Combo box that reads input from tables

1. Within the Design View of a form, click on the “Combo Box” button.

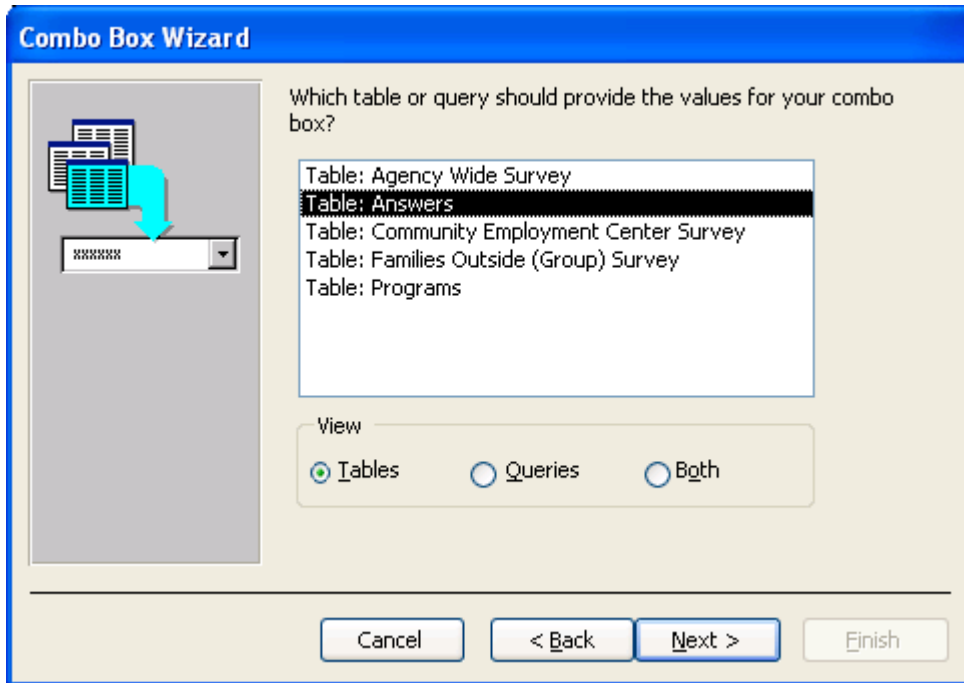


2. Select a location and size for the Combo Box on the form.

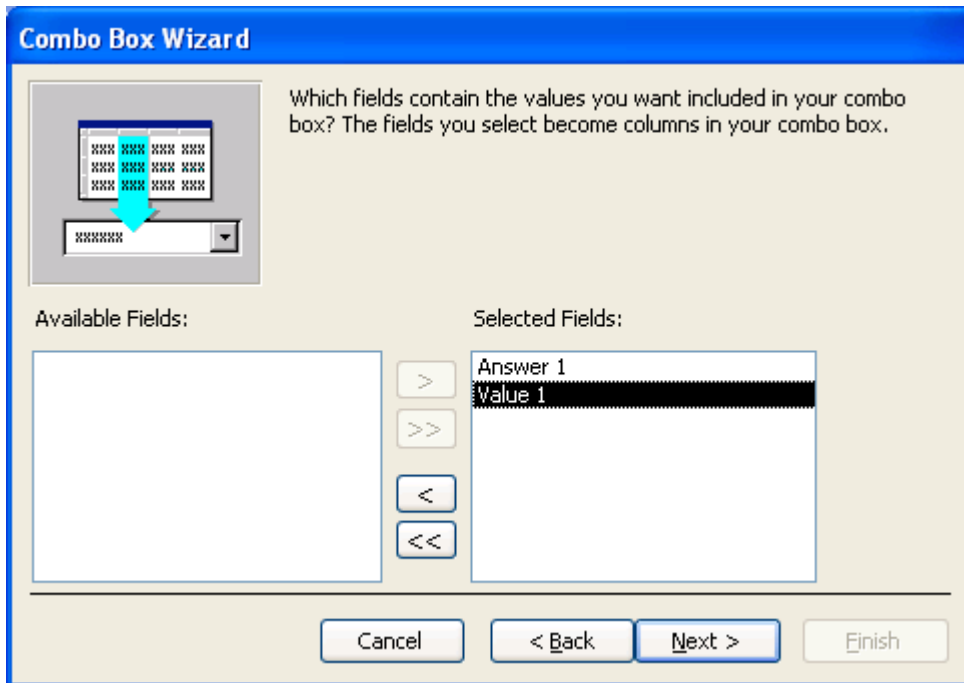
3. The following window will pop up. Select the first option and click “Next”.



