Building a Database to House Survey Results
Winona State University

- Regional mid-sized (approx. 8750 headcount enrollment) University with a predominantly traditional, residential undergraduate student body.

- A campus in Rochester comprised mostly of transfer and graduate students.
Show of Hands

• Annually send students some kind of background survey? Use student surveys to conduct course or instructor assessments?

• Reporting results to staff and faculty quickly after surveys are conducted is a challenge?

• Have a desire to tie survey results to your Student Information System?

• Wish it was easier to do longitudinal comparisons across surveys?
Original attempt at creating a system for assessment goes back to 1999.

– Got a grant, hired some consultants, and came up with a working solution after several attempts.

– Survey tool was limited in capability.

– Complex and time-consuming to manage.

… And then the person managing it left.

Please indicate which of the following contacts you had with WSU Admissions before you enrolled: (Choose as many as you remember)

<table>
<thead>
<tr>
<th>Received information in the mail</th>
<th>576 - 77%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emailed questions to WSU Admissions</td>
<td>186 - 25%</td>
</tr>
<tr>
<td>Called the WSU Admissions office with questions</td>
<td>263 - 35%</td>
</tr>
<tr>
<td>Accessed Admissions website</td>
<td>357 - 48%</td>
</tr>
<tr>
<td>Made an official campus visit including Admissions tours</td>
<td>415 - 56%</td>
</tr>
<tr>
<td>Attended a WSU Open House Day</td>
<td>205 - 27%</td>
</tr>
<tr>
<td>Attended a College Fair or Career Program with WSU representation</td>
<td>137 - 18%</td>
</tr>
<tr>
<td>Had a phone conversation with a WSU Admissions Call-a-thon student</td>
<td>90 - 12%</td>
</tr>
<tr>
<td>Attended PALS Weekend</td>
<td>44 - 5%</td>
</tr>
<tr>
<td>Met with a WSU Admissions counselor at your high school</td>
<td>149 - 20%</td>
</tr>
<tr>
<td>No Response</td>
<td>0 - 0%</td>
</tr>
</tbody>
</table>
Fall 2010: Introduced SurveyDB

• Goal: Support internal surveys and external surveys.
  – Qualtrics: course evaluations, assessment day surveys, etc.
  – National Survey of Student Engagement (NSSE) results

• Goal: Use off-the-shelf tools we were familiar with - Microsoft SQL Server, Qualtrics, SharePoint, Reporting Services, and Powershell.

• Goal: Integrate with data from our Student Information System and data mart to feed “Terrific Reporting”.

• Goal: Enable a single launch page for large (multiple) survey sets.

• Goal: Get it done in time for the next Assessment day.
SURVEY DATABASES FOR IR PROS

HOW TO BUILD A DATABASE TO HOUSE SURVEY RESULTS IN 90 DAYS OR LESS

WE DID IT, SO CAN YOU

www.txt2pic.com
Freshman Survey Set, Fall 2011

We want to hear from you! Listed below are surveys that will give you the chance to weigh in on your university experience thus far. Please use the links to give us your feedback!

<table>
<thead>
<tr>
<th>Your Name</th>
<th>Survey Name</th>
<th>Survey Link</th>
<th>Survey Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benjamin Nagel</td>
<td>Fall Background Survey (finished)</td>
<td><a href="#">Take the Survey</a></td>
<td>finished</td>
</tr>
<tr>
<td>Benjamin Nagel</td>
<td>First Year Student Athletic Survey</td>
<td><a href="#">Take the Survey</a></td>
<td></td>
</tr>
<tr>
<td>Benjamin Nagel</td>
<td>New Student Orientation Survey</td>
<td><a href="#">Take the Survey</a></td>
<td>not started</td>
</tr>
</tbody>
</table>
Completion Reporting

Survey Completion Reporting
Reports that track survey completion for large survey efforts like Assessment Day.

Reports:

- **Fall Freshman Surveys, Completion by Orientation Section**
  Survey completion information for each section of OR100 (Introduction to Higher Education) for the current term.

- **Survey Completion by Module**
  Survey completion rates for large survey efforts like Assessment Day or the Fall Freshman survey set. Broken out by

- **Survey Completion Detail by Course**
  Survey completion rates and individual student completion information for large survey efforts like Assessment Day

- **Assessment Day Survey Completion by College, Dept, and Major**
  Survey completion rates for Assessment Day by college, department, and major.

- **Assessment Day Survey Completion by Residence Hall**
  Survey completion rates for Assessment Day by student residence hall.

