

Tracking Change of Major

Data Warehouse Users' Group Meeting

July 16, 2002

Presenter: Jean Lasinski, Institutional Research Analyst, Altoona

Phone: (814) 949-5035 E-mail: jxf15@psu.edu

Tracking of students who change from one major to another.

While there are several methods available to report changes of major within and across colleges, today's demonstration will focus on reporting changes only as they pertain to a single college. The method I've been using, downloads information on a monthly basis. It then uses the Unmatched Query Wizard to compare current month's file to previous month's file. If time permits, other variations on the model demonstrated can be explored.

Information is provided monthly to our College Rep in Education. The information is used to track the number of majors in the college, assess course needs for future semesters, track requirements for Entrance To Major, notify students of changing degree requirements, etc.

Separate files are then created for new and former students in the major. The end user receives three files: current students, new students and former students.

These queries were originally designed to run in Access 97, and now are running in Access 2002.

1. **Part ONE**-Creating this month's download of data.
2. **Part TWO**-Creating Unmatched Queries to review changes of major for the College of Education, Students who are NEW to the major.
3. **Part THREE**-Creating Unmatched Queries to review changes of major for the College of Education, Students who were FORMERLY in the major.
4. **Part FOUR**-A second look at the former students and their future (FA02) status, major, campus
5. **Sample Excel Spreadsheet** - Select Records and Where Are They Now.
6. **End Notes.**

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This demonstration requires the following links be established to the data warehouse:

dbo_student_bio_curr, dbo_student_bio_future, dbo_student_sem_curr,
dbo_student_sem_future

Part ONE—Creating this month's download of data

Link to Stu_Sem_Future and Stu_Bio_Future (or the corresponding current tables)

Build the query: This query was sent in SQL format prior to the meeting. Copy the query into SQL format then switch to Design View.

Define the Criteria: Campus = "AA"; College = "ED"; Status (varies by time of year) = "REG*" or "REG* and SCHED"

Create your table and run the query. I called mine "T1 Current 070802."

The SQL Code for the above query:

```
SELECT dbo_student_bio_future.numb_stud_id, dbo_student_bio_future.name_stud,
dbo_student_sem_future.code_camp, dbo_student_sem_future.code_stud_stat,
dbo_student_sem_future.code_univ_yr_sem, dbo_student_sem_future.code_stud_coll1,
dbo_student_sem_future.code_stud_majr1,
dbo_student_sem_future.code_stud_majr1_opt_mod_1,
dbo_student_sem_future.code_stud_majr_pref1,
dbo_student_sem_future.code_stud_majr_pref_opt1,
dbo_student_bio_future.code_stud_control_pool INTO [T1 Coll Ed on SemFuture
071502]
FROM dbo_student_bio_future INNER JOIN dbo_student_sem_future ON
dbo_student_bio_future.numb_stud_id = dbo_student_sem_future.numb_stud_id
WHERE (((dbo_student_sem_future.code_camp)="AA") AND
((dbo_student_sem_future.code_stud_stat) Like "REG*" Or
(dbo_student_sem_future.code_stud_stat)="SCHED") AND
((dbo_student_sem_future.code_univ_yr_sem)="200203FA") AND
((dbo_student_sem_future.code_stud_coll1)="ED"));
```

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Part TWO—Creating Unmatched Queries to review changes of major for the College of Education, Students who are NEW to the major.

Note: This query isn't saved from month to month. I find it easier to create it from scratch using the necessary tables each month.

Files needed: Files downloaded from DWH—the current download of students and the previous semester's same. The comparison file from last spring is called "Import Coll Ed on SemCurr 042202." It was created using the Part ONE query, above.

Build the Query:

Queries

New

Find Unmatched Query Wizard, then [OK]

"Which table or query contains the records you want in the query results?"

[select table from current month] then [NEXT]

"Which table or query contains the related records?"

[select table from previous month] then [NEXT]

In this example, choose the table created 042202 and imported.

"What piece of information is contained in both tables?"

[mine defaults to ss# being highlighted for both tables] or adjust if necessary and click the "<=>" button, then [NEXT]

"What fields do you want to see in your query results?"

Here you can pick and choose what fields you'd like in your output. My end user wants all of the fields from the original table, so I select ">>" then [NEXT]

"What would you like to name your query?"

[the default suggested by Access is too long and cumbersome to be useful, so I select my own names, for example, "T2 New."

And in the same screen, “Do you want to view the query results, or modify the query design?”

[SELECT Modify the Design] then [FINISH]

Note that you’ll see all of your fields in the original document plus one additional field at the end, “Numb_Stud_ID” from the table that contains the related fields (see above) and that the criteria is “Is Null.”

Change the query type from Select Query to Make a Table for the information and then run the query.

I called my Table “T2 New 071602”

Run the Query.

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[Part THREE](#)—Creating Unmatched Queries to review changes of major for the College of Education, Students who were [FORMERLY](#) in the major.