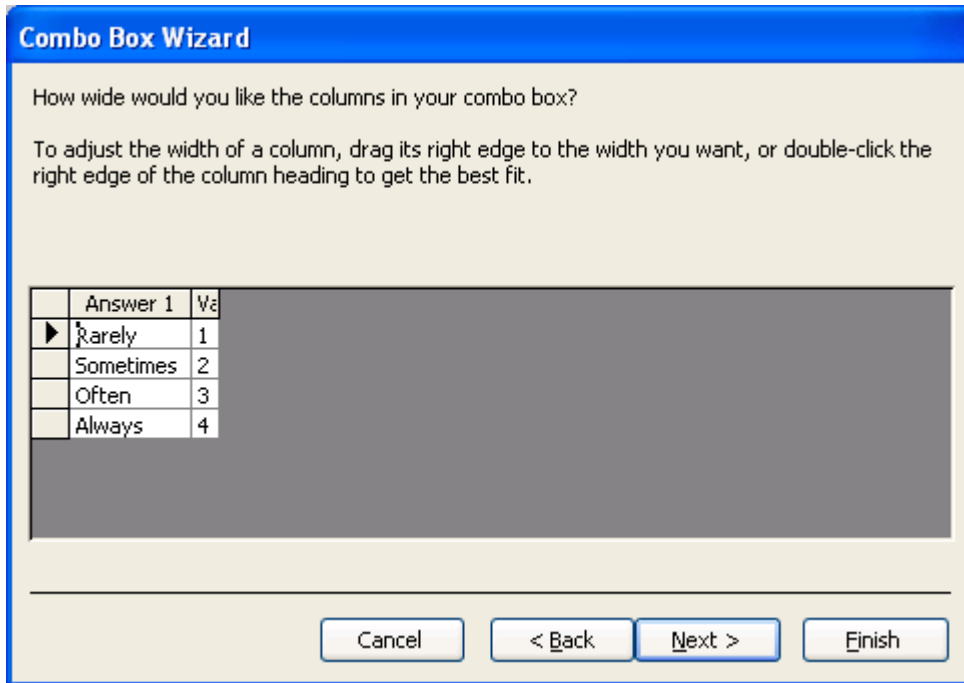
4. Click on the correct table source, in this case, it's “Answer”. Click “Next”.



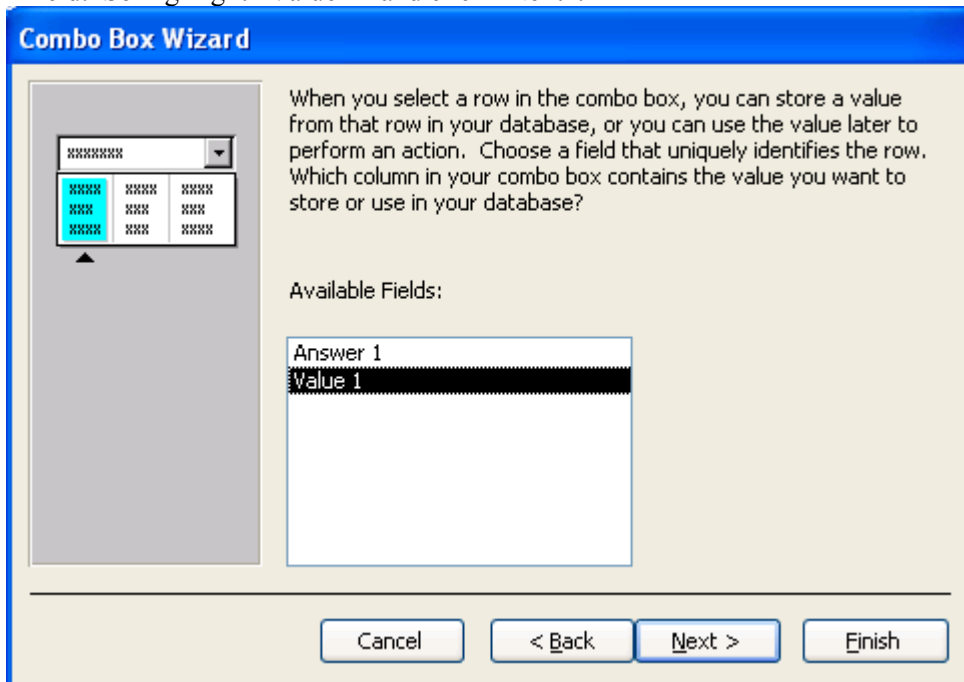
5. Add “Answer 1” and “Value 1” to the “Selected Fields” side and click “Next”.