- **Assessment Day Survey Completion Summary by Course**
  Survey completion rates for Assessment Day by MnSCU Course ID or WSU course number.
# Completion Reporting

## Survey Completion by Module

<table>
<thead>
<tr>
<th>Module</th>
<th>Complete</th>
<th>Pct</th>
<th>Not Complete</th>
<th>Pct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are You Connected to the Winona Community?</td>
<td>420</td>
<td>40%</td>
<td>631</td>
<td>60%</td>
</tr>
<tr>
<td>Art Major Survey</td>
<td>63</td>
<td>45%</td>
<td>78</td>
<td>55%</td>
</tr>
<tr>
<td>Biology Majors Assessment</td>
<td>346</td>
<td>58%</td>
<td>246</td>
<td>42%</td>
</tr>
<tr>
<td>Counseling &amp; Wellness Services</td>
<td>431</td>
<td>41%</td>
<td>613</td>
<td>59%</td>
</tr>
<tr>
<td>Digital Life &amp; Learning (DLL)</td>
<td>454</td>
<td>44%</td>
<td>589</td>
<td>56%</td>
</tr>
<tr>
<td>Engineering Feedback Survey</td>
<td>76</td>
<td>50%</td>
<td>75</td>
<td>50%</td>
</tr>
<tr>
<td>Music Major/Minor Survey</td>
<td>77</td>
<td>64%</td>
<td>44</td>
<td>36%</td>
</tr>
<tr>
<td>Nursing Students</td>
<td>333</td>
<td>41%</td>
<td>478</td>
<td>59%</td>
</tr>
<tr>
<td>Orientation Course Survey</td>
<td>394</td>
<td>45%</td>
<td>477</td>
<td>55%</td>
</tr>
<tr>
<td>Paralegal Program Assessment</td>
<td>24</td>
<td>42%</td>
<td>33</td>
<td>58%</td>
</tr>
<tr>
<td>Parking Services</td>
<td>396</td>
<td>38%</td>
<td>649</td>
<td>62%</td>
</tr>
<tr>
<td>Satisfaction with Library Services and Collections</td>
<td>412</td>
<td>39%</td>
<td>639</td>
<td>61%</td>
</tr>
<tr>
<td>Security</td>
<td>434</td>
<td>42%</td>
<td>611</td>
<td>58%</td>
</tr>
<tr>
<td>Shuttle Services &amp; Public Transportation</td>
<td>415</td>
<td>40%</td>
<td>630</td>
<td>60%</td>
</tr>
</tbody>
</table>
function Get-QualtricsSurvey {
    # CmdletBinding()
    param {
        [parameter(Mandatory=$true)] [String]$QualtricsWSServerID,
        [parameter(Mandatory=$true)] [String]$QualtricsWSUserName,
        [parameter(Mandatory=$true)] [String]$QualtricsWSPassword,
        [parameter(Mandatory=$true)] [String]$SurveyID
    }
}

**SurveyDB**

**DataMart**

**Scripts**

---

**Fall Freshman Survey Completion by Section, Fall 2011**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Instructor</th>
<th>Enrollment</th>
<th>Surveys Complete</th>
<th>Percent Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR220 - 20</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>CR220 - 26</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 29</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 27</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 23</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 24</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 25</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 26</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>CR220 - 27</td>
<td>Introduction to Higher Ed.</td>
<td>Harker, Z.</td>
<td>20</td>
<td>11</td>
<td>55%</td>
</tr>
</tbody>
</table>

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**Freshman Survey Set, Fall 2011**

We want to hear from you!
Listed below are surveys that will give you the chance to weigh in on your university experience thus far. Please use the links to give us your feedback!

- **Survey Name**: Your Name
- **Survey Link**: [Survey Link]
- **Survey Status**: Not started, not started
SurveyInstance vs. Survey

Think of a **SurveyInstance** as the delivery of a **set of questions** to a **group of participants** on a **given occasion**.

Instance 1: Opinion survey given to new incoming freshman the 10\textsuperscript{th} day after courses begin.

Instance 2: Same questions asked of those same people right after finals in Fall.
Handling Changes in Questions

- Sex?
- What is your Sex?
- Are you Male or Female?
- Please indicate your gender
- Which gender do you identify as?