Note: Neither is this query isn't saved from month to month because it is easier to create it from scratch.

Files needed: Files downloaded from DWH—the current download of students and the previous semester's same

Build the query:

Query
 New
 Find Unmatched Query Wizard

“Which table or query contains the records you want in the query results?”

[select table from previous month] then [NEXT]

In this case, the file imported from 042202.

“Which table or query contains the related records?”

[select table from current month] then [NEXT]

Note: Be careful not to select the table of new students that you just created. I take care to avoid this by putting the six-digit date code (MMDDYY) in the names of my created tables.

Select “T1 Current 070802.”

“What piece of information is contained in both tables?”

mine correctly defaults to ss# being highlighted for both tables [SELECT] “< = >”
then [NEXT]

“What fields do you want to see in your query results?”

Here you can pick and choose what fields you'd like in your output. My end user wants all of the fields from the original table, so I select “>>” then [NEXT]

“What would you like to name your query?”

The default suggested by Access is too long and cumbersome to be useful, so I select my own names, for example, “T3 Coll ED Former MMDDYY”

“Do you want to view the query results, or modify the query design?”

[SELECT] Modify the Design then [FINISH]

Note that you’ll see all of your fields in the original document plus one additional field at the end, “Numb_Stud_ID” from the table that contains the related fields (see above) and that the criteria is “Is Null.”

Create a table for the information and then run the query.

I called my Table “T3 Former 071602.”

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Part FOUR—A second look at the former students and their future (FA02) status, major, campus

We'll be building on the file created in Part THREE of this demonstration, a further look at students who were formerly in the major.

Files needed: File created in part three of the demonstration. Mine is named "T3 Coll Ed Former 071602," and a link to dbo_student_sem_future.

Building the query:

Queries

New

Design View

Show Tables:

Select "T3 Former 070802" and dbo_student_sem_future

Select that the following fields be shown from "T3 Former 070802:"

numb_stud_id
name_stud
code_univ_yr_sem
code_camp
code_stud_stat
code_stud_coll1
code_stud_majr1

And select the following fields be shown from dbo_student_sem_future

code_univ_yr_sem
code_camp
code_stud_stat
code_stud_coll1
code_stud_majr1

There are no criteria to define at this point.

Define the Join properties

Select option 2: Show ALL records from 'T3 College Ed former 071602' and only those records from 'T3 College Ed former 071602' where the joined fields are equal. Then [OK.]

Adjust the ODBC timeout, create a table and name it, then run your query. I've called it "T4 Where are they now."

The table can then be exported to EXCEL for further manipulation.

The Excel file is named: Where are they now 070802.xls, and was sent prior to today's meeting. There are two work sheets in the workbook, one called "Data Where are they now 070802" containing the raw data, and another sheet called "Select Records" which takes a look at a few records and their changes from one semester to the next.

In Excel

To make worksheet containing the raw data easier to navigate, I changed the color of the field name to reflect the origin of the field. You can also change the field names to a more manageable length.

fields that originated in the Former file = yellow
fields from dbo_student_sem_future = cyan

Create new fields to compare like fields = pink.

Title them:
Campus Change
Status Change
College Change
Major Change

Writing the comparison argument:

In the Campus Change field, you'll want to write a simple argument to determine whether or not a change has taken place.

In M2, "=D2<>I2" where D2 is the campus from the Former table, and I2 is the campus from dbo_student_sem_future. A changed value results in the return of "TRUE."

Use the "<>" sign to determine change.

Conversely, if you want to return Campus *Same*, Status *Same*, etc., you'd want the argument to be =D2=I2 in the example above.

Provided your former (yellow) columns are in the same order as the dbo_student_sem_future (cyan) columns and the created columns (pink), you can copy the formula across the columns and down through all the records.

It's easiest to look at select records with the rows and columns transposed, which you'll see in the sheet called, "Select Records."

Going back to the raw data in the Excel file, end users can now sort, filter, make tables, make charts, etc., to suit their individual reporting needs.

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End Notes

The process used in Part FOUR can be retooled to determine where students came from prior to being enrolled in a specific college or major. However, since new students might not be contained in the warehouse tables if they are new students for the upcoming semester. To compensate for this, you might want to view the semester of admission as a field in the original file.

This process has other variations as well. You might want to start with one group of students at the beginning of the semester and follow the same group of students all the way through the semester. In that case, you'd be able to track changes on a regular basis. If I were in HHD or any other college that regularly approves early changes of assignment to UP, you'd be able to track from which campuses you received students, and how long they remained in a specific major once they moved to UP.

Finally, the process of dumping the comparisons made in Part FOUR might be do-able in Access. I have not attempted to work through this in access, as the end user of my original documents is more comfortable working from my EXCEL files. Should anyone have the procedure to write the arguments from Part FOUR in Access, please get in touch with me.