6. Now you can adjust the width of the columns. After all adjustments, click “Next”.

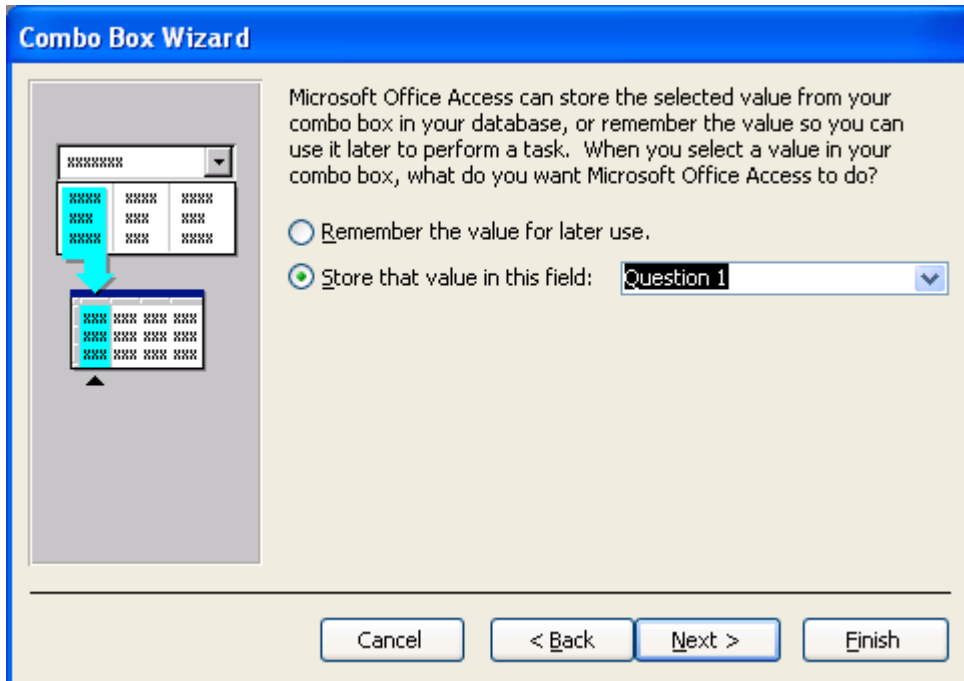


7. We want to store the information in “Value 1” into Community Employment Center Survey’s question 1 field. So highlight “Value 1” and click “Next”.