Even though the question may change a bit, we still want to track results over time.
Storing Multiple Choice Options

SurveyInstance
- SurveyInstanceID
- SurveyID
- SurveyInstanceDesc
- SurveyURL
- SurveyStartDate
- SurveyExpirationDate
- PopulationSize
- TermID
- ExtReference
- ExtReferenceType

SurveyInstanceQuestions
- SurveyInstanceID
- QuestionSequence
- QuestionID
- QVersion
- ExtReference
- ExtReferenceType

QuestionVersions
- QuestionID
- QVersion
- QuestionTypeID
- QuestionDisplayText
- AnalyticalQuestionText
- ResponseRequired
- WeightTotal
- EffectivityDate
- ChoiceSetID
- CVersion
- ExtReference
- ExtReferenceType

ChoiceSetVersions
- ChoiceSetID
- CVersion
- ChoiceSetName
- ChoiceSetDescription
- EffectivityDate
- ExtReference
- ExtReferenceType

ChoiceSetChoices
- ChoiceSetID
- CVersion
- ChoiceID
- ChoiceSequence

Choices
- ChoiceID
- ChoiceDisplay
- ChoiceValue
ChoiceSetVersions

• Used for True/False, Yes/No, and multiple choice questions.
• ChoiceSetVersions can be shared by different questions.
• ChoiceSetVersions may change over time.
• We want to retain the set of choices available at the time the question was asked.
Why Would the Set of Choices Change?

Question 7: Which tools did you bring with you to college?
Choices Change Over Time
Storing Survey Responses

• “A SurveyResponse represents an individual’s set of responses to a SurveyInstance.”
• It identifies the individual responding.
• Indicates the current status of the response: Not Started, Started, Finished.
• Denotes the dates and times when the survey response was started and completed.
Storing Responses to Questions

• “A QuestionResponse represents the answer to a particular version of a question within a SurveyInstance.”

• If the question is a fill-in-the-blank type, the QuestionResponse contains the answer.

• If the question is multiple choice, the QuestionResponse points to a Choices record.

• Note that a question can be tagged as “seen, but not answered”
Survey Response
Structures for Identifying Respondents

- **A Person** is an individual. Person records tie the individual back to our student information system and to SurveyResponses.
- **Panels** are pre-defined lists of people.
- **EligibleParticipants** are people who are individuals who have been invited to respond to a SurveyInstance.
Survey Relationships

• A **Survey** is a group of related SurveyInstances.

• A **SurveySet** represents a group of SurveyInstances that are part of an overall survey effort – Fall 2011 New Freshman Surveys for example.

• A **SurveySetCollection** represents a SurveySet offered over time – Assessment Day surveys from 2007 thru 2011 for example
Relating Surveys to One Another
External References
Some entities have “external reference” fields which help relate records to other systems.

The ExtReference field contains a key to the data in the external system, QID1 for example.

The ExtReferenceType identifies what object the external reference refers to: Qualtrics, SIS, etc.

Used to make integration easier.
Extensibility Via Attributes

• “Attributes” are user-defined fields that allow us to store new types of information without changing the structure of SurveyDB.

• Any entity can have attributes attached to it. The “TableName” field is used to identify the entity the attribute applies to.

• Attribute values are matched with table records via “KeyValue” fields.

• Sample uses:
  ✓ Gender of Eligible Participant.
  ✓ CourseID that Survey applies to.
How Information flows from SurveyDB to Qualtrics and Back Again
Obligatory Funny Picture
Qualtrics Web Svcs Demo

- Panels (Participants)
- Invite Links
- Responses
- Survey Definitions
- Student Info

SurveyDB

Student Information System
Qualtrics Web Svcs Demo

• Panel Upload
• Create Distribution
• Download Invitation URLs
Survey Definitions, Too…

```xml
<?xml version="1.0" encoding="UTF-8"?>
<SurveyDefinition>
    <SurveyName>Wellness Activities Participation - AIRUM</SurveyName>
    <IsActive>1</IsActive>
    <CreationDate>2011-10-02 08:43:26</CreationDate>
    <LastModifiedDate>2011-10-02 13:59:13</LastModifiedDate>
    <StartDate>2011-02-16 00:00:00</StartDate>
    <Questions>
        <Question QuestionID="QID1"/>
        <Question QuestionID="QID2"/>
        <Question QuestionID="QID3">
            <Type>MC</Type>
            <Selector>MACOL</Selector>
            <SubSelector>TX</SubSelector>
        </Question>
        <Question QuestionID="QID4"/>
        <Question QuestionID="QID5"/>
        <Question QuestionID="QID6"/>
    </Questions>
    <Blocks>
        <SurveyFlow/>
    </Blocks>
</SurveyDefinition>
```
Obligatory Humorous Quotes

“A child of five would understand this. Send someone to fetch a child of five.”
Groucho Marx

“Ending a sentence with a preposition is something up with which I will not put.”
Winston Churchill
Recap

1) Surveys in Qualtrics
2) SurveyDB to hold survey structure, participants, & results
3) PowerShell scripts for integration
4) SharePoint as a front-end for survey takers
5) SQL Server Reporting Services to report results