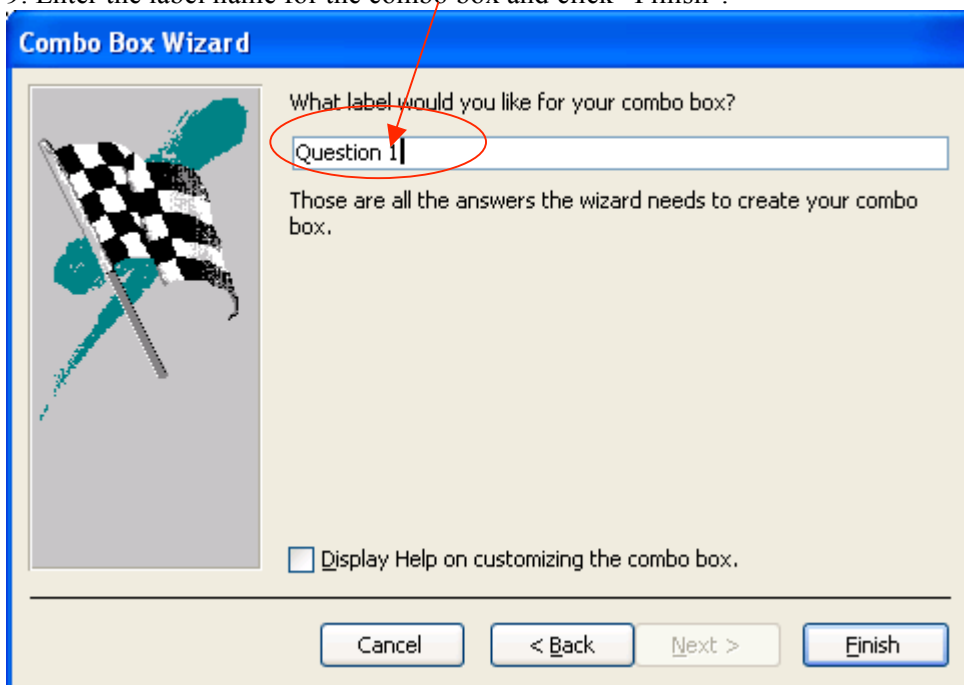


8. Choose the “Store that value in this field:” option and select “Question 1”. Click “Next”.





9. Enter the label name for the combo box and click “Finish”.



10. This is how the finished combo box looks.

Families Outside (Group) Survey

### Community Employment Center

Question 1

Rarely	1
Sometimes	2
Often	3
Always	4

Question 5

Record: 1 of 1

## **Appendix 3I**

### **Access 2000 tutorials**

<http://www.teachers.ash.org.au/jfuller/access/access2000.htm>

<http://www.bcschools.net/staff/AccessHelp.htm>

<http://cimic3.rutgers.edu/~holowcza/classes/baruch/2200/access/accessall.html>

<http://www.fgcu.edu/support/office2000/access/>

<http://www.microsoft.com/learning/mcp/officespecialist/objectives/access2000.asp>

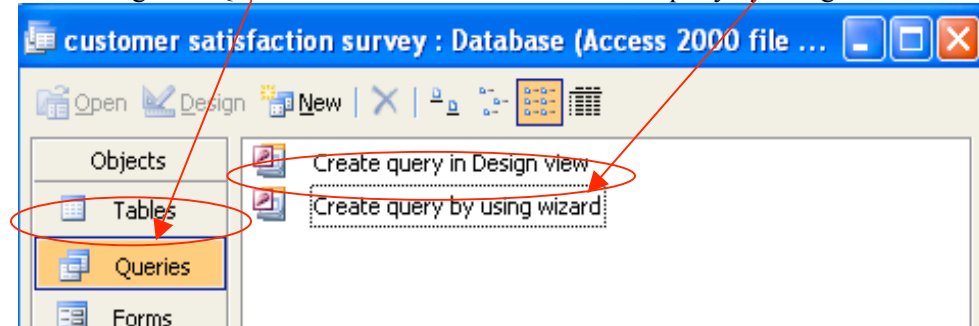
[http://fisher.osu.edu/~muhanna\\_1/837/MSAccess/tutorials.html](http://fisher.osu.edu/~muhanna_1/837/MSAccess/tutorials.html)

## Appendix 3-J

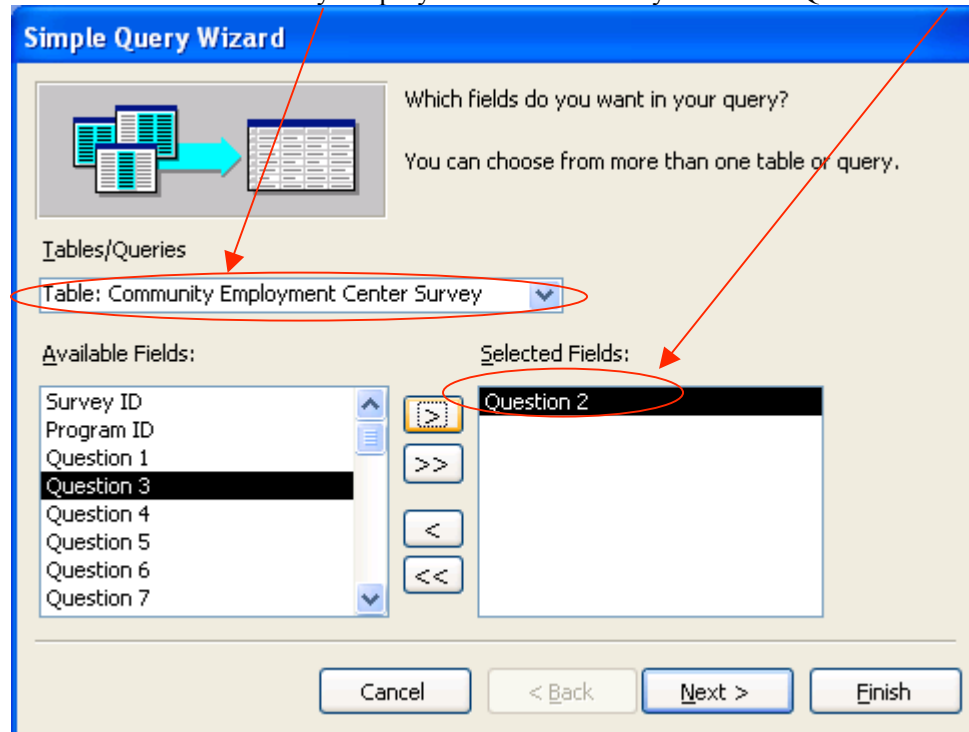
### Creating queries

1. Let's say we want to find out the min, max, and average of question 2 of the Customer Satisfaction Specific Survey.

Let's first go to "Queries" and double-click on "Create query by using wizard".



2. Choose the "Community Employment Center Survey" and add "Question 2"



3. Click “Next”. Then choose “Summary” and then click on the “Summary options” button below and you will see the following window. We want to see the average, min, and max of question 2, so let’s check all 3 and click “OK”.

Summary Options

What summary values would you like calculated?

Field	Sum	Avg	Min	Max
Question 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Count records in Community Employment Center Survey

OK

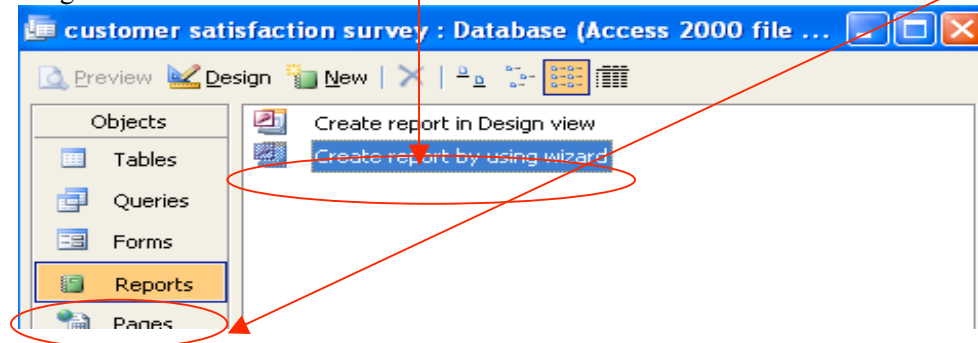
Cancel

4. Click “Next” and “Finish” and you will see the summary table!

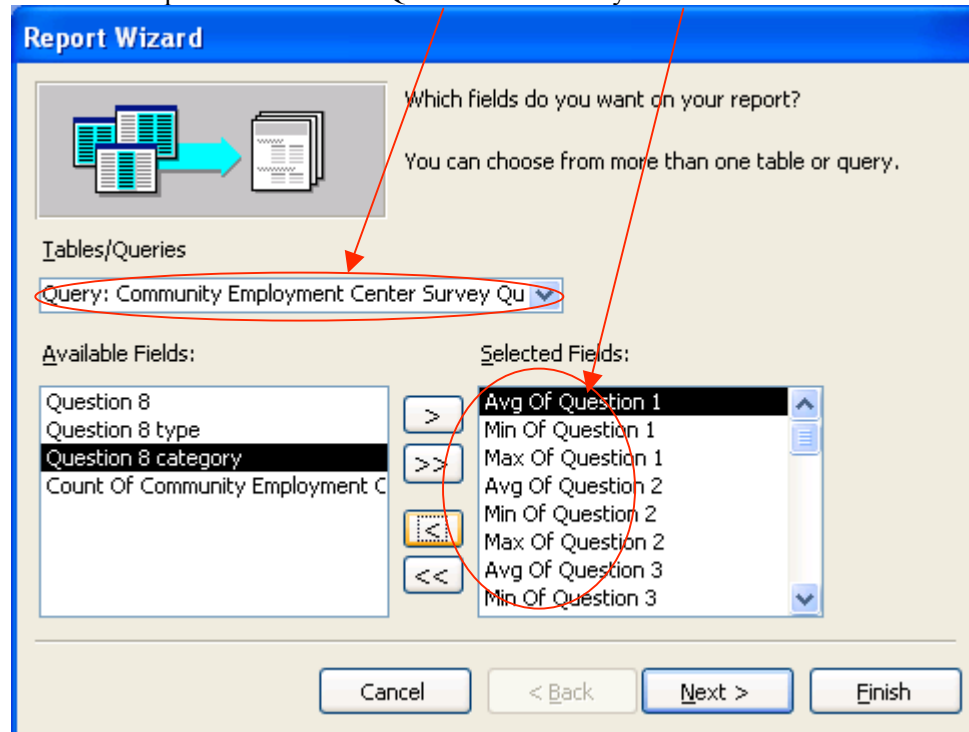
## Appendix 3K

### Report creation and generation

1. Let's say we want to see the min, max, and average of questions 1 to 7 of the Community Employment Center Specific Survey. Let's first go to the "Reports" section and double click on "Create report by using wizard"

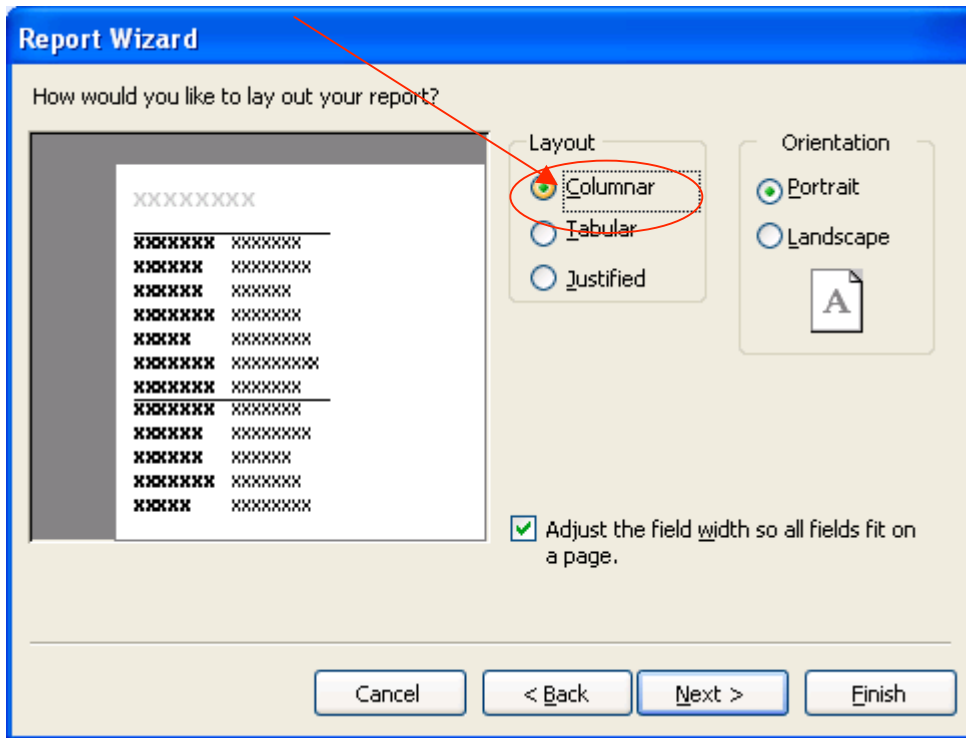


2. Let's add question 1-7 of the Queries:CEC survey into "Selected Fields"



3. Click "Next" three times.

4. Choose the "Columnar" option and click "Next".



5. Click “Next” and “Finish”. This is the finish report.

## Community Employment Center

<b>Avg Of Question 1</b>	<input type="text"/>
<b>Min Of Question 1</b>	<input type="text"/>
<b>Max Of Question 1</b>	<input type="text"/>
<b>Avg Of Question 2</b>	<input type="text"/>
<b>Min Of Question 2</b>	<input type="text"/>
<b>Max Of Question 2</b>	<input type="text"/>
<b>Avg Of Question 3</b>	<input type="text"/>

## Appendix 4A – Example Questionnaire

### 1. General Information

Center/Company/Facility Name: \_\_\_\_\_

Position Description (e.g. therapist, project manager) \_\_\_\_\_

### 2. Online Services

Do you use the Internet by yourself, without help, at either work or home?

- a. Yes
- b. No

How long have you been using the Internet?

- c. Less than 6 months
- d. 1 year
- e. 2 years
- f. More than 2 years

How often do you use the Internet, not including email, either at work or at home?

- a. Less than one hour/week
- b. About 2 hours/week
- c. About 3 hours/week
- d. More than 3 hours/week

On a scale of 1 to 5, with 1 being the least comfortable and 5 being the most comfortable, how comfortable and familiar are you using the Internet, including such things as links, site addresses, or search engines?

1 \_\_\_\_ 2 \_\_\_\_ 3 \_\_\_\_ 4 \_\_\_\_ 5 \_\_\_\_

### 3. Standard desktop application:

	MS Word	PowerPoint	MS Excel	MS Access
How long have you been using one or more of these applications? Please enter a response for each application. a. One year b. Two years c. Three years d. More than 4 years				
When was the last time you used the application? Please enter a response for each application. a. Today b. This week c. This month				



d. A few months back				
How familiar are you with what the applications do or are capable of doing? Please enter a response for each application. a. Very familiar b. Somewhat familiar c. Not familiar at all				
Which application(s) do you use the most? You may tick more than 1 application.				
Which application(s) do you have problems with most often? You may tick more than 1 application.				

**4. Network:** local and remote servers for data retrieval, storage, backup etc.

How long have you been using one or more of these services?

- a. One year
- b. Two years
- c. Three years
- d. More than 4 years

When was the last time you used one of these services?

- a. Today
- b. This week
- c. This month
- d. A few months back

How familiar are you with what the applications do or are capable of doing?

- a. Very familiar
- b. Somewhat familiar
- c. Not familiar at all

Do you feel you need more training on how to use these network resources?

- a. Yes
- b. No
- c. I don't know

## Appendix 4B - Resources Survey

1a. Do you use Microsoft Outlook (at least three times a week)?

yes  no

1b. If yes, do you run into problems frequently and what kind of problems do you run into?

2a. Do you use Microsoft Excel (at least three times a week)?

yes  no

2b. If yes, do you run into problems frequently and what kind of problems do you run into?

3a. Do you use Microsoft Word (at least three times a week)?

yes  no

3b. If yes, do you run into problems frequently and what kind of problems do you run into?

4a. Do you use Microsoft Access (at least three times a week)?

yes  no

4b. If yes, do you run into problems frequently and what kind of problems do you run into?

5a. Do you use QUALIFACTS (at least three times a week)?

yes  no

5b. If yes, do you run into problems frequently and what kind of problems do you run into?

6a. What other programs do you use?

6b. Do you run into problems when using the above software programs? If yes, what kind of problems do you run into?